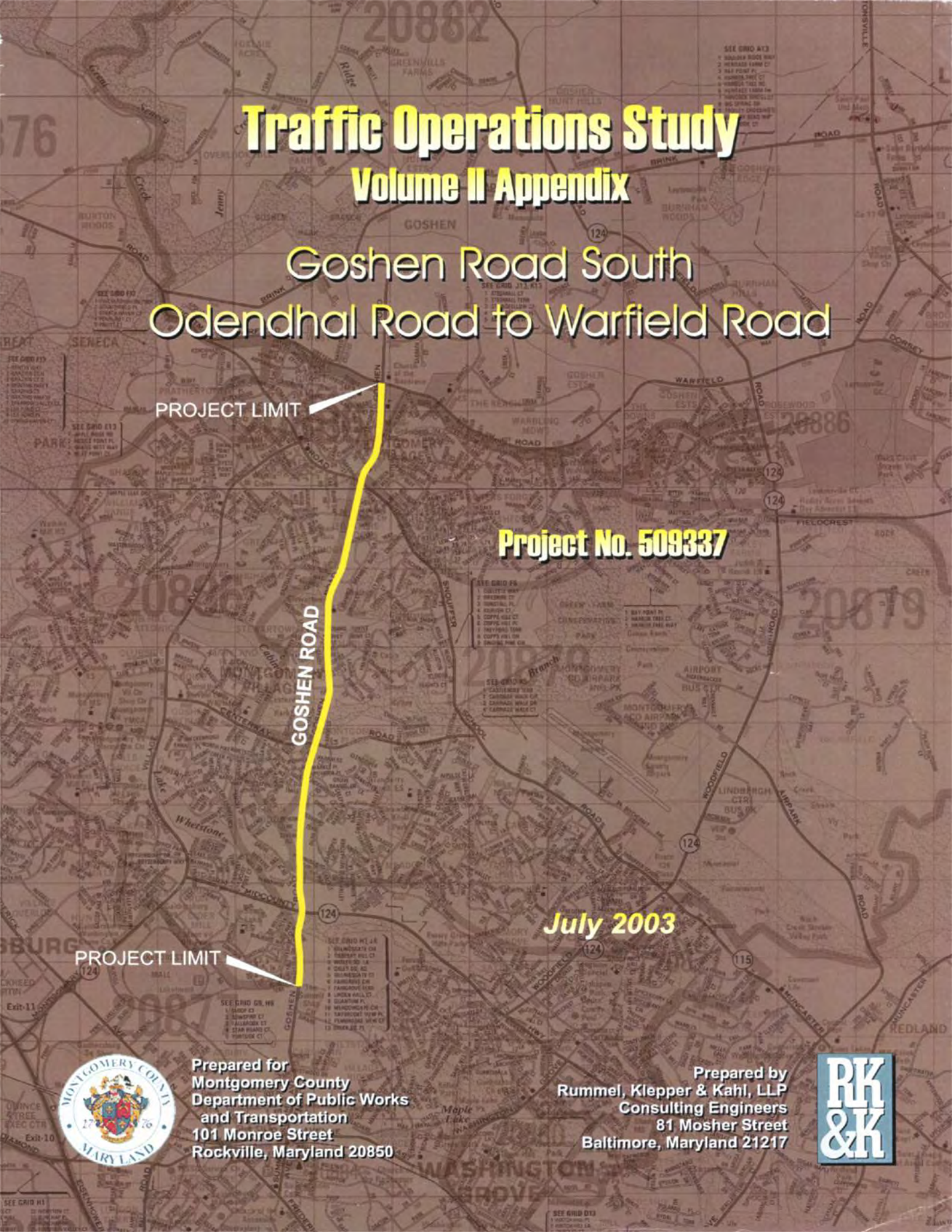
Traffic Operations Study

Volume II Appendix

Goshen Road South
Odendhal Road to Warfield Road



Project No. 509337

July 2003

Prepared for
Montgomery County
Department of Public Works
and Transportation
101 Monroe Street
Rockville, Maryland 20850

Prepared by
Rummel, Klepper & Kahl, LLP
Consulting Engineers
81 Mosher Street
Baltimore, Maryland 21217

APPENDIX A: Existing 2002 Traffic Data

Intersection Turning Movement Count Data
Mainline Automatic Tube Count Data
Travel Time Study Sheets

Intersection Turning Movement Count Data

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Odendhal Road
County: Montgomery
Weather: Clear
Counters: CM, WG

File Name : Goshen Road @ Odendhal Road
Site Code : 19973017
Start Date : 02/05/2002
Page No : 1

Groups Printed- 1 - Unshifted

	Goshen Road From North						Goshen Road From South					Odendhal Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	46	35	0	81	0	18	15	0	0	33	16	0	15	0	31	145
06:15 AM	0	67	36	0	103	0	19	21	0	0	40	16	0	19	0	35	178
06:30 AM	0	97	70	0	167	0	26	30	0	0	56	23	0	26	0	49	272
06:45 AM	0	101	132	0	233	0	33	39	0	0	72	22	0	15	0	37	342
Total	0	311	273	0	584	0	96	105	0	0	201	77	0	75	0	152	937
07:00 AM	0	118	119	0	237	0	43	54	0	0	97	23	0	32	0	55	389
07:15 AM	0	137	69	0	206	0	33	48	0	0	81	23	0	39	0	62	349
07:30 AM	0	154	90	0	244	0	45	62	0	0	107	29	0	54	0	83	434
07:45 AM	0	107	90	0	197	0	50	45	0	0	95	28	0	54	0	82	374
Total	0	516	368	0	884	0	171	209	0	0	380	103	0	179	0	282	1546
08:00 AM	0	115	108	0	223	0	36	44	0	0	80	28	0	44	0	72	375
08:15 AM	0	93	120	0	213	0	47	44	0	0	91	30	0	35	0	65	369
08:30 AM	0	122	112	0	234	0	24	52	0	0	76	26	0	39	0	65	375
08:45 AM	0	115	108	0	223	0	44	40	0	0	84	33	0	33	0	66	373
Total	0	445	448	0	893	0	151	180	0	0	331	117	0	151	0	268	1492
*** BREAK ***																	
03:00 PM	0	56	77	0	133	0	61	97	0	0	158	95	0	73	0	168	459
03:15 PM	0	57	89	0	146	0	61	95	0	0	156	100	0	50	0	150	452
03:30 PM	0	50	89	0	139	0	84	90	0	0	174	102	0	62	0	164	477
03:45 PM	0	67	88	0	155	0	73	100	0	0	173	96	0	79	0	175	503
Total	0	230	343	0	573	0	279	382	0	0	661	393	0	264	0	657	1891
04:00 PM	0	89	110	0	199	0	70	112	0	0	182	109	0	66	0	175	556
04:15 PM	0	76	91	0	167	0	62	166	0	0	228	115	0	67	0	182	577
04:30 PM	0	72	97	0	169	0	61	149	0	0	210	146	0	77	0	223	602
04:45 PM	0	67	95	0	162	0	101	152	0	0	253	105	0	64	0	169	584
Total	0	304	393	0	697	0	294	579	0	0	873	475	0	274	0	749	2319
05:00 PM	0	55	112	0	167	0	104	144	0	0	248	109	0	78	0	187	602
05:15 PM	0	78	107	0	185	0	120	174	0	0	294	147	0	82	0	229	708
05:30 PM	0	85	114	0	199	0	87	159	0	0	246	142	0	93	0	235	680
05:45 PM	0	72	160	0	232	0	95	138	0	0	233	139	0	67	0	206	671
Total	0	290	493	0	783	0	406	615	0	0	1021	537	0	320	0	857	2661

RUMMEL, KLEPPER & KAHL, LLP
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81 Mosher Street
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Location: Goshen Road @ Odendhal Road
County: Montgomery
Weather: Clear
Counters: CM, WG

File Name : Goshen Road @ Odendhal Road
Site Code : 19973017
Start Date : 02/05/2002

Groups Printed- 1 - Unshifted

	Goshen Road From North						Goshen Road From South					Odendhal Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	0	80	100	0	180	0	93	137	0	0	230	169	0	73	0	242	652
06:15 PM	0	79	113	0	192	0	74	134	0	0	208	126	0	74	0	200	600
06:30 PM	0	72	120	0	192	0	74	102	0	0	176	126	0	71	0	197	565
06:45 PM	0	72	107	0	179	0	74	128	0	0	202	99	0	83	0	182	563
Total	0	303	440	0	743	0	315	501	0	0	816	520	0	301	0	821	2380
Grand Total	0	2399	2758	0	5157	0	1712	2571	0	0	4283	2222	0	1564	0	3786	13226
Apprch %	0.0	46.5	53.5	0.0			40.0	60.0	0.0	0.0		58.7	0.0	41.3	0.0		
Total %	0.0	18.1	20.9	0.0	39.0	0.0	12.9	19.4	0.0	0.0	32.4	16.8	0.0	11.8	0.0	28.6	

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File Name : Goshen Road @ Odendhal Road
Site Code : 19973017
Start Date : 02/05/2002
Page No : 3

	Goshen Road From North SB						Goshen Road From South NB					Odendhal Road From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	469	408	0	877	0	178	195	0	0	373	115	0	187	0	302	1552
Percent	0.0	53.5	46.5	0.0			47.7	52.3	0.0	0.0		38.1	0.0	61.9	0.0		
07:30 Volume	0	154	90	0	244	0	45	62	0	0	107	29	0	54	0	83	434
Peak Factor																	0.894
High Int.	07:30 AM					5:45:00 AM	07:30 AM					07:30 AM					
Volume	0	154	90	0	244	0	45	62	0	0	107	29	0	54	0	83	
Peak Factor					0.899						0.871					0.910	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	0	315	481	0	796	0	395	608	0	0	1003	597	0	315	0	912	2711
Percent	0.0	39.6	60.4	0.0			39.4	60.6	0.0	0.0		65.5	0.0	34.5	0.0		
05:15 Volume	0	78	107	0	185	0	120	174	0	0	294	147	0	82	0	229	708
Peak Factor																	0.957
High Int.	05:45 PM						05:15 PM					06:00 PM					
Volume	0	72	160	0	232	0	120	174	0	0	294	169	0	73	0	242	
Peak Factor					0.858						0.853					0.942	

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Baltimore, MD 21217

Location: Goshen Road @ Willow Creek Dr
County: Montgomery
Weather: Clear
Counters: JS

File Name : Goshen Road @ Willow Creek Drive
Site Code : 19973017
Start Date : 02/06/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North						Goshen Road From South					Willow Creek Drive From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	71	0	0	71	0	0	32	0	0	32	1	0	2	0	3	106
06:15 AM	0	101	0	0	101	0	1	39	0	0	40	3	0	6	0	9	150
06:30 AM	0	139	0	0	139	0	0	45	0	0	45	2	0	2	0	4	188
06:45 AM	0	204	0	0	204	0	0	54	0	0	54	5	0	5	0	10	268
Total	0	515	0	0	515	0	1	170	0	0	171	11	0	15	0	26	712
07:00 AM	0	252	0	0	252	0	0	79	0	0	79	2	0	1	0	3	334
07:15 AM	0	224	1	0	225	0	1	77	0	0	78	2	0	9	0	11	314
07:30 AM	0	226	0	0	226	0	1	91	0	0	92	3	0	1	0	4	322
07:45 AM	0	252	1	0	253	0	1	73	0	0	74	5	0	4	0	9	336
Total	0	954	2	0	956	0	3	320	0	0	323	12	0	15	0	27	1306
08:00 AM	0	203	2	0	205	0	0	89	0	0	89	7	0	6	0	13	307
08:15 AM	0	221	2	0	223	0	0	82	0	0	82	4	0	4	0	8	313
08:30 AM	0	208	0	0	208	0	0	82	0	0	82	4	0	3	0	7	297
08:45 AM	0	265	1	0	266	0	0	91	0	0	91	4	0	3	0	7	364
Total	0	897	5	0	902	0	0	344	0	0	344	19	0	16	0	35	1281
*** BREAK ***																	
03:00 PM	0	194	0	0	194	0	0	144	0	0	144	1	0	0	0	1	339
03:15 PM	0	151	0	0	151	0	0	202	0	0	202	1	0	1	0	2	355
03:30 PM	0	167	3	0	170	0	5	174	0	0	179	1	0	3	0	4	353
03:45 PM	0	203	4	0	207	0	0	189	0	0	189	1	0	1	0	2	398
Total	0	715	7	0	722	0	5	709	0	0	714	4	0	5	0	9	1445
04:00 PM	0	178	0	0	178	0	1	230	0	0	231	1	0	2	0	3	412
04:15 PM	0	158	2	0	160	0	1	251	0	0	252	0	0	1	0	1	413
04:30 PM	0	175	2	0	177	0	0	243	0	0	243	1	0	2	0	3	423
04:45 PM	0	170	3	0	173	0	2	244	0	0	246	0	0	3	0	3	422
Total	0	681	7	0	688	0	4	968	0	0	972	2	0	8	0	10	1670
05:00 PM	0	149	0	0	149	0	5	308	0	0	313	1	0	2	0	3	465
05:15 PM	0	187	4	0	191	0	1	308	0	0	309	1	0	2	0	3	503
05:30 PM	0	208	1	0	209	0	2	269	0	0	271	2	0	1	0	3	483
05:45 PM	0	228	3	0	231	0	0	269	0	0	269	1	0	0	0	1	501
Total	0	772	8	0	780	0	8	1154	0	0	1162	5	0	5	0	10	1952

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Baltimore, MD 21217

Location: Goshen Road @ Willow Creek Dr
County: Montgomery
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Counters: JS

File Name : Goshen Road @ Willow Creek Drive
Site Code : 19973017
Start Date : 02/06/2002
Page No : 2

Groups Printed- Unshifted

	Goshen Road From North						Goshen Road From South					Willow Creek Drive From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	0	211	4	0	215	0	1	263	0	0	264	5	0	1	0	6	485
06:15 PM	0	180	2	0	182	0	2	236	0	0	238	4	0	2	0	6	426
06:30 PM	0	171	6	0	177	0	0	219	0	0	219	0	0	1	0	1	397
06:45 PM	0	187	5	0	192	0	2	201	0	0	203	2	0	2	0	4	399
Total	0	749	17	0	766	0	5	919	0	0	924	11	0	6	0	17	1707
Grand Total	0	5283	46	0	5329	0	26	4584	0	0	4610	64	0	70	0	134	10073
Apprch %	0.0	99.1	0.9	0.0			0.6	99.4	0.0	0.0		47.8	0.0	52.2	0.0		
Total %	0.0	52.4	0.5	0.0	52.9	0.0	0.3	45.5	0.0	0.0	45.8	0.6	0.0	0.7	0.0	1.3	

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File Name : Goshen Road @ Willow Creek Drive
Site Code : 19973017
Start Date : 02/06/2002
Page No : 3

	Goshen Road From North SB						Goshen Road From South NB					Willow Creek Drive From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	0	954	2	0	956	0	3	320	0	0	323	12	0	15	0	27	1306
Percent	0.0	99.8	0.2	0.0			0.9	99.1	0.0	0.0		44.4	0.0	55.6	0.0		
07:45 Volume	0	252	1	0	253	0	1	73	0	0	74	5	0	4	0	9	336
Peak Factor																	0.972
High Int.	07:45 AM					5:45:00 AM	07:30 AM					07:15 AM					
Volume	0	252	1	0	253	0	1	91	0	0	92	2	0	9	0	11	
Peak Factor					0.945						0.878					0.614	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	0	834	12	0	846	0	4	1109	0	0	1113	9	0	4	0	13	1972
Percent	0.0	98.6	1.4	0.0			0.4	99.6	0.0	0.0		69.2	0.0	30.8	0.0		
05:15 Volume	0	187	4	0	191	0	1	308	0	0	309	1	0	2	0	3	503
Peak Factor																	0.980
High Int.	05:45 PM						05:15 PM					06:00 PM					
Volume	0	228	3	0	231	0	1	308	0	0	309	5	0	1	0	6	
Peak Factor					0.916						0.900					0.542	

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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ MD 124
County: Montgomery
Weather: Clear
Counters: RMF, AN

File Name : Goshen Road @ MD 124
Site Code : 19973017
Start Date : 02/05/2002
Page No : 1

Groups Printed- 1 - Unshifted

	Goshen Road From North					MD 124 (Midcounty Highway) From East					Goshen Road From South					MD 124 (Midcounty Highway) From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	55	37	31	0	123	16	29	7	0	52	7	15	23	0	45	3	78	3	0	84	304
06:15 AM	61	63	39	0	163	21	40	8	0	69	1	22	28	0	51	12	106	11	0	129	412
06:30 AM	94	105	50	0	249	20	46	10	0	76	4	24	38	0	66	10	138	17	0	165	556
06:45 AM	122	186	43	0	351	36	62	7	0	105	9	32	28	0	69	18	164	32	0	214	739
Total	332	391	163	0	886	93	177	32	0	302	21	93	117	0	231	43	486	63	0	592	2011
07:00 AM	100	200	30	0	330	39	79	9	0	127	5	46	31	0	82	12	185	30	0	227	766
07:15 AM	139	188	33	0	360	16	69	8	0	93	8	55	12	0	75	21	118	24	0	163	691
07:30 AM	130	156	61	0	347	50	121	12	0	183	6	76	25	0	107	31	279	41	0	351	988
07:45 AM	98	166	53	0	317	53	119	10	0	182	8	50	24	0	82	13	213	28	0	254	835
Total	467	710	177	0	1354	158	388	39	0	585	27	227	92	0	346	77	795	123	0	995	3280
08:00 AM	105	171	64	0	340	51	127	18	0	196	9	34	33	0	76	36	246	27	0	309	921
08:15 AM	113	157	69	0	339	47	118	25	0	190	7	44	39	0	90	22	196	23	0	241	860
08:30 AM	85	147	82	0	314	60	173	11	0	244	5	41	34	0	80	24	168	22	0	214	852
08:45 AM	78	170	81	0	329	55	136	20	0	211	6	38	40	0	84	29	182	30	0	241	865
Total	381	645	296	0	1322	213	554	74	0	841	27	157	146	0	330	111	792	102	0	1005	3498
*** BREAK ***																					
03:00 PM	18	85	38	0	141	36	98	22	0	156	11	127	63	0	201	54	148	13	0	215	713
03:15 PM	16	87	48	0	151	69	110	37	0	216	13	142	56	0	211	54	126	14	0	194	772
03:30 PM	28	81	35	0	144	57	156	60	0	273	14	104	67	0	185	56	144	20	0	220	822
03:45 PM	30	82	47	0	159	55	136	49	0	240	10	143	58	0	211	52	120	16	0	188	798
Total	92	335	168	0	595	217	500	168	0	885	48	516	244	0	808	216	538	63	0	817	3105
04:00 PM	24	112	19	0	155	77	113	26	0	216	20	163	60	0	243	54	127	22	0	203	817
04:15 PM	19	100	34	0	153	40	110	22	0	172	20	192	80	0	292	69	149	22	0	240	857
04:30 PM	31	83	34	0	148	67	122	52	1	242	24	205	69	0	298	88	154	22	0	264	952
04:45 PM	30	84	36	0	150	72	148	72	0	292	24	167	77	0	268	76	157	15	0	248	958
Total	104	379	123	0	606	256	493	172	1	922	88	727	286	0	1101	287	587	81	0	955	3584
05:00 PM	23	99	39	0	161	77	163	81	1	322	22	196	52	0	270	83	161	15	0	259	1012
05:15 PM	31	111	39	0	181	75	192	113	0	380	20	229	81	0	330	109	181	21	0	311	1202
05:30 PM	31	107	25	0	163	86	177	97	1	361	27	225	55	0	307	77	140	30	0	247	1078
05:45 PM	32	125	28	0	185	115	203	82	0	400	16	208	71	0	295	70	164	30	0	264	1144
Total	117	442	131	0	690	353	735	373	2	1463	85	858	259	0	1202	339	646	96	0	1081	4436

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Location: Goshen Road @ MD 124
County: Montgomery
Weather: Clear
Counters: RMF, AN

File Name : Goshen Road @ MD 124
Site Code : 19973017
Start Date : 02/05/2002
Page No : 2

Groups Printed- 1 - Unshifted

	Goshen Road From North					MD 124 (Midcounty Highway) From East					Goshen Road From South					MD 124 (Midcounty Highway) From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	27	89	34	0	150	99	171	84	0	354	24	228	73	0	325	82	209	28	0	319	1148
06:15 PM	21	123	26	0	170	82	180	96	0	358	21	218	75	0	314	87	203	20	0	310	1152
06:30 PM	26	111	31	0	168	90	154	65	0	309	13	166	62	0	241	77	152	20	0	249	967
06:45 PM	14	116	31	0	161	66	152	36	0	254	9	191	52	0	252	60	145	11	0	216	883
Total	88	439	122	0	649	337	657	281	0	1275	67	803	262	0	1132	306	709	79	0	1094	4150
Grand Total	1581	3341	1180	0	6102	1627	3504	1139	3	6273	363	3381	1406	0	5150	1379	4553	607	0	6539	24064
Apprch %	25.9	54.8	19.3	0.0		25.9	55.9	18.2	0.0		7.0	65.7	27.3	0.0		21.1	69.6	9.3	0.0		
Total %	6.6	13.9	4.9	0.0	25.4	6.8	14.6	4.7	0.0	26.1	1.5	14.1	5.8	0.0	21.4	5.7	18.9	2.5	0.0	27.2	

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ MD 124
County: Montgomery
Weather: Clear
Counters: RMF, AN

File Name : Goshen Road @ MD 124
Site Code : 19973017
Start Date : 02/05/2002

	Goshen Road From North SB					MD 124 (Midcounty Highway) From East WB					Goshen Road From South NB					MD 124 (Midcounty Highway) From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection 07:30 AM																					
Volume	446	650	247	0	1343	201	485	65	0	751	30	204	121	0	355	102	934	119	0	1155	3604
Percent	33.2	48.4	18.4	0.0		26.8	64.6	8.7	0.0		8.5	57.5	34.1	0.0		8.8	80.9	10.3	0.0		
07:30 Volume	130	156	61	0	347	50	121	12	0	183	6	76	25	0	107	31	279	41	0	351	988
Peak Factor																					0.912
High Int.	07:30 AM					08:00 AM					07:30 AM					07:30 AM					
Volume	130	156	61	0	347	51	127	18	0	196	6	76	25	0	107	31	279	41	0	351	
Peak Factor					0.968					0.958					0.829					0.823	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection 05:15 PM																					
Volume	121	432	126	0	679	375	743	376	1	1495	87	890	280	0	1257	338	694	109	0	1141	4572
Percent	17.8	63.6	18.6	0.0		25.1	49.7	25.2	0.1		6.9	70.8	22.3	0.0		29.6	60.8	9.6	0.0		
05:15 Volume	31	111	39	0	181	75	192	113	0	380	20	229	81	0	330	109	181	21	0	311	1202
Peak Factor																					0.951
High Int.	05:45 PM					05:45 PM					05:15 PM					06:00 PM					
Volume	32	125	28	0	185	115	203	82	0	400	20	229	81	0	330	82	209	28	0	319	
Peak Factor					0.918					0.934					0.952					0.894	

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Baltimore, MD 21217

Location: Goshen Road @ Emory Grove Road
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Emory Grove Road
Site Code : 19973017
Start Date : 02/06/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Emory Grove Road From East					Goshen Road From South					Emory Grove Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	1	98	0	0	99	36	0	0	0	36	0	14	5	0	19	0	0	3	0	3	157
06:15 AM	1	150	0	0	151	35	0	0	0	35	0	32	11	0	43	0	0	5	0	5	234
06:30 AM	2	173	0	0	175	51	1	6	0	58	1	24	6	0	31	0	0	6	0	6	270
06:45 AM	7	225	1	0	233	79	0	7	0	86	0	30	10	0	40	5	0	5	0	10	369
Total	11	646	1	0	658	201	1	13	0	215	1	100	32	0	133	5	0	19	0	24	1030
07:00 AM	3	217	0	0	220	109	3	7	0	119	1	44	18	0	63	2	1	8	0	11	413
07:15 AM	6	215	1	0	222	73	0	4	0	77	3	50	17	0	70	1	0	7	0	8	377
07:30 AM	11	242	3	0	256	79	0	6	0	85	0	53	30	0	83	0	3	12	0	15	439
07:45 AM	9	266	1	0	276	74	0	8	0	82	1	62	31	0	94	1	2	6	0	9	461
Total	29	940	5	0	974	335	3	25	0	363	5	209	96	0	310	4	6	33	0	43	1690
08:00 AM	4	182	4	0	190	75	0	4	0	79	2	32	24	0	58	6	2	5	0	13	340
08:15 AM	10	237	0	0	247	79	2	10	0	91	0	62	39	0	101	2	4	3	0	9	448
08:30 AM	12	198	2	0	212	77	0	13	0	90	0	49	23	0	72	5	1	3	0	9	383
08:45 AM	19	224	2	0	245	65	0	14	0	79	1	63	28	0	92	1	1	5	0	7	423
Total	45	841	8	0	894	296	2	41	0	339	3	206	114	0	323	14	8	16	0	38	1594
*** BREAK ***																					
03:00 PM	16	88	2	0	106	23	0	9	0	32	2	143	59	0	204	2	0	2	0	4	346
03:15 PM	6	96	3	0	105	36	0	15	0	51	8	136	53	0	197	1	0	1	0	2	355
03:30 PM	17	106	2	0	125	37	0	9	0	46	2	148	58	0	208	1	0	2	0	3	382
03:45 PM	7	109	0	0	116	46	1	17	0	64	5	150	54	0	209	3	1	3	0	7	396
Total	46	399	7	0	452	142	1	50	0	193	17	577	224	0	818	7	1	8	0	16	1479
04:00 PM	12	110	1	0	123	46	0	15	0	61	6	183	62	0	251	1	1	2	0	4	439
04:15 PM	4	92	1	0	97	42	0	15	0	57	3	198	62	0	263	2	1	1	0	4	421
04:30 PM	13	102	1	0	116	41	1	9	0	51	2	208	60	0	270	0	1	3	0	4	441
04:45 PM	7	95	1	0	103	42	0	10	0	52	10	203	80	0	293	0	0	1	0	1	449
Total	36	399	4	0	439	171	1	49	0	221	21	792	264	0	1077	3	3	7	0	13	1750
05:00 PM	11	88	5	0	104	36	0	14	0	50	3	240	73	0	316	4	0	1	0	5	475
05:15 PM	8	112	5	0	125	60	2	21	0	83	4	257	63	0	324	3	0	3	0	6	538
05:30 PM	13	177	1	0	191	39	1	18	0	58	3	242	84	0	329	4	0	5	0	9	587
05:45 PM	11	143	2	0	156	46	0	11	0	57	6	229	82	0	317	0	2	5	0	7	537
Total	43	520	13	0	576	181	3	64	0	248	16	968	302	0	1286	11	2	14	0	27	2137

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Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Emory Grove Road
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Emory Grove Road
Site Code : 19973017
Start Date : 02/06/2002

Groups Printed- Unshifted

	Goshen Road From North					Emory Grove Road From East					Goshen Road From South					Emory Grove Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	12	101	3	0	116	41	3	20	0	64	3	218	76	0	297	1	0	2	0	3	480
06:15 PM	9	111	0	0	120	60	0	18	0	78	6	206	86	0	298	3	1	5	0	9	505
06:30 PM	7	87	5	0	99	48	2	6	0	56	8	197	71	0	276	0	0	3	0	3	434
06:45 PM	9	111	0	0	120	67	5	15	0	87	5	178	63	0	246	2	0	2	0	4	457
Total	37	410	8	0	455	216	10	59	0	285	22	799	296	0	1117	6	1	12	0	19	1876
Grand Total	247	4155	46	0	4448	1542	21	301	0	1864	85	3651	1328	0	5064	50	21	109	0	180	11556
Apprch %	5.6	93.4	1.0	0.0		82.7	1.1	16.1	0.0		1.7	72.1	26.2	0.0		27.8	11.7	60.6	0.0		
Total %	2.1	36.0	0.4	0.0	38.5	13.3	0.2	2.6	0.0	16.1	0.7	31.6	11.5	0.0	43.8	0.4	0.2	0.9	0.0	1.6	

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Emory Grove Road
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Emory Grove Road
Site Code : 19973017
Start Date : 02/06/2002
Page No : 3

	Goshen Road From North (SB)					Emory Grove Road From East (WB)					Goshen Road From South (NB)					Emory Grove Road From West (EB)					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	29	940	5	0	974	335	3	25	0	363	5	209	96	0	310	4	6	33	0	43	1690
Percent	3.0	96.5	0.5	0.0		92.3	0.8	6.9	0.0		1.6	67.4	31.0	0.0		9.3	14.0	76.7	0.0		
07:45 Volume	9	266	1	0	276	74	0	8	0	82	1	62	31	0	94	1	2	6	0	9	461
Peak Factor																					0.916
High Int.	07:45 AM					07:00 AM					07:45 AM					07:30 AM					
Volume	9	266	1	0	276	109	3	7	0	119	1	62	31	0	94	0	3	12	0	15	
Peak Factor					0.882					0.763					0.824					0.717	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:15 PM																				
Volume	44	533	11	0	588	186	6	70	0	262	16	946	305	0	1267	8	2	15	0	25	2142
Percent	7.5	90.6	1.9	0.0		71.0	2.3	26.7	0.0		1.3	74.7	24.1	0.0		32.0	8.0	60.0	0.0		
05:30 Volume	13	177	1	0	191	39	1	18	0	58	3	242	84	0	329	4	0	5	0	9	587
Peak Factor																					0.912
High Int.	05:30 PM					05:15 PM					05:30 PM					05:30 PM					
Volume	13	177	1	0	191	60	2	21	0	83	3	242	84	0	329	4	0	5	0	9	
Peak Factor					0.770					0.789					0.963					0.694	

RUMMEL, KLEPPER & KAHL, LLP
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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Severn Road
County: Montgomery
Weather: Clear
Counters: CM

File Name : Goshen Road @ Severn Road
Site Code : 19973017
Start Date : 02/12/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North						Goshen Road From South					Severn Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	92	0	0	92	0	1	14	0	0	15	2	0	2	0	4	111
06:15 AM	0	143	0	0	143	0	0	19	0	0	19	0	0	1	0	1	163
06:30 AM	0	199	0	0	199	0	0	35	0	0	35	0	0	3	0	3	237
06:45 AM	0	220	1	0	221	0	0	39	0	0	39	0	0	3	0	3	263
Total	0	654	1	0	655	0	1	107	0	0	108	2	0	9	0	11	774
07:00 AM	0	221	0	0	221	0	0	57	0	0	57	2	0	1	0	3	281
07:15 AM	0	245	2	0	247	0	0	67	0	0	67	1	0	2	0	3	317
07:30 AM	0	276	1	0	277	0	2	56	0	0	58	0	0	1	0	1	336
07:45 AM	0	234	1	0	235	0	1	71	0	0	72	3	0	3	0	6	313
Total	0	976	4	0	980	0	3	251	0	0	254	6	0	7	0	13	1247
08:00 AM	0	209	0	0	209	0	1	50	0	0	51	1	0	5	0	6	266
08:15 AM	0	231	0	0	231	0	1	75	0	0	76	1	0	3	0	4	311
08:30 AM	0	243	2	0	245	0	0	78	0	0	78	3	0	2	0	5	328
08:45 AM	0	226	0	0	226	0	1	67	0	0	68	1	0	3	0	4	298
Total	0	909	2	0	911	0	3	270	0	0	273	6	0	13	0	19	1203
*** BREAK ***																	
03:00 PM	0	97	2	0	99	0	2	158	0	0	160	1	0	2	0	3	262
03:15 PM	0	105	0	0	105	0	2	150	0	0	152	0	0	1	0	1	258
03:30 PM	0	120	1	0	121	0	0	172	0	0	172	2	0	0	0	2	295
03:45 PM	0	128	0	0	128	0	2	172	0	0	174	2	0	0	0	2	304
Total	0	450	3	0	453	0	6	652	0	0	658	5	0	3	0	8	1119
04:00 PM	0	119	2	0	121	0	2	188	0	0	190	0	0	1	0	1	312
04:15 PM	0	117	1	0	118	0	1	177	0	0	178	1	0	2	0	3	299
04:30 PM	0	120	0	0	120	0	1	195	0	1	197	1	0	1	0	2	319
04:45 PM	0	131	2	0	133	0	1	216	0	0	217	0	0	0	0	0	350
Total	0	487	5	0	492	0	5	776	0	1	782	2	0	4	0	6	1280
05:00 PM	0	131	1	0	132	0	3	234	0	0	237	1	0	0	0	1	370
05:15 PM	0	136	1	0	137	0	2	244	0	0	246	0	0	2	0	2	385
05:30 PM	0	162	0	0	162	0	5	246	0	0	251	2	0	2	0	4	417
05:45 PM	0	146	2	0	148	0	6	262	0	0	268	1	0	2	0	3	419
Total	0	575	4	0	579	0	16	986	0	0	1002	4	0	6	0	10	1591

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Severn Road
County: Montgomery
Weather: Clear
Counters: CM

File Name : Goshen Road @ Severn Road
Site Code : 19973017
Start Date : 02/12/2002
Page No : 2

Groups Printed- Unshifted

	Goshen Road From North						Goshen Road From South					Severn Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	0	121	1	0	122	0	0	252	0	0	252	1	0	2	0	3	377
06:15 PM	0	108	1	0	109	0	4	240	0	0	244	1	0	3	0	4	357
06:30 PM	0	95	2	0	97	0	2	218	0	0	220	2	0	0	0	2	319
06:45 PM	0	116	2	0	118	0	3	187	0	0	190	1	0	2	0	3	311
Total	0	440	6	0	446	0	9	897	0	0	906	5	0	7	0	12	1364
Grand Total	0	4491	25	0	4516	0	43	3939	0	1	3983	30	0	49	0	79	8578
Apprch %	0.0	99.4	0.6	0.0			1.1	98.9	0.0	0.0		38.0	0.0	62.0	0.0		
Total %	0.0	52.4	0.3	0.0	52.6	0.0	0.5	45.9	0.0	0.0	46.4	0.3	0.0	0.6	0.0	0.9	

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Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Severn Road
County: Montgomery
Weather: Clear
Counters: CM

File Name : Goshen Road @ Severn Road
Site Code : 19973017
Start Date : 02/12/2002
Page No : 3

	Goshen Road From North SB						Goshen Road From South NB					Severn Road From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	0	976	4	0	980	0	3	251	0	0	254	6	0	7	0	13	1247
Percent	0.0	99.6	0.4	0.0			1.2	98.8	0.0	0.0		46.2	0.0	53.8	0.0		
07:30 Volume	0	276	1	0	277	0	2	56	0	0	58	0	0	1	0	1	336
Peak Factor																	0.928
High Int.	07:30 AM					5:45:00 AM	07:45 AM					07:45 AM					
Volume	0	276	1	0	277	0	1	71	0	0	72	3	0	3	0	6	
Peak Factor					0.884						0.882					0.542	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	0	565	4	0	569	0	13	1004	0	0	1017	4	0	8	0	12	1598
Percent	0.0	99.3	0.7	0.0			1.3	98.7	0.0	0.0		33.3	0.0	66.7	0.0		
05:45 Volume	0	146	2	0	148	0	6	262	0	0	268	1	0	2	0	3	419
Peak Factor																	0.953
High Int.	05:30 PM						05:45 PM					05:30 PM					
Volume	0	162	0	0	162	0	6	262	0	0	268	2	0	2	0	4	
Peak Factor					0.878						0.949					0.750	

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Lindenhouse Road
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Lindenhouse Road
Site Code : 19973017
Start Date : 02/06/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Lindenhouse Road From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 AM	0	135	0	0	135	3	0	1	0	4	0	25	0	0	25	0	164
06:15 AM	1	174	0	0	175	6	0	2	0	8	0	32	0	0	32	0	215
06:30 AM	0	204	0	0	204	10	0	1	0	11	0	36	0	0	36	0	251
06:45 AM	1	217	0	0	218	9	0	2	0	11	0	53	4	0	57	0	286
Total	2	730	0	0	732	28	0	6	0	34	0	146	4	0	150	0	916
07:00 AM	0	194	0	0	194	4	0	1	0	5	0	53	0	0	53	0	252
07:15 AM	1	272	0	0	273	17	0	1	0	18	0	61	0	0	61	0	352
07:30 AM	1	226	0	0	227	9	0	0	0	9	0	58	0	0	58	0	294
07:45 AM	0	196	0	0	196	9	0	2	0	11	0	58	3	0	61	0	268
Total	2	888	0	0	890	39	0	4	0	43	0	230	3	0	233	0	1166
08:00 AM	0	211	0	0	211	4	0	1	0	5	0	47	0	0	47	0	263
08:15 AM	1	207	0	0	208	6	0	2	0	8	0	75	2	0	77	0	293
08:30 AM	2	231	0	0	233	7	0	1	0	8	0	79	0	0	79	0	320
08:45 AM	0	185	0	0	185	5	0	3	0	8	0	74	0	0	74	0	267
Total	3	834	0	0	837	22	0	7	0	29	0	275	2	0	277	0	1143
*** BREAK ***																	
03:00 PM	1	100	0	0	101	3	0	1	0	4	0	150	7	0	157	0	262
03:15 PM	0	103	0	0	103	3	0	2	0	5	0	134	6	0	140	0	248
03:30 PM	1	119	0	0	120	2	0	0	0	2	0	145	3	0	148	0	270
03:45 PM	1	112	0	0	113	2	0	2	0	4	0	168	4	0	172	0	289
Total	3	434	0	0	437	10	0	5	0	15	0	597	20	0	617	0	1069
04:00 PM	0	116	0	0	116	0	0	1	0	1	0	193	3	0	196	0	313
04:15 PM	0	95	0	0	95	2	0	1	0	3	0	199	10	0	209	0	307
04:30 PM	1	103	0	0	104	3	0	0	0	3	0	195	6	0	201	0	308
04:45 PM	2	101	0	0	103	0	0	0	0	0	0	215	3	0	218	0	321
Total	3	415	0	0	418	5	0	2	0	7	0	802	22	0	824	0	1249
05:00 PM	1	80	0	0	81	2	6	3	0	11	0	185	8	0	193	0	285
05:15 PM	0	124	0	0	124	2	0	1	0	3	0	286	6	0	292	0	419
05:30 PM	2	167	0	0	169	2	0	2	0	4	0	234	8	0	242	0	415
05:45 PM	0	152	0	0	152	1	0	2	0	3	0	237	5	1	243	0	398
Total	3	523	0	0	526	7	6	8	0	21	0	942	27	1	970	0	1517

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Lindenhouse Road
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Lindenhouse Road
Site Code : 19973017
Start Date : 02/06/2002
Page No : 2

Groups Printed- Unshifted

	Goshen Road From North					Lindenhouse Road From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 PM	0	110	0	0	110	3	0	2	0	5	0	206	9	0	215	0	330
06:15 PM	1	115	0	0	116	0	0	1	0	1	0	225	9	0	234	0	351
06:30 PM	0	90	0	0	90	3	0	0	0	3	0	177	5	0	182	0	275
06:45 PM	0	109	0	0	109	6	0	2	0	8	0	186	5	1	192	0	309
Total	1	424	0	0	425	12	0	5	0	17	0	794	28	1	823	0	1265
Grand Total	17	4248	0	0	4265	123	6	37	0	166	0	3786	106	2	3894	0	8325
Apprch %	0.4	99.6	0.0	0.0		74.1	3.6	22.3	0.0		0.0	97.2	2.7	0.1			
Total %	0.2	51.0	0.0	0.0	51.2	1.5	0.1	0.4	0.0	2.0	0.0	45.5	1.3	0.0	46.8	0.0	

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Baltimore, MD 21217

Location: Goshen Road @ Lindenhouse Road
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Lindenhouse Road
Site Code : 19973017
Start Date : 02/06/2002

	Goshen Road From North SB					Lindenhouse Road From East WB					NB Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	06:45 AM																
Volume	3	909	0	0	912	39	0	4	0	43	0	225	4	0	229	0	1184
Percent	0.3	99.7	0.0	0.0		90.7	0.0	9.3	0.0		0.0	98.3	1.7	0.0			
07:15 Volume	1	272	0	0	273	17	0	1	0	18	0	61	0	0	61	0	352
Peak Factor																	0.841
High Int.	07:15 AM					07:15 AM					07:15 AM					5:45:00 AM	
Volume	1	272	0	0	273	17	0	1	0	18	0	61	0	0	61		
Peak Factor					0.835					0.597					0.939		
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	2	553	0	0	555	8	0	7	0	15	0	963	28	1	992	0	1562
Percent	0.4	99.6	0.0	0.0		53.3	0.0	46.7	0.0		0.0	97.1	2.8	0.1			
05:15 Volume	0	124	0	0	124	2	0	1	0	3	0	286	6	0	292	0	419
Peak Factor																	0.932
High Int.	05:30 PM					06:00 PM					05:15 PM						
Volume	2	167	0	0	169	3	0	2	0	5	0	286	6	0	292		
Peak Factor					0.821					0.750					0.849		

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Baltimore, MD 21217

Location: Goshen Road @ Centerway Road
County: Montgomery
Weather: Clear
Counters: RMF

File Name : Goshen Road @ Centerway Road
Site Code : 19973017
Start Date : 02/06/2002
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	Goshen Road From North					Centerway Road From East					Goshen Road From South					Centerway Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	4	76	5	0	85	5	26	6	0	37	3	11	3	0	17	2	26	18	0	46	185
06:15 AM	5	102	9	0	116	12	14	2	0	28	5	21	6	0	32	1	37	32	0	70	246
06:30 AM	13	139	19	0	171	10	32	4	0	46	10	19	5	0	34	3	27	38	0	68	319
06:45 AM	12	169	21	0	202	15	27	2	0	44	18	18	6	0	42	2	30	36	0	68	356
Total	34	486	54	0	574	42	99	14	0	155	36	69	20	0	125	8	120	124	0	252	1106
07:00 AM	8	152	19	0	179	16	33	8	0	57	15	36	6	0	57	3	47	31	0	81	374
07:15 AM	8	162	24	0	194	20	32	9	1	62	6	36	10	0	52	6	40	38	0	84	392
07:30 AM	15	225	23	0	263	7	39	1	0	47	14	43	3	0	60	8	56	54	0	118	488
07:45 AM	8	169	23	0	200	14	42	3	0	59	18	41	6	0	65	4	70	37	0	111	435
Total	39	708	89	0	836	57	146	21	1	225	53	156	25	0	234	21	213	160	0	394	1689
08:00 AM	9	140	24	0	173	12	48	12	0	72	13	31	6	0	50	9	61	44	0	114	409
08:15 AM	11	176	27	0	214	10	54	7	0	71	16	43	10	0	69	15	55	38	0	108	462
08:30 AM	8	166	47	0	221	12	48	10	0	70	22	41	5	0	68	12	53	51	0	116	475
08:45 AM	12	174	35	0	221	12	58	7	0	77	27	43	8	0	78	22	62	45	0	129	505
Total	40	656	133	0	829	46	208	36	0	290	78	158	29	0	265	58	231	178	0	467	1851
*** BREAK ***																					
03:00 PM	5	68	18	0	91	9	49	7	0	65	22	106	12	0	140	30	52	23	0	105	401
03:15 PM	13	103	17	0	133	8	51	8	0	67	25	130	9	0	164	15	56	17	0	88	452
03:30 PM	8	81	15	0	104	16	67	17	0	100	33	97	18	0	148	31	35	22	0	88	440
03:45 PM	9	69	22	0	100	12	73	10	0	95	34	114	23	0	171	22	62	27	0	111	477
Total	35	321	72	0	428	45	240	42	0	327	114	447	62	0	623	98	205	89	0	392	1770
04:00 PM	13	77	20	0	110	12	64	13	0	89	37	129	24	0	190	20	64	33	0	117	506
04:15 PM	11	63	14	0	88	10	52	11	0	73	32	142	23	0	197	26	72	25	0	123	481
04:30 PM	6	77	15	0	98	9	74	5	0	88	32	159	14	0	205	26	59	20	0	105	496
04:45 PM	8	73	11	0	92	15	87	8	0	110	40	161	15	0	216	31	79	19	0	129	547
Total	38	290	60	0	388	46	277	37	0	360	141	591	76	0	808	103	274	97	0	474	2030
05:00 PM	12	74	21	0	107	15	96	9	0	120	37	171	14	0	222	49	63	18	0	130	579
05:15 PM	19	95	23	0	137	13	100	8	0	121	53	204	17	0	274	31	75	27	0	133	665
05:30 PM	14	116	29	0	159	24	104	8	0	136	43	182	22	0	247	29	65	27	0	121	663
05:45 PM	12	105	29	0	146	14	67	14	0	95	50	174	11	0	235	30	65	39	0	134	610
Total	57	390	102	0	549	66	367	39	0	472	183	731	64	0	978	139	268	111	0	518	2517

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Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Centerway Road
County: Montgomery
Weather: Clear
Counters: RMF

File Name : Goshen Road @ Centerway Road
Site Code : 19973017
Start Date : 02/06/2002
Page No : 2

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	Goshen Road From North					Centerway Road From East					Goshen Road From South					Centerway Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	9	83	25	0	117	9	83	9	0	101	53	147	17	0	217	21	67	34	0	122	557
06:15 PM	10	81	25	0	116	21	79	15	2	117	47	149	16	0	212	22	66	19	0	107	552
06:30 PM	12	66	25	0	103	6	53	9	0	68	25	142	12	0	179	20	42	18	0	80	430
06:45 PM	16	75	26	0	117	13	64	9	0	86	34	130	19	0	183	31	62	22	0	115	501
Total	47	305	101	0	453	49	279	42	2	372	159	568	64	0	791	94	237	93	0	424	2040
Grand Total	290	3156	611	0	4057	351	1616	231	3	2201	764	2720	340	0	3824	521	1548	852	0	2921	13003
Apprch %	7.1	77.8	15.1	0.0		15.9	73.4	10.5	0.1		20.0	71.1	8.9	0.0		17.8	53.0	29.2	0.0		
Total %	2.2	24.3	4.7	0.0	31.2	2.7	12.4	1.8	0.0	16.9	5.9	20.9	2.6	0.0	29.4	4.0	11.9	6.6	0.0	22.5	

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Baltimore, MD 21217

Location: Goshen Road @ Centerway Road
County: Montgomery
Weather: Clear
Counters: RMF

File Name : Goshen Road @ Centerway Road
Site Code : 19973017
Start Date : 02/06/2002
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	Goshen Road From North SB					Centerway Road From East WB					Goshen Road From South NB					Centerway Road From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	40	656	133	0	829	46	208	36	0	290	78	158	29	0	265	58	231	178	0	467	1851
Percent	4.8	79.1	16.0	0.0		15.9	71.7	12.4	0.0		29.4	59.6	10.9	0.0		12.4	49.5	38.1	0.0		
08:45 Volume	12	174	35	0	221	12	58	7	0	77	27	43	8	0	78	22	62	45	0	129	505
Peak Factor																					0.916
High Int.	08:30 AM					08:45 AM					08:45 AM					08:45 AM					
Volume	8	166	47	0	221	12	58	7	0	77	27	43	8	0	78	22	62	45	0	129	
Peak Factor					0.938					0.942					0.849					0.905	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	57	390	102	0	549	66	367	39	0	472	183	731	64	0	978	139	268	111	0	518	2517
Percent	10.4	71.0	18.6	0.0		14.0	77.8	8.3	0.0		18.7	74.7	6.5	0.0		26.8	51.7	21.4	0.0		
05:15 Volume	19	95	23	0	137	13	100	8	0	121	53	204	17	0	274	31	75	27	0	133	665
Peak Factor																					0.946
High Int.	05:30 PM					05:30 PM					05:15 PM					05:45 PM					
Volume	14	116	29	0	159	24	104	8	0	136	53	204	17	0	274	30	65	39	0	134	
Peak Factor					0.863					0.868					0.892					0.966	

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Baltimore, MD 21217

Location: Goshen Road @ Rock Elm Way
County: Montgomery
Weather: Clear
Counters: WK

File Name : Goshen Road @ Rock Elm Way
Site Code : 19973017
Start Date : 02/12/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Rock Elm Way From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 AM	0	84	0	0	84	1	0	0	0	1	0	13	0	0	13	0	98
06:15 AM	0	117	0	0	117	0	0	0	0	0	0	18	0	0	18	0	135
06:30 AM	0	184	0	0	184	0	0	1	0	1	0	22	0	0	22	0	207
06:45 AM	1	201	0	0	202	2	0	1	0	3	0	22	0	0	22	0	227
Total	1	586	0	0	587	3	0	2	0	5	0	75	0	0	75	0	667
07:00 AM	0	197	0	0	197	0	0	0	0	0	0	50	1	0	51	0	248
07:15 AM	0	226	0	0	226	2	0	0	0	2	0	60	0	0	60	0	288
07:30 AM	0	235	0	0	235	2	0	0	0	2	0	41	0	0	41	0	278
07:45 AM	0	204	0	0	204	1	0	0	0	1	0	55	0	0	55	0	260
Total	0	862	0	0	862	5	0	0	0	5	0	206	1	0	207	0	1074
08:00 AM	0	210	0	0	210	1	0	0	0	1	0	40	0	0	40	0	251
08:15 AM	0	198	0	0	198	1	0	0	0	1	0	63	0	0	63	0	262
08:30 AM	1	230	0	0	231	1	0	1	0	2	0	75	0	0	75	0	308
08:45 AM	0	204	0	0	204	3	0	0	0	3	0	60	1	0	61	0	268
Total	1	842	0	0	843	6	0	1	0	7	0	238	1	0	239	0	1089
*** BREAK ***																	
03:00 PM	0	92	0	0	92	1	0	1	0	2	0	131	0	0	131	0	225
03:15 PM	0	100	0	0	100	0	0	0	0	0	0	163	0	0	163	0	263
03:30 PM	0	118	0	0	118	2	0	0	0	2	0	137	1	0	138	0	258
03:45 PM	1	122	0	0	123	1	0	0	0	1	0	150	0	0	150	0	274
Total	1	432	0	0	433	4	0	1	0	5	0	581	1	0	582	0	1020
04:00 PM	1	107	0	0	108	0	0	0	0	0	0	169	2	0	171	0	279
04:15 PM	0	105	0	0	105	0	0	0	0	0	0	155	0	0	155	0	260
04:30 PM	0	93	0	0	93	0	0	0	0	0	0	174	0	0	174	0	267
04:45 PM	0	122	0	0	122	0	0	0	0	0	0	193	1	0	194	0	316
Total	1	427	0	0	428	0	0	0	0	0	0	691	3	0	694	0	1122
05:00 PM	1	108	0	0	109	1	0	0	0	1	0	205	1	0	206	0	316
05:15 PM	1	106	0	0	107	0	0	0	0	0	0	226	0	0	226	0	333
05:30 PM	1	141	0	0	142	1	0	1	0	2	0	198	2	0	200	0	344
05:45 PM	0	133	0	0	133	0	0	0	0	0	0	208	1	0	209	0	342
Total	3	488	0	0	491	2	0	1	0	3	0	837	4	0	841	0	1335

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Rock Elm Way
County: Montgomery
Weather: Clear
Counters: WK

File Name : Goshen Road @ Rock Elm Way
Site Code : 19973017
Start Date : 02/12/2002
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	Goshen Road From North					Rock Elm Way From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 PM	0	108	0	0	108	0	0	0	0	0	0	212	1	0	213	0	321
06:15 PM	0	106	0	0	106	0	0	0	0	0	0	190	2	0	192	0	298
06:30 PM	0	87	0	0	87	0	0	0	0	0	0	182	2	0	184	0	271
06:45 PM	0	105	0	0	105	2	0	1	0	3	0	161	3	0	164	0	272
Total	0	406	0	0	406	2	0	1	0	3	0	745	8	0	753	0	1162
Grand Total	7	4043	0	0	4050	22	0	6	0	28	0	3373	18	0	3391	0	7469
Apprch %	0.2	99.8	0.0	0.0		78.6	0.0	21.4	0.0		0.0	99.5	0.5	0.0			
Total %	0.1	54.1	0.0	0.0	54.2	0.3	0.0	0.1	0.0	0.4	0.0	45.2	0.2	0.0	45.4	0.0	

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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Rock Elm Way
County: Montgomery
Weather: Clear
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File Name : Goshen Road @ Rock Elm Way
Site Code : 19973017
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	Goshen Road From North SB					Rock Elm Way From East WB					N Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	1	842	0	0	843	6	0	1	0	7	0	238	1	0	239	0	1089
Percent	0.1	99.9	0.0	0.0		85.7	0.0	14.3	0.0		0.0	99.6	0.4	0.0			
08:30 Volume	1	230	0	0	231	1	0	1	0	2	0	75	0	0	75	0	308
Peak Factor																	0.884
High Int.	08:30 AM					08:45 AM					08:30 AM					5:45:00 AM	
Volume	1	230	0	0	231	3	0	0	0	3	0	75	0	0	75		
Peak Factor					0.912					0.583					0.797		
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	2	488	0	0	490	1	0	1	0	2	0	844	4	0	848	0	1340
Percent	0.4	99.6	0.0	0.0		50.0	0.0	50.0	0.0		0.0	99.5	0.5	0.0			
05:30 Volume	1	141	0	0	142	1	0	1	0	2	0	198	2	0	200	0	344
Peak Factor																	0.974
High Int.	05:30 PM					05:30 PM					05:15 PM						
Volume	1	141	0	0	142	1	0	1	0	2	0	226	0	0	226		
Peak Factor					0.863					0.250					0.938		

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Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Framingham Drive
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Framingham Drive
Site Code : 19973017
Start Date : 02/12/2002
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Groups Printed- Unshifted

	Goshen Road From North					Framingham Drive From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 AM	0	75	0	0	75	8	0	3	0	11	0	13	0	0	13	0	99
06:15 AM	1	110	0	0	111	10	0	2	0	12	0	17	1	0	18	0	141
06:30 AM	0	163	0	0	163	19	0	0	0	19	0	22	1	0	23	0	205
06:45 AM	1	179	0	0	180	18	0	3	0	21	0	21	2	0	23	0	224
Total	2	527	0	0	529	55	0	8	0	63	0	73	4	0	77	0	669
07:00 AM	2	177	0	0	179	17	0	2	0	19	0	47	1	0	48	0	246
07:15 AM	1	206	0	0	207	18	0	4	0	22	0	53	4	0	57	0	286
07:30 AM	1	208	0	0	209	27	0	0	0	27	0	40	2	0	42	0	278
07:45 AM	2	189	0	0	191	12	0	1	0	13	0	49	5	0	54	0	258
Total	6	780	0	0	786	74	0	7	0	81	0	189	12	0	201	0	1068
08:00 AM	0	179	0	0	179	23	0	3	0	26	0	37	3	0	40	0	245
08:15 AM	0	186	0	0	186	15	0	1	0	16	0	63	2	0	65	0	267
08:30 AM	3	218	0	0	221	11	0	2	0	13	0	70	3	0	73	0	307
08:45 AM	0	182	0	0	182	19	0	8	0	27	0	58	4	0	62	0	271
Total	3	765	0	0	768	68	0	14	0	82	0	228	12	0	240	0	1090
*** BREAK ***																	
03:00 PM	1	82	0	0	83	7	0	2	0	9	0	120	10	0	130	0	222
03:15 PM	3	95	0	0	98	4	0	3	0	7	0	144	16	0	160	0	265
03:30 PM	4	115	0	0	119	5	0	1	0	6	0	124	15	0	139	0	264
03:45 PM	2	113	0	0	115	10	0	2	0	12	0	134	15	0	149	0	276
Total	10	405	0	0	415	26	0	8	0	34	0	522	56	0	578	0	1027
04:00 PM	3	96	0	0	99	10	0	5	0	15	0	153	15	0	168	0	282
04:15 PM	4	100	0	0	104	7	0	3	0	10	0	147	7	0	154	0	268
04:30 PM	0	84	0	0	84	8	0	3	0	11	0	163	11	0	174	0	269
04:45 PM	4	106	0	0	110	15	0	2	0	17	0	172	22	0	194	0	321
Total	11	386	0	0	397	40	0	13	0	53	0	635	55	0	690	0	1140
05:00 PM	1	100	0	0	101	10	0	5	0	15	0	182	20	0	202	0	318
05:15 PM	3	97	0	0	100	7	0	3	0	10	0	206	17	0	223	0	333
05:30 PM	8	136	0	0	144	6	0	4	0	10	0	177	18	0	195	0	349
05:45 PM	4	127	0	0	131	9	0	2	0	11	0	189	17	0	206	0	348
Total	16	460	0	0	476	32	0	14	0	46	0	754	72	0	826	0	1348

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Framingham Drive
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Framingham Drive
Site Code : 19973017
Start Date : 02/12/2002
Page No : 2

Groups Printed- Unshifted

	Goshen Road From North					Framingham Drive From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 PM	4	95	0	0	99	8	1	3	0	12	0	194	17	0	211	0	322
06:15 PM	3	100	0	0	103	9	0	1	0	10	0	177	15	0	192	0	305
06:30 PM	6	80	0	0	86	8	0	5	0	13	0	156	21	0	177	0	276
06:45 PM	2	91	0	0	93	12	0	3	0	15	0	145	16	0	161	0	269
Total	15	366	0	0	381	37	1	12	0	50	0	672	69	0	741	0	1172
Grand Total	63	3689	0	0	3752	332	1	76	0	409	0	3073	280	0	3353	0	7514
Apprch %	1.7	98.3	0.0	0.0		81.2	0.2	18.6	0.0		0.0	91.6	8.4	0.0			
Total %	0.8	49.1	0.0	0.0	49.9	4.4	0.0	1.0	0.0	5.4	0.0	40.9	3.7	0.0	44.6	0.0	

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Baltimore, MD 21217

Location: Goshen Road @ Framingham Drive
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Framingham Drive
Site Code : 19973017
Start Date : 02/12/2002
Page No : 3

	Goshen Road From North SB					Framingham Drive From East WB					Goshen Road From South NB						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	3	765	0	0	768	68	0	14	0	82	0	228	12	0	240	0	1090
Percent	0.4	99.6	0.0	0.0		82.9	0.0	17.1	0.0		0.0	95.0	5.0	0.0			
08:30 Volume	3	218	0	0	221	11	0	2	0	13	0	70	3	0	73	0	307
Peak Factor																	0.888
High Int.	08:30 AM					08:45 AM					08:30 AM					5:45:00 AM	
Volume	3	218	0	0	221	19	0	8	0	27	0	70	3	0	73		
Peak Factor					0.869					0.759					0.822		
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	19	455	0	0	474	30	1	12	0	43	0	766	69	0	835	0	1352
Percent	4.0	96.0	0.0	0.0		69.8	2.3	27.9	0.0		0.0	91.7	8.3	0.0			
05:30 Volume	8	136	0	0	144	6	0	4	0	10	0	177	18	0	195	0	349
Peak Factor																	0.968
High Int.	05:30 PM					06:00 PM					05:15 PM						
Volume	8	136	0	0	144	8	1	3	0	12	0	206	17	0	223		
Peak Factor					0.823					0.896					0.936		

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Turtle Dove Terr
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Turtle Dove Terrace
Site Code : 19973017
Start Date : 02/12/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Turtle Dove Terrace From East					Goshen Road From South					Sandy Lake Drive From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	65	0	0	65	7	0	4	0	11	1	15	0	0	16	0	0	4	0	4	96
06:15 AM	0	113	2	0	115	2	0	1	0	3	1	18	1	0	20	3	0	3	0	6	144
06:30 AM	1	137	0	0	138	11	0	3	0	14	1	21	1	0	23	1	0	7	0	8	183
06:45 AM	1	178	0	0	179	6	0	0	0	6	1	24	0	0	25	5	0	2	0	7	217
Total	2	493	2	0	497	26	0	8	0	34	4	78	2	0	84	9	0	16	0	25	640
07:00 AM	0	171	1	0	172	8	0	2	0	10	1	47	2	0	50	2	0	6	0	8	240
07:15 AM	1	201	2	0	204	5	0	6	0	11	2	58	1	0	61	1	0	6	0	7	283
07:30 AM	2	187	0	0	189	10	0	1	0	11	1	37	1	0	39	1	0	12	0	13	252
07:45 AM	2	185	1	0	188	7	0	3	0	10	0	52	0	0	52	3	0	5	0	8	258
Total	5	744	4	0	753	30	0	12	0	42	4	194	4	0	202	7	0	29	0	36	1033
08:00 AM	1	175	2	0	178	4	1	2	0	7	2	35	5	0	42	4	0	5	0	9	236
08:15 AM	1	181	1	0	183	8	0	3	0	11	1	62	1	0	64	1	0	6	0	7	265
08:30 AM	2	201	1	0	204	3	0	4	0	7	1	72	1	0	74	1	0	9	0	10	295
08:45 AM	1	172	1	0	174	11	1	1	0	13	1	60	2	0	63	2	0	10	0	12	262
Total	5	729	5	0	739	26	2	10	0	38	5	229	9	0	243	8	0	30	0	38	1058
*** BREAK ***																					
03:00 PM	4	81	3	0	88	2	0	0	0	2	9	108	5	0	122	4	1	2	0	7	219
03:15 PM	1	92	3	0	96	4	1	1	0	6	6	143	3	0	152	0	0	4	0	4	258
03:30 PM	3	116	2	0	121	3	0	4	0	7	6	115	4	0	125	1	0	3	0	4	257
03:45 PM	3	110	2	0	115	1	0	4	0	5	4	129	2	0	135	1	0	4	0	5	260
Total	11	399	10	0	420	10	1	9	0	20	25	495	14	0	534	6	1	13	0	20	994
04:00 PM	4	100	4	0	108	3	0	0	0	3	10	152	3	0	165	3	0	3	0	6	282
04:15 PM	3	94	2	0	99	3	1	2	0	6	4	138	7	0	149	0	0	3	0	3	257
04:30 PM	4	80	2	0	86	1	0	2	0	3	5	156	6	0	167	2	0	5	0	7	263
04:45 PM	4	101	1	0	106	5	0	0	0	5	7	166	6	0	179	1	0	3	0	4	294
Total	15	375	9	0	399	12	1	4	0	17	26	612	22	0	660	6	0	14	0	20	1096
05:00 PM	1	100	4	0	105	4	0	2	0	6	8	175	5	0	188	2	0	3	0	5	304
05:15 PM	4	98	1	0	103	3	0	3	0	6	12	196	8	0	216	3	0	4	0	7	332
05:30 PM	4	137	2	0	143	4	0	3	0	7	3	174	10	0	187	1	0	5	0	6	343
05:45 PM	2	125	5	0	132	3	0	0	0	3	6	182	7	0	195	4	0	3	0	7	337
Total	11	460	12	0	483	14	0	8	0	22	29	727	30	0	786	10	0	15	0	25	1316

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Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Turtle Dove Terr
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Turtle Dove Terrace
Site Code : 19973017
Start Date : 02/12/2002

Groups Printed- Unshifted

	Goshen Road From North					Turtle Dove Terrace From East					Goshen Road From South					Sandy Lake Drive From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	3	100	2	0	105	3	0	4	0	7	7	189	5	0	201	2	0	2	0	4	317
06:15 PM	1	98	4	0	103	0	0	2	0	2	5	174	6	0	185	2	0	3	0	5	295
06:30 PM	1	74	1	0	76	2	0	1	0	3	3	147	10	0	160	0	0	4	0	4	243
06:45 PM	3	83	2	0	88	5	0	4	0	9	4	153	4	0	161	0	0	8	0	8	266
Total	8	355	9	0	372	10	0	11	0	21	19	663	25	0	707	4	0	17	0	21	1121
Grand Total	57	3555	51	0	3663	128	4	62	0	194	112	2998	106	0	3216	50	1	134	0	185	7258
Apprch %	1.6	97.1	1.4	0.0		66.0	2.1	32.0	0.0		3.5	93.2	3.3	0.0		27.0	0.5	72.4	0.0		
Total %	0.8	49.0	0.7	0.0	50.5	1.8	0.1	0.9	0.0	2.7	1.5	41.3	1.5	0.0	44.3	0.7	0.0	1.8	0.0	2.5	

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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Turtle Dove Terr
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Turtle Dove Terrace
Site Code : 19973017
Start Date : 02/12/2002

	Goshen Road From North SB					Turtle Dove Terrace From East WB					Goshen Road From South NB					Sandy Lake Drive From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	5	729	5	0	739	26	2	10	0	38	5	229	9	0	243	8	0	30	0	38	1058
Percent	0.7	98.6	0.7	0.0		68.4	5.3	26.3	0.0		2.1	94.2	3.7	0.0		21.1	0.0	78.9	0.0		
08:30 Volume	2	201	1	0	204	3	0	4	0	7	1	72	1	0	74	1	0	9	0	10	295
Peak Factor																					0.897
High Int.	08:30 AM					08:45 AM					08:30 AM					08:45 AM					
Volume	2	201	1	0	204	11	1	1	0	13	1	72	1	0	74	2	0	10	0	12	
Peak Factor					0.906					0.731					0.821					0.792	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:15 PM																				
Volume	13	460	10	0	483	13	0	10	0	23	28	741	30	0	799	10	0	14	0	24	1329
Percent	2.7	95.2	2.1	0.0		56.5	0.0	43.5	0.0		3.5	92.7	3.8	0.0		41.7	0.0	58.3	0.0		
05:30 Volume	4	137	2	0	143	4	0	3	0	7	3	174	10	0	187	1	0	5	0	6	343
Peak Factor																					0.969
High Int.	05:30 PM					05:30 PM					05:15 PM					05:15 PM					
Volume	4	137	2	0	143	4	0	3	0	7	12	196	8	0	216	3	0	4	0	7	
Peak Factor					0.844					0.821					0.925					0.857	

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Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Stewartown Road
County: Montgomery
Weather: Clear
Counters: RMF

File Name : Goshen Road @ Stewartown Road
Site Code : 19973017
Start Date : 02/12/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Trams Way From East					Goshen Road From South					Stewartown Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	59	1	0	60	0	0	0	0	0	3	14	0	0	17	1	0	5	0	6	83
06:15 AM	0	100	3	0	103	2	0	1	0	3	3	17	0	0	20	2	0	11	0	13	139
06:30 AM	2	129	4	0	135	4	0	0	0	4	3	21	0	0	24	0	0	8	0	8	171
06:45 AM	0	167	5	0	172	3	0	0	0	3	3	26	0	0	29	0	0	11	0	11	215
Total	2	455	13	0	470	9	0	1	0	10	12	78	0	0	90	3	0	35	0	38	608
07:00 AM	0	154	1	0	155	2	1	0	0	3	3	45	0	0	48	2	0	10	0	12	218
07:15 AM	0	192	3	0	195	2	0	0	0	2	4	63	0	0	67	4	0	11	0	15	279
07:30 AM	2	174	3	0	179	0	0	1	0	1	7	36	0	0	43	4	0	15	0	19	242
07:45 AM	0	186	4	0	190	0	1	0	0	1	4	53	0	0	57	2	0	8	0	10	258
Total	2	706	11	0	719	4	2	1	0	7	18	197	0	0	215	12	0	44	0	56	997
08:00 AM	0	154	3	0	157	2	1	0	0	3	3	38	0	0	41	3	0	8	0	11	212
08:15 AM	0	166	1	0	167	3	0	1	0	4	8	57	0	0	65	2	0	14	0	16	252
08:30 AM	0	192	2	0	194	1	0	1	0	2	8	70	0	0	78	3	0	8	0	11	285
08:45 AM	0	154	3	0	157	1	1	1	0	3	4	56	1	0	61	3	0	7	0	10	231
Total	0	666	9	0	675	7	2	3	0	12	23	221	1	0	245	11	0	37	0	48	980
*** BREAK ***																					
03:00 PM	0	76	5	0	81	0	0	1	0	1	4	107	1	0	112	3	0	10	0	13	207
03:15 PM	1	87	7	0	95	0	0	1	0	1	10	125	0	0	135	13	0	4	0	17	248
03:30 PM	0	102	4	0	106	0	0	0	0	0	11	119	0	0	130	2	0	16	0	18	254
03:45 PM	1	105	3	0	109	0	0	0	0	0	11	120	3	0	134	5	0	10	0	15	258
Total	2	370	19	0	391	0	0	2	0	2	36	471	4	0	511	23	0	40	0	63	967
04:00 PM	0	90	4	0	94	1	0	0	0	1	14	134	0	0	148	8	0	6	0	14	257
04:15 PM	0	91	4	0	95	0	0	0	0	0	10	132	0	0	142	5	0	9	0	14	251
04:30 PM	0	79	2	0	81	1	0	0	0	1	12	140	2	0	154	7	0	4	0	11	247
04:45 PM	0	102	9	0	111	1	1	0	0	2	10	154	1	0	165	4	0	4	0	8	286
Total	0	362	19	0	381	3	1	0	0	4	46	560	3	0	609	24	0	23	0	47	1041
05:00 PM	0	86	5	0	91	1	0	1	0	2	9	169	4	0	182	2	0	8	0	10	285
05:15 PM	0	86	5	0	91	0	0	0	0	0	13	182	2	0	197	3	0	11	0	14	302
05:30 PM	0	120	9	0	129	1	0	0	0	1	18	160	1	0	179	4	0	17	0	21	330
05:45 PM	0	119	3	0	122	0	1	0	0	1	8	180	0	0	188	6	0	10	0	16	327
Total	0	411	22	0	433	2	1	1	0	4	48	691	7	0	746	15	0	46	0	61	1244

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Stewartown Road
County: Montgomery
Weather: Clear
Counters: RMF

File Name : Goshen Road @ Stewartown Road
Site Code : 19973017
Start Date : 02/12/2002
Page No : 2

Groups Printed- Unshifted

	Goshen Road From North					Trams Way From East					Goshen Road From South					Stewartown Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	0	90	4	0	94	0	0	0	0	0	10	178	4	0	192	0	0	9	0	9	295
06:15 PM	1	92	5	0	98	1	0	1	0	2	12	162	2	0	176	9	0	13	0	22	298
06:30 PM	1	64	7	0	72	0	0	0	0	0	11	147	2	0	160	6	0	9	0	15	247
06:45 PM	0	75	6	0	81	0	0	0	0	0	8	138	2	0	148	5	0	12	0	17	246
Total	2	321	22	0	345	1	0	1	0	2	41	625	10	0	676	20	0	43	0	63	1086
Grand Total	8	3291	115	0	3414	26	6	9	0	41	224	2843	25	0	3092	108	0	268	0	376	6923
Apprch %	0.2	96.4	3.4	0.0		63.4	14.6	22.0	0.0		7.2	91.9	0.8	0.0		28.7	0.0	71.3	0.0		
Total %	0.1	47.5	1.7	0.0	49.3	0.4	0.1	0.1	0.0	0.6	3.2	41.1	0.4	0.0	44.7	1.6	0.0	3.9	0.0	5.4	

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Baltimore, MD 21217

Location: Goshen Road @ Stewartown Road
County: Montgomery
Weather: Clear
Counters: RMF

File Name : Goshen Road @ Stewartown Road
Site Code : 19973017
Start Date : 02/12/2002
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	Goshen Road From North SB					Trams Way From East WB					Goshen Road From South NB					Stewartown Road From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:45 AM																				
Volume	0	698	10	0	708	6	2	2	0	10	23	218	0	0	241	10	0	38	0	48	1007
Percent	0.0	98.6	1.4	0.0		60.0	20.0	20.0	0.0		9.5	90.5	0.0	0.0		20.8	0.0	79.2	0.0		
08:30 Volume	0	192	2	0	194	1	0	1	0	2	8	70	0	0	78	3	0	8	0	11	285
Peak Factor																					0.883
High Int.	08:30 AM					08:15 AM					08:30 AM					08:15 AM					
Volume	0	192	2	0	194	3	0	1	0	4	8	70	0	0	78	2	0	14	0	16	
Peak Factor					0.912					0.625					0.772					0.750	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:15 PM																				
Volume	0	415	21	0	436	1	1	0	0	2	49	700	7	0	756	13	0	47	0	60	1254
Percent	0.0	95.2	4.8	0.0		50.0	50.0	0.0	0.0		6.5	92.6	0.9	0.0		21.7	0.0	78.3	0.0		
05:30 Volume	0	120	9	0	129	1	0	0	0	1	18	160	1	0	179	4	0	17	0	21	330
Peak Factor																					0.950
High Int.	05:30 PM					05:30 PM					05:15 PM					05:30 PM					
Volume	0	120	9	0	129	1	0	0	0	1	13	182	2	0	197	4	0	17	0	21	
Peak Factor					0.845					0.500					0.959					0.714	

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Location: Goshen Road @ Bramble Bush Dr
County: Montgomery
Weather: Clear
Counters: JS

File Name : Goshen Road @ Bramble Bush Drive
Site Code : 19973017
Start Date : 02/13/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Bramble Bush Drive From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 AM	0	62	0	0	62	5	0	0	0	5	0	16	1	0	17	0	84
06:15 AM	1	80	0	0	81	10	0	1	0	11	0	17	0	0	17	0	109
06:30 AM	1	125	0	0	126	14	0	2	0	16	0	29	1	0	30	0	172
06:45 AM	0	131	0	0	131	14	0	0	0	14	0	34	2	0	36	0	181
Total	2	398	0	0	400	43	0	3	0	46	0	96	4	0	100	0	546
07:00 AM	2	136	0	0	138	18	0	3	0	21	0	36	4	0	40	0	199
07:15 AM	1	166	0	0	167	9	0	0	0	9	0	56	5	0	61	0	237
07:30 AM	3	170	0	0	173	14	0	0	0	14	0	52	1	0	53	0	240
07:45 AM	1	156	0	0	157	8	0	2	0	10	0	40	2	0	42	0	209
Total	7	628	0	0	635	49	0	5	0	54	0	184	12	0	196	0	885
08:00 AM	3	143	0	0	146	6	0	1	0	7	0	45	3	0	48	0	201
08:15 AM	0	153	0	0	153	6	0	0	0	6	0	61	1	0	62	0	221
08:30 AM	1	170	0	0	171	5	0	1	0	6	0	60	2	0	62	0	239
08:45 AM	0	177	0	0	177	5	0	2	0	7	0	69	3	0	72	0	256
Total	4	643	0	0	647	22	0	4	0	26	0	235	9	0	244	0	917
*** BREAK ***																	
03:00 PM	2	100	0	0	102	5	0	5	0	10	0	112	4	0	116	0	228
03:15 PM	2	76	0	0	78	1	0	1	0	2	0	135	8	0	143	0	223
03:30 PM	2	106	0	0	108	2	0	0	0	2	0	126	6	0	132	0	242
03:45 PM	0	117	0	0	117	4	0	0	0	4	0	112	8	0	120	0	241
Total	6	399	0	0	405	12	0	6	0	18	0	485	26	0	511	0	934
04:00 PM	4	78	0	0	82	2	0	1	0	3	0	145	7	0	152	0	237
04:15 PM	0	104	0	0	104	2	0	1	0	3	0	137	5	0	142	0	249
04:30 PM	3	81	0	0	84	2	0	1	0	3	0	178	9	0	187	0	274
04:45 PM	3	103	0	0	106	0	0	6	0	6	0	167	9	0	176	0	288
Total	10	366	0	0	376	6	0	9	0	15	0	627	30	0	657	0	1048
05:00 PM	2	101	0	0	103	5	0	1	0	6	0	171	11	0	182	0	291
05:15 PM	0	118	0	0	118	7	0	3	0	10	0	188	11	0	199	0	327
05:30 PM	1	108	0	0	109	8	0	1	0	9	0	198	4	0	202	0	320
05:45 PM	9	112	0	0	121	7	0	7	0	14	0	191	7	0	198	0	333
Total	12	439	0	0	451	27	0	12	0	39	0	748	33	0	781	0	1271

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Baltimore, MD 21217

Location: Goshen Road @ Bramble Bush Dr
County: Montgomery
Weather: Clear
Counters: JS

File Name : Goshen Road @ Bramble Bush Drive
Site Code : 19973017
Start Date : 02/13/2002
Page No : 2

Groups Printed- Unshifted

	Goshen Road From North					Bramble Bush Drive From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 PM	5	94	0	0	99	7	0	2	0	9	0	159	10	0	169	0	277
06:15 PM	2	111	0	0	113	4	0	1	0	5	0	157	7	0	164	0	282
06:30 PM	0	120	0	0	120	1	0	2	0	3	0	140	6	0	146	0	269
06:45 PM	2	110	0	0	112	3	0	1	0	4	0	125	6	0	131	0	247
Total	9	435	0	0	444	15	0	6	0	21	0	581	29	0	610	0	1075
Grand Total	50	3308	0	0	3358	174	0	45	0	219	0	2956	143	0	3099	0	6676
Apprch %	1.5	98.5	0.0	0.0		79.5	0.0	20.5	0.0		0.0	95.4	4.6	0.0			
Total %	0.7	49.6	0.0	0.0	50.3	2.6	0.0	0.7	0.0	3.3	0.0	44.3	2.1	0.0	46.4	0.0	

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Location: Goshen Road @ Bramble Bush Dr
County: Montgomery
Weather: Clear
Counters: JS

File Name : Goshen Road @ Bramble Bush Drive
Site Code : 19973017
Start Date : 02/13/2002
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	Goshen Road From North (SB)					Bramble Bush Drive From East (WB)					Goshen Road From South (NB)						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	4	643	0	0	647	22	0	4	0	26	0	235	9	0	244	0	917
Percent	0.6	99.4	0.0	0.0		84.6	0.0	15.4	0.0		0.0	96.3	3.7	0.0			
08:45 Volume	0	177	0	0	177	5	0	2	0	7	0	69	3	0	72	0	256
Peak Factor																	0.896
High Int.	08:45 AM					08:00 AM					08:45 AM					5:45:00 AM	
Volume	0	177	0	0	177	6	0	1	0	7	0	69	3	0	72		
Peak Factor					0.914					0.929					0.847		
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	12	439	0	0	451	27	0	12	0	39	0	748	33	0	781	0	1271
Percent	2.7	97.3	0.0	0.0		69.2	0.0	30.8	0.0		0.0	95.8	4.2	0.0			
05:45 Volume	9	112	0	0	121	7	0	7	0	14	0	191	7	0	198	0	333
Peak Factor																	0.954
High Int.	05:45 PM					05:45 PM					05:30 PM						
Volume	9	112	0	0	121	7	0	7	0	14	0	198	4	0	202		
Peak Factor					0.932					0.696					0.967		

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Baltimore, MD 21217

Location: Goshen Road @ Rothbury Drive
County: Montgomery
Weather: Clear
Counters: RMF, CS

File Name : Goshen Road @ Rothbury Drive
Site Code : 19973017
Start Date : 02/13/2002

Groups Printed- 1 - Unshifted

	Goshen Road From North					Green Run Way From East					Goshen Road From South					Rothbury Drive From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	48	3	0	51	3	0	1	0	4	2	15	0	0	17	4	0	16	0	20	92
06:15 AM	1	69	7	0	77	3	0	2	0	5	3	17	0	0	20	9	0	15	0	24	126
06:30 AM	2	103	14	0	119	4	0	6	0	10	7	27	0	0	34	12	0	29	0	41	204
06:45 AM	1	109	11	0	121	2	0	3	0	5	17	16	0	0	33	9	1	24	0	34	193
Total	4	329	35	0	368	12	0	12	0	24	29	75	0	0	104	34	1	84	0	119	615
07:00 AM	1	103	13	0	117	1	1	11	0	13	8	32	0	0	40	20	0	33	0	53	223
07:15 AM	0	149	9	0	158	1	2	4	0	7	15	46	1	0	62	15	0	34	0	49	276
07:30 AM	0	135	10	0	145	1	1	0	0	2	11	41	0	0	52	11	1	36	0	48	247
07:45 AM	0	155	12	0	167	2	0	1	0	3	11	27	0	0	38	18	1	26	0	45	253
Total	1	542	44	0	587	5	4	16	0	25	45	146	1	0	192	64	2	129	0	195	999
08:00 AM	1	122	11	0	134	0	0	6	0	6	12	36	4	0	52	18	0	26	0	44	236
08:15 AM	2	126	10	0	138	4	3	4	0	11	12	51	1	0	64	17	0	32	0	49	262
08:30 AM	0	137	13	0	150	1	2	4	0	7	14	47	1	0	62	18	0	43	0	61	280
08:45 AM	1	100	10	0	111	0	1	5	0	6	16	57	0	0	73	15	1	35	0	51	241
Total	4	485	44	0	533	5	6	19	0	30	54	191	6	0	251	68	1	136	0	205	1019
*** BREAK ***																					
03:00 PM	1	83	22	0	106	0	1	3	0	4	25	94	1	0	120	22	1	22	0	45	275
03:15 PM	6	63	20	0	89	2	3	4	0	9	24	109	2	0	135	15	1	27	0	43	276
03:30 PM	0	88	22	0	110	0	0	0	0	0	24	99	1	0	124	16	1	23	0	40	274
03:45 PM	2	80	21	0	103	1	1	3	0	5	34	86	1	0	121	28	3	30	0	61	290
Total	9	314	85	0	408	3	5	10	0	18	107	388	5	0	500	81	6	102	0	189	1115
04:00 PM	3	71	24	0	98	0	0	2	0	2	30	102	1	0	133	27	1	15	0	43	276
04:15 PM	3	75	19	0	97	0	2	1	0	3	32	115	0	0	147	26	1	23	0	50	297
04:30 PM	2	53	24	0	79	0	1	1	0	2	44	133	3	0	180	19	4	26	0	49	310
04:45 PM	4	81	20	0	105	1	1	3	0	5	42	140	0	0	182	30	1	25	0	56	348
Total	12	280	87	0	379	1	4	7	0	12	148	490	4	0	642	102	7	89	0	198	1231
05:00 PM	3	77	43	0	123	2	0	0	0	2	30	144	2	0	176	27	3	29	0	59	360
05:15 PM	2	83	29	0	114	0	2	1	0	3	36	149	3	0	188	24	0	30	0	54	359
05:30 PM	6	82	36	0	124	1	0	2	0	3	41	160	2	0	203	46	2	30	0	78	408
05:45 PM	1	81	37	0	119	0	2	3	0	5	47	154	8	0	209	29	0	37	0	66	399
Total	12	323	145	0	480	3	4	6	0	13	154	607	15	0	776	126	5	126	0	257	1526

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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Rothbury Drive
County: Montgomery
Weather: Clear
Counters: RMF, CS

File Name : Goshen Road @ Rothbury Drive
Site Code : 19973017
Start Date : 02/13/2002
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Groups Printed- 1 - Unshifted

	Goshen Road From North					Green Run Way From East					Goshen Road From South					Rothbury Drive From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	4	74	43	0	121	0	1	1	0	2	44	106	4	0	154	52	3	25	0	80	357
06:15 PM	2	79	31	0	112	1	3	3	0	7	42	114	1	0	157	47	3	26	0	76	352
06:30 PM	1	94	59	0	154	0	0	0	0	0	46	92	1	0	139	34	1	35	0	70	363
06:45 PM	2	67	30	0	99	1	1	1	0	3	30	94	1	0	125	38	1	33	0	72	299
Total	9	314	163	0	486	2	5	5	0	12	162	406	7	0	575	171	8	119	0	298	1371
Grand Total	51	2587	603	0	3241	31	28	75	0	134	699	2303	38	0	3040	646	30	785	0	1461	7876
Apprch %	1.6	79.8	18.6	0.0		23.1	20.9	56.0	0.0		23.0	75.8	1.3	0.0		44.2	2.1	53.7	0.0		
Total %	0.6	32.8	7.7	0.0	41.2	0.4	0.4	1.0	0.0	1.7	8.9	29.2	0.5	0.0	38.6	8.2	0.4	10.0	0.0	18.6	

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Baltimore, MD 21217

Location: Goshen Road @ Rothbury Drive
County: Montgomery
Weather: Clear
Counters: RMF, CS

File Name : Goshen Road @ Rothbury Drive
Site Code : 19973017
Start Date : 02/13/2002
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	Goshen Road From North SB					Green Run Way From East WB					Goshen Road From South NB					Rothbury Drive From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:45 AM																				
Volume	3	540	46	0	589	7	5	15	0	27	49	161	6	0	216	71	1	127	0	199	1031
Percent	0.5	91.7	7.8	0.0		25.9	18.5	55.6	0.0		22.7	74.5	2.8	0.0		35.7	0.5	63.8	0.0		
08:30 Volume	0	137	13	0	150	1	2	4	0	7	14	47	1	0	62	18	0	43	0	61	280
Peak Factor																					0.921
High Int.	07:45 AM					08:15 AM					08:15 AM					08:30 AM					
Volume	0	155	12	0	167	4	3	4	0	11	12	51	1	0	64	18	0	43	0	61	
Peak Factor					0.882					0.614					0.844					0.816	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	12	323	145	0	480	3	4	6	0	13	154	607	15	0	776	126	5	126	0	257	1526
Percent	2.5	67.3	30.2	0.0		23.1	30.8	46.2	0.0		19.8	78.2	1.9	0.0		49.0	1.9	49.0	0.0		
05:30 Volume	6	82	36	0	124	1	0	2	0	3	41	160	2	0	203	46	2	30	0	78	408
Peak Factor																					0.935
High Int.	05:30 PM					05:45 PM					05:45 PM					05:30 PM					
Volume	6	82	36	0	124	0	2	3	0	5	47	154	8	0	209	46	2	30	0	78	
Peak Factor					0.968					0.650					0.928					0.824	

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Baltimore, MD 21217

Location: Goshen Road @ Goshen Crossing
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Goshen Crossing
Site Code : 19973017
Start Date : 02/13/2002
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Groups Printed- Unshifted

	Goshen Road From North						Goshen Road From South					Goshen Crossing Shopping Center From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	26	5	0	31	0	3	15	0	0	18	3	0	5	0	8	57
06:15 AM	0	45	6	0	51	0	1	27	0	0	28	7	0	4	0	11	90
06:30 AM	0	89	18	0	107	0	4	40	0	0	44	7	0	7	0	14	165
06:45 AM	0	89	18	0	107	0	4	23	0	0	27	7	0	10	0	17	151
Total	0	249	47	0	296	0	12	105	0	0	117	24	0	26	0	50	463
07:00 AM	0	93	22	0	115	0	5	55	0	0	60	9	0	11	0	20	195
07:15 AM	0	89	21	0	110	0	4	54	0	0	58	14	0	11	0	25	193
07:30 AM	0	121	16	0	137	0	3	54	0	0	57	11	0	11	0	22	216
07:45 AM	0	122	17	0	139	0	5	42	0	0	47	11	0	8	0	19	205
Total	0	425	76	0	501	0	17	205	0	0	222	45	0	41	0	86	809
08:00 AM	0	80	28	0	108	0	5	55	0	0	60	13	0	15	0	28	196
08:15 AM	0	103	31	0	134	0	6	70	0	0	76	9	0	9	0	18	228
08:30 AM	0	104	35	0	139	0	10	53	0	0	63	9	0	14	0	23	225
08:45 AM	0	84	23	0	107	0	8	73	0	0	81	15	0	5	0	20	208
Total	0	371	117	0	488	0	29	251	0	0	280	46	0	43	0	89	857
*** BREAK ***																	
03:00 PM	0	79	34	0	113	0	13	106	0	0	119	22	0	11	0	33	265
03:15 PM	0	55	30	0	85	0	13	118	0	0	131	22	0	14	0	36	252
03:30 PM	0	68	31	0	99	0	9	95	0	0	104	29	0	11	0	40	243
03:45 PM	0	80	38	0	118	0	9	114	0	0	123	29	0	20	0	49	290
Total	0	282	133	0	415	0	44	433	0	0	477	102	0	56	0	158	1050
04:00 PM	0	82	33	0	115	0	11	122	0	0	133	37	0	11	0	48	296
04:15 PM	0	69	32	0	101	0	14	134	0	0	148	32	0	18	0	50	299
04:30 PM	0	80	29	0	109	0	13	144	0	0	157	35	0	10	0	45	311
04:45 PM	0	72	39	0	111	0	12	151	0	0	163	30	0	16	0	46	320
Total	0	303	133	0	436	0	50	551	0	0	601	134	0	55	0	189	1226
05:00 PM	0	91	38	0	129	0	13	139	0	0	152	45	0	10	0	55	336
05:15 PM	0	74	48	0	122	0	14	163	0	0	177	40	0	10	0	50	349
05:30 PM	0	75	53	0	128	0	15	174	0	0	189	35	0	12	0	47	364
05:45 PM	0	65	46	0	111	0	19	181	0	0	200	55	0	14	0	69	380
Total	0	305	185	0	490	0	61	657	0	0	718	175	0	46	0	221	1429

RUMMEL, KLEPPER & KAHL, LLP
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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Goshen Crossing
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Goshen Crossing
Site Code : 19973017
Start Date : 02/13/2002
Page No : 2

Groups Printed- Unshifted

	Goshen Road From North						Goshen Road From South					Goshen Crossing Shopping Center From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	0	83	44	0	127	0	9	154	0	0	163	34	0	15	0	49	339
06:15 PM	0	100	48	0	148	0	13	148	0	0	161	38	0	12	0	50	359
06:30 PM	0	149	53	0	202	0	9	125	0	0	134	52	0	21	0	73	409
06:45 PM	0	97	41	0	138	0	5	120	0	0	125	44	0	12	0	56	319
Total	0	429	186	0	615	0	36	547	0	0	583	168	0	60	0	228	1426
Grand Total	0	2364	877	0	3241	0	249	2749	0	0	2998	694	0	327	0	1021	7260
Apprch %	0.0	72.9	27.1	0.0			8.3	91.7	0.0	0.0		68.0	0.0	32.0	0.0		
Total %	0.0	32.6	12.1	0.0	44.6	0.0	3.4	37.9	0.0	0.0	41.3	9.6	0.0	4.5	0.0	14.1	

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Location: Goshen Road @ Goshen Crossing
County: Montgomery
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File Name : Goshen Road @ Goshen Crossing
Site Code : 19973017
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	Goshen Road From North SB						Goshen Road From South NB					Goshen Crossing Shopping Center From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	0	371	117	0	488	0	29	251	0	0	280	46	0	43	0	89	857
Percent	0.0	76.0	24.0	0.0			10.4	89.6	0.0	0.0		51.7	0.0	48.3	0.0		
08:15 Volume	0	103	31	0	134	0	6	70	0	0	76	9	0	9	0	18	228
Peak Factor																	0.940
High Int.	08:30 AM					5:45:00 AM	08:45 AM					08:00 AM					
Volume	0	104	35	0	139	0	8	73	0	0	81	13	0	15	0	28	
Peak Factor					0.878						0.864					0.795	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:45 PM																
Volume	0	397	191	0	588	0	50	608	0	0	658	179	0	62	0	241	1487
Percent	0.0	67.5	32.5	0.0			7.6	92.4	0.0	0.0		74.3	0.0	25.7	0.0		
06:30 Volume	0	149	53	0	202	0	9	125	0	0	134	52	0	21	0	73	409
Peak Factor																	0.909
High Int.	06:30 PM						05:45 PM					06:30 PM					
Volume	0	149	53	0	202	0	19	181	0	0	200	52	0	21	0	73	
Peak Factor					0.728						0.823					0.825	

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Location: Goshen Road @ Snouffer School
County: Montgomery
Weather: Clear
Counters: AN, RG

File Name : Goshen Road @ Snouffer School Road
Site Code : 19973017
Start Date : 02/13/2002
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Groups Printed- 1 - Unshifted

	Goshen Road From North					Snouffer School Road From East					Goshen Road From South					Wightman Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	8	19	10	0	37	8	17	1	0	26	1	12	5	0	18	8	27	4	0	39	120
06:15 AM	9	44	11	0	64	10	25	3	0	38	5	17	12	0	34	4	50	4	1	59	195
06:30 AM	12	73	16	0	101	25	35	2	0	62	7	23	13	0	43	9	49	9	0	67	273
06:45 AM	26	78	45	1	150	18	55	6	0	79	3	15	12	0	30	15	63	11	0	89	348
Total	55	214	82	1	352	61	132	12	0	205	16	67	42	0	125	36	189	28	1	254	936
07:00 AM	39	87	48	0	174	20	43	9	0	72	7	30	27	0	64	26	59	8	0	93	403
07:15 AM	24	68	21	0	113	20	64	3	0	87	7	33	28	0	68	59	69	22	0	150	418
07:30 AM	36	105	29	0	170	14	55	5	0	74	3	35	27	0	65	30	95	18	0	143	452
07:45 AM	26	106	47	0	179	14	62	6	0	82	5	27	21	0	53	37	87	19	0	143	457
Total	125	366	145	0	636	68	224	23	0	315	22	125	103	0	250	152	310	67	0	529	1730
08:00 AM	40	67	30	0	137	20	63	7	0	90	8	39	21	0	68	43	73	21	0	137	432
08:15 AM	21	94	40	1	156	26	57	8	0	91	7	49	23	0	79	48	81	14	0	143	469
08:30 AM	29	107	38	2	176	15	46	15	0	76	7	38	17	0	62	56	52	17	0	125	439
08:45 AM	21	71	43	1	136	22	62	19	0	103	8	58	22	0	88	38	48	14	0	100	427
Total	111	339	151	4	605	83	228	49	0	360	30	184	83	0	297	185	254	66	0	505	1767
*** BREAK ***																					
03:00 PM	12	50	19	1	82	42	60	15	0	117	17	81	30	0	128	57	59	21	0	137	464
03:15 PM	10	44	21	0	75	30	68	15	0	113	20	92	28	0	140	51	28	11	0	90	418
03:30 PM	13	56	17	0	86	21	70	15	0	106	14	83	27	0	124	35	27	22	0	84	400
03:45 PM	6	53	20	1	80	34	87	21	0	142	12	90	41	0	143	58	57	31	0	146	511
Total	41	203	77	2	323	127	285	66	0	478	63	346	126	0	535	201	171	85	0	457	1793
04:00 PM	14	59	19	1	93	39	82	13	0	134	12	117	30	0	159	77	50	17	0	144	530
04:15 PM	7	42	22	0	71	39	76	18	0	133	22	110	34	0	166	83	84	20	0	187	557
04:30 PM	12	56	25	1	94	40	73	23	0	136	15	124	40	0	179	82	33	13	0	128	537
04:45 PM	12	48	23	1	84	50	113	11	0	174	26	127	28	0	181	81	68	13	0	162	601
Total	45	205	89	3	342	168	344	65	0	577	75	478	132	0	685	323	235	63	0	621	2225
05:00 PM	5	61	25	0	91	51	105	23	0	179	17	123	44	1	185	83	56	17	0	156	611
05:15 PM	24	51	20	3	98	52	119	40	0	211	28	150	25	0	203	83	80	19	0	182	694
05:30 PM	12	54	10	0	76	48	100	32	0	180	24	155	30	0	209	95	67	26	0	188	653
05:45 PM	16	32	5	0	53	54	82	20	0	156	19	178	39	0	236	96	70	25	0	191	636
Total	57	198	60	3	318	205	406	115	0	726	88	606	138	1	833	357	273	87	0	717	2594

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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Snouffer School
County: Montgomery
Weather: Clear
Counters: AN, RG

File Name : Goshen Road @ Snouffer School Road
Site Code : 19973017
Start Date : 02/13/2002
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Groups Printed- 1 - Unshifted

	Goshen Road From North					Snouffer School Road From East					Goshen Road From South					Wightman Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	18	56	23	3	100	33	89	16	0	138	25	130	33	0	188	76	67	38	0	181	607
06:15 PM	15	71	25	1	112	60	72	21	0	153	18	124	44	0	186	94	67	17	0	178	629
06:30 PM	30	98	38	1	167	49	76	11	0	136	27	108	42	0	177	66	57	22	0	145	625
06:45 PM	23	73	34	0	130	47	91	15	0	153	14	117	33	0	164	77	72	18	0	167	614
Total	86	298	120	5	509	189	328	63	0	580	84	479	152	0	715	313	263	95	0	671	2475
Grand Total	520	1823	724	18	3085	901	1947	393	0	3241	378	2285	776	1	3440	1567	1695	491	1	3754	13520
Apprch %	16.9	59.1	23.5	0.6		27.8	60.1	12.1	0.0		11.0	66.4	22.6	0.0		41.7	45.2	13.1	0.0		
Total %	3.8	13.5	5.4	0.1	22.8	6.7	14.4	2.9	0.0	24.0	2.8	16.9	5.7	0.0	25.4	11.6	12.5	3.6	0.0	27.8	

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Location: Goshen Road @ Snouffer School
County: Montgomery
Weather: Clear
Counters: AN, RG

File Name : Goshen Road @ Snouffer School Road
Site Code : 19973017
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	Goshen Road From North SB					Snouffer School Road From East WB					Goshen Road From South NB					Wightman Road From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	123	372	146	1	642	74	237	26	0	337	23	150	92	0	265	158	336	72	0	566	1810
Percent	19.2	57.9	22.7	0.2		22.0	70.3	7.7	0.0		8.7	56.6	34.7	0.0		27.9	59.4	12.7	0.0		
08:15 Volume	21	94	40	1	156	26	57	8	0	91	7	49	23	0	79	48	81	14	0	143	469
Peak Factor																					0.965
High Int.	07:45 AM					08:15 AM					08:15 AM					07:30 AM					
Volume	26	106	47	0	179	26	57	8	0	91	7	49	23	0	79	30	95	18	0	143	
Peak Factor					0.897					0.926					0.839					0.990	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	57	198	60	3	318	205	406	115	0	726	88	606	138	1	833	357	273	87	0	717	2594
Percent	17.9	62.3	18.9	0.9		28.2	55.9	15.8	0.0		10.6	72.7	16.6	0.1		49.8	38.1	12.1	0.0		
05:15 Volume	24	51	20	3	98	52	119	40	0	211	28	150	25	0	203	83	80	19	0	182	694
Peak Factor																					0.934
High Int.	05:15 PM					05:15 PM					05:45 PM					05:45 PM					
Volume	24	51	20	3	98	52	119	40	0	211	19	178	39	0	236	96	70	25	0	191	
Peak Factor					0.811					0.860					0.882					0.938	

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Location: Goshen Road @ Safeway Shopping
County: Montgomery
Weather: Clear
Counters: WB

File Name : Goshen Road @ Safeway Shopping Center
Site Code : 19973017
Start Date : 02/14/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Safeway Shopping Center From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 AM	0	35	0	0	35	0	0	2	0	2	0	18	6	0	24	0	61
06:15 AM	0	74	0	0	74	0	0	2	0	2	0	27	4	0	31	0	107
06:30 AM	0	77	0	0	77	0	0	1	0	1	0	31	0	0	31	0	109
06:45 AM	0	150	0	0	150	0	0	4	0	4	0	45	3	0	48	0	202
Total	0	336	0	0	336	0	0	9	0	9	0	121	13	0	134	0	479
07:00 AM	0	132	0	0	132	0	0	4	0	4	0	54	5	0	59	0	195
07:15 AM	0	163	0	0	163	0	0	4	0	4	0	70	5	0	75	0	242
07:30 AM	0	172	0	0	172	0	0	11	0	11	0	70	9	0	79	0	262
07:45 AM	0	155	0	0	155	0	0	7	0	7	0	62	5	0	67	0	229
Total	0	622	0	0	622	0	0	26	0	26	0	256	24	0	280	0	928
08:00 AM	0	154	0	0	154	0	0	4	0	4	0	83	15	0	98	0	256
08:15 AM	0	135	0	0	135	0	0	15	0	15	0	69	9	0	78	0	228
08:30 AM	0	168	0	0	168	0	0	8	0	8	0	89	6	0	95	0	271
08:45 AM	0	173	0	0	173	0	0	12	0	12	0	83	9	0	92	0	277
Total	0	630	0	0	630	0	0	39	0	39	0	324	39	0	363	0	1032
*** BREAK ***																	
03:00 PM	0	52	0	0	52	0	0	13	0	13	0	138	19	0	157	0	222
03:15 PM	0	59	0	0	59	0	0	19	0	19	0	158	10	0	168	0	246
03:30 PM	0	138	0	0	138	0	0	18	0	18	0	150	18	0	168	0	324
03:45 PM	0	96	0	0	96	0	0	20	0	20	0	147	17	0	164	0	280
Total	0	345	0	0	345	0	0	70	0	70	0	593	64	0	657	0	1072
04:00 PM	0	75	0	0	75	0	0	20	0	20	0	164	17	0	181	0	276
04:15 PM	0	66	0	0	66	0	0	20	0	20	0	190	20	0	210	0	296
04:30 PM	0	68	0	0	68	0	0	14	0	14	0	198	20	0	218	0	300
04:45 PM	0	67	0	0	67	0	0	22	0	22	0	193	26	0	219	0	308
Total	0	276	0	0	276	0	0	76	0	76	0	745	83	0	828	0	1180
05:00 PM	0	66	0	0	66	0	0	23	0	23	0	206	26	0	232	0	321
05:15 PM	0	61	0	0	61	0	0	31	0	31	0	251	20	0	271	0	363
05:30 PM	0	89	0	0	89	0	0	26	0	26	0	217	28	0	245	0	360
05:45 PM	0	77	0	0	77	0	0	22	0	22	0	227	15	0	242	0	341
Total	0	293	0	0	293	0	0	102	0	102	0	901	89	0	990	0	1385

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Baltimore, MD 21217

Location: Goshen Road @ Safeway Shopping
County: Montgomery
Weather: Clear
Counters: WB

File Name : Goshen Road @ Safeway Shopping Center
Site Code : 19973017
Start Date : 02/14/2002
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Groups Printed- Unshifted

	Goshen Road From North					Safeway Shopping Center From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 PM	0	103	0	0	103	0	0	30	0	30	0	219	11	0	230	0	363
06:15 PM	0	76	0	0	76	0	0	19	0	19	0	167	21	0	188	0	283
06:30 PM	0	59	0	0	59	0	0	20	0	20	0	189	12	0	201	0	280
06:45 PM	0	71	0	0	71	0	0	14	0	14	0	153	17	0	170	0	255
Total	0	309	0	0	309	0	0	83	0	83	0	728	61	0	789	0	1181
Grand Total	0	2811	0	0	2811	0	0	405	0	405	0	3668	373	0	4041	0	7257
Apprch %	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	90.8	9.2	0.0			
Total %	0.0	38.7	0.0	0.0	38.7	0.0	0.0	5.6	0.0	5.6	0.0	50.5	5.1	0.0	55.7	0.0	

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Location: Goshen Road @ Safeway Shopping
County: Montgomery
Weather: Clear
Counters: WB

File Name : Goshen Road @ Safeway Shopping Center
Site Code : 19973017
Start Date : 02/14/2002
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	Goshen Road From North (SB)					Safeway Shopping Center From East (WB)					Goshen Road From South (NB)						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	0	630	0	0	630	0	0	39	0	39	0	324	39	0	363	0	1032
Percent	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	89.3	10.7	0.0			
08:45 Volume	0	173	0	0	173	0	0	12	0	12	0	83	9	0	92	0	277
Peak Factor																	0.931
High Int.	08:45 AM					08:15 AM					08:00 AM					5:45:00 AM	
Volume	0	173	0	0	173	0	0	15	0	15	0	83	15	0	98		
Peak Factor					0.910					0.650					0.926		
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	0	330	0	0	330	0	0	109	0	109	0	914	74	0	988	0	1427
Percent	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	92.5	7.5	0.0			
06:00 Volume	0	103	0	0	103	0	0	30	0	30	0	219	11	0	230	0	363
Peak Factor																	0.983
High Int.	06:00 PM					05:15 PM					05:15 PM						
Volume	0	103	0	0	103	0	0	31	0	31	0	251	20	0	271		
Peak Factor					0.801					0.879					0.911		

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Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ East Village Ave
County: Montgomery
Weather: Clear
Counters: WK

File Name : Goshen Road @ East Village Avenue
Site Code : 19973017
Start Date : 02/14/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					East Village Avenue From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 AM	0	35	0	0	35	20	0	1	0	21	0	13	7	0	20	0	76
06:15 AM	1	73	0	0	74	34	0	3	0	37	0	18	11	0	29	0	140
06:30 AM	3	74	0	0	77	37	0	2	0	39	0	23	9	0	32	0	148
06:45 AM	2	148	0	0	150	69	0	6	0	75	0	31	18	0	49	0	274
Total	6	330	0	0	336	160	0	12	0	172	0	85	45	0	130	0	638
07:00 AM	5	127	0	0	132	65	0	10	0	75	0	32	26	0	58	0	265
07:15 AM	2	161	0	0	163	64	0	6	0	70	0	52	22	0	74	0	307
07:30 AM	2	170	0	0	172	53	0	8	0	61	0	62	19	0	81	0	314
07:45 AM	2	153	0	0	155	68	0	8	0	76	0	36	33	0	69	0	300
Total	11	611	0	0	622	250	0	32	0	282	0	182	100	0	282	0	1186
08:00 AM	0	154	0	0	154	70	0	11	0	81	0	52	35	0	87	0	322
08:15 AM	2	133	0	0	135	61	0	15	0	76	0	56	28	0	84	0	295
08:30 AM	7	161	0	0	168	56	0	20	0	76	0	72	25	0	97	0	341
08:45 AM	10	163	0	0	173	57	0	12	0	69	0	65	30	0	95	0	337
Total	19	611	0	0	630	244	0	58	0	302	0	245	118	0	363	0	1295
*** BREAK ***																	
03:00 PM	1	51	0	0	52	42	0	16	0	58	0	95	56	0	151	0	261
03:15 PM	7	52	0	0	59	33	0	12	0	45	0	126	51	0	177	0	281
03:30 PM	24	114	0	0	138	44	0	11	0	55	0	103	65	0	168	0	361
03:45 PM	7	89	0	0	96	50	0	9	0	59	0	113	54	0	167	0	322
Total	39	306	0	0	345	169	0	48	0	217	0	437	226	0	663	0	1225
04:00 PM	4	71	0	0	75	30	0	7	0	37	0	122	62	0	184	0	296
04:15 PM	5	61	0	0	66	40	0	6	0	46	0	141	69	0	210	0	322
04:30 PM	12	56	0	0	68	47	0	7	0	54	0	143	69	0	212	0	334
04:45 PM	6	61	0	0	67	41	0	5	0	46	0	131	84	0	215	0	328
Total	27	249	0	0	276	158	0	25	0	183	0	537	284	0	821	0	1280
05:00 PM	6	60	0	0	66	39	0	5	0	44	0	158	71	0	229	0	339
05:15 PM	9	52	0	0	61	60	0	10	0	70	0	185	97	0	282	0	413
05:30 PM	9	80	0	0	89	53	0	5	0	58	0	149	94	0	243	0	390
05:45 PM	7	70	0	0	77	53	0	9	0	62	0	155	94	0	249	0	388
Total	31	262	0	0	293	205	0	29	0	234	0	647	356	0	1003	0	1530

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81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ East Village Ave
County: Montgomery
Weather: Clear
Counters: WK

File Name : Goshen Road @ East Village Avenue
Site Code : 19973017
Start Date : 02/14/2002
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Groups Printed- Unshifted

	Goshen Road From North					East Village Avenue From East					Goshen Road From South						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
06:00 PM	9	94	0	0	103	52	0	11	0	63	0	144	105	0	249	0	415
06:15 PM	7	69	0	0	76	46	0	4	0	50	0	101	85	0	186	0	312
06:30 PM	7	52	0	0	59	44	0	6	0	50	0	94	115	0	209	0	318
06:45 PM	4	67	0	0	71	44	0	7	0	51	0	87	80	0	167	0	289
Total	27	282	0	0	309	186	0	28	0	214	0	426	385	0	811	0	1334
Grand Total	160	2651	0	0	2811	1372	0	232	0	1604	0	2559	1514	0	4073	0	8488
Apprch %	5.7	94.3	0.0	0.0		85.5	0.0	14.5	0.0		0.0	62.8	37.2	0.0			
Total %	1.9	31.2	0.0	0.0	33.1	16.2	0.0	2.7	0.0	18.9	0.0	30.1	17.8	0.0	48.0	0.0	

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Location: Goshen Road @ East Village Ave
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File Name : Goshen Road @ East Village Avenue
Site Code : 19973017
Start Date : 02/14/2002
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	Goshen Road From North (SB)					East Village Avenue From East (WB)					Goshen Road From South (NB)						
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	19	611	0	0	630	244	0	58	0	302	0	245	118	0	363	0	1295
Percent	3.0	97.0	0.0	0.0		80.8	0.0	19.2	0.0		0.0	67.5	32.5	0.0			
08:30 Volume	7	161	0	0	168	56	0	20	0	76	0	72	25	0	97	0	341
Peak Factor																	0.949
High Int.	08:45 AM					08:00 AM					08:30 AM					5:45:00 AM	
Volume	10	163	0	0	173	70	0	11	0	81	0	72	25	0	97		
Peak Factor					0.910					0.932					0.936		
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Intersection	05:15 PM																
Volume	34	296	0	0	330	218	0	35	0	253	0	633	390	0	1023	0	1606
Percent	10.3	89.7	0.0	0.0		86.2	0.0	13.8	0.0		0.0	61.9	38.1	0.0			
06:00 Volume	9	94	0	0	103	52	0	11	0	63	0	144	105	0	249	0	415
Peak Factor																	0.967
High Int.	06:00 PM					05:15 PM					05:15 PM						
Volume	9	94	0	0	103	60	0	10	0	70	0	185	97	0	282		
Peak Factor					0.801					0.904					0.907		

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Location: Goshen Road @ Mother of God
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Mother of God School
Site Code : 19973017
Start Date : 02/14/2002
Page No : 1

Groups Printed- Unshifted

	Goshen Road From North					Mother of God School From East					Goshen Road From South					St. John's Catholic Church From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	0	32	0	0	32	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	41
06:15 AM	0	73	0	0	73	0	0	0	0	0	0	23	0	0	23	0	0	1	0	1	97
06:30 AM	0	79	0	0	79	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	103
06:45 AM	3	147	0	0	150	0	0	0	0	0	0	33	2	0	35	0	0	1	0	1	186
Total	3	331	0	0	334	0	0	0	0	0	0	89	2	0	91	0	0	2	0	2	427
07:00 AM	4	129	0	0	133	3	0	0	0	3	0	39	4	0	43	0	0	0	0	0	179
07:15 AM	4	159	0	0	163	2	0	0	0	2	0	42	13	0	55	0	0	0	0	0	220
07:30 AM	6	167	0	0	173	3	0	2	0	5	2	63	12	0	77	0	1	0	0	1	256
07:45 AM	0	150	0	0	150	2	0	0	0	2	0	44	3	0	47	0	0	0	0	0	199
Total	14	605	0	0	619	10	0	2	0	12	2	188	32	0	222	0	1	0	0	1	854
08:00 AM	6	132	0	0	138	21	1	3	0	25	0	51	11	0	62	0	0	0	0	0	225
08:15 AM	20	127	0	0	147	14	1	5	0	20	1	50	19	0	70	0	0	0	0	0	237
08:30 AM	27	117	0	0	144	46	2	29	0	77	4	57	42	0	103	0	0	0	0	0	324
08:45 AM	5	154	0	0	159	12	0	7	0	19	5	64	4	0	73	0	0	2	0	2	253
Total	58	530	0	0	588	93	4	44	0	141	10	222	76	0	308	0	0	2	0	2	1039
*** BREAK ***																					
03:00 PM	8	32	2	0	42	4	14	2	0	20	3	65	21	0	89	0	0	6	0	6	157
03:15 PM	6	56	2	0	64	2	0	0	0	2	6	114	12	0	132	0	0	0	0	0	198
03:30 PM	1	96	0	0	97	34	0	30	0	64	6	88	10	0	104	1	0	7	0	8	273
03:45 PM	0	76	0	0	76	14	0	3	0	17	12	104	4	0	120	0	0	2	0	2	215
Total	15	260	4	0	279	54	14	35	0	103	27	371	47	0	445	1	0	15	0	16	843
04:00 PM	1	70	0	0	71	4	0	1	0	5	3	127	4	0	134	0	0	3	0	3	213
04:15 PM	3	60	1	0	64	5	0	1	0	6	2	143	5	0	150	0	0	1	0	1	221
04:30 PM	1	59	0	0	60	7	0	6	0	13	1	138	7	0	146	0	0	0	0	0	219
04:45 PM	0	64	0	0	64	1	0	1	0	2	2	137	1	0	140	0	0	0	0	0	206
Total	5	253	1	0	259	17	0	9	0	26	8	545	17	0	570	0	0	4	0	4	859
05:00 PM	0	65	0	0	65	3	0	1	0	4	3	149	2	0	154	1	0	5	0	6	229
05:15 PM	0	53	0	0	53	1	0	0	0	1	1	195	3	0	199	0	0	2	0	2	255
05:30 PM	1	89	0	0	90	0	0	4	0	4	3	149	3	0	155	0	0	0	0	0	249
05:45 PM	3	72	0	0	75	6	0	2	0	8	1	173	4	0	178	0	0	2	0	2	263
Total	4	279	0	0	283	10	0	7	0	17	8	666	12	0	686	1	0	9	0	10	996

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Location: Goshen Road @ Mother of God
County: Montgomery
Weather: Clear
Counters: WG

File Name : Goshen Road @ Mother of God School
Site Code : 19973017
Start Date : 02/14/2002

Groups Printed- Unshifted

	Goshen Road From North					Mother of God School From East					Goshen Road From South					St. John's Catholic Church From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	2	92	0	0	94	5	0	4	0	9	1	150	4	0	155	0	1	10	0	11	269
06:15 PM	3	75	0	0	78	3	0	1	0	4	2	122	2	0	126	0	0	2	0	2	210
06:30 PM	1	54	0	0	55	2	0	1	0	3	0	96	1	0	97	0	0	5	0	5	160
06:45 PM	0	71	0	0	71	1	0	0	0	1	2	98	1	0	101	0	1	0	0	1	174
Total	6	292	0	0	298	11	0	6	0	17	5	466	8	0	479	0	2	17	0	19	813
Grand Total	105	2550	5	0	2660	195	18	103	0	316	60	2547	194	0	2801	2	3	49	0	54	5831
Apprch %	3.9	95.9	0.2	0.0		61.7	5.7	32.6	0.0		2.1	90.9	6.9	0.0		3.7	5.6	90.7	0.0		
Total %	1.8	43.7	0.1	0.0	45.6	3.3	0.3	1.8	0.0	5.4	1.0	43.7	3.3	0.0	48.0	0.0	0.1	0.8	0.0	0.9	

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Baltimore, MD 21217

Location: Goshen Road @ Mother of God
County: Montgomery
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File Name : Goshen Road @ Mother of God School
Site Code : 19973017
Start Date : 02/14/2002
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	Goshen Road From North SB					Mother of God School From East WB					Goshen Road From South NB					St. John's Catholic Church From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	58	530	0	0	588	93	4	44	0	141	10	222	76	0	308	0	0	2	0	2	1039
Percent	9.9	90.1	0.0	0.0		66.0	2.8	31.2	0.0		3.2	72.1	24.7	0.0		0.0	0.0	100.0	0.0		
08:30 Volume	27	117	0	0	144	46	2	29	0	77	4	57	42	0	103	0	0	0	0	0	324
Peak Factor																					0.802
High Int.	08:45 AM					08:30 AM					08:30 AM					08:45 AM					
Volume	5	154	0	0	159	46	2	29	0	77	4	57	42	0	103	0	0	2	0	2	
Peak Factor					0.925					0.458					0.748					0.250	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:15 PM																				
Volume	6	306	0	0	312	12	0	10	0	22	6	667	14	0	687	0	1	14	0	15	1036
Percent	1.9	98.1	0.0	0.0		54.5	0.0	45.5	0.0		0.9	97.1	2.0	0.0		0.0	6.7	93.3	0.0		
06:00 Volume	2	92	0	0	94	5	0	4	0	9	1	150	4	0	155	0	1	10	0	11	269
Peak Factor																					0.963
High Int.	06:00 PM					06:00 PM					05:15 PM					06:00 PM					
Volume	2	92	0	0	94	5	0	4	0	9	1	195	3	0	199	0	1	10	0	11	
Peak Factor					0.830					0.611					0.863					0.341	

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Baltimore, MD 21217

Location: Goshen Road @ Warfield Road
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Warfield Road
Site Code : 19973017
Start Date : 02/14/2002
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Groups Printed- Unshifted

	Goshen Road From North					Warfield Road From East					Goshen Road From South					Warfield Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 AM	1	28	0	0	29	3	5	0	0	8	0	8	3	0	11	0	5	0	0	5	53
06:15 AM	0	60	0	0	60	13	5	1	0	19	2	12	9	0	23	0	7	0	0	7	109
06:30 AM	0	60	0	0	60	16	10	0	0	26	1	16	7	0	24	1	13	4	0	18	128
06:45 AM	3	123	3	0	129	28	13	0	0	41	2	17	12	0	31	0	9	5	0	14	215
Total	4	271	3	0	278	60	33	1	0	94	5	53	31	0	89	1	34	9	0	44	505
07:00 AM	1	100	1	0	102	29	15	1	0	45	8	18	11	0	37	3	12	5	0	20	204
07:15 AM	0	132	1	0	133	28	21	1	0	50	7	25	13	0	45	0	19	5	0	24	252
07:30 AM	2	132	0	0	134	35	24	0	0	59	8	32	25	0	65	1	16	5	0	22	280
07:45 AM	3	125	3	0	131	26	35	1	0	62	7	28	10	0	45	1	17	3	0	21	259
Total	6	489	5	0	500	118	95	3	0	216	30	103	59	0	192	5	64	18	0	87	995
08:00 AM	1	114	3	0	118	19	19	1	0	39	10	24	22	0	56	0	16	9	0	25	238
08:15 AM	1	116	1	0	118	25	19	0	0	44	9	28	21	0	58	0	20	10	0	30	250
08:30 AM	5	102	0	0	107	26	19	1	0	46	23	35	28	0	86	0	12	17	0	29	268
08:45 AM	6	119	3	0	128	30	19	1	0	50	10	29	34	0	73	0	19	6	0	25	276
Total	13	451	7	0	471	100	76	3	0	179	52	116	105	0	273	0	67	42	0	109	1032
*** BREAK ***																					
03:00 PM	0	33	2	0	35	17	6	3	0	26	3	54	30	0	87	0	8	7	0	15	163
03:15 PM	0	33	2	0	35	25	21	3	0	49	3	78	34	0	115	1	8	7	0	16	215
03:30 PM	3	29	2	0	34	64	31	3	0	98	17	62	43	0	122	1	16	5	0	22	276
03:45 PM	2	38	1	0	41	37	14	3	0	54	9	83	23	0	115	1	8	3	0	12	222
Total	5	133	7	0	145	143	72	12	0	227	32	277	130	0	439	3	40	22	0	65	876
04:00 PM	1	40	4	0	45	28	20	1	0	49	10	87	33	0	130	1	19	4	0	24	248
04:15 PM	2	40	0	0	42	21	11	1	0	33	8	112	24	0	144	1	18	5	0	24	243
04:30 PM	2	36	1	0	39	19	19	4	0	42	9	102	35	0	146	1	13	6	0	20	247
04:45 PM	1	40	2	0	43	24	11	3	0	38	7	108	30	0	145	2	18	2	0	22	248
Total	6	156	7	0	169	92	61	9	0	162	34	409	122	0	565	5	68	17	0	90	986
05:00 PM	1	47	2	0	50	15	25	3	0	43	9	127	18	0	154	2	17	4	0	23	270
05:15 PM	0	32	1	0	33	13	18	1	0	32	9	137	41	0	187	2	32	6	0	40	292
05:30 PM	1	58	3	0	62	29	18	1	0	48	8	124	31	0	163	1	23	3	0	27	300
05:45 PM	2	47	1	0	50	23	11	0	0	34	8	120	37	0	165	0	25	5	0	30	279
Total	4	184	7	0	195	80	72	5	0	157	34	508	127	0	669	5	97	18	0	120	1141

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Location: Goshen Road @ Warfield Road
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Warfield Road
Site Code : 19973017
Start Date : 02/14/2002

Groups Printed- Unshifted

	Goshen Road From North					Warfield Road From East					Goshen Road From South					Warfield Road From West					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	3	45	4	0	52	42	12	2	0	56	8	119	32	0	159	2	14	10	0	26	293
06:15 PM	3	50	0	0	53	21	16	1	0	38	6	92	25	0	123	2	10	5	0	17	231
06:30 PM	4	22	0	0	26	33	20	3	0	56	4	76	13	0	93	2	17	3	0	22	197
06:45 PM	3	48	1	0	52	19	11	1	0	31	2	74	24	0	100	0	12	2	0	14	197
Total	13	165	5	0	183	115	59	7	0	181	20	361	94	0	475	6	53	20	0	79	918
Grand Total	51	1849	41	0	1941	708	468	40	0	1216	207	1827	668	0	2702	25	423	146	0	594	6453
Apprch %	2.6	95.3	2.1	0.0		58.2	38.5	3.3	0.0		7.7	67.6	24.7	0.0		4.2	71.2	24.6	0.0		
Total %	0.8	28.7	0.6	0.0	30.1	11.0	7.3	0.6	0.0	18.8	3.2	28.3	10.4	0.0	41.9	0.4	6.6	2.3	0.0	9.2	

RUMMEL, KLEPPER & KAHL, LLP
Consulting Engineers
81 Mosher Street
Baltimore, MD 21217

Location: Goshen Road @ Warfield Road
County: Montgomery
Weather: Clear
Counters: AN

File Name : Goshen Road @ Warfield Road
Site Code : 19973017
Start Date : 02/14/2002
Page No : 3

	Goshen Road From North SB					Warfield Road From East WB					Goshen Road From South NB					Warfield Road From West EB					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	13	451	7	0	471	100	76	3	0	179	52	116	105	0	273	0	67	42	0	109	1032
Percent	2.8	95.8	1.5	0.0		55.9	42.5	1.7	0.0		19.0	42.5	38.5	0.0		0.0	61.5	38.5	0.0		
08:45 Volume	6	119	3	0	128	30	19	1	0	50	10	29	34	0	73	0	19	6	0	25	276
Peak Factor																					0.935
High Int.	08:45 AM					08:45 AM					08:30 AM					08:15 AM					
Volume	6	119	3	0	128	30	19	1	0	50	23	35	28	0	86	0	20	10	0	30	
Peak Factor					0.920					0.895					0.794					0.908	
Peak Hour From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:15 PM																				
Volume	6	182	9	0	197	107	59	4	0	170	33	500	141	0	674	5	94	24	0	123	1164
Percent	3.0	92.4	4.6	0.0		62.9	34.7	2.4	0.0		4.9	74.2	20.9	0.0		4.1	76.4	19.5	0.0		
05:30 Volume	1	58	3	0	62	29	18	1	0	48	8	124	31	0	163	1	23	3	0	27	300
Peak Factor																					0.970
High Int.	05:30 PM					06:00 PM					05:15 PM					05:15 PM					
Volume	1	58	3	0	62	42	12	2	0	56	9	137	41	0	187	2	32	6	0	40	
Peak Factor					0.794					0.759					0.901					0.769	

Mainline Automatic Tube Count Data

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Centerway Road

Count Start Date: May 13, 2002

DAILY

Two-Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	4	12,953	1,079	18	347	18	18	4	7	1	0	0	0	0	0	ADT
	0%	90%	7%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14,450

Peak Hours

AM Peak Hour (7:00 AM)

Two-Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	910	89	0	42	1	1	0	0	0	0	0	0	0	0	AM Peak
	0%	87%	9%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1,044

Northbound

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	183	23	0	21	1	1	0	0	0	0	0	0	0	0	AM Peak
	0%	80%	10%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	229

Southbound

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	727	66	0	21	0	0	0	0	0	0	0	0	0	0	AM Peak
	0%	89%	8%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	814

PM Peak Hour (5:00 PM)

Two-Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	1,126	86	1	11	0	1	0	0	0	0	0	0	0	0	PM Peak
	0%	92%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1,227

Northbound

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	699	54	1	5	0	1	0	0	0	0	0	0	0	0	PM Peak
	0%	92%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	762

Southbound

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	427	32	0	6	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	92%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	465

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Centerway Road

Count Start Date: May 13, 2002

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-85	66-70	71-75	76-80	81+	
Average	268	253	836	2,934	5,698	3,385	892	149	25	5	4	0	1	ADT
	2%	2%	6%	20%	39%	23%	6%	1%	0%	0%	0%	0%	0%	14,450

Peak Hours

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
7:00 AM	15	33	89	271	394	194	40	7	0	0	0	0	0	AM Peak
	1%	3%	8%	26%	38%	19%	4%	1%	0%	0%	0%	0%	0%	1,044

AM Peak Hour

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	2	9	43	89	62	18	5	0	0	0	0	0	AM Peak
	0%	1%	4%	19%	39%	27%	8%	2%	0%	0%	0%	0%	0%	229

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	15	30	79	228	306	133	23	1	0	0	0	0	0	AM Peak
	2%	4%	10%	28%	38%	16%	3%	0%	0%	0%	0%	0%	0%	814

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
5:00 PM	3	3	33	224	542	341	72	9	1	0	0	0	0	PM Peak
	0%	0%	3%	18%	44%	28%	6%	1%	0%	0%	0%	0%	0%	1,227

PM Peak Hour

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	0	14	112	345	239	45	6	0	0	0	0	0	PM Peak
	0%	0%	2%	15%	45%	31%	6%	1%	0%	0%	0%	0%	0%	762

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	2	3	18	113	197	102	27	3	1	0	0	0	0	PM Peak
	1%	1%	4%	24%	42%	22%	6%	1%	0%	0%	0%	0%	0%	465

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Location: **Goshen Road - 0.2 Miles North of Centerway Road**
Date: Average of Monday and Tuesday (May 13, 2002 & May 14, 2002)

	NB	SB	Total
12:00 AM	46	23	69
1:00 AM	19	16	35
2:00 AM	15	9	24
3:00 AM	9	17	26
4:00 AM	12	42	54
5:00 AM	24	128	152
6:00 AM	104	512	616
7:00 AM	229	814	1,044
8:00 AM	231	796	1,026
9:00 AM	229	520	748
10:00 AM	229	341	569
11:00 AM	315	337	652
12:00 PM	377	358	735
1:00 PM	356	387	743
2:00 PM	421	354	775
3:00 PM	551	387	938
4:00 PM	653	409	1,062
5:00 PM	762	465	1,227
6:00 PM	747	472	1,219
7:00 PM	553	418	971
8:00 PM	398	266	665
9:00 PM	376	215	591
10:00 PM	216	134	350
11:00 PM	89	71	159
	6,959	**7,490**	**14,450**

Seasonally Adjusted Volumes

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Midcounty Hwy

Count Start Date: May 13, 2002

DAILY

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1,223	10,424	664	73	241	87	5	19	22	187	0	0	13	0	299	ADT
	9%	79%	5%	1%	2%	1%	0%	0%	0%	1%	0%	0%	0%	0%	2%	13,257

Peak Hours

AM Peak Hour (7:00 AM)

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	32	528	45	39	51	7	0	3	8	19	0	0	6	0	39	AM Peak
	4%	68%	6%	5%	7%	1%	0%	0%	1%	3%	0%	0%	1%	0%	5%	776

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	222	21	2	12	7	0	0	1	0	0	0	0	0	0	AM Peak
	0%	84%	8%	1%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	265

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	32	306	24	37	39	0	0	3	7	19	0	0	6	0	39	AM Peak
	6%	60%	5%	7%	8%	0%	0%	1%	1%	4%	0%	0%	1%	0%	8%	511

PM Peak Hour (5:00 PM)

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	64	1,060	62	1	6	10	0	2	3	4	0	0	1	0	19	PM Peak
	5%	86%	5%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1,232

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	807	57	1	3	10	0	0	2	0	0	0	0	0	0	PM Peak
	0%	92%	7%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	881

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	64	254	4	0	2	0	0	2	1	4	0	0	1	0	19	PM Peak
	18%	72%	1%	0%	1%	0%	0%	1%	0%	1%	0%	0%	0%	0%	5%	351

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Goshen Road - 0.2 Miles North of Midcounty Hwy

Count Start Date: May 13, 2002

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
Average	559	1,800	1,836	3,125	3,942	1,489	393	86	19	4	1	1	1	ADT
	4%	14%	14%	24%	30%	11%	3%	1%	0%	0%	0%	0%	0%	13,257

Peak Hours

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
7:00 AM	146	16	126	304	114	54	15	1	1	0	0	0	0	AM Peak
	19%	2%	16%	39%	15%	7%	2%	0%	0%	0%	0%	0%	0%	776

AM Peak Hour

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	1	10	69	114	54	14	1	1	0	0	0	0	AM Peak
	0%	1%	4%	26%	43%	20%	5%	1%	1%	0%	0%	0%	0%	265

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	146	15	115	235	0	0	0	0	0	0	0	0	0	AM Peak
	29%	3%	23%	46%	0%	0%	0%	0%	0%	0%	0%	0%	0%	511

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
5:00 PM	7	159	172	321	420	132	17	2	2	0	0	0	0	PM Peak
	1%	13%	14%	26%	34%	11%	1%	0%	0%	0%	0%	0%	0%	1,232

PM Peak Hour

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	7	9	54	242	417	131	17	2	1	0	0	0	0	PM Peak
	1%	1%	6%	27%	47%	15%	2%	0%	0%	0%	0%	0%	0%	881

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	55-60	61-65	66-70	71-75	76-80	81+	
	0	149	118	79	3	0	0	0	0	0	0	0	0	PM Peak
	0%	43%	34%	22%	1%	0%	0%	0%	0%	0%	0%	0%	0%	351

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Location: **Goshen Road - 0.2 Miles North of Midcounty Hwy**
Date: Average of Monday and Tuesday (May 13, 2002 & May 14, 2002)

	NB	SB	Total
12:00 AM	59	29	88
1:00 AM	25	17	42
2:00 AM	13	13	27
3:00 AM	14	18	32
4:00 AM	14	40	55
5:00 AM	35	136	170
6:00 AM	123	320	442
7:00 AM	265	511	776
8:00 AM	271	433	704
9:00 AM	258	352	611
10:00 AM	244	252	496
11:00 AM	342	278	620
12:00 PM	413	302	715
1:00 PM	393	299	692
2:00 PM	496	300	795
3:00 PM	611	301	911
4:00 PM	726	321	1,047
5:00 PM	881	351	1,232
6:00 PM	861	322	1,183
7:00 PM	595	285	880
8:00 PM	465	193	659
9:00 PM	401	173	574
10:00 PM	228	105	333
11:00 PM	103	71	173
	7,835	**5,422**	**13,257**

Seasonally Adjusted Volumes

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Snouffer School Road

Count Start Date: May 13, 2002

DAILY

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	4	8,915	1,027	11	239	8	1	4	4	0	0	0	0	0	0	ADT
	0%	87%	10%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10,213

Peak Hours

AM Peak Hour (7:00 AM)

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	920	79	0	36	0	0	0	0	0	0	0	0	0	0	AM Peak
	0%	89%	8%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1,037

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	310	23	0	16	0	0	0	0	0	0	0	0	0	0	AM Peak
	0%	88%	7%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	350

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	610	56	0	20	0	0	0	0	0	0	0	0	0	0	AM Peak
	0%	89%	8%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	687

PM Peak Hour (5:00 PM)

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	823	95	3	10	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	88%	10%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	933

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	552	63	3	7	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	88%	10%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	627

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	271	32	0	3	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	88%	11%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	306

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Goshen Road - 0.2 Miles North of Snouffer School Road

Count Start Date: May 13, 2002

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
Average	84	247	1,390	3,732	3,470	1,081	179	28	2	1	0	0	0	ADT
	1%	2%	14%	37%	34%	11%	2%	0%	0%	0%	0%	0%	0%	10,213

Peak Hours

AM Peak Hour

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
8:00 AM	1	23	173	422	331	79	7	1	0	0	0	0	0	AM Peak
	0%	2%	17%	41%	32%	8%	1%	0%	0%	0%	0%	0%	0%	1,037

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	1	15	77	140	89	25	3	0	0	0	0	0	0	AM Peak
	0%	4%	22%	40%	25%	7%	1%	0%	0%	0%	0%	0%	0%	350

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	8	96	282	242	54	3	1	0	0	0	0	0	AM Peak
	0%	1%	14%	41%	35%	8%	0%	0%	0%	0%	0%	0%	0%	687

PM Peak Hour

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
5:00 PM	37	54	158	334	259	77	11	1	0	0	0	0	0	PM Peak
	4%	6%	17%	36%	28%	8%	1%	0%	0%	0%	0%	0%	0%	933

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	37	50	126	222	147	39	4	0	0	0	0	0	0	PM Peak
	6%	8%	20%	35%	24%	6%	1%	0%	0%	0%	0%	0%	0%	627

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	4	32	112	112	38	8	1	0	0	0	0	0	PM Peak
	0%	1%	10%	37%	37%	12%	2%	0%	0%	0%	0%	0%	0%	306

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Location: **Goshen Road - 0.2 Miles North of Snouffer School Road**
Date: Average of Monday and Tuesday (May 13, 2002 & May 14, 2002)

	NB	SB	Total
12:00 AM	22	18	39
1:00 AM	12	11	23
2:00 AM	9	5	13
3:00 AM	6	8	14
4:00 AM	9	14	24
5:00 AM	27	84	111
6:00 AM	115	368	483
7:00 AM	234	647	881
8:00 AM	350	687	1,037
9:00 AM	235	424	659
10:00 AM	169	224	394
11:00 AM	210	208	419
12:00 PM	266	192	458
1:00 PM	222	231	453
2:00 PM	290	191	481
3:00 PM	437	284	720
4:00 PM	545	276	821
5:00 PM	627	306	933
6:00 PM	473	297	770
7:00 PM	355	220	575
8:00 PM	243	184	426
9:00 PM	171	105	276
10:00 PM	85	53	139
11:00 PM	35	29	64
	5,146	**5,067**	**10,213**

Seasonally Adjusted Volumes

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Centerway Road

Count Start Date: July 16, 2002

DAILY

Two-Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	6	13,146	970	11	129	4	2	4	8	1	1	0	0	0	0	ADT
	0%	92%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14,282

Peak Hours

Two-Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	903	57	0	10	0	0	1	1	0	0	0	0	0	0	AM Peak
	0%	93%	6%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	972

Northbound

AMPeak Hour (7:00 AM)

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	184	22	0	7	0	0	1	0	0	0	0	0	0	0	AM Peak
	0%	86%	10%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	214

Southbound

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	720	35	0	3	0	0	0	1	0	0	0	0	0	0	AM Peak
	0%	95%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	759

Two-Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	1,180	92	1	6	1	0	0	0	0	0	0	0	0	0	PM Peak
	0%	92%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1,280

Northbound

PM Peak Hour(5:00 PM)

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	744	62	1	3	1	0	0	0	0	0	0	0	0	0	PM Peak
	0%	92%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	811

Southbound

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	436	30	0	3	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	93%	6%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	469

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Centerway Road

Count Start Date: July 16, 2002

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
Average	50	99	427	2,357	6,669	3,685	769	140	35	11	9	9	21	ADT
	0%	1%	3%	17%	47%	26%	5%	1%	0%	0%	0%	0%	0%	14,282

Peak Hours

AM Peak Hour

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
8:00 AM	9	18	65	251	440	150	30	6	1	0	1	0	0	AM Peak
	1%	2%	7%	26%	45%	15%	3%	1%	0%	0%	0%	0%	0%	972

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	2	3	5	26	92	64	17	5	0	0	0	0	0	AM Peak
	1%	1%	2%	12%	43%	30%	8%	2%	0%	0%	0%	0%	0%	214

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	6	15	61	225	348	86	13	2	1	0	1	0	0	AM Peak
	1%	2%	8%	30%	46%	11%	2%	0%	0%	0%	0%	0%	0%	759

PM Peak Hour

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
5:00 PM	0	6	14	153	639	380	74	9	0	1	0	1	2	PM Peak
	0%	0%	1%	12%	50%	30%	6%	1%	0%	0%	0%	0%	0%	1,280

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	5	8	90	368	276	56	8	0	0	0	0	1	PM Peak
	0%	1%	1%	11%	45%	34%	7%	1%	0%	0%	0%	0%	0%	811

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	1	6	64	270	104	18	2	0	1	0	1	1	PM Peak
	0%	0%	1%	14%	58%	22%	4%	0%	0%	0%	0%	0%	0%	469

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Location: **Goshen Road - 0.2 Miles North of Centerway Road**
Date: Average of Tuesday and Wednesday (July 16, 2002 & July 17, 2002)

	NB	SB	Total
12:00 AM	68	50	118
1:00 AM	40	20	60
2:00 AM	16	16	32
3:00 AM	14	13	27
4:00 AM	12	51	63
5:00 AM	30	140	170
6:00 AM	99	440	539
7:00 AM	175	749	924
8:00 AM	214	759	972
9:00 AM	225	545	771
10:00 AM	229	367	596
11:00 AM	304	335	639
12:00 PM	318	358	676
1:00 PM	352	374	726
2:00 PM	376	341	717
3:00 PM	468	335	803
4:00 PM	678	369	1,046
5:00 PM	811	469	1,280
6:00 PM	715	451	1,166
7:00 PM	534	388	922
8:00 PM	437	319	757
9:00 PM	407	239	646
10:00 PM	245	177	422
11:00 PM	134	76	210
	6,901	**7,381**	**14,282**

Seasonally Adjusted Volumes

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Midcounty Hwy

Count Start Date: May 13, 2002

DAILY

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	15	14,522	1,093	25	203	6	1	5	6	1	0	0	0	0	0	ADT
	0%	91%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15,876

Peak Hours

AM Peak Hour (7:00 AM)

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	972	71	7	20	3	0	1	2	0	0	0	0	0	0	AM Peak
	0%	90%	7%	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1,077

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	211	24	1	6	0	0	0	0	0	0	0	0	0	0	AM Peak
	0%	87%	10%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	243

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	760	47	6	14	3	0	1	2	0	0	0	0	0	0	AM Peak
	0%	91%	6%	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	834

PM Peak Hour (5:00 PM)

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	1,355	101	0	7	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	93%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1,464

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	884	67	0	4	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	93%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	955

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	472	34	0	3	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	93%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	509

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Goshen Road - 0.2 Miles North of Midcounty Hwy

Count Start Date: May 13, 2002

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
Average	286	196	637	2,909	6,281	4,192	1,123	194	36	13	6	1	2	ADT
	2%	1%	4%	18%	40%	26%	7%	1%	0%	0%	0%	0%	0%	15,876

Peak Hours

AM Peak Hour

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
8:00 AM	150	53	67	201	401	169	33	2	0	0	0	0	0	AM Peak
	14%	5%	6%	19%	37%	16%	3%	0%	0%	0%	0%	0%	0%	1,077

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	2	1	8	48	112	54	15	2	0	0	0	0	0	AM Peak
	1%	1%	3%	20%	46%	22%	6%	1%	0%	0%	0%	0%	0%	243

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	149	51	59	153	289	115	18	1	0	0	0	0	0	AM Peak
	18%	6%	7%	18%	35%	14%	2%	0%	0%	0%	0%	0%	0%	834

PM Peak Hour

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
5:00 PM	18	18	48	342	642	308	74	9	2	1	1	0	0	PM Peak
	1%	1%	3%	23%	44%	21%	5%	1%	0%	0%	0%	0%	0%	1,464

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	17	16	42	286	428	142	20	3	1	0	0	0	0	PM Peak
	2%	2%	4%	30%	45%	15%	2%	0%	0%	0%	0%	0%	0%	955

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	2	6	56	214	167	55	6	2	1	1	0	0	PM Peak
	0%	0%	1%	11%	42%	33%	11%	1%	0%	0%	0%	0%	0%	509

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Location: **Goshen Road - 0.2 Miles North of Midcounty Hwy**
Date: Average of Tuesday and Wednesday (July 16, 2002 & July 17, 2002)

	NB	SB	Total
12:00 AM	81	53	134
1:00 AM	47	20	68
2:00 AM	12	14	26
3:00 AM	16	15	31
4:00 AM	15	41	56
5:00 AM	37	169	206
6:00 AM	112	510	622
7:00 AM	221	800	1,020
8:00 AM	243	834	1,077
9:00 AM	265	593	857
10:00 AM	237	404	641
11:00 AM	318	369	687
12:00 PM	370	393	763
1:00 PM	401	419	820
2:00 PM	440	384	824
3:00 PM	543	365	908
4:00 PM	725	409	1,133
5:00 PM	955	509	1,464
6:00 PM	811	505	1,316
7:00 PM	576	428	1,004
8:00 PM	487	332	818
9:00 PM	457	244	701
10:00 PM	272	187	459
11:00 PM	148	92	240
	7,790	**8,087**	**15,876**

Seasonally Adjusted Volumes

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
199-73-17

Goshen Road - 0.2 Miles North of Snouffer School Road

Count Start Date: July 16, 2002

DAILY

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	22	8,023	906	8	111	3	1	8	1	0	0	0	0	0	0	ADT
	0%	88%	10%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9,085

Peak Hours

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	728	64	2	6	0	0	1	0	0	0	0	0	0	0	AM Peak
	0%	91%	8%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	803

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	199	21	1	2	0	0	0	0	0	0	0	0	0	0	AM Peak
	0%	89%	10%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	224

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	529	43	1	5	0	0	1	0	0	0	0	0	0	0	AM Peak
	0%	91%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	580

AM Peak Hour (7:00 AM)

Two-Way

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	792	83	0	6	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	90%	9%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	883

Northbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	0	543	66	0	5	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	88%	11%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	615

Southbound

FHWA Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	1	249	17	0	1	0	0	0	0	0	0	0	0	0	0	PM Peak
	0%	93%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	268

PM Peak Hour (5:00 PM)

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Goshen Road - 0.2 Miles North of Snouffer School Road

Count Start Date: July 16, 2002

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
Average	33	146	1,073	3,563	3,145	942	154	23	5	0	1	0	0	ADT
	0%	2%	12%	39%	35%	10%	2%	0%	0%	0%	0%	0%	0%	9,085

Peak Hours

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
8:00 AM	0	11	83	358	276	70	5	1	0	0	0	0	0	AM Peak
	0%	1%	10%	45%	34%	9%	1%	0%	0%	0%	0%	0%	0%	803

AM Peak Hour

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	3	27	98	66	25	4	1	0	0	0	0	0	AM Peak
	0%	1%	12%	44%	30%	11%	2%	0%	0%	0%	0%	0%	0%	224

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	0	9	55	260	209	45	1	1	0	0	0	0	0	AM Peak
	0%	1%	10%	45%	36%	8%	0%	0%	0%	0%	0%	0%	0%	580

Two-Way

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
5:00 PM	15	29	129	345	285	71	9	1	1	0	0	0	0	PM Peak
	2%	3%	15%	39%	32%	8%	1%	0%	0%	0%	0%	0%	0%	883

PM Peak Hour

Northbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	13	27	99	243	184	44	5	0	1	0	0	0	0	PM Peak
	2%	4%	16%	40%	30%	7%	1%	0%	0%	0%	0%	0%	0%	615

Southbound

Speed	0-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81+	
	2	3	30	102	101	27	3	1	0	0	0	0	0	PM Peak
	1%	1%	11%	38%	38%	10%	1%	0%	0%	0%	0%	0%	0%	268

RK&K Engineers, LLP
Consulting Engineers
9/30/2002
101-114

Location: **Goshen Road - 0.2 Miles North of Snouffer School Road**
Date: Average of Tuesday and Wednesday (July 16, 2002 & July 17, 2002)

	NB	SB	Total
12:00 AM	28	16	45
1:00 AM	15	11	26
2:00 AM	10	10	20
3:00 AM	3	5	8
4:00 AM	5	22	27
5:00 AM	23	71	95
6:00 AM	95	278	373
7:00 AM	177	555	732
8:00 AM	224	580	803
9:00 AM	164	335	499
10:00 AM	153	211	364
11:00 AM	201	200	401
12:00 PM	216	200	416
1:00 PM	225	188	413
2:00 PM	267	184	452
3:00 PM	358	208	566
4:00 PM	512	237	749
5:00 PM	615	268	883
6:00 PM	435	241	675
7:00 PM	325	205	530
8:00 PM	223	172	395
9:00 PM	196	131	327
10:00 PM	122	74	196
11:00 PM	54	37	91
	4,646	**4,439**	**9,085**

Seasonally Adjusted Volumes

Travel Time Study Sheets

Goshen Road Travel Time Study Sheet

Travel Time Run # 1 Start Time 7:30 AM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:38.8	00:38.8
Midcounty Highway	01:35.0	*00:56.2*
From Midcounty Hwy to Emory Grove Rd	01:56.2	00:21.3
Emory Grove Road	01:56.2	*00:00.0*
From Emory Grove Rd to Centerway Rd	02:52.6	00:56.4
Centerway Road	02:52.6	*00:00.0*
From Centerway Rd to Snouffer School Rd	05:16.4	02:23.8
Snouffer School Road	05:51.0	*00:34.6*
From Snouffer School Rd to East Village Ave	06:17.0	00:26.0
East Village Avenue	06:35.1	*00:18.2*
From East Village Ave to Warfield Rd	07:14.2	00:39.1
Warfield Road	07:20.0	*00:05.8*
TOTAL MOVING TIME		05:25.3
TOTAL STOPPED TIME		01:54.8
TOTAL TRAVEL TIME	**07:20.0**	**07:20.0**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:10.6	*00:10.6*
From Warfield Rd to East Village Ave	00:50.5	00:39.9
East Village Avenue	01:01.1	*00:10.6*
From East Village Ave to Snouffer School Rd	01:23.5	00:22.4
Snouffer School Road	01:31.6	*00:08.1*
From Snouffer School Rd to Centerway Rd	03:33.0	02:01.4
Centerway Road	04:01.8	*00:28.9*
From Centerway Rd to Emory Grove Rd	05:14.4	01:12.6
Emory Grove Road	06:20.1	*01:05.7*
From Emory Grove Rd to Midcounty Hwy	06:41.3	00:21.1
Midcounty Highway	07:43.1	*01:01.8*
From Midcounty Hwy to Odendhal Rd	08:32.4	00:49.4
Odendhal Road	08:32.4	*00:00.0*
TOTAL MOVING TIME		05:26.8
TOTAL STOPPED TIME		03:05.7
TOTAL TRAVEL TIME	**08:32.4**	**08:32.4**

Goshen Road Travel Time Study Sheet

Travel Time Run # 2 Start Time 8:04 AM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:40.8	00:40.8
Midcounty Highway	01:04.0	*00:23.2*
From Midcounty Hwy to Emory Grove Rd	01:26.9	00:22.8
Emory Grove Road	01:26.9	*00:00.0*
From Emory Grove Rd to Centerway Rd	02:29.3	01:02.4
Centerway Road	02:29.3	*00:00.0*
From Centerway Rd to Snouffer School Rd	04:39.0	02:09.7
Snouffer School Road	04:39.0	*00:00.0*
From Snouffer School Rd to East Village Ave	04:58.7	00:19.7
East Village Avenue	05:13.4	*00:14.7*
From East Village Ave to Warfield Rd	05:54.0	00:40.6
Warfield Road	05:58.7	*00:04.7*
TOTAL MOVING TIME		05:16.1
TOTAL STOPPED TIME		00:42.6
TOTAL TRAVEL TIME	**05:58.7**	**05:58.7**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:06.6	*00:06.6*
From Warfield Rd to East Village Ave	00:49.4	00:42.8
East Village Avenue	01:17.2	*00:27.8*
From East Village Ave to Snouffer School Rd	01:38.1	00:20.9
Snouffer School Road	01:38.1	*00:00.0*
From Snouffer School Rd to Centerway Rd	03:59.4	02:21.3
Centerway Road	03:59.4	*00:00.0*
From Centerway Rd to Emory Grove Rd	05:09.9	01:10.5
Emory Grove Road	05:09.9	*00:00.0*
From Emory Grove Rd to Midcounty Hwy	05:29.4	00:19.5
Midcounty Highway	06:22.7	*00:53.3*
From Midcounty Hwy to Odendhal Rd	06:59.7	00:37.0
Odendhal Road	06:59.7	*00:00.0*
TOTAL MOVING TIME		05:32.0
TOTAL STOPPED TIME		01:27.7
TOTAL TRAVEL TIME	**06:59.7**	**06:59.7**

Goshen Road Travel Time Study Sheet

Travel Time Run # 3 Start Time 8:20 AM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:38.9	00:38.9
Midcounty Highway	01:16.5	*00:37.6*
From Midcounty Hwy to Emory Grove Rd	01:39.3	00:22.7
Emory Grove Road	01:39.3	*00:00.0*
From Emory Grove Rd to Centerway Rd	02:41.0	01:01.8
Centerway Road	03:10.0	*00:29.0*
From Centerway Rd to Snouffer School Rd	05:10.1	02:00.1
Snouffer School Road	05:10.1	*00:00.0*
From Snouffer School Rd to East Village Ave	05:26.5	00:16.3
East Village Avenue	05:26.5	*00:00.0*
From East Village Ave to Warfield Rd	05:59.0	00:32.5
Warfield Road	06:05.0	*00:06.0*
TOTAL MOVING TIME		04:52.4
TOTAL STOPPED TIME		01:12.6
TOTAL TRAVEL TIME	**06:05.0**	**06:05.0**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:20.4	*00:20.4*
From Warfield Rd to East Village Ave	01:00.6	00:40.2
East Village Avenue	01:17.8	*00:17.2*
From East Village Ave to Snouffer School Rd	01:38.4	00:20.6
Snouffer School Road	01:38.4	*00:00.0*
From Snouffer School Rd to Centerway Rd	03:45.5	02:07.2
Centerway Road	04:26.5	*00:41.0*
From Centerway Rd to Emory Grove Rd	05:23.3	00:56.8
Emory Grove Road	05:52.3	*00:29.0*
From Emory Grove Rd to Midcounty Hwy	06:17.8	00:25.5
Midcounty Highway	06:17.8	*00:00.0*
From Midcounty Hwy to Odendhal Rd	06:57.0	00:39.2
Odendhal Road	06:57.0	*00:00.0*
TOTAL MOVING TIME		05:09.4
TOTAL STOPPED TIME		01:47.5
TOTAL TRAVEL TIME	**06:57.0**	**06:57.0**

Goshen Road Travel Time Study Sheet

Travel Time Run # 4 Start Time 8:35 AM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:31.3	00:31.3
Midcounty Highway	01:48.8	*01:17.5*
From Midcounty Hwy to Emory Grove Rd	02:08.0	00:19.2
Emory Grove Road	02:08.0	*00:00.0*
From Emory Grove Rd to Centerway Rd	03:03.6	00:55.6
Centerway Road	03:03.6	*00:00.0*
From Centerway Rd to Snouffer School Rd	04:53.5	01:49.9
Snouffer School Road	05:03.4	*00:09.9*
From Snouffer School Rd to East Village Ave	05:27.3	00:23.9
East Village Avenue	05:51.4	*00:24.1*
From East Village Ave to Warfield Rd	06:32.5	00:41.1
Warfield Road	06:36.5	*00:04.0*
TOTAL MOVING TIME		04:41.0
TOTAL STOPPED TIME		01:55.5
TOTAL TRAVEL TIME	**06:36.5**	**06:36.5**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:37.1	*00:37.1*
From Warfield Rd to East Village Ave	01:23.7	00:46.5
East Village Avenue	02:14.2	*00:50.5*
From East Village Ave to Snouffer School Rd	02:38.8	00:24.6
Snouffer School Road	02:39.0	*00:00.2*
From Snouffer School Rd to Centerway Rd	04:36.8	01:57.8
Centerway Road	06:04.2	*01:27.4*
From Centerway Rd to Emory Grove Rd	07:03.9	00:59.6
Emory Grove Road	07:03.9	*00:00.0*
From Emory Grove Rd to Midcounty Hwy	07:27.9	00:24.0
Midcounty Highway	08:11.4	*00:43.5*
From Midcounty Hwy to Odendhal Rd	08:54.7	00:43.3
Odendhal Road	08:54.7	*00:00.0*
TOTAL MOVING TIME		05:15.8
TOTAL STOPPED TIME		03:38.9
TOTAL TRAVEL TIME	**08:54.7**	**08:54.7**

Goshen Road Travel Time Study Sheet

Travel Time Run # 1 Start Time 4:57 PM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:37.7	00:37.7
Midcounty Highway	01:25.1	*00:47.4*
From Midcounty Hwy to Emory Grove Rd	01:46.6	00:21.5
Emory Grove Road	01:46.6	*00:00.0*
From Emory Grove Rd to Centerway Rd	02:54.2	01:07.6
Centerway Road	03:30.0	*00:35.8*
From Centerway Rd to Snouffer School Rd	05:33.6	02:03.6
Snouffer School Road	05:33.6	*00:00.0*
From Snouffer School Rd to East Village Ave	05:51.9	00:18.3
East Village Avenue	06:04.2	*00:12.3*
From East Village Ave to Warfield Rd	06:39.2	00:34.9
Warfield Road	07:11.1	*00:32.0*
TOTAL MOVING TIME		05:03.6
TOTAL STOPPED TIME		02:07.5
TOTAL TRAVEL TIME	**07:11.1**	**07:11.1**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:01.4	*00:01.4*
From Warfield Rd to East Village Ave	00:43.1	00:41.8
East Village Avenue	00:47.6	*00:04.4*
From East Village Ave to Snouffer School Rd	01:11.4	00:23.9
Snouffer School Road	01:42.2	*00:30.7*
From Snouffer School Rd to Centerway Rd	03:43.6	02:01.5
Centerway Road	03:56.8	*00:13.1*
From Centerway Rd to Emory Grove Rd	05:09.5	01:12.7
Emory Grove Road	05:23.5	*00:14.1*
From Emory Grove Rd to Midcounty Hwy	05:43.2	00:19.7
Midcounty Highway	05:43.2	*00:00.0*
From Midcounty Hwy to Odendhal Rd	06:20.0	00:36.8
Odendhal Road	06:52.4	*00:32.4*
TOTAL MOVING TIME		05:16.3
TOTAL STOPPED TIME		01:36.1
TOTAL TRAVEL TIME	**06:52.4**	**06:52.4**

Goshen Road Travel Time Study Sheet

Travel Time Run # 2 Start Time 5:15 PM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:44.5	00:44.5
Midcounty Highway	00:44.5	*00:00.0*
From Midcounty Hwy to Emory Grove Rd	01:07.4	00:22.9
Emory Grove Road	01:07.4	*00:00.0*
From Emory Grove Rd to Centerway Rd	02:26.4	01:19.0
Centerway Road	02:49.5	*00:23.1*
From Centerway Rd to Snouffer School Rd	05:16.0	02:26.5
Snouffer School Road	05:47.1	*00:31.1*
From Snouffer School Rd to East Village Ave	06:11.0	00:24.0
East Village Avenue	06:11.0	*00:00.0*
From East Village Ave to Warfield Rd	06:37.6	00:26.6
Warfield Road	08:16.3	*01:38.7*
TOTAL MOVING TIME		05:43.5
TOTAL STOPPED TIME		02:32.8
TOTAL TRAVEL TIME	**08:16.3**	**08:16.3**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:46.7	00:46.7
East Village Avenue	00:46.7	*00:00.0*
From East Village Ave to Snouffer School Rd	01:04.0	00:17.3
Snouffer School Road	01:04.0	*00:00.0*
From Snouffer School Rd to Centerway Rd	03:14.4	02:10.4
Centerway Road	03:30.5	*00:16.1*
From Centerway Rd to Emory Grove Rd	04:52.9	01:22.4
Emory Grove Road	04:57.3	*00:04.4*
From Emory Grove Rd to Midcounty Hwy	05:19.7	00:22.4
Midcounty Highway	06:42.7	*01:23.1*
From Midcounty Hwy to Odendhal Rd	07:30.1	00:47.3
Odendhal Road	08:27.2	*00:57.1*
TOTAL MOVING TIME		05:46.5
TOTAL STOPPED TIME		02:40.7
TOTAL TRAVEL TIME	**08:27.2**	**08:27.2**

Goshen Road Travel Time Study Sheet

Travel Time Run # 3 5:35 PM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:36.3	00:36.3
Midcounty Highway	01:39.6	*01:03.3*
From Midcounty Hwy to Emory Grove Rd	02:10.0	00:30.4
Emory Grove Road	02:10.0	*00:00.0*
From Emory Grove Rd to Centerway Rd	03:24.8	01:14.8
Centerway Road	03:43.4	*00:18.6*
From Centerway Rd to Snouffer School Rd	06:48.1	03:04.7
Snouffer School Road	07:18.7	*00:30.7*
From Snouffer School Rd to East Village Ave	07:49.9	00:31.1
East Village Avenue	07:49.9	*00:00.0*
From East Village Ave to Warfield Rd	08:36.8	00:46.9
Warfield Road	08:36.8	*00:00.0*
TOTAL MOVING TIME		06:44.2
TOTAL STOPPED TIME		01:52.6
TOTAL TRAVEL TIME	**08:36.8**	**08:36.8**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:51.7	00:51.7
East Village Avenue	01:25.9	*00:34.2*
From East Village Ave to Snouffer School Rd	01:56.6	00:30.7
Snouffer School Road	01:56.6	*00:00.0*
From Snouffer School Rd to Centerway Rd	04:10.6	02:13.9
Centerway Road	04:10.6	*00:00.0*
From Centerway Rd to Emory Grove Rd	05:17.0	01:06.4
Emory Grove Road	05:17.0	*00:00.0*
From Emory Grove Rd to Midcounty Hwy	05:33.6	00:16.7
Midcounty Highway	05:33.6	*00:00.0*
From Midcounty Hwy to Odendhal Rd	06:11.3	00:37.6
Odendhal Road	06:55.2	*00:43.9*
TOTAL MOVING TIME		05:37.1
TOTAL STOPPED TIME		01:18.1
TOTAL TRAVEL TIME	**06:55.2**	**06:55.2**

Goshen Road Travel Time Study Sheet

Travel Time Run # 4 Start Time 6:05 PM Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:00.0	*00:00.0*
From Odendhal Road to Midcounty Hwy	00:42.8	00:42.8
Midcounty Highway	01:25.1	*00:42.3*
From Midcounty Hwy to Emory Grove Rd	01:53.0	00:27.9
Emory Grove Road	01:53.0	*00:00.0*
From Emory Grove Rd to Centerway Rd	03:04.6	01:11.7
Centerway Road	03:27.2	*00:22.5*
From Centerway Rd to Snouffer School Rd	05:57.3	02:30.2
Snouffer School Road	05:57.3	*00:00.0*
From Snouffer School Rd to East Village Ave	06:14.9	00:17.5
East Village Avenue	06:14.9	*00:00.0*
From East Village Ave to Warfield Rd	06:45.1	00:30.3
Warfield Road	07:59.9	*01:14.8*
TOTAL MOVING TIME		05:40.3
TOTAL STOPPED TIME		02:19.6
TOTAL TRAVEL TIME	**07:59.9**	**07:59.9**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:46.6	00:46.6
East Village Avenue	00:46.6	*00:00.0*
From East Village Ave to Snouffer School Rd	01:07.7	00:21.1
Snouffer School Road	01:07.7	*00:00.0*
From Snouffer School Rd to Centerway Rd	03:30.0	02:22.3
Centerway Road	03:30.0	*00:00.0*
From Centerway Rd to Emory Grove Rd	04:41.2	01:11.2
Emory Grove Road	04:41.2	*00:00.0*
From Emory Grove Rd to Midcounty Hwy	05:02.3	00:21.1
Midcounty Highway	06:06.3	*01:04.0*
From Midcounty Hwy to Odendhal Rd	06:53.8	00:47.5
Odendhal Road	07:51.4	*00:57.7*
TOTAL MOVING TIME		05:49.8
TOTAL STOPPED TIME		02:01.7
TOTAL TRAVEL TIME	**07:51.4**	**07:51.4**

APPENDIX B: Corridor-wide Accident Data

and State Highway Administration
ce of Traffic and Safety - Traffic Safety Analysis Division
2.1 ADC Study Worksheet Output rev. 12/99-3

Name: Dennis McMullen
Date: 06/10/2002

cation: GOSHEN RD FROM GIRARD ST TO WARFIELD RD
ty: Montgomery Period: January 1, 1999 To December 31, 2001
pe Controls: 4U-100%

Logmile: From 000.00 To 003.12 Length: 3.12
Note(s):
* Significantly Higher than Statewide

EAR ►	1999	2000	2001	TOTAL	STUDYRATE	STWDRATE
FATAL					0.0	1.9
o. KILLED						
NJURY	13	15	22	50	119.5 *	63.1
No. INJURED	16	31	30	77		
ROP DAMAGE	16	21	15	52	124.3 *	54.3
OTAL ACC	29	36	37	102	243.8 *	119.3
ATE	212.2	258.4	259.9			
D T	12000	12200	12500			
VMT(millions)	13.7	13.9	14.2	41.8		
PPOSITE DIR	3	3	3	9	21.5 *	8.1
EAR END	12	15	7	34	81.3 *	33.5
IDESWIPE					0.0	0.4
EFT TURN	2	1	9	12	28.7 *	10.1
NGLE	3	7	6	16	38.3 *	25.0
EDESTRIAN		2	4	6	14.3 *	2.7
ARKED VEH					0.0	2.3
IXED OBJECT	6	2	5	13	31.1 *	12.3
THER	3	6	3	12	28.7	6.9
U-TURN	1			1		
BACKING	1			1		
ANIMAL						
RAILROAD						
EXPL./FIRE						
OVERTURN						
OTHER/UNK	1	6	3	10		
TRCK REL ACC	1	1	1	3	7.2	10.0
NIGHTTIME	14	13	7	34	33 %	32 %
WET SURFACE	13	13	5	31	30 %	28 %
LCOHOL REL	2	1	2	5	4 %	8 %
NTERSEC REL	15	22	23	60		
OTAL VEH	57	79	68	204		
OTAL TRUCKS	1	1	1	3		
PERCENT TRKS	1.8	1.3	1.5	1.5		

Comments:

aryland State Highway Administration
ffice of Traffic and Safety - Traffic Safety Analysis Division
HA 52.1 ADC Combined Logmile History Output rev. 12/98-1

Name: Dennis McMullen
Date: 06/10/2002

ocation: GOSHEN RD FROM GIRARD ST TO WARFIELD RD
ounty: Montgomery Period: January 1, 1999 To December 31, 2001

Logmile: From 000.00 To 003.12 Length: 3.12
Note(s):

LOGMILE	IR	DATE	SEVERITY	TIME	LIGHT	SURFACE	ALC	FXOB	CLSN TYPE	MOVE V1 V2	PROBABLE CAUSE
CO0033											
0.00	✓	040199	1 Inj.	7P	NIGHT	WET			OPDIR	SS NS	FAIL TO GIVE FULL TIME/ATTENT
0.00	✓	112101	PROPERTY	7P	NIGHT	DRY			LFTRN	SL NS	UNKNOWN OR OTHER CAUSE
0.01		080799	PROPERTY	3A	NIGHT	DRY	✓	11	FXOBJ	WR na	UNDER INFLUENCE OF ALCOHOL
0.01	✓	011500	PROPERTY	11A	DAY	DRY			RREND	NS NL	FAIL TO GIVE FULL TIME/ATTENT
0.12	✓	060501	1 Inj.	3P	DAY	DRY			PED	SS na	UNKNOWN OR OTHER CAUSE
0.13	✓	082700	1 Inj.	4P	DAY	WET			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
0.18		063001	PROPERTY	1P	DAY	DRY			OPDIR	SS NS	FAIL TO GIVE FULL TIME/ATTENT
0.37	✓	032799	1 Inj.	1P	DAY	DRY			RREND	NS NS	UNKNOWN OR OTHER CAUSE
0.40		121501	PROPERTY	5P	NIGHT	DRY		06	FXOBJ	NU na	FAIL TO GIVE FULL TIME/ATTENT
0.48	✓	021199	1 Inj.	8P	NIGHT	DRY			OTHER	NU NS	FAIL TO GIVE FULL TIME/ATTENT
0.49	✓	120999	PROPERTY	12A	NIGHT	DRY			ANGLE	ES NS	FAIL TO OBEY TAFFIC SIGNAL
0.49	✓	020299	PROPERTY	3P	DAY	WET			LFTRN	NS SL	UNKNOWN OR OTHER CAUSE
0.49	✓	010500	1 Inj.	9P	NIGHT	DRY			RREND	NS NR	FAIL TO GIVE FULL TIME/ATTENT
0.49	✓	102100	PROPERTY	2P	DAY	DRY			OTHER	UU SS	FAIL TO GIVE FULL TIME/ATTENT
0.49	✓	112800	PROPERTY	1A	NIGHT	DRY			RREND	NS NL	FAIL TO OBEY TAFFIC SIGNAL
0.49		061500	2 Inj.	2P	DAY	DRY			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT
0.49	✓	080800	2 Inj.	1A	NIGHT	WET			ANGLE	WS NS	FAIL TO OBEY TAFFIC SIGNAL
0.49	✓	122200	PROPERTY	10P	NIGHT	DRY			OTHER	UU NS	UNKNOWN OR OTHER CAUSE
0.49	✓	042300	3 Inj.	12A	NIGHT	WET			ANGLE	ES SS	FAIL TO OBEY TAFFIC SIGNAL
0.49	✓	021701	PROPERTY	10A	DAY	DRY			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT
0.49	✓	100101	2 Inj.	4P	DAY	DRY			LFTRN	SL NS	FAIL TO GIVE FULL TIME/ATTENT
0.49	✓	100501	1 Inj.	7P	DAY	DRY			LFTRN	SL NS	FAIL TO GIVE FULL TIME/ATTENT
0.63		102799	PROPERTY	10A	DAY	DRY			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
0.63		082100	PROPERTY	8P	NIGHT	DRY			OPDIR	NS SS	FAIL TO GIVE FULL TIME/ATTENT
0.65	✓	081499	1 Inj.	6P	DAY	WET			LFTRN	NL SS	FAIL TO GIVE FULL TIME/ATTENT
0.65	✓	050999	2 Inj.	9P	DAY	DRY			OTHER	WU ES	FAIL TO GIVE FULL TIME/ATTENT
0.65	✓	021499	PROPERTY	11A	DAY	DRY			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
0.65		112900	PROPERTY	2P	DAY	DRY			RREND	NS NS	FAIL TO STOP FOR SCHOOL BUS
0.65	✓	092101	PROPERTY	6P	DAY	DRY	✓		RREND	SS SS	TOO FAST FOR CONDITIONS
0.65	✓	050501	1 Inj.	2P	DAY	DRY			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT
0.66		061499	PROPERTY	5P	DAY	WET			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
0.67		093099	PROPERTY	12A	NIGHT	WET		07	FXOBJ	SS na	RAIN, SNOW
0.67		091600	2 Inj.	11A	DAY	DRY			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT
0.74		071899	PROPERTY	4P	DAY	DRY			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
0.83		021501	1 Inj.	8P	NIGHT	DRY	✓	05	FXOBJ	NS na	UNDER INFLUENCE OF ALCOHOL
0.87	✓	071700	2 Inj.	6P	DAY	DRY			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
0.88		120199	1 Inj.	6P	NIGHT	DRY			RREND	NS NL	FAIL TO GIVE FULL TIME/ATTENT
0.90		032199	PROPERTY	6P	NIGHT	WET		05	FXOBJ	SS na	FAIL TO GIVE FULL TIME/ATTENT
1.08		081800	PROPERTY	9P	NIGHT	WET			OTHER	UU NS	FAIL TO GIVE FULL TIME/ATTENT
1.16		070199	1 Inj.	8P	DAY	DRY			OPDIR	SS NS	TOO FAST FOR CONDITIONS
1.31		122899	PROPERTY	10P	NIGHT	ICE			RREND	NL NS	TOO FAST FOR CONDITIONS
1.31		061200	2 Inj.	7P	DAY	WET			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT

FXOB(01)=Bridge (02)=Building (03)=Culver/Ditch (04)=Curb (05)=Guardrail/Barrier (06)=Embankment (07)=Fence
(08)=Light Pole (09)=Sign Post (10)=Other Pole (11)=Tree/Shrubbery (12)=Construc. Barrier (13)=Crash Attenuator

Continues...

ADC Combined Logmile History Output Continued...

LOGMILE	IR	DATE	SEVERITY	TIME	LIGHT	SUR FACE	ALC	FX OB	CLSN TYPE	MOVE V1 V2	PROBABLE CAUSE
1.31	√	092600	PROPERTY	1P	DAY	WET			LFTRN	NL SS	FAIL TO YIELD RIGHT OF WAY
1.31	√	110100	1 Inj.	7P	NIGHT	DRY			PED	UU na	UNKNOWN OR OTHER CAUSE
1.31	√	121800	PROPERTY	12P	DAY	DRY	√		OPDIR	NS SS	FAIL TO GIVE FULL TIME/ATTENT
1.31	√	102701	PROPERTY	7P	NIGHT	DRY			LFTRN	SL NS	IMPROPER TURN
1.31	√	102601	2 Inj.	8A	DAY	DRY			LFTRN	SL NS	FAIL TO GIVE FULL TIME/ATTENT
1.31	√	121901	1 Inj.	7A	DAY	DRY			PED	NR na	FAIL TO GIVE FULL TIME/ATTENT
1.40		102199	1 Inj.	9P	NIGHT	DRY		09	FXOBJ	SS na	FAIL TO GIVE FULL TIME/ATTENT
1.40		100400	1 Inj.	7A	DAY	DRY			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT
1.51		051000	PROPERTY	8A	DAY	DRY			OTHER	UU NS	UNKNOWN OR OTHER CAUSE
1.61		042099	PROPERTY	10A	DAY	WET			OPDIR	NS SS	FAIL TO GIVE FULL TIME/ATTENT
1.61	√	082901	2 Inj.	7A	DAY	DRY			ANGLE	WL NS	FAIL TO GIVE FULL TIME/ATTENT
1.63		110499	PROPERTY	3P	DAY	DRY		10	FXOBJ	NS na	FELL ASLEEP, FAINTED, ETC.
1.85		031601	PROPERTY	5A	NIGHT	WET		11	FXOBJ	SS na	FAIL TO GIVE FULL TIME/ATTENT
1.87	√	121099	1 Inj.	6P	NIGHT	WET			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
1.87	√	111899	1 Inj.	8P	NIGHT	DRY		09	FXOBJ	SS na	FAIL TO GIVE FULL TIME/ATTENT
1.87	√	050299	PROPERTY	3P	DAY	DRY			ANGLE	NS WS	FAIL TO GIVE FULL TIME/ATTENT
1.87	√	051100	PROPERTY	3P	DAY	DRY			RREND	NS NL	FAIL TO GIVE FULL TIME/ATTENT
1.87		080600	PROPERTY	3P	DAY	WET			RREND	NS NL	FAIL TO GIVE FULL TIME/ATTENT
1.88		100900	PROPERTY	2A	NIGHT	DRY		11	FXOBJ	UU na	UNKNOWN OR OTHER CAUSE
1.88		042701	1 Inj.	4P	DAY	DRY			PED	SS na	UNKNOWN OR OTHER CAUSE
1.89		020700	PROPERTY	12A	NIGHT	WET		11	FXOBJ	SS na	TOO FAST FOR CONDITIONS
1.89		092700	PROPERTY	5P	DAY	DRY			OTHER	UU SS	FAIL TO KEEP RIGHT OF CENTER
2.13	√	091900	4 Inj.	8A	DAY	WET			RREND	SS SL	TOO FAST FOR CONDITIONS
2.13	√	121601	1 Inj.	5P	NIGHT	DRY			RREND	SS SS	FOLLOWED TOO CLOSELY
2.14	√	061799	3 Inj.	5P	DAY	WET			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT
2.14	√	122099	PROPERTY	1P	DAY	WET			RREND	SS SS	FAIL TO GIVE FULL TIME/ATTENT
2.15		081401	2 Inj.	5P	DAY	DRY			LFTRN	NL SS	FAIL TO GIVE FULL TIME/ATTENT
2.22		101799	PROPERTY	11P	NIGHT	WET			OTHER	UU NS	FAIL TO KEEP RIGHT OF CENTER
2.35		051401	PROPERTY	4P	DAY	DRY		04	FXOBJ	SS na	VEHICLE DEFECT
2.36		122401	1 Inj.	1P	DAY	DRY			OTHER	EU SS	FAIL TO GIVE FULL TIME/ATTENT
2.41		070101	PROPERTY	8P	NIGHT	DRY			OTHER	UU SS	FAIL TO GIVE FULL TIME/ATTENT
2.44	√	120700	4 Inj.	5P	NIGHT	DRY			ANGLE	EL SS	UNKNOWN OR OTHER CAUSE
2.44	√	071400	2 Inj.	3P	DAY	DRY			ANGLE	EL SS	FAIL TO GIVE FULL TIME/ATTENT
2.44	√	062500	1 Inj.	2P	DAY	DRY			PED	SS na	UNKNOWN OR OTHER CAUSE
2.44	√	011600	3 Inj.	6P	NIGHT	DRY			OPDIR	SS NS	FAIL TO GIVE FULL TIME/ATTENT
2.44	√	081401	1 Inj.	3P	DAY	DRY			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
2.44		091201	2 Inj.	5P	DAY	DRY			PED	SU na	UNKNOWN OR OTHER CAUSE
2.48		070901	2 Inj.	6A	DAY	DRY			OPDIR	SS NS	FAIL TO GIVE FULL TIME/ATTENT
2.54	√	083001	PROPERTY	6P	DAY	DRY		11	FXOBJ	SR na	UNKNOWN OR OTHER CAUSE
2.57		032601	1 Inj.	3P	DAY	DRY			ANGLE	EL SS	IMPROPER TURN
2.59	√	071000	PROPERTY	6P	DAY	WET			RREND	NS NS	TOO FAST FOR CONDITIONS
2.59		112200	PROPERTY	3P	DAY	DRY			RREND	SL SS	FAIL TO YIELD RIGHT OF WAY
2.60	√	051100	PROPERTY	10A	DAY	DRY			ANGLE	EL NS	FAIL TO GIVE FULL TIME/ATTENT
2.61		112699	1 Inj.	9P	NIGHT	WET			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT
2.61	√	111999	1 Inj.	10P	NIGHT	DRY	√		RREND	NS NS	UNDER INFLUENCE OF ALCOHOL
2.61	√	080100	PROPERTY	4P	DAY	WET			OTHER	NS UU	FAIL TO GIVE FULL TIME/ATTENT
2.61	√	031901	PROPERTY	2P	DAY	DRY			OTHER	UU SS	UNKNOWN OR OTHER CAUSE
2.61	√	043001	2 Inj.	6A	DAY	DRY			LFTRN	SL NS	FAIL TO GIVE FULL TIME/ATTENT
2.62	√	010201	1 Inj.	8A	DAY	DRY			RREND	NS NS	FAIL TO GIVE FULL TIME/ATTENT

FXOB (01)=Bridge (02)=Building (03)=Culver/Ditch (04)=Curb (05)=Guardrail/Barrier (06)=Embankment (07)=Fence
8)=Light Pole (09)=Sign Post (10)=Other Pole (11)=Tree/Shrubbery (12)=Construc. Barrier (13)=Crash Attenuator

ADC Combined Logmile History Output Continued...

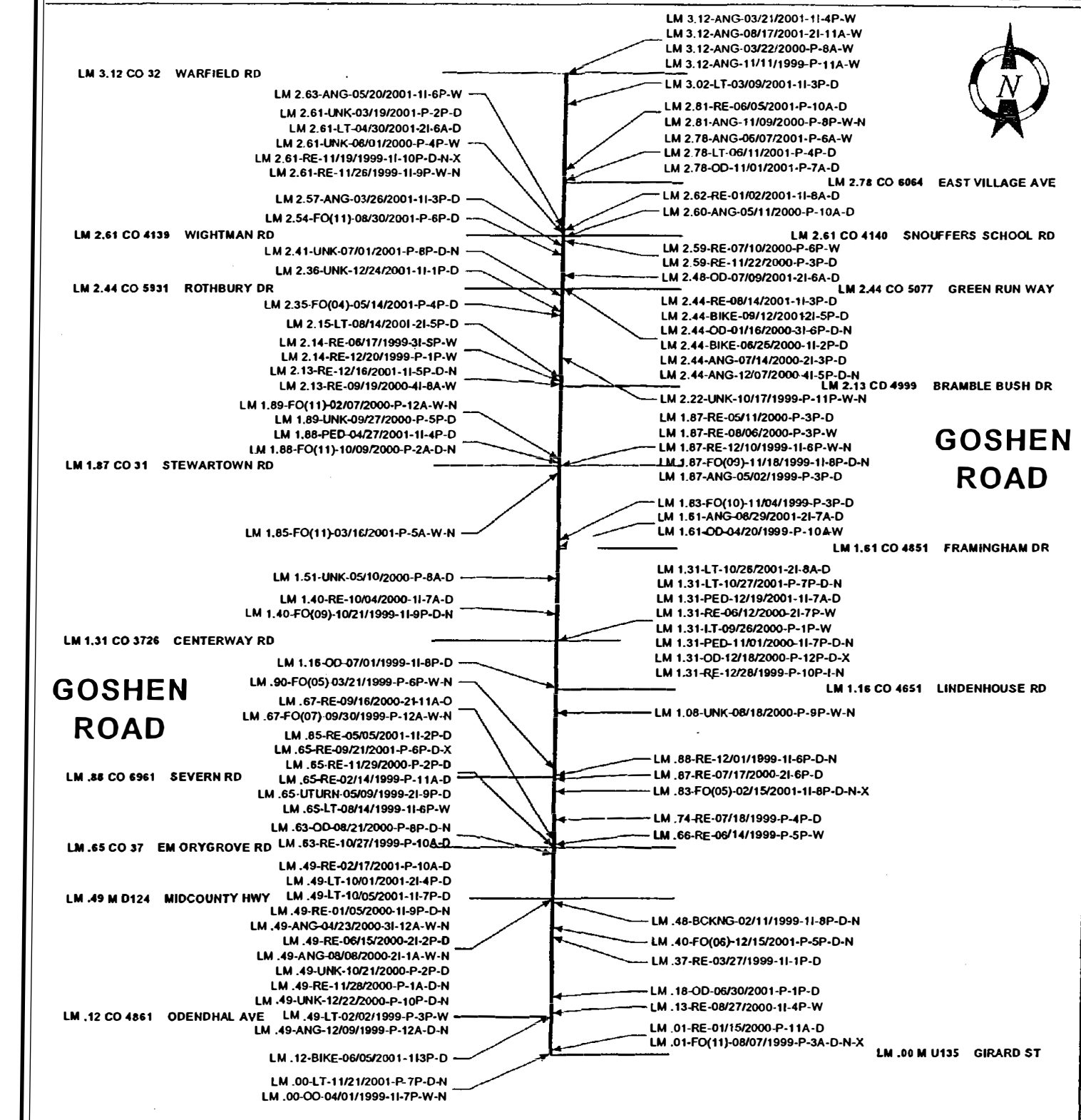
LOGMILE	IR	DATE	SEVERITY	TIME	LIGHT	SUR FACE	ALC	FX OB	CLSN TYPE	MOVE V1 V2	PROBABLE CAUSE
2.63	√	052001	1 Inj.	6P	DAY	WET			ANGLE	EL SS	FAIL TO YIELD RIGHT OF WAY
2.78	√	060701	PROPERTY	6A	DAY	WET			ANGLE	WL NS	FAIL TO GIVE FULL TIME/ATTENT
2.78	√	061101	PROPERTY	4P	DAY	DRY			LFTRN	SL NS	FAIL TO GIVE FULL TIME/ATTENT
2.78	√	110101	PROPERTY	7A	DAY	DRY			OPDIR	SS NS	FAIL TO GIVE FULL TIME/ATTENT
2.81		110900	PROPERTY	8P	NIGHT	WET			ANGLE	EL SS	FAIL TO YIELD RIGHT OF WAY
2.81		060501	PROPERTY	10A	DAY	DRY			RREND	ES ES	FAIL TO GIVE FULL TIME/ATTENT
3.02		030901	1 Inj.	3P	DAY	DRY			LFTRN	SL NS	FAIL TO YIELD RIGHT OF WAY
3.12	√	111199	PROPERTY	11A	DAY	WET			ANGLE	NS WL	FAIL TO GIVE FULL TIME/ATTENT
3.12	√	032200	PROPERTY	8A	DAY	WET			ANGLE	ES NS	FAIL TO GIVE FULL TIME/ATTENT
3.12	√	032101	1 Inj.	4P	DAY	WET			ANGLE	NS ES	FAIL TO GIVE FULL TIME/ATTENT
3.12	√	081701	2 Inj.	11A	DAY	WET			ANGLE	NS WS	TOO FAST FOR CONDITIONS

FXOB(01)=Bridge (02)=Building (03)=Culver/Ditch (04)=Curb (05)=Guardrail/Barrier (06)=Embankment (07)=Fence
(08)=Light Pole (09)=Sign Post (10)=Other Pole (11)=Tree/Shrubbery (12)=Construc. Barrier (13)=Crash Attenuator

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Safety Analysis Division

Location: Goshen Road from Girard Street to Warfield Road
County: Montgomery
Study Period: 01/01/1999 to 12/31/2001
Analyst: Dennis McMullen Date: 06/10/2002



KEY: LogMile-CollisionType (FixedObjectStruck) -Date-Severity-Time-Surface-Illumination-Alcohol

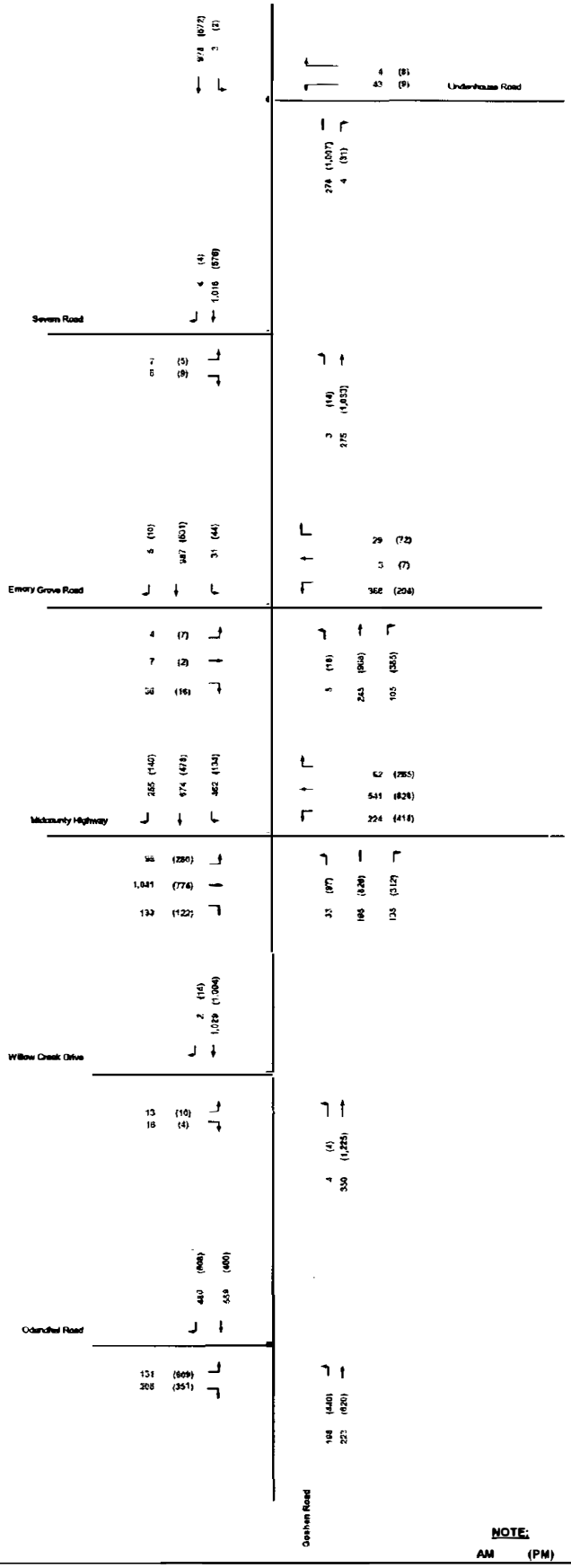
F - Fatalities	PARKD - Parked Vehicle	FO - Fixed Object	OFFRD - Off Road	00 - Not Applicable	08 - Light Support Pole	N - Night	
Injury	PED - Pedestrian	OOBJ - Other Object	RUNWY - Downhill Runaway	01 - Bridge or Overpass	09 - Sign Support Pole	X - Alcohol	
- Property Damage	BIKE - Bicycle	OT - Overturn	FIRE - Explosion Fire	02 - Building	10 - Other Pole	D - Dry Surface	
OD - Opposite Direction	PEDAL - Other Pedalcycle	SPILL - Spilled Cargo	BCKNG - Backing	03 - Culvert or Ditch	11 - Tree Shrubbery	W - Wet Surface	
- Left Turn	CONVY - Other Conveyance	JCKKNF - Jackknife	UTURN - U-Turn	04 - Curb	12 - Construction Barrier	I - Icy Surface	
RE - Rear End	TRAIN - Railway Train	SPRTD - Units Separated	OTHR - Other	05 - Guardrail or Barrier	13 - Crash Attenuater	S - Snowy Surface	
NG - Angle	ANIML - Animal	NCOLL - Other Non Collision	UNK - Unknown	06 - Embankment	88 - Other		
				07 - Fence	99 - Unknown		

Summary of Reported Intersection-Related Accidents

	Girard St	Odendhal Ave	Midcounty Hwy	Emory Grove Rd	Severn Rd	Lindenhouse Rd	Centerway Rd	Framingham Dr	Stewartown Rd	Bramble Bush Dr	Rothbury Dr/Green Run Way	Wightman Rd/Snouffers School Rd	East Village Ave	Warfield Rd	Corridor Total
Collision Type															
Angle	0	0	3	0	0	0	0	1	1	0	2	1	1	4	16
Backing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Object	1	0	0	1	1	0	0	1	2	0	0	0	0	0	13
Left Turn	1	0	3	1	0	0	3	0	0	0	0	1	1	0	12
Opposite Direction	1	0	0	1	0	1	1	1	0	0	1	0	1	0	9
Parked Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian	0	1	0	0	0	0	2	0	0	0	2	0	0	0	6
Rear End	1	1	4	7	2	0	2	0	3	4	1	3	0	0	34
Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown Type	0	0	3	1	0	0	0	0	0	0	0	2	0	0	12
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Direction															
All Intersection	3	2	12	5	1	0	6	1	4	4	5	6	3	4	60
Northbound	1	0	0	1	1	0	2	2	1	0	1	0	0	0	20
Southbound	0	0	1	5	1	1	0	0	1	0	0	1	0	0	22
Unknown Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Month															
January	1	0	1	0	0	0	0	0	0	0	1	1	0	0	4
February	0	0	3	1	0	0	0	0	0	0	0	0	0	0	6
March	0	0	0	0	1	0	0	0	0	0	0	1	0	2	8
April	1	0	1	0	0	0	0	1	0	0	0	1	0	0	5
May	0	0	0	2	0	0	0	0	2	0	0	1	0	0	8
June	0	1	1	1	0	0	1	0	0	1	1	0	2	0	10
July	0	0	0	0	1	1	0	0	0	0	1	0	0	0	7
August	1	1	1	2	0	0	0	1	1	0	1	1	0	1	13
September	0	0	0	2	0	0	1	0	0	1	1	0	0	0	6
October	0	0	3	1	0	0	2	0	1	0	0	0	0	0	10
November	1	0	1	2	0	0	1	1	1	0	0	2	1	1	13
December	0	0	2	0	1	0	3	0	1	2	1	0	0	0	12
Time															
12:00 AM	0	0	2	1	0	0	0	0	0	0	0	0	0	0	4
1:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
2:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
3:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3
7:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	1	0	4
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	1	0	1	5
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	1	1	0	0	0	1	0	0	0	1	0	0	5
11:00 AM	1	0	0	2	0	0	0	0	0	0	0	0	0	2	5
12:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	5
2:00 PM	0	0	2	2	0	0	0	0	0	0	1	1	0	0	6
3:00 PM	0	1	1	0	0	0	0	1	3	0	2	0	0	0	11
4:00 PM	0	1	1	0	0	0	0	0	0	0	0	1	1	1	8
5:00 PM	0	0	0	1	0	0	0	0	0	2	2	0	0	0	8
6:00 PM	0	0	0	2	3	0	0	0	1	0	1	0	0	0	10
7:00 PM	2	0	1	0	0	0	3	0	0	0	0	0	0	0	6
8:00 PM	0	0	1	1	0	1	0	0	1	0	0	0	0	0	7
9:00 PM	0	0	1	1	0	0	0	0	0	0	0	1	0	0	5
10:00 PM	0	0	1	0	0	0	1	0	0	0	0	1	0	0	3
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Severity															
Fatal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Injury	1	2	7	4	2	1	4	1	2	3	6	4	0	2	50
Property Damage	3	0	6	7	1	0	4	2	4	1	0	3	3	2	52
Surface Condition															
Dry	3	1	10	8	2	1	5	2	4	1	6	5	2	0	70
Icy	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Snowy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wet	1	1	3	3	1	0	2	1	2	3	0	2	1	4	31
Illumination															
Day	1	2	6	9	1	1	5	3	3	3	4	5	3	4	68
Night	3	0	7	2	2	0	3	0	3	1	2	2	0	0	34
Alcohol															
Sober	3	2	13	10	3	1	7	3	6	4	6	6	3	4	97
Drunk	1	0	0	1	0	0	1	0	0	0	0	1	0	0	5

APPENDIX C: Existing 2002 Capacity Analyses

Turning Movement Volumes
Synchro
Critical Lane Volume
Highway Capacity Software



NOTE:
AM (PM)

South End of Corridor

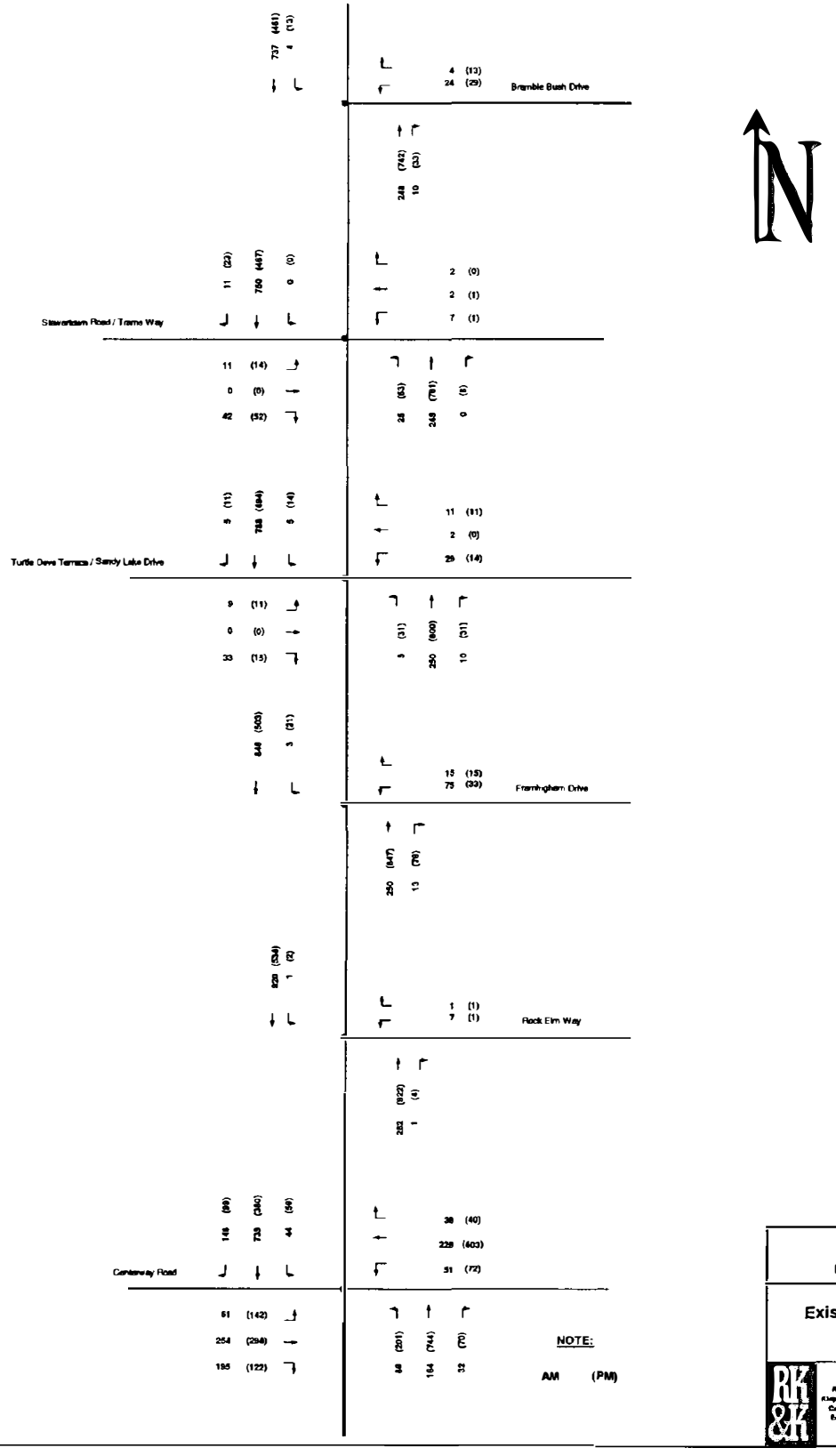
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Existing Balanced Traffic Volumes

RK&K — Rummel, Klepper & Kahl Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2003

Sheet 1 of 3



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GOSHEN ROAD
Traffic Study
Montgomery County, MD

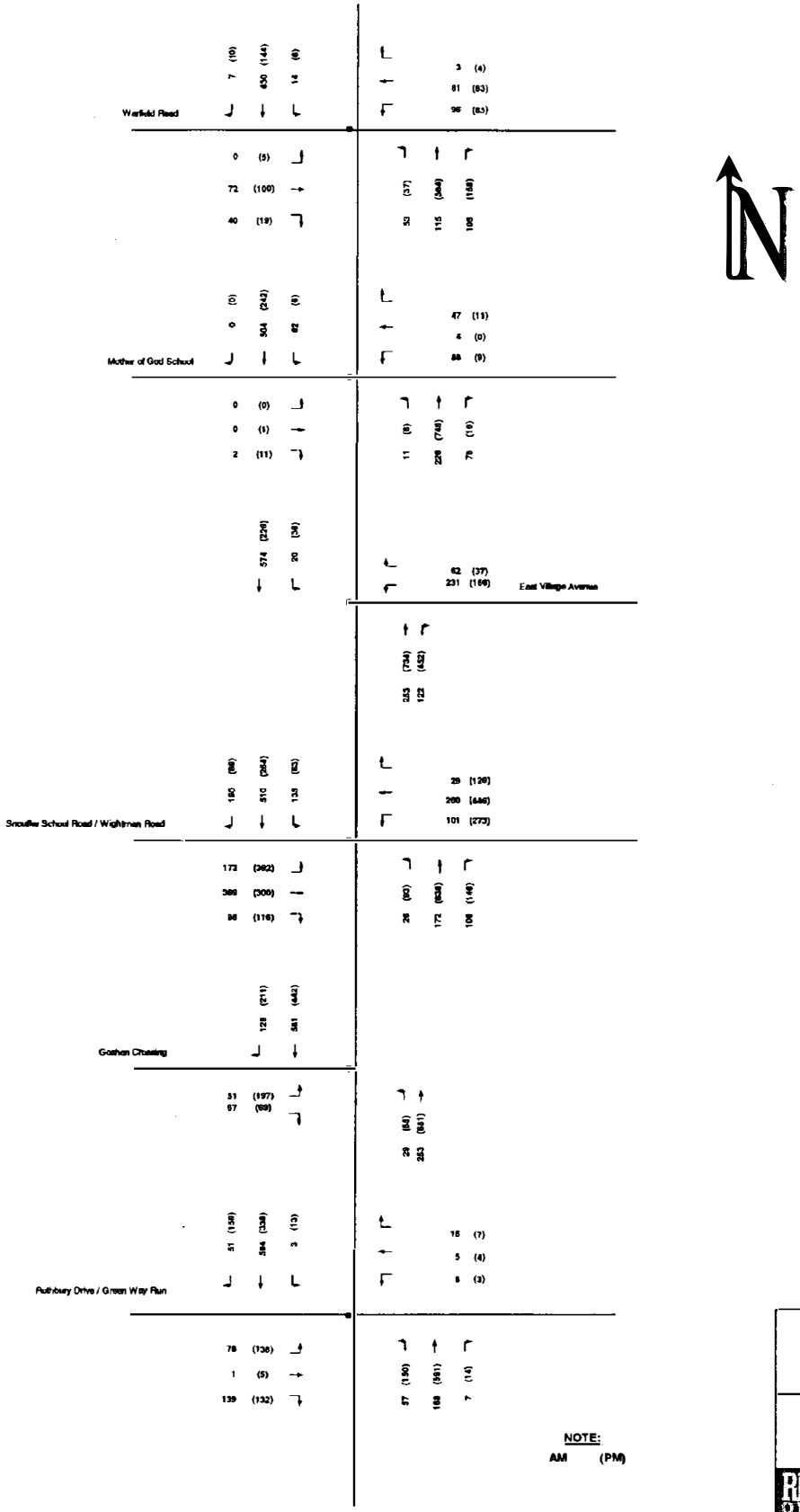
Existing Balanced Traffic Volumes

RK&K — Rummel, Klepper & Kahl Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2003

Sheet 2 of 3

North End of Corridor



NOTE:
AM (PM)

GOSHEN ROAD
Traffic Study
Montgomery County, MD

Existing Balanced Traffic Volumes

Rossmel, Kleppe & Kohl Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2002

Sheet 3 of 3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Storage Length (ft)	0	0	200			200						
Storage Lanes	1	1	1			1						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0						
Leading Detector (ft)	50	50	50	50	50	50						
Trailing Detector (ft)	0	0	0	0	0	0						
Turning Speed (mph)	15	9	15			9						
Satd. Flow (prot)	1805	1616	1805	1845	1845	1615						
Flt Permitted	0.950		0.202									
Satd. Flow (perm)	1805	1615	384	1845	1845	1615						
Right Turn on Red		Yes				Yes						
Satd. Flow (RTOR)		229				440						
Link Speed (mph)	30			37	33							
Link Distance (ft)	1524			798	803							
Travel Time (s)	34.6			14.7	16.6							
Volume (vph)	191	208	198	223	559	486						
Peak Hour Factor	0.81	0.91	0.87	0.87	0.90	0.90						
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%						
Lane Group Flow (vph)	144	228	228	256	621	540						
Turn Type		Perm	custom			Perm						
Protected Phases	4		5	6 2	6		2					
Permitted Phases		4	2			6						
Detector Phases	4	4	5	6 2	6	6						
Minimum Initial (s)	14.0	14.0	27.0		10.0	10.0	9.0					
Minimum Split (s)	23.0	23.0	32.0		36.0	36.0	36.0					
Total Split (s)	28.0	28.0	32.0	92.0	60.0	60.0	60.0					
Total Split (%)	23%	23%	27%	77%	50%	50%	50%					
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0					
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0					
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None		Coord	Coord	Coord					
Act Effct Green (s)	15.8	15.8	91.2	95.2	63.2	63.2						
Actuated g/C Ratio	0.14	0.14	0.76	0.79	0.53	0.53						
v/c Ratio	0.57	0.64	0.37	0.17	0.64	0.61						
Uniform Delay, d1	48.2	0.0	6.4	3.0	20.3	2.7						
Delay	48.1	6.8	9.4	3.2	10.4	3.4						
LOS	D	A	A	A	B	A						
Approach Delay	22.2			6.1	7.2							
Approach LOS	C			A	A							
Queue Length 50th (ft)	107	0	34	35	260	82						
Queue Length 95th (ft)	166	69	81	68	m309	m73						
Internal Link Dist (ft)	1444			718	723							
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)			200			200						
50th Bay Block Time %					7%							
95th Bay Block Time %					9%							
Queuing Penalty (veh)					44							

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 68 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 76.9% ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		200	200		200	500		200
Storage Lanes	1		1	1		1	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	3506	1566	1752	3506	1566	1736	3250	0	1770	1863	1564
Flt Permitted	0.950			0.950			0.103			0.429		
Satd. Flow (perm)	1752	3506	1566	1752	3506	1566	188	3250	0	799	1863	1564
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64			66		154				102
Link Speed (mph)		30			30			37			27	
Link Distance (ft)		977			799			819			883	
Travel Time (s)		14.9			17.6			11.4			22.3	
Volume (vph)	99	1041	133	224	541	62	53	195	195	462	874	285
Peak Hour Factor	0.82	0.82	0.82	0.96	0.96	0.96	0.83	0.83	0.83	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	120	1270	162	233	564	65	40	398	0	476	696	293
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2			6		Free
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	27.0		4.0	27.0	
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	21.0	33.0		21.0	33.0	
Total Split (s)	16.0	90.0	90.0	16.0	90.0	90.0	31.0	43.0	0.0	31.0	43.0	0.0
Total Split (%)	13%	75%	75%	13%	75%	75%	26%	36%	0%	26%	36%	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	1.0	1.0	2.0	1.0	1.0	1.0	2.0		1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	12.0	26.0	26.0	12.0	26.0	26.0	66.0	41.6		66.0	41.6	120.0
Actuated g/C Ratio	0.10	0.22	0.22	0.10	0.22	0.22	0.56	0.35		0.56	0.35	1.00
v/c Ratio	0.69	1.67	0.40	1.33	0.74	0.17	0.10	0.52		0.75	1.04	0.17
Uniform Delay, d1	52.9	47.0	18.7	54.0	43.3	0.0	10.7	17.1		14.8	59.2	0.0
Delay	56.6	246.3	19.9	190.3	44.3	9.4	9.9	21.3		13.4	89.3	0.0
LOS	E	F	B	F	D	A	A	C		B	F	A
Approach Delay		206.2			76.4			20.2			47.7	
Approach LOS		F			E			C			D	
Queue Length 50th (ft)	91	~755	50	~234	216	0	17	91		195	~606	0
Queue Length 95th (ft)	#149	#754	96	#387	281	37	31	124		m#215	m#776	m0
Internal Link Dist (ft)		577			668			539			803	
50th Up Block Time (%)		24%										
95th Up Block Time (%)		27%										
Turn Bay Length (ft)	200		200	200		200	200			500		200
50th Bay Block Time %		65%		19%	7%						22%	
95th Bay Block Time %		68%		63%	22%						43%	
Queuing Penalty (veh)		78		101	35						154	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.67
Intersection Signal Delay: 109.2 Intersection LOS: F
Intersection Capacity Utilization 111.3% ICU Level of Service G
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		200	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1706	0	1728	1701	0	0	1826	1599	1706	1834	0
Flt Permitted		0.995		0.950	0.950			0.842		0.364		
Satd. Flow (perm)	0	1706	0	1725	1701	0	0	1539	1599	669	1834	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			60			28		128	36	
Link Speed (mph)		30			30			28			35	
Link Distance (ft)		304			956			985			467	
Travel Time (s)		6.9			8.1			21.5			8.6	
Volume (vph)	4	7	36	366	3	25	6	245	105	31	987	5
Peak Hour Factor	0.72	0.72	0.72	0.76	0.76	0.76	0.82	0.82	0.82	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%
Lane Group Flow (vph)	0	66	0	273	253	0	0	305	128	36	1128	0
Turn Type		Split			Split			Perm		Perm	pm+pt	
Protected Phases		4			8				2	1	6	
Permitted Phases								2		6		
Detector Phases	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0	15.0	4.0	15.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		20.0	20.0	20.0	8.5	19.0	
Total Split (s)	14.0	14.0	0.0	26.0	25.0	0.0	43.0	43.0	43.0	36.0	61.0	0.0
Total Split (%)	12%	12%	0%	21%	21%	0%	36%	36%	36%	32%	66%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		None	None	None	None	Coord	
Act Effct Green (s)		7.1		20.6	20.6			75.5	75.5	82.2	82.2	
Actuated g/C Ratio		0.06		0.17	0.17			0.63	0.63	0.69	0.69	
v/c Ratio		0.44		0.93	0.85			0.32	0.12	0.07	0.90	
Uniform Delay, d1		13.2		48.0	47.3			11.4	9.0	6.9	16.0	
Delay		20.6		58.5	57.6			17.4	6.6	10.6	32.6	
LOS		C		E	E			B	A	B	C	
Approach Delay		20.6			53.3			14.2			32.0	
Approach LOS		C			E			B			C	
Queue Length 50th (ft)		11		221	196			144	8	13	755	
Queue Length 95th (ft)		36		#288	243			243	m53	m29	#1071	
Internal Link Dist (ft)		224			275			803			387	
50th Up Block Time (%)											31%	
95th Up Block Time (%)					5%						37%	
Turn Bay Length (ft)				200						200		
50th Bay Block Time %					9%						32%	
95th Bay Block Time %					20%	15%					36%	
Queuing Penalty (veh)					44	20					397	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74 (62%), Referenced to phase 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 87.4% ICU Level of Service D
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3431	0	1752	1799	0	1752	1799	0
Flt Permitted	0.495			0.950			0.083			0.060		
Satd. Flow (perm)	860	1845	1568	470	3431	0	116	1799	0	111	1799	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			214		14			22			14	
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		374			432			792			367	
Travel Time (s)		8.5			9.8			18.0			8.6	
Volume (vph)	61	264	195	51	228	38	86	164	32	44	735	146
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.95	0.95	0.95	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	67	279	214	54	263	0	101	251	0	47	859	0
Turn Type	Perm		Perm	Perm			custom			Perm		
Protected Phases		4			8			5	2		6	
Permitted Phases	4		4	8			2			6		
Detector Phases	4	4	4	8	8		5	2		6	6	
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0			10.0	10.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0		6.0			27.0	27.0	
Total Split (s)	28.0	28.0	28.0	28.0	28.0	0.0	21.0	92.0	0.0	71.0	71.0	0.0
Total Split (%)	23%	23%	23%	23%	23%	0%	18%	77%	0%	59%	59%	0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		4.0			4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None			Coord	Coord	
Act Effct Green (s)	21.9	21.9	21.9	21.9	21.9		94.1	90.1		73.6	73.6	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.78	0.75		0.61	0.61	
v/c Ratio	0.43	0.83	0.46	0.55	0.44		0.40	0.17		0.69	0.82	
Uniform Delay, d1	43.4	47.2	0.0	45.3	41.3		4.5	3.8		15.6	18.4	
Delay	45.8	50.2	5.6	53.5	41.1		13.1	10.6		48.2	27.1	
LOS	D	D	A	D	D		B	B		E	C	
Approach Delay		32.4			43.1			11.3			29.6	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	45	208	0	36	98		42	37		24	578	
Queue Length 95th (ft)	93	#325	65	#98	140		m85	m165		#108	#946	
Internal Link Dist (ft)		294			352			712			287	
50th Up Block Time (%)											23%	
95th Up Block Time (%)		12%									50%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		7%									29%	
95th Bay Block Time %		33%									39%	
Queuing Penalty (veh)		13									292	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 78 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 29.6 Intersection LOS: C
Intersection Capacity Utilization 69.7% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Centerway Road & Goshen Road

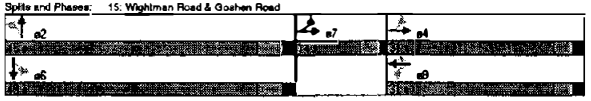


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	200		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1860	0	1796	1890	1607	1744	3325	0	1825	3412	0
Flt Permitted	0.422			0.493			0.282			0.535		
Satd. Flow (perm)	786	1860	0	932	1890	1607	518	3325	0	1027	3412	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			19			31		128			61	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		677			834			418			1906	
Travel Time (s)		15.4			14.4			5.9			4.3	
Volume (vph)	173	369	66	101	280	29	26	172	106	136	510	160
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	0%	0%	0%	0%	3%	3%	0%	0%	3%	3%
Lane Group Flow (vph)	175	472	0	109	280	31	31	331	0	150	748	0
Turn Type	custom			Perm		Perm	Perm			Perm		
Protected Phases	7	7 4			8			2			6	4
Permitted Phases	4	4		8		8	2			6		
Detector Phases	7	7 4		8	8	8	2	2		6	6	
Minimum Initial (s)	10.0			23.0	23.0	23.0	22.0	22.0		22.0	22.0	23.0
Minimum Split (s)	14.0			28.0	28.0	28.0	22.0	22.0		22.0	22.0	28.0
Total Split (s)	14.0	45.0	0.0	31.0	31.0	31.0	45.0	45.0	0.0	45.0	45.0	0.0	31.0
Total Split (%)	16%	50%	0%	34%	34%	34%	50%	50%	0%	50%	50%	0%	34%
Yellow Time (s)	3.0	4.0		3.0	3.0	3.0	4.0	4.0		4.0	4.0		3.0
All-Red Time (s)	1.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None			None	None	None	Coord	Coord		Coord	Coord		None
Act Effct Green (s)	34.6	38.6		24.6	24.6	24.6	43.4	43.4		43.4	43.4		
Actuated g/C Ratio	0.38	0.43		0.27	0.27	0.27	0.48	0.48		0.48	0.48		
v/c Ratio	0.43	0.58		0.43	0.54	0.07	0.12	0.20		0.30	0.44		
Uniform Delay, d1	15.4	18.7		26.9	27.9	25.0	12.8	8.0		14.1	13.9		
Delay	15.5	19.0		27.6	28.2	8.7	14.0	8.3		15.0	14.3		
LOS	B	B		C	C	A	B	A		B	B		
Approach Delay		18.3			26.6			8.8			14.4		
Approach LOS		B			C			A			B		
Queue Length 50th (ft)	82	193		51	137	0	9	32		49	126		
Queue Length 95th (ft)	100	274		98	207	20	25	51		95	173		
Internal Link Dist (ft)		597			554			338			226		
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)	200			200		200	200			200			
50th Bay Block Time %		5%											
95th Bay Block Time %		19%			9%								
Queuing Penalty (veh)		20			4								

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 85.3% ICU Level of Service D

Splits and Phases: 15: Wightman Road & Goshen Road

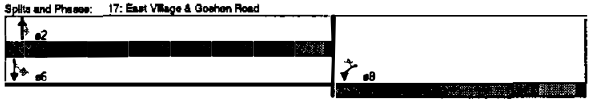


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15		9		9	15
Satd. Flow (prot)	1781	1623	1846	1886	0	1841
Flt Permitted	0.950					0.986
Satd. Flow (perm)	1781	1623	1846	1886	0	1819
Right Turn on Red			Yes		Yes	
Satd. Flow (RTOR)		672		150		
Link Speed (mph)	30		40			40
Link Distance (ft)	669		1644			1556
Travel Time (s)	12.7		8.8			5.4
Volume (vph)	291	92	253	122	90	424
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	248	67	269	130	0	553
Turn Type		Perm		Perm	Perm	
Protected Phases	8		2			6
Permitted Phases		8		2	2	
Detector Phases	8	8	2	2	6	6
Minimum Initial (s)	5.0	5.0	7.0	7.0	7.0	7.0
Minimum Split (s)	10.0	10.0	12.0	12.0	12.0	12.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43%	43%	57%	57%	57%	57%
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord	Coord	Coord	Coord
Act Effct Green (s)	14.0	14.0	38.0	38.0		38.0
Actuated g/C Ratio	0.23	0.23	0.63	0.63		0.63
v/c Ratio	0.60	0.18	0.23	0.12		0.57
Uniform Delay, d1	20.8	16.0	4.7	4.0		6.3
Delay	19.9	6.0	5.7	1.5		7.7
LOS	B	A	A	A		A
Approach Delay	16.7		4.3			7.7
Approach LOS	B		A			A
Queue Length 50th (ft)	90	0	35	0		114
Queue Length 95th (ft)	128	42	81	16		245
Internal Link Dist (ft)	479		508			308
50th Up Block Time (%)						
95th Up Block Time (%)						1%
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 72.3% ICU Level of Service C

Splits and Phases: 17: East Village & Goshen Road



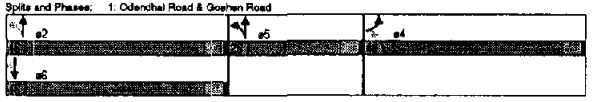
Lane Group	EBL	EBT	EBR	NBL	NBT	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			200
Storage Lanes	1	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15			9
Satd. Flow (prot)	1805	1615	1805	1845	1845	1615
Flt Permitted	0.950		0.222			
Satd. Flow (perm)	1805	1615	422	1845	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		292				532
Link Speed (mph)		30			35	35
Link Distance (ft)		1524			797	903
Travel Time (s)		34.6			15.5	16.8
Volume (vph)	509	351	440	620	400	508
Peak Hour Factor	0.94	0.94	0.93	0.85	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%
Lane Group Flow (vph)	644	373	616	729	466	707
Turn Type		Perm	custom			Perm
Protected Phases		1			5 2	
Permitted Phases			4 2			6
Detector Phases		1	4 2		5 2	6
Minimum Initial (s)		14.0	28.0		10.0	10.0
Maximum Split (s)		20.0	28.0		38.0	38.0
Total Split (s)		46.0	28.0	74.0	46.0	46.0
Total Split (%)		38%	23%	62%	38%	38%
Yellow Time (s)		4.0	4.0		4.0	4.0
All-Red Time (s)		1.0	1.0		1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		None	None	None	Coord	Coord
Act Effct Green (s)		42.0	42.0	66.0	70.0	42.0
Actuated g/C Ratio		0.35	0.35	0.55	0.58	0.35
v/c Ratio		1.03	0.49	1.03	0.88	0.79
Uniform Delay, d1		39.0	5.9	37.5	17.2	33.9
Delay		72.4	7.1	71.8	17.8	36.5
LOS		E	A	E	B	D
Approach Delay		49.6		40.2	19.9	
Approach LOS		D		D	B	
Queue Length 50th (ft)		~535	40	~903	369	221
Queue Length 95th (ft)		#763	126	#961	456	m214
Internal Link Dist (ft)		1444		717		723
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)				200		200
50th Bay Block Time %				29%	22%	20%
95th Bay Block Time %				56%	26%	24%
Queuing Penalty (veh)				308	123	156

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 68 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 35.8 Intersection LOS: D
Intersection Capacity Utilization 99.1% ICU Level of Service E

- 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Odendhal Road & Goshen Road



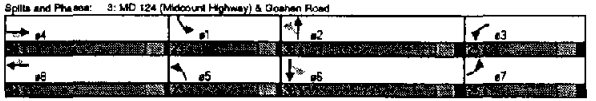
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		200	200		200	200		200
Storage Lanes	1		1	1		1	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	3505	1568	1752	3505	1568	1736	3539	0	1770	1863	1554
Flt Permitted	0.950			0.950			0.118			0.116		
Satd. Flow (perm)	1752	3505	1568	1752	3505	1568	216	3539	0	220	1863	1554
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108			218			46			70
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		667			789			818			883	
Travel Time (s)		14.9			17.5			12.0			20.1	
Volume (vph)	260	774	122	415	826	266	97	829	532	134	478	140
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.95	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	315	870	137	449	890	285	102	1197	0	146	520	152
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2			5		Free
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	10.0	27.0		10.0	27.0	
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	21.0	33.0		21.0	33.0	
Total Split (s)	25.0	34.0	34.0	25.0	34.0	34.0	25.0	36.0	0.0	26.0	36.0	0.0
Total Split (%)	21%	28%	28%	21%	28%	28%	19%	32%	0%	19%	32%	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	1.0	1.0	2.0	1.0	1.0	1.0	2.0		1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	21.0	30.0	30.0	21.0	30.0	30.0	53.0	35.9		53.0	35.9	120.0
Actuated g/C Ratio	0.18	0.25	0.25	0.18	0.25	0.25	0.44	0.30		0.44	0.30	1.00
v/c Ratio	1.03	0.99	0.29	1.46	1.02	0.61	0.33	1.17		0.46	0.93	0.10
Uniform Delay, d1	49.5	44.5	7.3	49.5	45.0	8.2	17.7	40.2		18.2	40.9	0.0
Delay	94.1	66.0	10.6	264.4	71.7	10.1	22.9	117.8		25.4	52.8	0.0
LOS	F	E	B	F	E	B	C	F		C	D	A
Approach Delay		57.0			97.6			110.4			38.0	
Approach LOS		E			F			F			D	
Queue Length 50th (ft)	~261	355	17	~477	~374	40	54	~562		59	327	0
Queue Length 95th (ft)	#456	#456	67	#561	#613	123	m53	m#630		131	#601	0
Internal Link Dist (ft)		577			889			538			803	
50th Up Block Time (%)								4%				
95th Up Block Time (%)					4%			23%				
Turn Bay Length (ft)	200		200	200		200	200			200		200
50th Bay Block Time %	22%	34%		56%	34%			41%			28%	
95th Bay Block Time %	52%	47%		88%	49%			82%			59%	
Queuing Penalty (veh)	160	126		274	190			214			70	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 97 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.46
Intersection Signal Delay: 85.2 Intersection LOS: F
Intersection Capacity Utilization 110.1% ICU Level of Service G

- 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		600	200		0
Storage Lanes	0		0	1		0	0		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1721	1.0	1725	1841	0	0	1825	1599	1736	1831	0
Flt Permitted		0.998		0.950	0.978			0.983		0.955		
Satd. Flow (perm)	0	1721	0	1725	1841	0	0	1796	1599	1704	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			36			401			8
Link Speed (mph)		30			30			24			32	
Link Distance (ft)		304			354			885			1474	
Travel Time (s)		6.9			8.0			25.1			19.0	
Volume (vph)	3	2	16	234	17	72	16	885	388	44	531	10
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	0.95	0.95	0.95	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%
Lane Group Flow (vph)	0	38	0	177	181	0	0	1027	401	57	703	0
Turn Type	Split			Split			Perm		Perm	pm+pt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2		2	6		
Detector Phases	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	5.0	5.0		10.0	10.0		15.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	9.0	9.0		14.0	14.0		19.0	19.0	19.0	9.0	19.0	
Total Split (s)	9.0	9.0	0.0	24.0	24.0	0.0	73.0	79.0	79.0	14.0	87.0	0.0
Total Split (%)	8%	8%	0%	20%	20%	0%	61%	66%	66%	12%	73%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord	
Act Effct Green (s)		5.0		15.6	16.6			81.3	81.3	90.1	90.1	
Actuated g/C Ratio		0.04		0.14	0.14			0.68	0.68	0.75	0.76	
v/c Ratio		0.38		0.74	0.70			0.84	0.33	0.33	0.51	
Uniform Delay, d1		20.8		49.6	39.2			16.5	8.0	4.5	6.7	
Delay		29.8		49.3	38.9			7.8	0.0	6.3	7.4	
LOS		C		D	D			A	A	A	A	
Approach Delay		29.8			44.0			5.8			7.4	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		2		140	113			52	0	12	223	
Queue Length 95th (ft)		10		187	151			m119	m0	22	259	
Internal Link Dist (ft)		224			274			803			367	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200					600	200		
50th Bay Block Time %											7%	
95th Bay Block Time %											11%	
Queuing Penalty (veh)											5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 62 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 100.7%	ICU Level of Service F
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 4: Emory Grove Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3466	0	1752	1821	0	1752	1787	0
Flt Permitted	0.337			0.950			0.143			0.111		
Satd. Flow (perm)	622	1845	1568	701	3456	0	264	1821	0	205	1787	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126		11			9			15	
Link Speed (mph)		30			30			32			30	
Link Distance (ft)		374			432			791			986	
Travel Time (s)		8.5			9.8			16.9			22.0	
Volume (vph)	142	294	122	72	403	40	201	744	70	56	350	99
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.89	0.89	0.89	0.85	0.85	0.85
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	146	303	126	74	609	0	226	915	0	65	567	0
Turn Type	Perm		Perm	Perm			custom			Perm		
Protected Phases		4			8		5	5 2			6	2
Permitted Phases	4		4	8			2			6		
Detector Phases	4	4	4	8	8		5	5 2		6	6	
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0			10.0	10.0	10.0
Minimum Split (s)	22.0	22.0	22.0	26.0	26.0		7.0			27.0	27.0	27.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	0.0	26.0	66.0	0.0	40.0	40.0	40.0
Total Split (%)	34%	34%	34%	34%	34%	0%	26%	66%	0%	40%	40%	40%
Yellow Time (s)	3.0	3.0	3.0	4.0	4.0		3.0			4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	1.0	1.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None			Coord	Coord	Coord
Act Effct Green (s)	27.4	27.4	27.4	27.4	27.4		60.6	64.6		36.5	36.5	36.5
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27		0.61	0.65		0.39	0.39	0.39
v/c Ratio	0.65	0.60	0.24	0.45	0.63		0.46	0.78		0.82	0.80	0.76
Uniform Delay, d1	34.4	31.5	0.0	29.9	30.1		7.7	12.4		27.6	26.4	25.7
Delay	47.9	31.2	6.0	29.7	29.8		11.6	14.8		87.4	83.2	81.2
LOS	D	C	A	C	C		B	B		F	F	F
Approach Delay		28.7			29.8			14.0			84.0	
Approach LOS		C			C			B			F	
Queue Length 50th (ft)	85	161	0	42	336		84	406		36	808	
Queue Length 95th (ft)	#194	248	40	86	179		124	585		#118	#449	
Internal Link Dist (ft)		294			352			711			286	
50th Up Block Time (%)											10%	
95th Up Block Time (%)											27%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %								22%			69%	
95th Bay Block Time %	5%	16%						27%			38%	
Queuing Penalty (veh)	1	13						55			122	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 99 (99%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 101.4%	ICU Level of Service F
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 7: Centerway Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	200		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1838	0	1796	1890	1607	1744	3406	0	1523	3437	0
Flt Permitted	0.160			0.507			0.474			0.199		
Satd. Flow (perm)	298	1838	0	958	1890	1607	870	3406	0	382	3437	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90			106		35			40	
Link Speed (mph)		30			30			48			49	
Link Distance (ft)		678			634			414			891	
Travel Time (s)		15.4			14.4			5.9			12.4	
Volume (vph)	352	300	110	275	446	126	85	830	146	53	264	85
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.86	0.86	0.86	0.81	0.81	0.81
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	6%	3%	0%	0%	3%	0%
Lane Group Flow (vph)	417	442	0	317	519	147	106	892	0	78	404	0
Turn Type	custom			Perm		Perm	Perm			Perm		
Protected Phases		7	4		8			2			6	4
Permitted Phases	4	4		8		8	2			6		
Detector Phases	7	7 4		8	8	8	2	2		6	6	
Minimum Initial (s)	12.0			23.0	23.0	23.0	7.0	7.0		7.0	7.0	23.0
Minimum Split (s)	19.0			28.0	28.0	28.0	22.0	22.0		22.0	22.0	28.0
Total Split (s)	19.0	48.0	0.0	29.0	29.0	29.0	42.0	42.0	0.0	42.0	42.0	0.0	29.0
Total Split (%)	21%	53%	0%	32%	32%	32%	47%	47%	0%	47%	47%	0%	32%
Yellow Time (s)	3.0			3.0	3.0	3.0	4.0	4.0		4.0	4.0		3.0
All-Red Time (s)	1.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None			None	None	None	Coord	Coord		Coord	Coord		None
Act Effct Green (s)	40.0	44.0		25.0	25.0	25.0	38.0	38.0		38.0	38.0		
Actuated g/C Ratio	0.44	0.49		0.28	0.28	0.28	0.42	0.42		0.42	0.42		
v/c Ratio	1.10	0.48		1.19	0.99	0.28	0.29	0.61		0.49	0.27		
Uniform Delay, d1	29.1	14.2		32.5	32.4	7.2	17.1	19.4		15.9	15.1		
Delay	88.8	14.6		124.5	62.9	9.4	17.8	19.5		21.4	15.3		
LOS	F	B		F	E	A	B	B		C	B		
Approach Delay		50.6			74.8			19.4			15.3		
Approach LOS		D			E			B			B		
Queue Length 50th (ft)	~222	149		~220	294	19	39	183		31	64		
Queue Length 95th (ft)	#404	220		#357	#463	68	76	234		69	83		
Internal Link Dist (ft)		598			554			334			811		
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)	200			200		200	200			200			
50th Bay Block Time %	15%			15%	27%								
95th Bay Block Time %	64%	12%		48%	16%			11%					
Queuing Penalty (veh)	175	25		212	119			6					

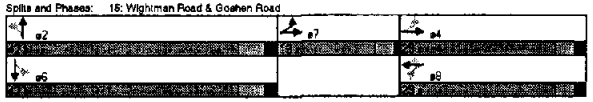
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 43.4 Intersection LOS: D
Intersection Capacity Utilization 94.9% ICU Level of Service E

~ 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: 15: Wightman Road & Goshen Road

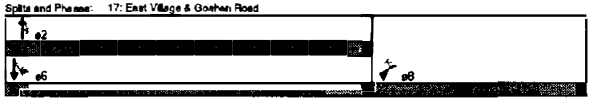


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15		9	9	15	
Satd. Flow (prot)	1761	1823	1845	1668	0	1832
Flt Permitted	0.950					0.741
Satd. Flow (perm)	1761	1823	1845	1668	0	1357
Right Turn on Red			Yes	Yes		
Satd. Flow (RTOR)		41		107		
Link Speed (mph)		30		45		49
Link Distance (ft)		880		891		566
Travel Time (s)		12.7		12.7		7.9
Volume (vph)	108	97	794	462	80	225
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	184	41	807	497	0	327
Turn Type		Perm		Perm	Perm	
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phases	8	8	2	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	34.0	34.0	56.0	56.0	56.0	56.0
Total Split (%)	37%	37%	63%	63%	63%	63%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord	Coord	Coord	Coord
Act Effct Green (s)	12.0	12.0	48.0	48.0		48.0
Actuated g/C Ratio	0.20	0.20	0.72	0.72		0.72
v/c Ratio	0.52	0.11	0.51	0.59		0.33
Uniform Delay, d1	23.5	20.6	3.4	3.9		3.6
Delay	20.6	6.6	7.1	0.7		5.3
LOS	C	A	A	A		A
Approach Delay	18.1		4.7			5.3
Approach LOS	B		A			A
Queue Length 50th (ft)	80	0	141	0		42
Queue Length 95th (ft)	102	19	316	59		95
Internal Link Dist (ft)	480		811			309
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 8.4 Intersection LOS: A
Intersection Capacity Utilization 75.4% ICU Level of Service C

Splits and Phases: 17: East Village & Goshen Road



Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time Synchro AM Peak Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:02.5	*00:02.5*
From Odendhal Road to Midcounty Hwy	00:48.0	00:45.5
Midcounty Highway	01:04.4	*00:16.4*
From Midcounty Hwy to Emory Grove Rd	01:30.8	00:26.4
Emory Grove Road	01:44.2	*00:13.4*
From Emory Grove Rd to Centerway Rd	02:46.8	01:02.6
Centerway Road	02:55.0	*00:08.2*
From Centerway Rd to Snouffer School Rd	05:02.2	02:07.2
Snouffer School Road	05:08.6	*00:06.4*
From Snouffer School Rd to East Village Ave	05:32.5	00:23.9
East Village Avenue	05:36.9	*00:04.4*
From East Village Ave to Warfield Rd	06:23.2	00:46.3
Warfield Road	06:23.2	*00:00.0*
TOTAL MOVING TIME		05:31.9
TOTAL STOPPED TIME		00:51.3
TOTAL TRAVEL TIME	**06:23.2**	**06:23.2**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:52.1	00:52.1
East Village Avenue	00:57.3	*00:05.2*
From East Village Ave to Snouffer School Rd	01:25.8	00:28.5
Snouffer School Road	01:36.8	*00:11.0*
From Snouffer School Rd to Centerway Rd	03:48.5	02:11.7
Centerway Road	04:09.9	*00:21.4*
From Centerway Rd to Emory Grove Rd	05:22.7	01:12.8
Emory Grove Road	05:47.8	*00:25.1*
From Emory Grove Rd to Midcounty Hwy	06:37.9	00:50.1
Midcounty Highway	07:46.9	*01:09.0*
From Midcounty Hwy to Odendhal Rd	08:36.5	00:49.6
Odendhal Road	08:44.6	*00:08.1*
TOTAL MOVING TIME		06:24.8
TOTAL STOPPED TIME		02:19.8
TOTAL TRAVEL TIME	**08:44.6**	**08:44.6**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time Synchro PM Peak Date 01/08/03

NORTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:13.7	*00:13.7*
From Odendhal Road to Midcounty Hwy	01:28.1	01:14.4
Midcounty Highway	02:58.7	*01:30.6*
From Midcounty Hwy to Emory Grove Rd	03:30.6	00:31.9
Emory Grove Road	03:36.6	*00:06.0*
From Emory Grove Rd to Centerway Rd	04:53.5	01:16.9
Centerway Road	05:04.7	*00:11.2*
From Centerway Rd to Snouffer School Rd	07:38.1	02:33.4
Snouffer School Road	07:53.1	*00:15.0*
From Snouffer School Rd to East Village Ave	08:25.1	00:32.0
East Village Avenue	08:30.6	*00:05.5*
From East Village Ave to Warfield Rd	09:05.4	00:34.8
Warfield Road	09:05.4	*00:00.0*
TOTAL MOVING TIME		06:43.4
TOTAL STOPPED TIME		02:22.0
TOTAL TRAVEL TIME	**09:05.4**	**09:05.4**

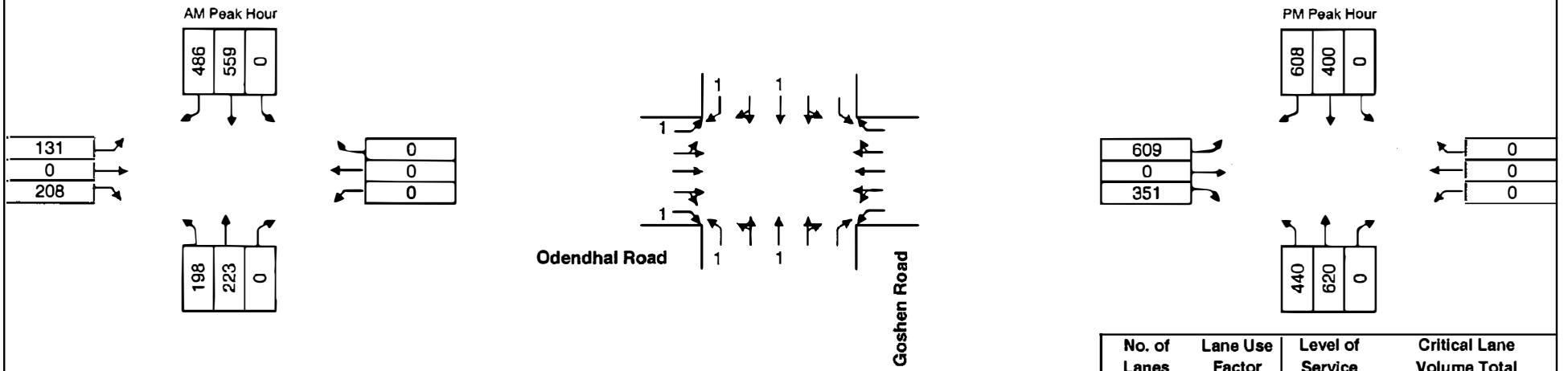
SOUTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:46.3	00:46.3
East Village Avenue	00:50.4	*00:04.1*
From East Village Ave to Snouffer School Rd	01:24.3	00:33.9
Snouffer School Road	01:36.1	*00:11.8*
From Snouffer School Rd to Centerway Rd	03:56.3	02:20.2
Centerway Road	04:21.8	*00:25.5*
From Centerway Rd to Emory Grove Rd	05:37.0	01:15.2
Emory Grove Road	05:42.7	*00:05.7*
From Emory Grove Rd to Midcounty Hwy	06:20.0	00:37.3
Midcounty Highway	07:00.4	*00:40.4*
From Midcounty Hwy to Odendhal Rd	07:55.9	00:55.5
Odendhal Road	08:23.4	*00:27.5*
TOTAL MOVING TIME		06:28.4
TOTAL STOPPED TIME		01:55.0
TOTAL TRAVEL TIME	**08:23.4**	**08:23.4**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: Existing

Computed by: MAM Date: 7/9/2002 Checked by: Date:



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	223	1	223	0	223	757
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	559	1	559	198	757	
	SBR	355	1	355	198	553	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	131
	EBR	10	1	10	0	10	
	EBL	131	1	131		131	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							888
						Level Of Service	A
						v/c ratio	0.56

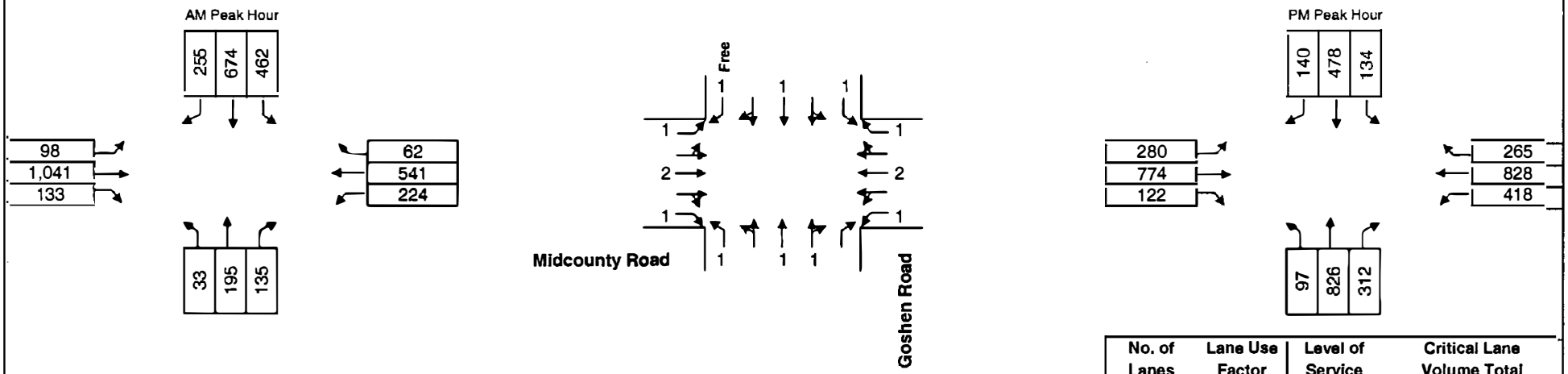
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	620	1	620	0	620	840
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	400	1	400	440	840	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	609
	EBR	0	1	0	0	0	
	EBL	609	1	609		609	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,449
						Level Of Service	D
						v/c ratio	0.91

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: Existing

Computed by: MAM Date: 7/9/2002 Checked by: Date:



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	330	0.55	182	462	644	707
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	674	1	674	33	707	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	1,041	0.55	573	224	797	797
	EBR	100	1	100	224	324	
	EBL	0	1	0		0	
	WB	541	0.55	298	98	396	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,504
						Level Of Service	E
						v/c ratio	0.94

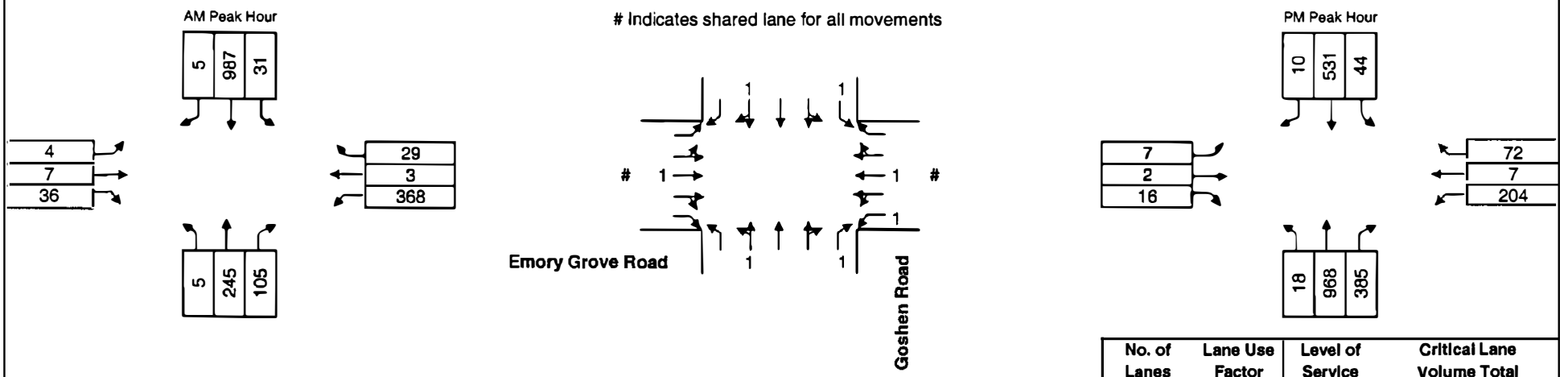
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,138	0.55	626	134	760	760
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	478	1	478	97	575	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	774	0.55	426	418	844	844
	EBR	25	1	25	418	443	
	EBL	0	1	0		0	
	WB	828	0.55	455	280	735	
	WBR	131	1	131	280	411	
	WBL	0	1	0		0	
							1,604
						Level Of Service	F
						v/c ratio	1.00

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: Existing

Computed by: MAM Date: 1/7/2003 Checked by: Date:



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	270	1	270	31	301	997
	NBR	105	1	105	31	136	
	NBL	0	1	0		0	
	SB	992	1	992	5	997	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	47	1	47	0	47	47
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	400	0.55	220	0	220	220
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,264
						Level Of Service	C
						v/c ratio	0.79

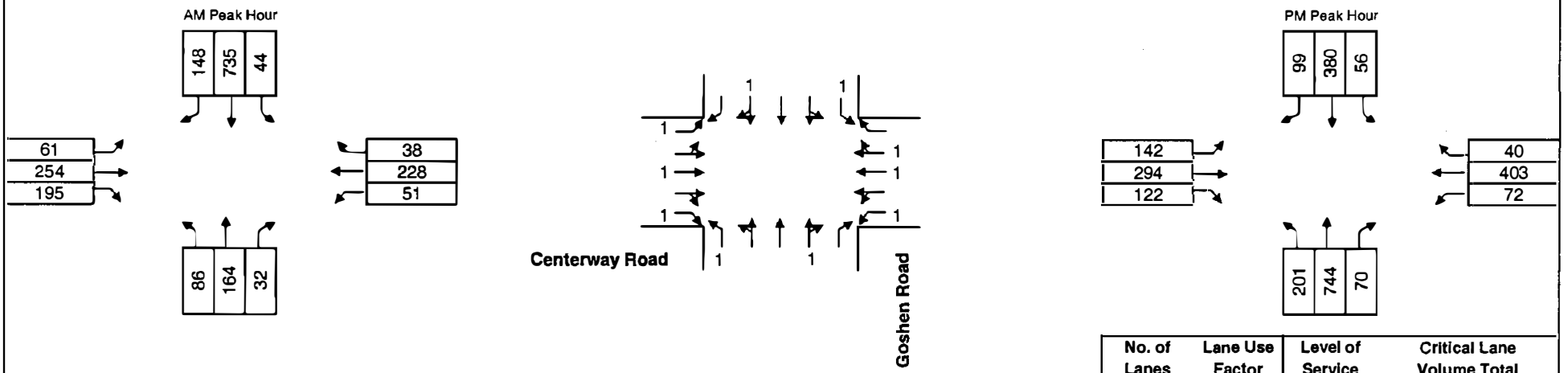
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,019	1	1,019	44	1,063	1,063
	NBR	385	1	385	44	429	
	NBL	0	1	0		0	
	SB	541	1	541	18	559	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	25	1	25	0	25	25
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	283	0.55	156	0	156	156
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,244
						Level Of Service	C
						v/c ratio	0.78

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: Existing

Computed by: MAM Date: 7/9/2002 Checked by: Date:



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

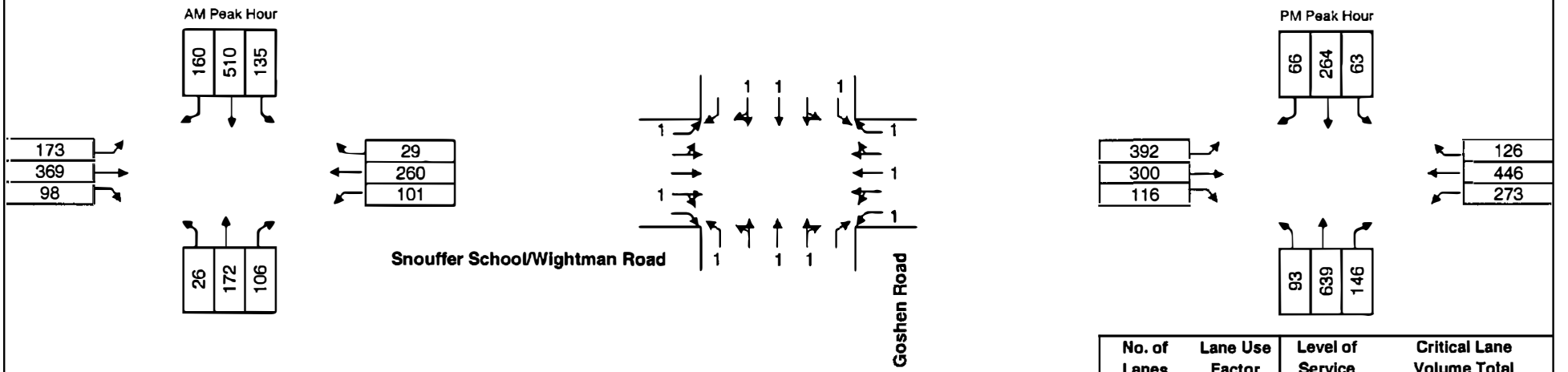
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	196	1	196	44	240	969
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	883	1	883	86	969	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	254	1	254	51	305	305
	EBR	109	1	109	51	160	
	EBL	0	1	0		0	
	WB	266	0.55	146	61	207	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,274
						Level Of Service	C
						v/c ratio	0.80

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	814	1	814	56	870	870
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	479	1	479	201	680	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	294	1	294	72	366	386
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	443	0.55	244	142	386	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,256
						Level Of Service	C
						v/c ratio	0.79

Turning Movement Summary and Level of Service

Count Date: 2/13/02 | Location: Goshen Road/Snouffer School/Wightman Road
Conditions/ Design Year: Existing
Computed by: MAM | Date: 7/9/2002 | Checked by: | Date:



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	278	0.55	153	135	288	395
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	670	0.55	369	26	395	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	467	1	467	101	568	568
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	260	1	260	173	433	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							963
						Level Of Service	A
						v/c ratio	0.60

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	785	0.55	432	63	495	495
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	330	0.55	182	93	275	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	416	1	416	273	689	838
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	446	1	446	392	838	
	WBR	63	1	63	392	455	
	WBL	0	1	0		0	
							1,333
						Level Of Service	D
						v/c ratio	0.83

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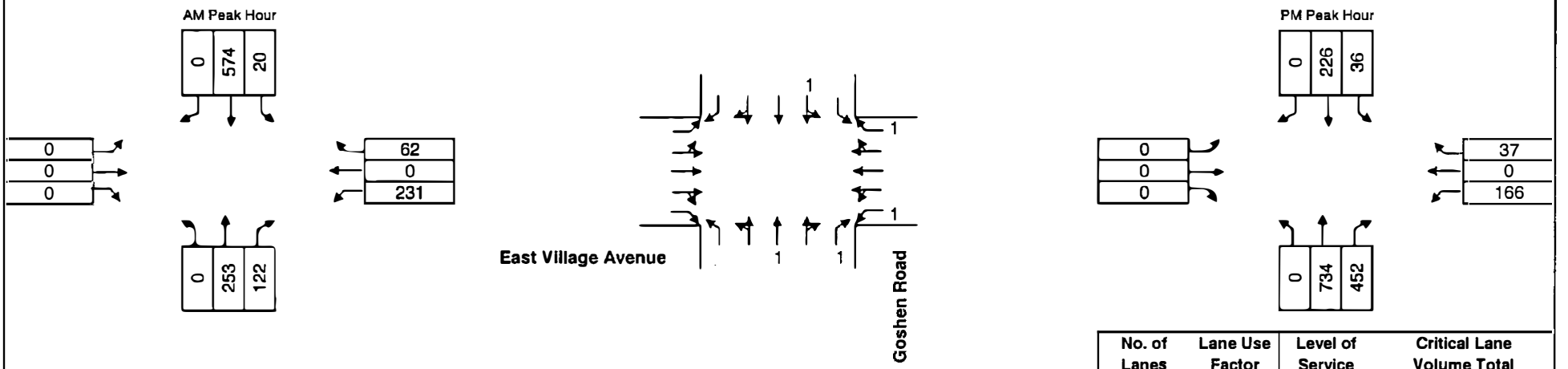
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/East Village Avenue
Conditions/
Design Year: Existing

Computed by: MAM Date: 7/25/2002 Checked by: Date:



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	253	1	253	20	273	623
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	623	1	623	0	623	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	231
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	62	1	62	0	62	
	WBL	231	1	231		231	
							854
						Level Of Service	A
						v/c ratio	0.53

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	734	1	734	36	770	770
	NBR	286	1	286	36	322	
	NBL	0	1	0		0	
	SB	406	1	406	0	406	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	166
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	37	1	37	0	37	
	WBL	166	1	166		166	
							936
						Level Of Service	A
						v/c ratio	0.59

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Unsignalized Intersection CLV Equivalent Calculations

LOS	HCS			CLV			LOS
A	0	10	10	0	1000	1000	A
B	10	15	5	1000	1150	150	B
C	15	25	10	1150	1300	150	C
D	25	35	10	1300	1450	150	D
E	35	50	15	1450	1600	150	E
F	50	190	140	1600	3000	1400	F

Existing

#2 Willow Creek Drive

	Delay					CLV	LOS
AM	34.3	25	1300	10	150	1,440	D
PM	158.2	50	1600	140	1400	2,682	F

#5 Severn Road

	Delay					CLV	LOS
AM	28.8	25	1300	10	150	1,357	D
PM	53.2	50	1600	140	1400	1,632	F

#6 Lindenhouse Road

	Delay					CLV	LOS
AM	73.9	50	1600	140	1400	1,839	F
PM	31.8	25	1300	10	150	1,402	D

#8 Rock Elm Way

	Delay					CLV	LOS
AM	26.4	25	1300	10	150	1,321	D
PM	23.3	15	1150	10	150	1,275	C

#9 Framingham Drive

	Delay					CLV	LOS
AM	41.8	35	1450	15	150	1,518	E
PM	40.5	35	1450	15	150	1,505	E

#10 Turtle Dove Terrace

	Delay					CLV	LOS
AM	33.1	25	1300	10	150	1,422	D
PM	43.1	35	1450	15	150	1,531	E

#11 Stewartown Road

	Delay					CLV	LOS
AM	30.7	25	1300	10	150	1,386	D
PM	34.5	25	1300	10	150	1,443	D

#12 Bramble Bush Drive

	Delay					CLV	LOS
AM	23.0	15	1150	10	150	1,270	C
PM	30.1	25	1300	10	150	1,377	D

#13 Rothbury Drive

	Delay					CLV	LOS
AM	19.6	15	1150	10	150	1,219	C
PM	254.8	50	1600	140	1400	3,000	F

#14 Goshen Crossing

	Delay					CLV	LOS
AM	18.0	15	1150	10	150	1,195	C
PM	459.1	50	1600	140	1400	3,000	F

#17 Mother of God School

	Delay					CLV	LOS
AM	163.8	50	1600	140	1400	2,738	F
PM	18.5	15	1150	10	150	1,203	C

#18 Warfield Road

	Delay					CLV	LOS
AM	19.1	15	1150	10	150	1,212	C
PM	104.0	50	1600	140	1400	2,140	F

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*4*	*350*	*0*	*0*	*1029*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*397*	*0*	*0*	*1083*	*2*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*13*	*0*	*16*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.61*	*1.00*	*0.61*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*21*	*0*	*26*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*4*						*47*	
C (m) (vph)	*593*						*169*	
v/c	*0.01*						*0.28*	
95% queue length	*0.02*						*1.08*	
Control Delay	*11.1*						*34.3*	
LOS	*B*						*D*	
Approach Delay	--	--					*34.3*	
Approach LOS	--	--					*D*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*4*	*1225*	*0*	*0*	*1004*	*14*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*4*	*1361*	*0*	*0*	*1091*	*15*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*7*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*4*						*25*	
C (m) (vph)	*639*						*45*	
v/c	*0.01*						*0.56*	
95% queue length	*0.02*						*2.06*	
Control Delay	*10.7*						*158.2*	
LOS	*B*						*F*	
Approach Delay	--	--				*158.2*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street:	*Severn Road*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*275*	*0*	*0*	*1016*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*3*	*312*	*0*	*0*	*1154*	*4*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*7*	*0*	*8*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*12*	*0*	*14*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*3*						*26*	
C (m) (vph)	*611*						*177*	
v/c	*0.00*						*0.15*	
95% queue length	*0.01*						*0.50*	
Control Delay	*10.9*						*28.8*	
LOS	*B*						*D*	
Approach Delay	--	--				*28.8*		
Approach LOS	--	--				*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Severn Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*14*	*1033*	*0*	*0*	*575*	*4*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*14*	*1087*	*0*	*0*	*653*	*4*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*5*	*0*	*9*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*16*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*14*						*25*	
C (m) (vph)	*940*						*99*	
v/c	*0.01*						*0.25*	
95% queue length	*0.05*						*0.92*	
Control Delay	*8.9*						*53.2*	
LOS	*A*						*F*	
Approach Delay	--	--				*53.2*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*5/22/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Lindenhouse Road*
Jurisdiction	*Montgomery County*
Analysis Year	*2002*

Project Description *199-73-17*

East/West Street: *Lindenhouse Road* | North/South Street: *Goshen ROad*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*278*	*4*	*3*	*978*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.84*	*0.84*	*0.88*
Hourly Flow Rate, HFR	*0*	*295*	*4*	*3*	*1164*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*43*	*0*	*4*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.60*	*1.00*	*0.60*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*71*	*0*	*6*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*3*		*77*				
C (m) (vph)		*1256*		*123*				
v/c		*0.00*		*0.63*				
95% queue length		*0.01*		*3.22*				
Control Delay		*7.9*		*73.9*				
LOS		*A*		*F*				
Approach Delay	--	--	*73.9*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Lindenhouse Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1007*	*31*	*2*	*572*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1007*	*31*	*2*	*572*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*9*	*0*	*8*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*9*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*2*		*17*				
C (m) (vph)		*666*		*151*				
v/c		*0.00*		*0.11*				
95% queue length		*0.01*		*0.37*				
Control Delay		*10.4*		*31.8*				
LOS		*B*		*D*				
Approach Delay	--	--	*31.8*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*5/22/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Rock Elm Way*
Jurisdiction	*Montgomery County*
Analysis Year	*2002*

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*262*	*1*	*1*	*920*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.80*	*0.80*	*0.91*	*0.91*	*0.88*
Hourly Flow Rate, HFR	*0*	*327*	*1*	*1*	*1010*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*0*	*1*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.58*	*1.00*	*0.58*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*12*	*0*	*1*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*1*		*13*				
C (m) (vph)		*1226*		*181*				
v/c		*0.00*		*0.07*				
95% queue length		*0.00*		*0.23*				
Control Delay		*7.9*		*26.4*				
LOS		*A*		*D*				
Approach Delay	--	--	*26.4*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*922*	*4*	*2*	*534*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*922*	*4*	*2*	*534*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*0*	*1*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*1*	*0*	*1*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*2*		*2*				
C (m) (vph)		*734*		*199*				
v/c		*0.00*		*0.01*				
95% queue length		*0.01*		*0.03*				
Control Delay		*9.9*		*23.3*				
LOS		*A*		*C*				
Approach Delay	--	--	*23.3*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street:	*Framingham Drive*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*250*	*13*	*3*	*846*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.82*	*0.82*	*0.87*	*0.87*	*0.88*
Hourly Flow Rate, HFR	*0*	*304*	*15*	*3*	*972*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*75*	*0*	*15*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.76*	*1.00*	*0.76*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*98*	*0*	*19*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*3*		*117*				
C (m) (vph)		*1235*		*210*				
v/c		*0.00*		*0.56*				
95% queue length		*0.01*		*3.00*				
Control Delay		*7.9*		*41.8*				
LOS		*A*		*E*				
Approach Delay	--	--		*41.8*				
Approach LOS	--	--		*E*				

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*5/22/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Framingham Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2002*

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*847*	*76*	*21*	*503*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.82*	*0.82*	*0.88*
Hourly Flow Rate, HFR	*0*	*901*	*80*	*25*	*613*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*33*	*0*	*15*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.94*	*1.00*	*0.90*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*35*	*0*	*16*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*25*		*51*				
C (m) (vph)		*700*		*151*				
v/c		*0.04*		*0.34*				
95% queue length		*0.11*		*1.38*				
Control Delay		*10.3*		*40.5*				
LOS		*B*		*E*				
Approach Delay	--	--		*40.5*				
Approach LOS	--	--		*E*				

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*250*	*10*	*5*	*788*	*5*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*6*	*304*	*12*	*5*	*865*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*29*	*2*	*11*	*9*	*0*	*33*
Peak-Hour Factor, PHF	*0.73*	*0.73*	*0.73*	*0.54*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*39*	*2*	*15*	*16*	*0*	*36*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*6*	*5*		*56*			*52*	
C (m) (vph)	*783*	*1256*		*183*			*254*	
v/c	*0.01*	*0.00*		*0.31*			*0.20*	
95% queue length	*0.02*	*0.01*		*1.23*			*0.75*	
Control Delay	*9.6*	*7.9*		*33.1*			*22.8*	
LOS	*A*	*A*		*D*			*C*	
Approach Delay	--	--	*33.1*			*22.8*		
Approach LOS	--	--	*D*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*5/22/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Jurisdiction	*Montgomery County*
Analysis Year	*2002*

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*31*	*800*	*31*	*14*	*494*	*11*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.84*	*0.84*	*0.84*
Hourly Flow Rate, HFR	*33*	*860*	*33*	*16*	*588*	*13*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*14*	*0*	*11*	*11*	*0*	*15*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.83*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*17*	*0*	*13*	*13*	*0*	*17*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*33*	*16*		*30*			*30*	
C (m) (vph)	*986*	*768*		*124*			*158*	
v/c	*0.03*	*0.02*		*0.24*			*0.19*	
95% queue length	*0.10*	*0.06*		*0.89*			*0.67*	
Control Delay	*8.8*	*9.8*		*43.1*			*33.0*	
LOS	*A*	*A*		*E*			*D*	
Approach Delay	--	--	*43.1*			*33.0*		
Approach LOS	--	--	*E*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*25*	*245*	*0*	*0*	*750*	*11*
Peak-Hour Factor, PHF	*0.77*	*0.77*	*0.77*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*32*	*318*	*0*	*0*	*824*	*12*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*2*	*2*	*11*	*0*	*42*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*11*	*3*	*3*	*14*	*0*	*56*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*32*	*0*		*17*			*70*	
C (m) (vph)	*807*	*1253*		*157*			*290*	
v/c	*0.04*	*0.00*		*0.11*			*0.24*	
95% queue length	*0.12*	*0.00*		*0.36*			*0.92*	
Control Delay	*9.6*	*7.9*		*30.7*			*21.3*	
LOS	*A*	*A*		*D*			*C*	
Approach Delay	--	--	*30.7*			*21.3*		
Approach LOS	--	--	*D*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Sterwartown Road*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*53*	*761*	*8*	*0*	*467*	*23*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*53*	*761*	*8*	*0*	*467*	*23*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*1*	*0*	*14*	*0*	*52*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*1*	*1*	*0*	*16*	*0*	*52*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*53*	*0*		*2*			*68*	
C (m) (vph)	*1084*	*854*		*124*			*313*	
v/c	*0.05*	*0.00*		*0.02*			*0.22*	
95% queue length	*0.15*	*0.00*		*0.05*			*0.81*	
Control Delay	*8.5*	*9.2*		*34.5*			*19.7*	
LOS	*A*	*A*		*D*			*C*	
Approach Delay	--	--	*34.5*			*19.7*		
Approach LOS	--	--	*D*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Bramvle Bush Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*248*	*10*	*4*	*737*	*10*
Peak-Hour Factor, PHF	*0.77*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*0*	*291*	*11*	*4*	*809*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*24*	*4*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*25*	*4*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*LT*					
v (vph)		*4*	*29*					
C (m) (vph)		*1253*	*229*					
v/c		*0.00*	*0.13*					
95% queue length		*0.01*	*0.43*					
Control Delay		*7.9*	*23.0*					
LOS		*A*	*C*					
Approach Delay	--	--	*23.0*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*5/22/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Bramble Bush Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2002*

Project Description *199-73-17*

East/West Street: *Bramble Bush Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*742*	*33*	*13*	*461*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*742*	*33*	*13*	*461*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*29*	*13*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*29*	*13*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	*7*	8	9	10	11	12
Lane Configuration		*LT*	*LT*					
v (vph)		*13*	*42*					
C (m) (vph)		*836*	*185*					
v/c		*0.02*	*0.23*					
95% queue length		*0.05*	*0.84*					
Control Delay		*9.4*	*30.1*					
LOS		*A*	*D*					
Approach Delay	--	--	*30.1*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street:	*Rothbury Drive*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*57*	*188*	*7*	*3*	*594*	*51*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*57*	*188*	*7*	*3*	*594*	*51*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration	*LTR*			*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*8*	*5*	*16*	*78*	*1*	*139*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*8*	*5*	*16*	*78*	*1*	*139*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LT*		*LTR*		*LT*		*R*
v (vph)	*57*	*3*		*29*		*79*		*139*
C (m) (vph)	*935*	*1372*		*316*		*233*		*509*
v/c	*0.06*	*0.00*		*0.09*		*0.34*		*0.27*
95% queue length	*0.19*	*0.01*		*0.30*		*1.43*		*1.10*
Control Delay	*9.1*	*7.6*		*17.5*		*28.2*		*14.7*
LOS	*A*	*A*		*C*		*D*		*B*
Approach Delay	--	--	*17.5*			*19.6*		
Approach LOS	--	--	*C*			*C*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rothbury Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*150*	*591*	*14*	*13*	*339*	*159*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.97*	*0.97*	*0.97*
Hourly Flow Rate, HFR	*161*	*635*	*15*	*13*	*349*	*163*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration	*LTR*			*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*3*	*4*	*7*	*138*	*5*	*132*
Peak-Hour Factor, PHF	*0.65*	*0.65*	*0.65*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR	*4*	*6*	*10*	*168*	*6*	*160*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LT*		*LTR*		*LT*		*R*
v (vph)	*161*	*13*		*20*		*174*		*160*
C (m) (vph)	*1048*	*931*		*130*		*96*		*699*
v/c	*0.15*	*0.01*		*0.15*		*1.81*		*0.23*
95% queue length	*0.54*	*0.04*		*0.53*		*14.31*		*0.88*
Control Delay	*9.1*	*8.9*		*37.7*		*478.3*		*11.7*
LOS	*A*	*A*		*E*		*F*		*B*
Approach Delay	--	--	*37.7*			*254.8*		
Approach LOS	--	--	*E*			*F*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*29*	*253*	*6*	*3*	*581*	*128*
Peak-Hour Factor, PHF	*0.80*	*0.86*	*0.84*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*36*	*294*	*0*	*0*	*660*	*145*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*51*	*1*	*67*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.80*	*0.82*	*0.80*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*63*	*0*	*83*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*36*						*146*	
C (m) (vph)	*857*						*421*	
v/c	*0.04*						*0.35*	
95% queue length	*0.13*						*1.53*	
Control Delay	*9.4*						*18.0*	
LOS	*A*						*C*	
Approach Delay	--	--					*18.0*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*55*	*681*	*6*	*3*	*442*	*211*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.84*	*0.88*	*0.73*	*0.73*
Hourly Flow Rate, HFR	*67*	*830*	*0*	*0*	*605*	*289*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*197*	*1*	*69*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.83*	*0.82*	*0.83*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*237*	*0*	*83*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*67*						*320*	
C (m) (vph)	*748*						*171*	
v/c	*0.09*						*1.87*	
95% queue length	*0.29*						*23.69*	
Control Delay	*10.3*						*459.1*	
LOS	*B*						*F*	
Approach Delay	--	--					*459.1*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*11*	*226*	*78*	*62*	*504*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*14*	*301*	*104*	*66*	*541*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*88*	*4*	*47*	*0*	*0*	*2*
Peak-Hour Factor, PHF	*0.46*	*0.45*	*0.45*	*0.25*	*0.25*	*0.25*
Hourly Flow Rate, HFR	*191*	*8*	*104*	*0*	*0*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*14*	*66*		*303*			*8*	
C (m) (vph)	*1038*	*1165*		*252*			*545*	
v/c	*0.01*	*0.06*		*1.20*			*0.01*	
95% queue length	*0.04*	*0.18*		*14.31*			*0.04*	
Control Delay	*8.5*	*8.3*		*163.8*			*11.7*	
LOS	*A*	*A*		*F*			*B*	
Approach Delay	--	--	*163.8*			*11.7*		
Approach LOS	--	--	*F*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*5/22/2002*	Analysis Year	*2002*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Mother of God School* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*6*	*749*	*16*	*6*	*242*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*6*	*749*	*16*	*6*	*242*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*9*	*0*	*11*	*0*	*1*	*11*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*9*	*0*	*11*	*0*	*1*	*11*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*6*	*6*		*20*			*12*	
C (m) (vph)	*1336*	*857*		*287*			*665*	
v/c	*0.00*	*0.01*		*0.07*			*0.02*	
95% queue length	*0.01*	*0.02*		*0.22*			*0.06*	
Control Delay	*7.7*	*9.2*		*18.5*			*10.5*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay	--	--	*18.5*			*10.5*		
Approach LOS	--	--	*C*			*B*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	Feb 2002
Analysis Time Period	AM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2002

Project ID 199-73-17

East/West Street: Warfield Road

North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	0	72	40	96	81	3
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	53	115	105	14	430	7
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.91		0.90		0.79		0.92	
Flow Rate	122		199		344		489	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Prop. Left-Turns	0.0		0.5		0.2		0.0	
Prop. Right-Turns	0.4		0.0		0.4		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	6.71		6.71		6.71		6.71	

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value	3.20		3.20		3.20		3.20	
x, Initial	0.11		0.18		0.31		0.43	
hd, final value	6.71		6.71		6.71		6.71	
x, final value	0.23		0.37		0.55		0.78	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	4.7		4.7		4.7		4.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	372		449		587		615	
Delay	11.68		13.74		15.67		25.59	
LOS	B		B		C		D	
Approach: Delay	11.68		13.74		15.67		25.59	
LOS	B		B		C		D	
Intersection Delay	19.12							
Intersection LOS	C							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	Feb 2002
Analysis Time Period	PM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2002

Project ID 199-73-17

East/West Street: Warfield Road North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	5	100	19	85	63	4
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	37	564	159	6	144	10
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.77		0.76		0.90		0.79	
Flow Rate	159		198		843		201	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.6		0.0		0.0	
Prop. Right-Turns	0.2		0.0		0.2		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	6.95		6.95		6.95		6.95	

Departure Headway and Service Time

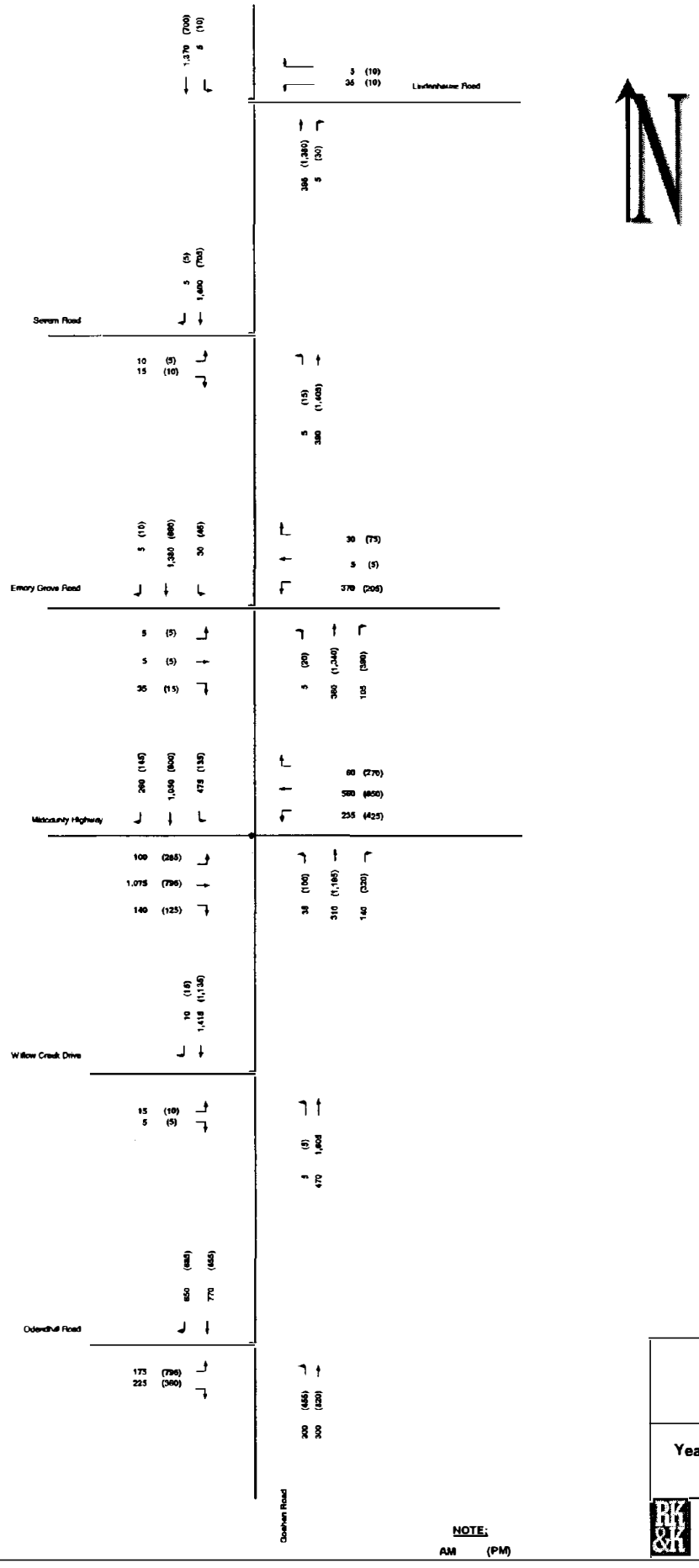
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.14		0.18		0.75		0.18	
hd, final value	6.95		6.95		6.95		6.95	
x, final value	0.31		0.38		1.30		0.36	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	5.0		5.0		5.0		5.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	409		448		843		451	
Delay	13.00		14.31		163.84		13.01	
LOS	B		B		F		B	
Approach: Delay	13.00		14.31		163.84		13.01	
LOS	B		B		F		B	
Intersection Delay	103.95							
Intersection LOS	F							

APPENDIX D: 2015 – No Build Capacity Analyses

Turning Movement Volumes
Synchro
Critical Lane Volume
Highway Capacity Software



NOTE:
AM (PM)

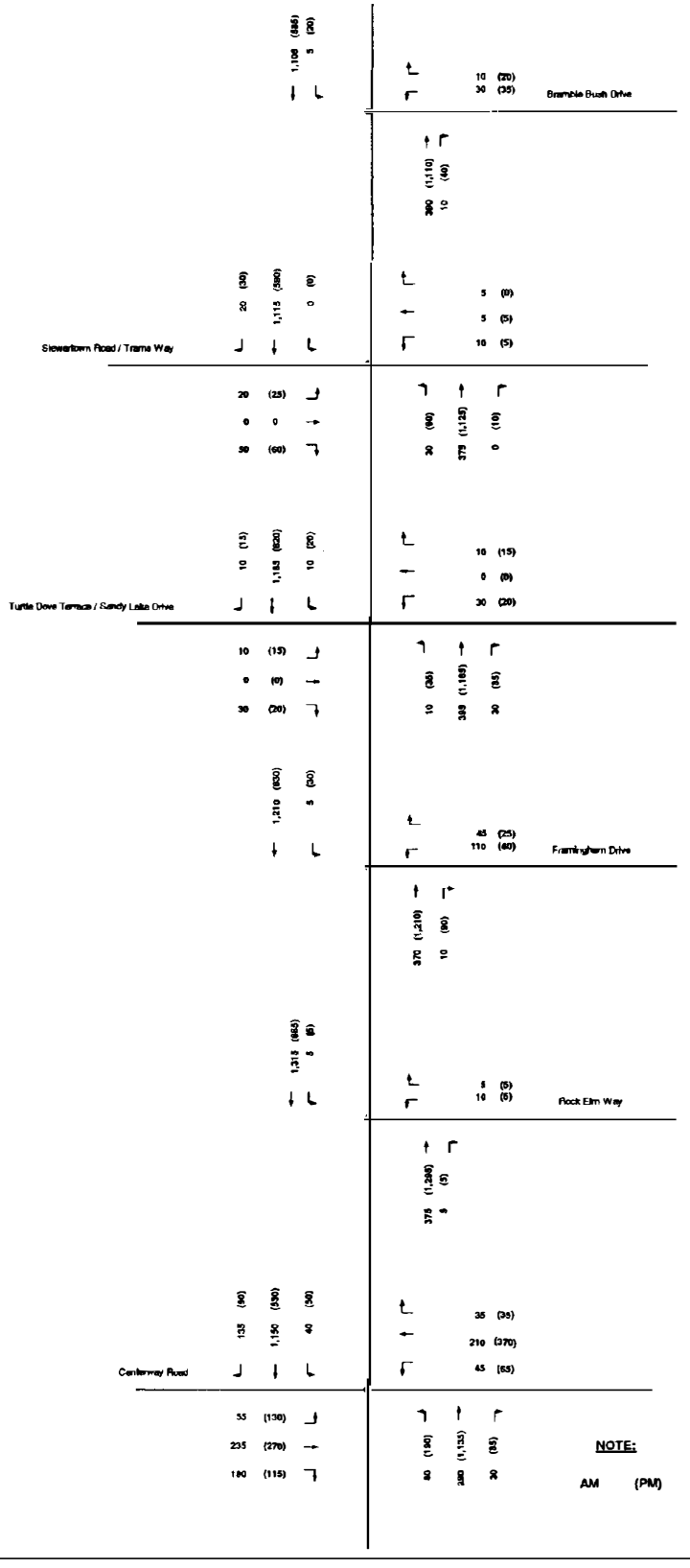
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2015 2-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: September 15, 2003
Rev. January 15, 2004

Sheet 1 of 3



GOSHEN ROAD
Traffic Study
Montgomery County, MD

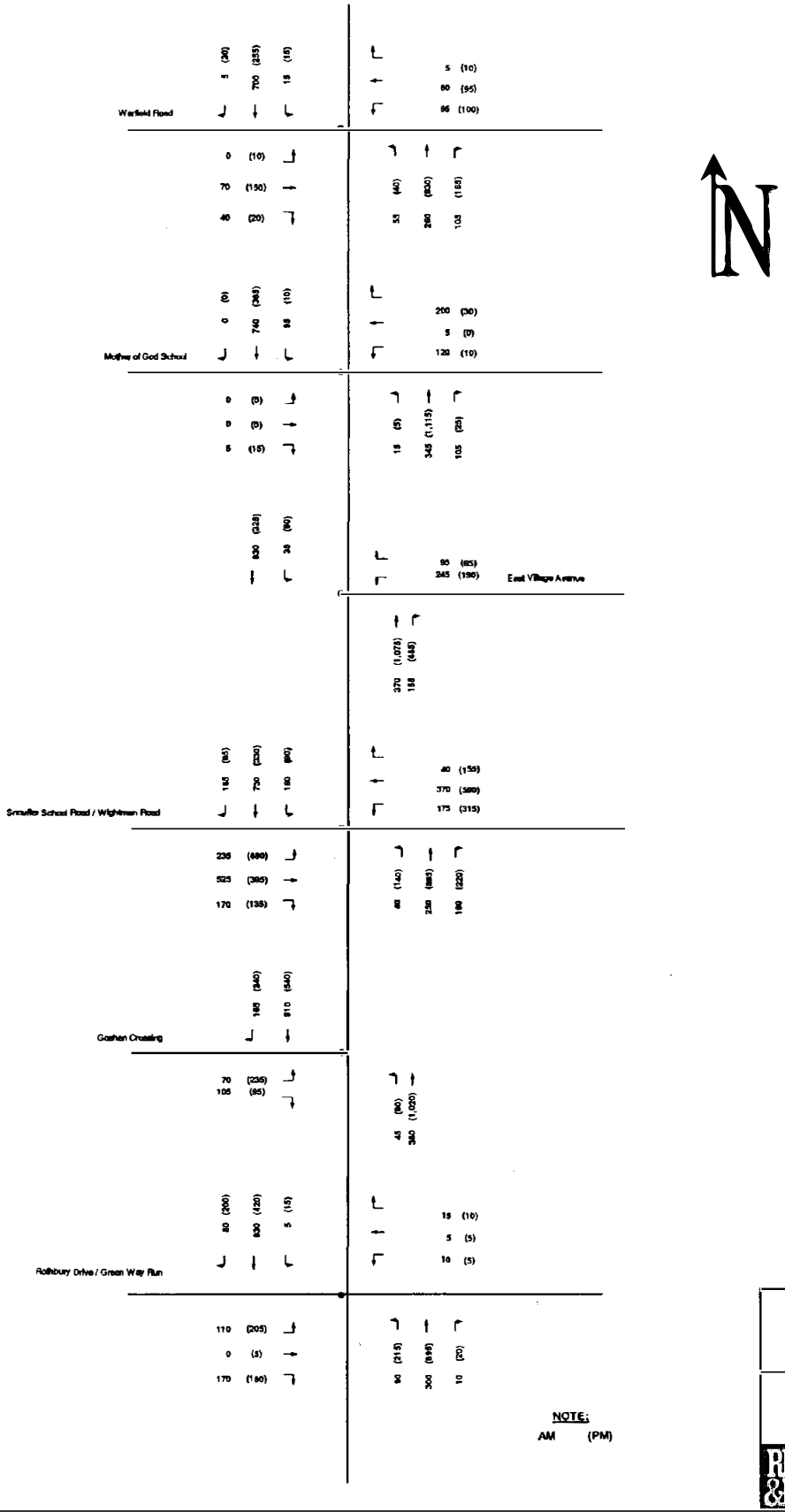
Year 2015 2-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2003

Sheet 2 of 3

North End of Corridor



GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2015 2-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

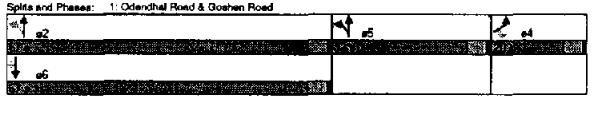
Date: September 19, 2002 Rev. January 16, 2003

Sheet 3 of 3

Lane Configurations																
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900										
Storage Length (ft)	0	0	200			200										
Storage Lanes	1		1			1										
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0										
Leading Detector (ft)	50	50	50	50	50	50										
Trailing Detector (ft)	0	0	0	0	0	0										
Turning Speed (mph)	15	9	15			9										
Satd. Flow (prot)	1805	1615	1806	1845	1845	1615										
Flt Permitted	0.950		0.064													
Satd. Flow (perm)	1805	1615	160	1845	1845	1615										
Right Turn on Red		Yes				Yes										
Satd. Flow (RTOR)		247				478										
Link Speed (mph)	30			57	55											
Link Distance (ft)	1524			796	803											
Travel Time (s)	34.6			14.7	16.6											
Volume (vph)	175	225	200	300	770	650										
Peak Hour Factor	0.81	0.81	0.87	0.87	0.90	0.90										
Heavy Vehicles (%)	0%	0%	0%	3%	5%	0%										
Lane Group Flow (vph)	192	247	230	345	856	722										
Turn Type		Perm	custom			Perm										
Protected Phases	4		5	5 2	6		2									
Permitted Phases		4	2			6										
Detector Phases	4	4	5	5 2	6	6										
Minimum Initial (s)	14.0	14.0	10.0		7.0	7.0	10.0									
Minimum Split (s)	20.0	20.0	35.0		34.0	34.0	34.0									
Total Split (s)	20.0	20.0	33.0	100.0	67.0	67.0	67.0									
Total Split (%)	17%	17%	28%	83%	56%	56%	56%									
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0									
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0									
Lead/Lag																
Lead-Lag Optimize?																
Recall Mode	None	None	None		Coord	Coord	Coord									
Act Effct Green (s)	15.6	15.6	92.2	86.2	77.0	77.0										
Actuated g/C Ratio	0.13	0.13	0.77	0.80	0.64	0.64										
v/c Ratio	0.81	0.56	0.69	0.23	0.72	0.69										
Uniform Delay, d1	50.8	0.0	25.4	2.9	14.4	3.3										
Delay	60.6	8.1	27.9	3.0	9.7	2.7										
LOS	E	A	C	A	A	A										
Approach Delay	29.6			13.0	6.5											
Approach LOS	C			B	A											
Queue Length 50th (ft)	146	0	141	83	179	0										
Queue Length 95th (ft)	#255	76	183	73	m158	m30										
Internal Link Dist (ft)	1444			716	723											
50th Up Block Time (%)																
95th Up Block Time (%)																
Turn Bay Length (ft)			200			200										
50th Bay Block Time %																
95th Bay Block Time %																
Queuing Penalty (veh)																

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 11.9 Intersection LOS: B
Intersection Capacity Utilization 79.4% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

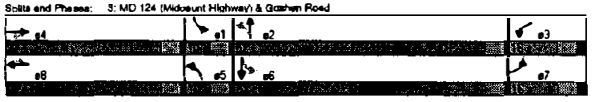
Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Configurations																
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Grade (%)		0%			0%			2%			-2%					
Storage Length (ft)	200	215	200	200		400	200		200	600		200				
Storage Lanes	1		1	1		1	1		0	1		1				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	50				
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0				
Turning Speed (mph)	15		9	15	9	15		9	15			9				
Satd. Flow (prot)	1752	3505	1568	1752	3505	1568	1756	3507	0	1770	1863	1564				
Flt Permitted	0.950			0.950		0.075				0.377						
Satd. Flow (perm)	1752	3505	1568	1752	3505	1568	137	3507	0	702	1863	1564				
Right Turn on Red			Yes			Yes			Yes			Yes				
Satd. Flow (RTOR)			92			82		78				47				
Link Speed (mph)		30			30			37			27					
Link Distance (ft)		857			755			619			883					
Travel Time (s)		14.9			17.5			11.4			22.3					
Volume (vph)	100	1075	140	255	560	60	65	810	140	475	1080	200				
Peak Hour Factor	0.82	0.82	0.82	0.96	0.96	0.96	0.83	0.83	0.83	0.97	0.97	0.97				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%				
Lane Group Flow (vph)	122	1311	171	246	583	62	42	542	0	490	1082	266				
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Free				
Protected Phases	7	4		3	8		5	2		1	6					
Permitted Phases			4			8	2			6		Free				
Detector Phases	7	4	4	3	8	8	5	2		1	6					
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0					
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	9.0	32.0		9.0	32.0					
Total Split (s)	16.0	87.0	87.0	16.0	87.0	87.0	10.0	87.0	0.0	10.0	87.0	0.0				
Total Split (%)	13%	51%	51%	13%	51%	51%	8%	48%	0%	8%	48%	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	1.0	1.0	2.0	1.0	1.0	1.0	1.0		1.0	1.0					
Lead/Lag																
Lead-Lag Optimize?																
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord					
Act Effct Green (s)	12.0	33.0	33.0	12.0	33.0	33.0	59.0	53.0		59.0	53.0	120.0				
Actuated g/C Ratio	0.10	0.28	0.28	0.10	0.28	0.28	0.49	0.44		0.49	0.44	1.00				
v/c Ratio	0.70	1.36	0.34	1.40	0.60	0.13	0.29	0.36		1.28	1.31	0.17				
Uniform Delay, d1	52.3	41.5	16.4	54.0	37.3	0.0	14.6	19.7		29.5	33.5	0.0				
Delay	59.5	178.2	16.4	195.9	38.2	0.2	20.0	20.9		111.0	143.9	0.0				
LOS	E	F	B	F	D	A	C	C		F	F	A				
Approach Delay		150.3			79.5			20.8			114.2					
Approach LOS		F			E			C			F					
Queue Length 50th (ft)	93	~703	46	~264	206	0	14	97		~532	~1086	0				
Queue Length 95th (ft)	#162	#728	92	#416	266	33	m36	155		#6234	m#936	m0				
Internal Link Dist (ft)		577			555			539			803					
50th Up Block Time (%)		18%									50%					
95th Up Block Time (%)		21%									9%					
Turn Bay Length (ft)	200		200	200		200	200		200	500		200				
50th Bay Block Time %		57%		25%	4%						51%					
95th Bay Block Time %		98%		69%	40%						57%					
Queuing Penalty (veh)		70		117	28						423					

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.40
Intersection Signal Delay: 106.8 Intersection LOS: F
Intersection Capacity Utilization 123.4% ICU Level of Service H
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		200			0
Storage Lanes	0		0	1		0	0		1			0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1699	0	1723	1703	0	0	1328	1568	1795	1634	0
Flt Permitted		0.994		0.950	0.961			0.680		0.442		
Satd. Flow (perm)	0	1699	0	1723	1703	0	0	1242	1568	836	1634	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			6			128			36	
Link Speed (mph)		30			30			28			35	
Link Distance (ft)		304			366			885			467	
Travel Time (s)		6.9			8.1			21.5			8.8	
Volume (vph)	6	5	35	370	8	30	5	380	106	30	1380	6
Peak Hour Factor	0.72	0.72	0.72	0.75	0.76	0.76	0.82	0.82	0.82	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	63	0	275	258	0	0	445	128	34	1674	0
Turn Type	Split			Split			Perm		Perm	pm+pt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2		2	6		
Detector Phases	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0	
Total Split (s)	11.0	11.0	0.0	20.0	20.0	0.0	81.0	81.0	81.0	8.0	89.0	0.0
Total Split (%)	9%	9%	0%	17%	17%	0%	68%	68%	68%	7%	74%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lead	Lead	Lead	Lag		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord	
Act Effct Green (s)		7.0		16.0	16.0			82.4	82.4	87.2	87.2	
Actuated g/C Ratio		0.06		0.13	0.13			0.69	0.69	0.73	0.73	
v/c Ratio		0.44		1.20	1.11			0.52	0.11	0.05	1.18	
Uniform Delay, d1		53.1		52.0	50.8			10.4	0.0	4.9	16.8	
Delay		21.8		142.1	119.9			3.4	0.0	3.0	96.8	
LOS		C		F	F			A	A	A	F	
Approach Delay		21.8			131.3			2.6			94.8	
Approach LOS		C			F			A			F	
Queue Length 50th (ft)		11		~271	~236			22	0	3	~1488	
Queue Length 95th (ft)		37		#351	#320			40	m0	m5	m#1483	
Internal Link Dist (ft)		224			275			803			387	
50th Up Block Time (%)											47%	
95th Up Block Time (%)											56%	
Turn Bay Length (ft)				200					200			
50th Bay Block Time %				27%	16%						42%	
95th Bay Block Time %				44%	36%						42%	
Queuing Penalty (veh)				91	74						504	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 81.2 Intersection LOS: F
Intersection Capacity Utilization 111.1% ICU Level of Service G
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road

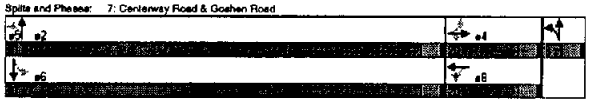


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3431	0	1752	1819	0	1752	1815	0
Flt Permitted	0.423			0.250			0.046			0.046		
Satd. Flow (perm)	780	1845	1568	461	3431	0	86	1819	0	85	1815	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			161		13			15			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		374			432			792			367	
Travel Time (s)		8.5			9.8			18.0			8.3	
Volume (vph)	55	235	190	45	210	35	50	290	80	40	1150	135
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.85	0.85	0.85	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	65	258	195	48	280	0	94	376	0	43	1367	0
Turn Type	Perm		Perm	Perm			custom			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phases	4	4	4	8	8		5	2		6	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		4.0			7.0	7.0	
Minimum Split (s)	17.0	17.0	17.0	17.0	17.0		9.0			27.0	27.0	
Total Split (s)	20.0	20.0	20.0	20.0	20.0	0.0	9.0	100.0	0.0	91.0	91.0	0.0
Total Split (%)	17%	17%	17%	17%	17%	0%	8%	83%	0%	76%	76%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0			4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None			Coord	Coord	Coord
Act Effct Green (s)	16.0	16.0	16.0	16.0	16.0		92.0	96.0		87.0	87.0	
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.13		0.77	0.80		0.73	0.73	
v/c Ratio	0.68	1.06	0.67	0.79	0.55		0.70	0.26		0.69	1.04	
Uniform Delay, d1	48.8	52.0	8.6	50.3	48.1		11.2	2.9		9.2	16.3	
Delay	55.8	105.5	12.5	96.1	48.5		34.6	0.5		48.4	46.7	
LOS	E	F	B	F	D		C	A		D	D	
Approach Delay		84.0			54.2			7.3			46.7	
Approach LOS		F			D			A			D	
Queue Length 50th (ft)	44	~215	22	57	96		24	0		14	~1138	
Queue Length 95th (ft)	#106	#367	102	#110	141		m#61	m0		#99	#1405	
Internal Link Dist (ft)		294			352			712			287	
50th Up Block Time (%)											24%	
95th Up Block Time (%)		26%									31%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		11%									25%	
95th Bay Block Time %		50%									30%	
Queuing Penalty (veh)		16									390	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 48 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 44.0 Intersection LOS: D
Intersection Capacity Utilization 111.1% ICU Level of Service G
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Centerway Road & Goshen Road

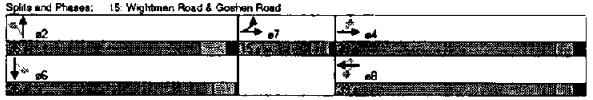


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-2%			1%			1%			2%		
Storage Length (ft)	200		0	200		200	200		0	200		0	
Storage Lanes	1		0	1		1	1		0	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50		
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	1770	1846	0	1796	1890	1807	1744	3323	0	1625	3434	0	
Flt Permitted	0.352			0.323			0.125			0.390			
Satd. Flow (perm)	656	1846	0	611	1890	1807	229	3323	0	746	3434	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		29			43			176			38		
Link Speed (mph)		30			30			48			48		
Link Distance (ft)		877			494			415			306		
Travel Time (s)		15.4			14.4			5.9			4.3		
Volume (vph)	235	525	170	175	370	40	40	250	160	90	730	155	
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	3%	0%	
Lane Group Flow (vph)	237	702	0	188	398	43	48	488	0	178	1017	0	
Turn Type	custom			Perm		Perm	Perm			Perm			
Protected Phases	7	7 4			8			2			6		4
Permitted Phases	4	4		8		8	2			6			
Detector Phase	7	7 4		8	8	8	2	2		6	6		
Minimum Initial (s)	4.0			7.0	7.0	7.0	7.0	7.0		4.0	4.0		7.0
Minimum Split (s)	9.0			26.0	26.0	26.0	22.0	22.0		20.0	20.0		26.0
Total Split (s)	15.0	54.0	0.0	39.0	39.0	39.0	36.0	36.0	0.0	36.0	36.0	0.0	36.0
Total Split (%)	17%	60%	0%	43%	43%	43%	40%	40%	0%	40%	40%	0%	40%
Yellow Time (s)	4.0			3.0	3.0	3.0	4.0	4.0		3.5	3.5		4.0
All-Red Time (s)	1.0			2.0	2.0	2.0	2.0	2.0		0.5	0.5		2.0
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None			None	None	None	Coord	Coord		None	None		None
Act Effct Green (s)	42.5	46.5		31.5	31.5	31.5	35.5	35.5		35.5	35.5		
Actuated g/C Ratio	0.47	0.52		0.35	0.35	0.35	0.39	0.39		0.39	0.39		
v/c Ratio	0.53	0.72		0.88	0.60	0.07	0.53	0.34		0.60	0.74		
Uniform Delay, d1	12.3	16.0		27.5	24.1	0.0	20.9	15.7		21.8	22.3		
Delay	11.7	15.8		39.6	23.6	5.4	42.5	12.6		28.1	24.6		
LOS	B	B		D	C	A	D	B		C	C		
Approach Delay		14.8			27.1			15.5			25.1		
Approach LOS		B			C			B			C		
Queue Length 50th (ft)	85	254		93	172	0	22	62		85	280		
Queue Length 95th (ft)	136	382		#234	261	20	#72	90		#162	327		
Internal Link Dist (ft)		797			554			335			226		
50th Up Block Time (%)											9%		
95th Up Block Time (%)											21%		
Turn Bay Length (ft)	200			200		200	200			200			
50th Bay Block Time %		14%									15%		
95th Bay Block Time %		24%		15%	10%						25%		
Queuing Penalty (veh)		45		28	18						191		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 96.9% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Wightman Road & Goshen Road

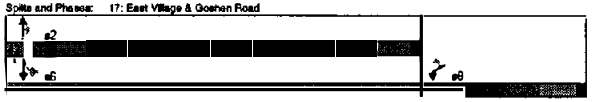


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Grade (%)	-1%		0%			0%	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9		9	15		
Satd. Flow (prot)	1787	1523	1845	1568	0	1841	
Flt Permitted	0.950					0.976	
Satd. Flow (perm)	1787	1523	1845	1568	0	1800	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		102		165			
Link Speed (mph)	30		48			48	
Link Distance (ft)	868		568			890	
Travel Time (s)	12.7		8.3			6.4	
Volume (vph)	245	95	870	165	95	890	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.91	0.91	
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%	
Lane Group Flow (vph)	275	102	394	165	0	950	
Turn Type		Perm		Perm	Perm		
Protected Phases	8		2			6	
Permitted Phases		8		2	6		
Detector Phase	8	8	2	2	6	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	9.0	9.0	12.0	12.0	12.0	12.0	
Total Split (s)	17.0	17.0	48.0	48.0	48.0	48.0	
Total Split (%)	26%	26%	74%	74%	74%	74%	
Yellow Time (s)	3.5	3.5	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	Coord	Coord	Coord	Coord	
Act Effct Green (s)	12.4	12.4	39.6	39.6		39.6	
Actuated g/C Ratio	0.21	0.21	0.66	0.66		0.66	
v/c Ratio	0.72	0.28	0.32	0.15		0.80	
Uniform Delay, d1	22.2	17.9	4.4	4.0		17.8	
Delay	26.0	5.4	4.7	0.9		10.5	
LOS	C	A	A	A		B	
Approach Delay	20.3		3.9			10.5	
Approach LOS	C		A			B	
Queue Length 50th (ft)	88	0	52	0		210	
Queue Length 95th (ft)	#181	33	89	0		#425	
Internal Link Dist (ft)	479		505			309	
50th Up Block Time (%)							
95th Up Block Time (%)						17%	
Turn Bay Length (ft)							
50th Bay Block Time %							
95th Bay Block Time %							
Queuing Penalty (veh)						79	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 96.4% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

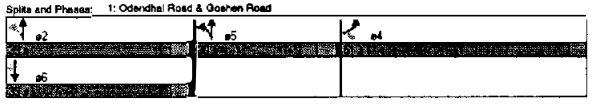
Splits and Phases: 17: East Village & Goshen Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			200	
Storage Lanes	1		1			1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15		9		
Satd. Flow (prot)	1805	1815	1805	1846	1845	1615	
Flt Permitted	0.950		0.114				
Satd. Flow (perm)	1805	1815	217	1846	1845	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		247				574	
Link Speed (mph)	30			55	55		
Link Distance (ft)	1624			797	803		
Travel Time (s)	34.8			15.8	16.6		
Volume (vph)	790	360	455	820	455	685	
Peak Hour Factor	0.94	0.94	0.88	0.88	0.86	0.88	
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	
Lane Group Flow (vph)	840	383	535	955	529	797	
Turn Type		Perm	custom			Perm	
Protected Phases	4		5	5 2	6		2
Permitted Phases		4	2			6	
Detector Phases	4	4	5	5 2	6	6	
Minimum Initial (s)	4.0	4.0	4.0		7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	8.0		38.0	38.0	38.0
Total Split (s)	51.0	51.0	30.0	69.0	39.0	39.0	39.0
Total Split (%)	43%	43%	25%	58%	33%	33%	33%
Yellow Time (s)	3.5	3.5	4.0		4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	1.0		1.0	1.0	1.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None		Coord	Coord	Coord
Act Effct Green (s)	47.0	47.0	61.0	85.0	35.0	35.0	
Actuated g/C Ratio	0.39	0.39	0.51	0.54	0.29	0.29	
v/c Ratio	1.19	0.93	1.18	0.97	0.86	0.81	
Uniform Delay, d1	36.5	8.7	42.2	25.4	42.2	10.7	
Delay	120.2	9.5	128.5	41.0	37.6	10.7	
LOS	F	A	F	D	D	B	
Approach Delay	85.5			70.4	21.4		
Approach LOS	F			E	C		
Queue Length 50th (ft)	~784	70	~448	689	346	226	
Queue Length 95th (ft)	#1028	156	#540	#900	m#371	m205	
Internal Link Dist (ft)	1444			717	723		
50th Up Block Time (%)				3%			
95th Up Block Time (%)				16%			
Turn Bay Length (ft)			200			200	
50th Bay Block Time %			51%	94%	24%	9%	
95th Bay Block Time %			39%	97%	24%	5%	
Queuing Penalty (veh)			436	191	193	33	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 58.9 Intersection LOS: E
Intersection Capacity Utilization 114.1% ICU Level of Service G
- 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.
m Volume for 95th percentile queue is metered by upstream signal.

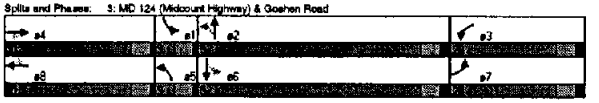
Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		200	200		200	200		200
Storage Lanes	1		1	1		1	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	3508	1568	1752	3508	1568	1736	3389	0	1770	1863	1544
Flt Permitted	0.950			0.950			0.067			0.063		
Satd. Flow (perm)	1752	3508	1568	1752	3508	1568	122	3389	0	118	1863	1544
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104			110		54				66
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		667			799			818			553	
Travel Time (s)		14.9			17.5			12.0			20.1	
Volume (vph)	285	799	125	428	850	270	100	1196	320	155	900	145
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	320	898	140	457	914	290	105	1595	0	147	852	158
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2			6		Free
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	9.0	33.0		9.0	33.0	
Total Split (s)	28.0	31.0	31.0	28.0	31.0	31.0	9.0	52.0	0.0	9.0	52.0	0.0
Total Split (%)	23%	26%	26%	23%	26%	26%	8%	43%	0%	8%	43%	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	1.0	1.0	2.0	1.0	1.0	1.0	2.0		1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	24.0	27.0	27.0	24.0	27.0	27.0	53.0	48.0		53.0	48.0	120.0
Actuated g/C Ratio	0.20	0.23	0.23	0.20	0.23	0.23	0.44	0.40		0.44	0.40	1.00
v/c Ratio	0.91	1.13	0.32	1.31	1.15	0.66	0.73	1.17		1.08	0.68	0.10
Uniform Delay, d1	47.0	45.5	9.5	48.0	46.5	25.8	17.8	35.1		19.5	33.2	0.0
Delay	86.9	106.2	12.4	165.5	117.1	25.4	21.0	98.7		106.0	43.3	0.0
LOS	F	F	B	F	F	C	C	F		F	D	A
Approach Delay		88.3			114.6			93.9			45.8	
Approach LOS		F			F			F			D	
Queue Length 50th (ft)	245	~423	18	~454	~441	128	46	~789		~79	466	0
Queue Length 95th (ft)	#406	#542	77	#661	#670	228	m46	m#670		m#201	#574	m0
Internal Link Dist (ft)		577			689			538			803	
50th Up Block Time (%)								22%				
95th Up Block Time (%)								14%				
Turn Bay Length (ft)	200		200	200		200	200			200		200
50th Bay Block Time %	19%	43%		51%	45%			37%			48%	
95th Bay Block Time %	46%	54%		84%	58%	11%		54%		9%	62%	
Queuing Penalty (veh)	144	155		283	230	26		326		38	73	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 58 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 84.6 Intersection LOS: F
Intersection Capacity Utilization 117.0% ICU Level of Service G
- 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		800	200		0
Storage Lanes	0		0	1		0	0		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1785	0	1729	1636	0	0	1825	1566	1736	1833	0
Flt Permitted		0.990		0.950	0.976			0.982		0.049		
Satd. Flow (perm)	0	1736	0	1725	1636	0	0	1794	1566	88	1833	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		92			37				406		3	
Link Speed (mph)		30			30			24			32	
Link Distance (ft)		304			354			944			1457	
Travel Time (s)		6.9			8.0			25.1			10.0	
Volume (vph)	5	5	15	205	5	75	20	1340	390	45	880	10
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	0.96	0.96	0.96	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	5%	0%
Lane Group Flow (vph)	0	36	0	178	164	0	0	1417	406	58	870	0
Turn Type	Split			Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2			1	5
Permitted Phases							2		2	8		
Detector Phases	4	4		8	8		2	2	2	1	5	
Minimum Initial (s)	7.0	7.0		4.0	4.0		7.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	11.0	11.0		20.0	20.0		11.0	11.0	11.0	8.0	11.0	
Total Split (s)	11.0	11.0	0.0	20.0	20.0	0.0	61.0	61.0	61.0	8.0	68.0	0.0
Total Split (%)	9%	9%	0%	17%	17%	0%	58%	58%	58%	7%	74%	0%
Yellow Time (s)	3.0	3.0		3.5	3.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		0.5	0.5		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lead	Lead	Lead	Lag		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	Max In	Coord	
Act Effct Green (s)		7.0		15.0	15.0		84.0	84.0	90.3	90.3		
Actuated g/C Ratio		0.06		0.13	0.13		0.70	0.70	0.75	0.75		
v/c Ratio		0.30		0.81	0.78		1.13	0.33	0.46	0.63		
Uniform Delay, d1		21.8		51.1	50.4		16.2	5.0	10.8	7.7		
Delay		29.6		58.1	45.6		69.4	0.1	13.9	2.1		
LOS		C		E	D		E	A	B	A		
Approach Delay		29.6			52.2			54.0			2.9	
Approach LOS		C			D			D			A	
Queue Length 50th (ft)		9		140	116		#573	1	5	72		
Queue Length 95th (ft)		28		#292	170		m#1225	m0	m0	#673		
Internal Link Dist (ft)		224			274			803			387	
50th Up Block Time (%)								23%				
95th Up Block Time (%)								18%				
Turn Bay Length (ft)				200					800	200		
50th Bay Block Time %								23%				
95th Bay Block Time %								18%				
Queuing Penalty (veh)								374				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 58 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 136.1% ICU Level of Service H

- 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road



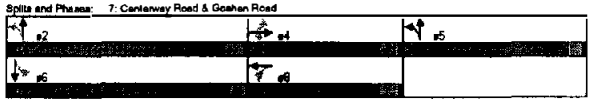
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1566	1752	3459	0	1752	1830	0	1752	1804	0
Flt Permitted	0.303			0.320			0.087			0.087		
Satd. Flow (perm)	559	1845	1566	590	3459	0	160	1830	0	160	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			119			8			8			8
Link Speed (mph)		30			30			32			30	
Link Distance (ft)		374			432			751			968	
Travel Time (s)		8.5			9.8			16.0			7.0	
Volume (vph)	130	270	115	65	370	35	190	1135	65	50	530	90
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	134	278	119	75	485	0	213	1348	0	58	731	0
Turn Type	Perm		Perm	Perm			custom			Perm		
Protected Phases		4			8		5	5 2			6	2
Permitted Phases	4		4	8			2			6		
Detector Phases	4	4	4	8	8		5	5 2		6	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		4.0			4.0	4.0	7.0
Minimum Split (s)	17.0	17.0	17.0	17.0	17.0		6.0			20.0	20.0	27.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	0.0	38.0	88.0	0.0	50.0	50.0	90.0
Total Split (%)	27%	27%	27%	27%	27%	0%	32%	73%	0%	42%	42%	75%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0			3.5	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0			0.5	0.5	1.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None			None	None	Coord
Act Effct Green (s)	28.0	28.0	28.0	28.0	28.0		80.9	84.0		46.0	46.0	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23		0.67	0.70		0.38	0.38	
v/c Ratio	1.03	0.68	0.26	0.54	0.67		0.88	1.06		0.96	1.04	
Uniform Delay, d1	45.9	41.6	0.0	40.4	39.9		16.3	17.9		35.8	35.5	
Delay	112.3	42.2	4.7	43.6	40.3		21.2	80.4		116.7	71.7	
LOS	F	D	A	D	D		C	C		F	E	
Approach Delay		51.5			40.8			29.1			76.0	
Approach LOS		D			D			C			E	
Queue Length 50th (ft)	~111	196	0	61	166		116	~1124		45	~574	
Queue Length 95th (ft)	#240	291	47	103	212		m110	m603		#126	#773	
Internal Link Dist (ft)		294			352			211			225	
50th Up Block Time (%)								14%			33%	
95th Up Block Time (%)											46%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		6%						62%			41%	
95th Bay Block Time %	21%	27%		6%				20%			50%	
Queuing Penalty (veh)	41	66		2				144			906	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 45.0 Intersection LOS: D
Intersection Capacity Utilization 108.7% ICU Level of Service F

- 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Centerway Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø4
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%		
Storage Length (ft)	200		0	200		200	200		0	200		0	
Storage Lanes	1		0	1		1	1		0	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50		
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	1770	1846	0	1799	1880	1607	1744	3402	0	1825	3428	0	
Flt Permitted	0.129			0.453			0.375			0.118			
Satd. Flow (perm)	240	1846	0	858	1880	1607	688	3402	0	226	3428	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		29				29		39			47		
Link Speed (mph)		30			30			48			49		
Link Distance (ft)		878			634			414			306		
Travel Time (s)		15.4			14.4			5.9			4.3		
Volume (vph)	480	368	135	315	560	155	140	895	220	90	330	90	
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.86	0.86	0.86	0.81	0.81	0.81	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	0%	3%	
Lane Group Flow (vph)	511	564	0	366	656	180	159	1267	0	111	524	0	
Turn Type	custom			Perm		Perm	Perm			Perm			
Protected Phases	7	7 4			8			2			6		4
Permitted Phases	4	4		8		8	2			6			
Detector Phases	7	7 4		8	8	8	2	2		6	6		
Minimum Initial (s)	4.0			7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0
Minimum Split (s)	8.0			28.0	28.0	28.0	22.0	22.0		22.0	22.0		28.0
Total Split (s)	17.0	52.0	0.0	35.0	35.0	35.0	58.0	58.0	0.0	58.0	58.0	0.0	35.0
Total Split (%)	19%	58%	0%	39%	39%	39%	42%	42%	0%	42%	42%	0%	39%
Yellow Time (s)	3.0			3.0	3.0	3.0	4.0	4.0		4.0	4.0		3.0
All-Red Time (s)	1.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None			None	None	None	Coord	Coord		Coord	Coord		None
Act Effct Green (s)	44.0	45.0		31.0	31.0	31.0	54.0	54.0		54.0	54.0		
Actuated g/C Ratio	0.49	0.50		0.34	0.34	0.34	0.60	0.60		0.60	0.60		
v/c Ratio	1.51	0.57		1.24	1.05	0.31	0.61	0.97		1.31	0.40		
Uniform Delay, d1	22.8	9.2		29.5	29.5	17.9	22.6	26.6		27.9	15.6		
Delay	194.3	13.6		133.9	72.6	18.4	24.5	40.5		171.5	18.7		
LOS	F	B		F	E	B	C	D		F	B		
Approach Delay		99.5			83.0			38.7			45.4		
Approach LOS		F			F			D			D		
Queue Length 50th (ft)	~362	191		~261	~431	61	72	338		~82	96		
Queue Length 95th (ft)	#587	288		#408	#596	109	114	#498		#163	119		
Internal Link Dist (ft)		798			554			334			226		
50th Up Block Time (%)								57%					
95th Up Block Time (%)					13%			24%					
Turn Bay Length (ft)	200			200		200	200			200			
50th Bay Block Time %	57%	5%		29%	38%			29%					
95th Bay Block Time %	78%	18%		55%	50%			59%					
Queuing Penalty (veh)	382	59		363	181			234					

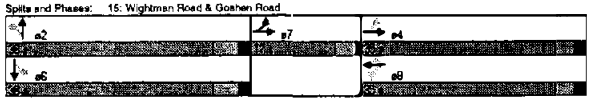
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.51
Intersection Signal Delay: 87.2 Intersection LOS: F
Intersection Capacity Utilization 120.0% ICU Level of Service G

~ 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: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1781	1423	1845	1698	0	1830
Flt Permitted	0.950					0.491
Satd. Flow (perm)	1781	1423	1845	1698	0	908
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		272		833		
Link Speed (mph)	30		40			40
Link Distance (ft)	350		665			1887
Travel Time (s)	12.7		8.3			5.4
Volume (vph)	190	85	1075	484	60	525
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	1%	0%	3%	2%	3%	3%
Lane Group Flow (vph)	211	72	1181	533	0	481
Turn Type		Perm		Perm	Perm	
Protected Phases	6		2			6
Permitted Phases		6		2	6	
Detector Phases	6	6	2	2	6	6
Minimum Initial (s)	4.0	4.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	9.0	12.0	12.0	12.0	12.0
Total Split (s)	43.0	43.0	47.0	47.0	47.0	47.0
Total Split (%)	22%	22%	78%	78%	78%	78%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord	Coord	Coord	Coord
Act Effct Green (s)	9.0	9.0	43.0	43.0		43.0
Actuated g/C Ratio	0.15	0.15	0.72	0.72		0.72
v/c Ratio	0.80	0.24	0.89	0.42		0.74
Uniform Delay, d1	24.4	20.9	4.7	4.0		5.1
Delay	30.2	7.3	12.8	0.4		8.6
LOS	D	A	B	A		A
Approach Delay	31.1		8.9			8.6
Approach LOS	C		A			A
Queue Length 50th (ft)	75	0	252	0		79
Queue Length 95th (ft)	#174	30	#620	114		142
Internal Link Dist (ft)	480		505			309
50th Up Block Time (%)						
95th Up Block Time (%)			15%			
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)			105			

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 109.4% ICU Level of Service F

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

Splits and Phases: 17: East Village & Goshen Road



Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2015 -No Build (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:02.3	*00:02.3*
From Odendhal Road to Midcounty Hwy	00:47.7	00:45.4
Midcounty Highway	01:04.1	*00:16.4*
From Midcounty Hwy to Emory Grove Rd	01:27.3	00:23.2
Emory Grove Road	01:29.9	*00:02.6*
From Emory Grove Rd to Centerway Rd	02:30.2	01:00.3
Centerway Road	02:30.6	*00:00.4*
From Centerway Rd to Snouffer School Rd	04:38.9	02:08.3
Snouffer School Road	04:48.7	*00:09.8*
From Snouffer School Rd to East Village Ave	05:12.4	00:23.7
East Village Avenue	05:16.0	*00:03.6*
From East Village Ave to Warfield Rd	06:02.3	00:46.3
Warfield Road	06:02.3	*00:00.0*
TOTAL MOVING TIME		05:27.2
TOTAL STOPPED TIME		00:35.1
TOTAL TRAVEL TIME	**06:02.3**	**06:02.3**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:48.2	00:48.2
East Village Avenue	00:56.3	*00:08.1*
From East Village Ave to Snouffer School Rd	01:27.3	00:31.0
Snouffer School Road	01:46.2	*00:18.9*
From Snouffer School Rd to Centerway Rd	04:02.3	02:16.1
Centerway Road	04:38.2	*00:35.9*
From Centerway Rd to Emory Grove Rd	06:06.8	01:28.6
Emory Grove Road	07:21.3	*01:14.5*
From Emory Grove Rd to Midcounty Hwy	08:24.6	01:03.3
Midcounty Highway	10:15.3	*01:50.7*
From Midcounty Hwy to Odendhal Rd	11:04.7	00:49.4
Odendhal Road	11:12.2	*00:07.5*
TOTAL MOVING TIME		06:56.6
TOTAL STOPPED TIME		04:15.6
TOTAL TRAVEL TIME	**11:12.2**	**11:12.2**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2015 -No Build (PM) Date 01/08/03

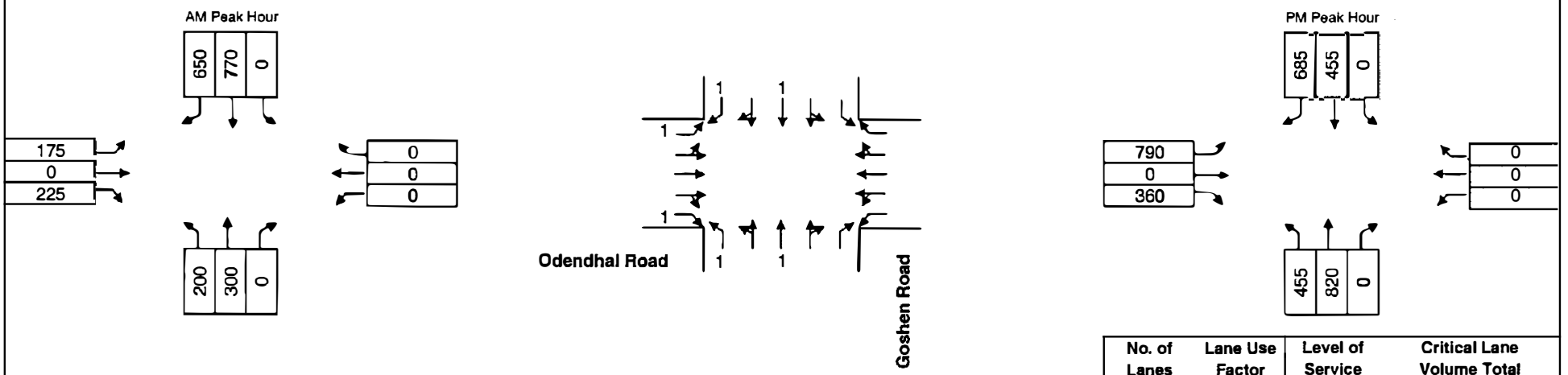
NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:31.5	*00:31.5*
From Odendhal Road to Midcounty Hwy	01:41.5	01:10.0
Midcounty Highway	02:57.3	*01:15.8*
From Midcounty Hwy to Emory Grove Rd	03:43.4	00:46.1
Emory Grove Road	04:36.8	*00:53.4*
From Emory Grove Rd to Centerway Rd	05:57.3	01:20.5
Centerway Road	06:20.7	*00:23.4*
From Centerway Rd to Snouffer School Rd	08:58.8	02:38.1
Snouffer School Road	09:30.0	*00:31.2*
From Snouffer School Rd to East Village Ave	10:03.4	00:33.4
East Village Avenue	10:13.2	*00:09.8*
From East Village Ave to Warfield Rd	10:59.5	00:46.3
Warfield Road	10:59.5	*00:00.0*
TOTAL MOVING TIME		07:14.4
TOTAL STOPPED TIME		03:45.1
TOTAL TRAVEL TIME	**10:59.5**	**10:59.5**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:55.1	00:55.1
East Village Avenue	01:01.8	*00:06.7*
From East Village Ave to Snouffer School Rd	01:36.5	00:34.7
Snouffer School Road	01:50.9	*00:14.4*
From Snouffer School Rd to Centerway Rd	04:19.9	02:29.0
Centerway Road	05:15.1	*00:55.2*
From Centerway Rd to Emory Grove Rd	06:29.1	01:14.0
Emory Grove Road	06:30.7	*00:01.6*
From Emory Grove Rd to Midcounty Hwy	07:05.8	00:35.1
Midcounty Highway	07:39.1	*00:33.3*
From Midcounty Hwy to Odendhal Rd	08:35.0	00:55.9
Odendhal Road	09:03.9	*00:28.9*
TOTAL MOVING TIME		06:43.8
TOTAL STOPPED TIME		02:20.1
TOTAL TRAVEL TIME	**09:03.9**	**09:03.9**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2015 - No Build

Computed by: MAM Date: 09/09/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	300	1	300	0	300	970
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	770	1	770	200	970	
	SBR	475	1	475	200	675	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	175
	EBR	25	1	25	0	25	
	EBL	175	1	175		175	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,145
						Level Of Service	B
						v/c ratio	0.72

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	820	1	820	0	820	910
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	455	1	455	455	910	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	790
	EBR	0	1	0	0	0	
	EBL	790	1	790		790	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,700
						Level Of Service	F
						v/c ratio	1.06

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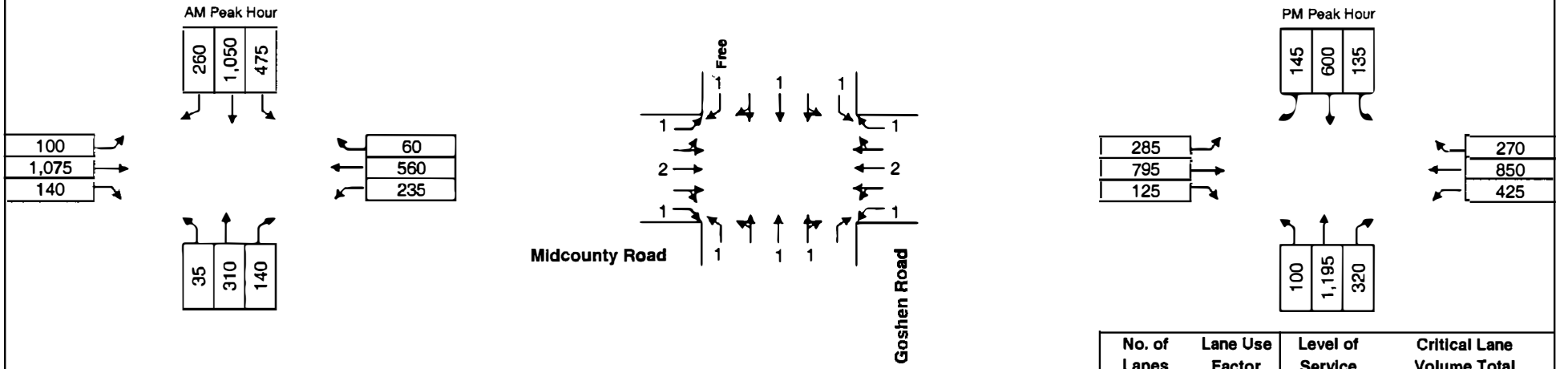
Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2015 - No Build

Computed by: MAM Date: 09/09/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	450	0.55	248	475	723	1,085
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,050	1	1,050	35	1,085	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	1,075	0.55	591	235	826	826
	EBR	105	1	105	235	340	
	EBL	0	1	0		0	
	WB	560	0.55	308	100	408	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,911
						Level Of Service	F
						v/c ratio	1.19

PM Peak Hour

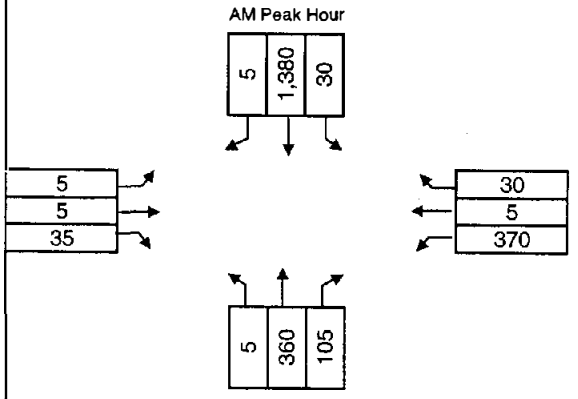
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,515	0.55	833	135	968	968
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	600	1	600	100	700	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	795	0.55	437	425	862	862
	EBR	25	1	25	425	450	
	EBL	0	1	0		0	
	WB	850	0.55	468	285	753	
	WBR	135	1	135	285	420	
	WBL	0	1	0		0	
							1,830
						Level Of Service	F
						v/c ratio	1.14

Turning Movement Summary and Level of Service

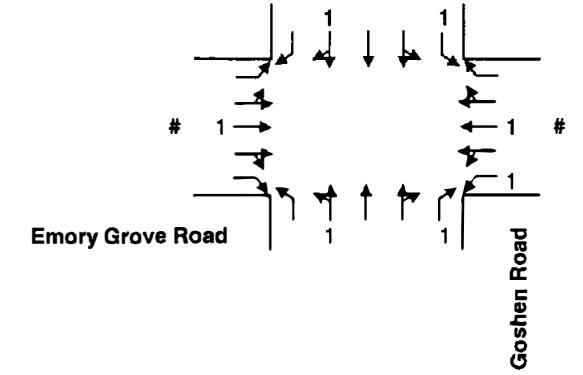
Count Date: 2/6/02 | Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2015 - No Build

Computed by: MAM | Date: 9/9/2002 | Checked by: JCP | Date: 37522

AM Peak Hour

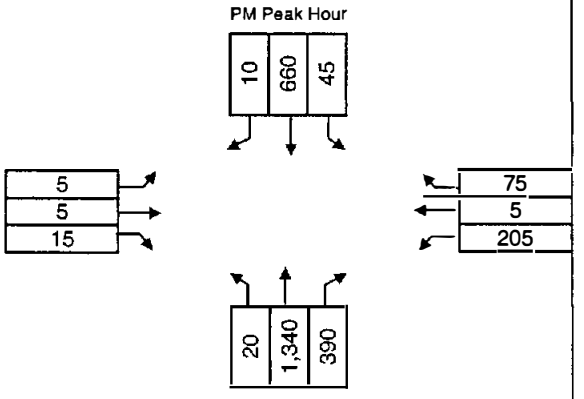


# Indicates shared lane for all movements



East/West movements are split-phased

PM Peak Hour



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	385	1	385	30	415	1,390
	NBR	105	1	105	30	135	
	NBL	0	1	0		0	
	SB	1,385	1	1,385	5	1,390	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	45	1	45	0	45	45
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	405	0.55	223	0	223	223
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,658
					Level Of Service		F
					v/c ratio		1.04

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,407	1	1,407	45	1,452	1,452
	NBR	390	1	390	45	435	
	NBL	0	1	0		0	
	SB	670	1	670	20	690	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	25	1	25	0	25	25
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	285	0.55	157	0	157	157
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,634
					Level Of Service		F
					v/c ratio		1.02

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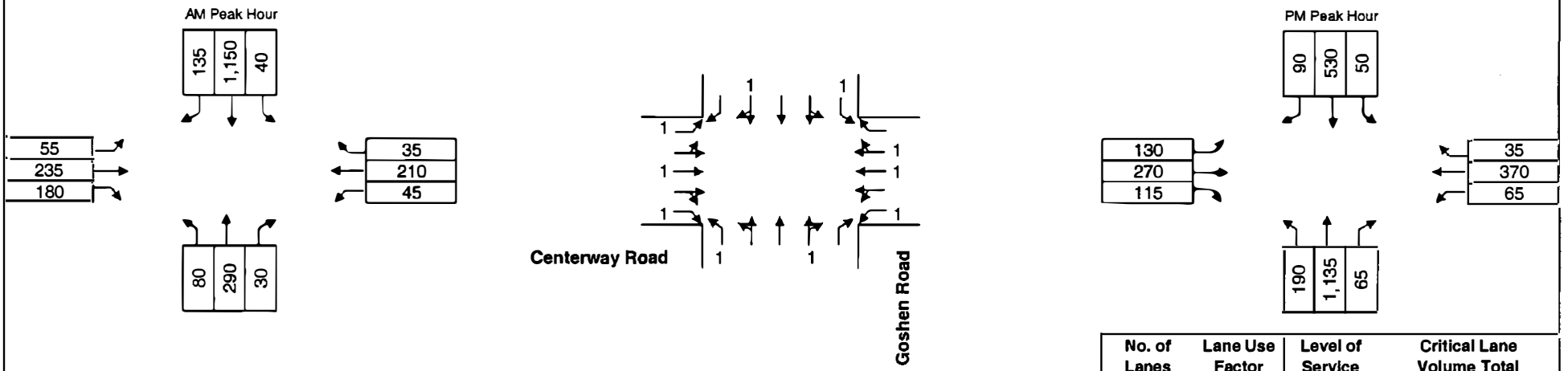
Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2015 - No Build

Computed by: MAM Date: 09/09/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	320	1	320	40	360	1,365
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,285	1	1,285	80	1,365	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	235	1	235	45	280	280
	EBR	100	1	100	45	145	
	EBL	0	1	0		0	
	WB	245	0.55	135	55	190	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,645
						Level Of Service	F
						v/c ratio	1.03

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,200	1	1,200	50	1,250	1,250
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	620	1	620	190	810	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	270	1	270	65	335	353
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	405	0.55	223	130	353	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,603
						Level Of Service	F
						v/c ratio	1.00

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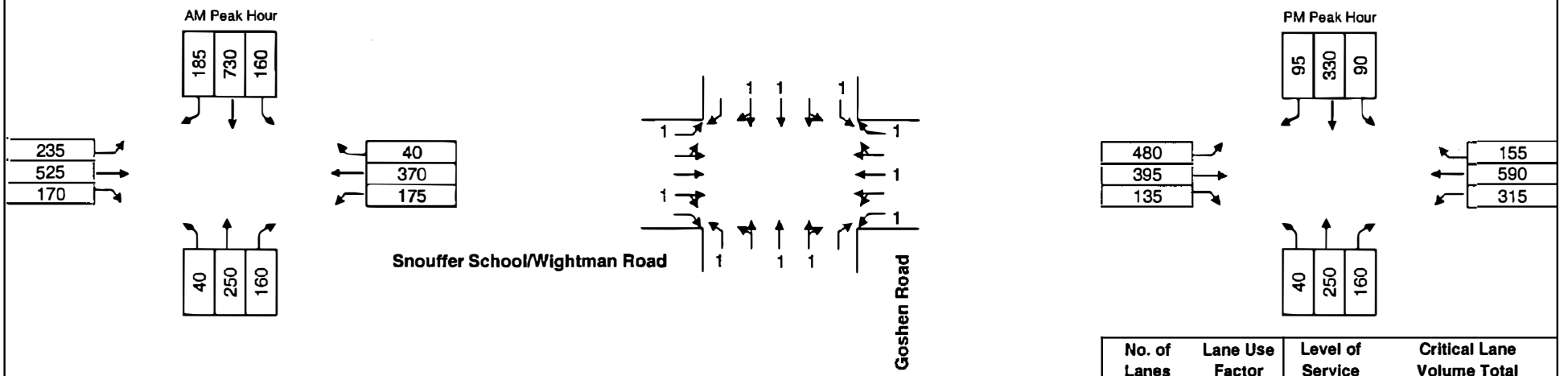
Turning Movement Summary and Level of Service

Count Date: 2/13/02 Location: Goshen Road/Snouffer School/Wightman Road
Conditions/
Design Year: 2015 - No Build

Computed by: MAM Date: 09/09/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	410	0.55	226	160	386	543
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	915	0.55	503	40	543	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	695	1	695	175	870	870
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	370	1	370	235	605	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,413
						Level Of Service	D
						v/c ratio	0.88

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	410	0.55	226	90	316	316
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	425	0.55	234	40	274	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	530	1	530	315	845	1,070
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	590	1	590	480	1,070	
	WBR	65	1	65	480	545	
	WBL	0	1	0		0	
							1,386
						Level Of Service	D
						v/c ratio	0.87

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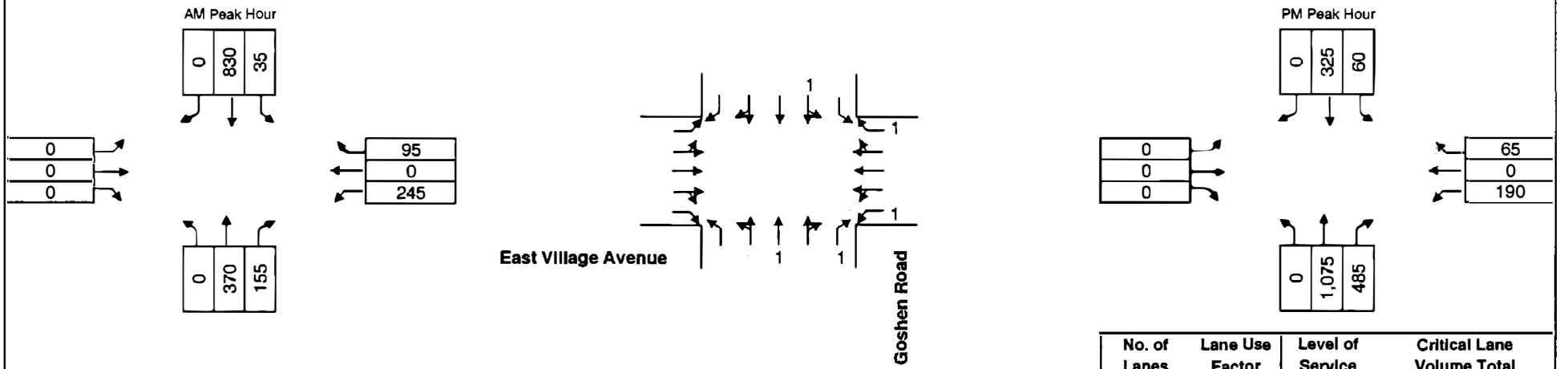
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/East Village Avenue
Conditions/
Design Year: 2015 - No Build

Computed by: MAM Date: 09/09/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	370	1	370	35	405	928
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	928	1	928	0	928	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	245
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	95	1	95	0	95	
	WBL	245	1	245		245	
							1,173
						Level Of Service	C
						v/c ratio	0.73

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,075	1	1,075	60	1,135	1,135
	NBR	295	1	295	60	355	
	NBL	0	1	0		0	
	SB	625	1	625	0	625	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	190
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	65	1	65	0	65	
	WBL	190	1	190		190	
							1,325
						Level Of Service	D
						v/c ratio	0.83

Unsignalized Intersection CLV Eqlvalent Calculations

LOS	HCS			CLV			LOS
A	0	10	10	0	1000	1000	A
B	10	15	5	1000	1150	150	B
C	15	25	10	1150	1300	150	C
D	25	35	10	1300	1450	150	D
E	35	50	15	1450	1600	150	E
F	50	190	140	1600	3000	1400	F

2015 No Build

#2 Willow Creek Drive

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	524.7	50	1600	140	1400	3,000	F

#5 Severn Road

	Delay					CLV	LOS
AM	543.5	50	1600	140	1400	3,000	F
PM	146.0	50	1600	140	1400	2,560	F

#6 Lindenhouse Road

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	94.6	50	1600	140	1400	2,046	F

#8 Rock Elm Way

	Delay					CLV	LOS
AM	50.8	50	1600	140	1400	1,608	F
PM	44.5	35	1450	15	150	1,545	E

#9 Framingham Drive

	Delay					CLV	LOS
AM	471.8	50	1600	140	1400	3,000	F
PM	192.8	50	1600	140	1400	3,000	F

#10 Turtle Dove Terrace

	Delay					CLV	LOS
AM	176.4	50	1600	140	1400	2,864	F
PM	217.7	50	1600	140	1400	3,000	F

#11 Stewartown Road

	Delay					CLV	LOS
AM	111.7	50	1600	140	1400	2,217	F
PM	84.5	50	1600	140	1400	1,945	F

#12 Bramble Bush Drive

	Delay					CLV	LOS
AM	64.0	50	1600	140	1400	1,740	F
PM	98.0	50	1600	140	1400	2,080	F

#13 Rothbury Drive

	Delay					CLV	LOS
AM	154.8	50	1600	140	1400	2,648	F
PM	999.9	50	1600	140	1400	3,000	F

#14 Goshen Crossing

	Delay					CLV	LOS
AM	82.4	50	1600	140	1400	1,924	F
PM	999.9	50	1600	140	1400	3,000	F

#17 Mother of God School

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	32.8	25	1300	10	150	1,417	D

#18 Warfield Road

	Delay					CLV	LOS
AM	117.0	50	1600	140	1400	2,270	F
PM	423.8	50	1600	140	1400	3,000	F

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*470*	*0*	*0*	*1415*	*10*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*534*	*0*	*0*	*1489*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*15*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.61*	*1.00*	*0.61*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*24*	*0*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*5*						*32*	
C (m) (vph)	*95*						*0*	
v/c	*0.05*							
95% queue length	*0.16*							
Control Delay	*45.0*							
LOS	*E*						*F*	
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1605*	*0*	*0*	*1135*	*15*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*5*	*1783*	*0*	*0*	*1233*	*16*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*9*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*5*						*27*	
C (m) (vph)	*564*						*22*	
v/c	*0.01*						*1.23*	
95% queue length	*0.03*						*3.51*	
Control Delay	*11.4*						*524.7*	
LOS	*B*						*F*	
Approach Delay	--	--				*524.7*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Severn Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*390*	*0*	*0*	*1400*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*5*	*443*	*0*	*0*	*1590*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*27*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*45*	
C (m) (vph)	*416*						*30*	
v/c	*0.01*						*1.50*	
95% queue length	*0.04*						*5.15*	
Control Delay	*13.8*						*543.5*	
LOS	*B*						*F*	
Approach Delay	--	--				*543.5*		
Approach LOS	--	--				*F*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015- No Build*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Severn Road*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*1405*	*0*	*0*	*705*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*15*	*1478*	*0*	*0*	*801*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*5*	*0*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*15*						*27*	
C (m) (vph)	*828*						*49*	
v/c	*0.02*						*0.55*	
95% queue length	*0.06*						*2.09*	
Control Delay	*9.4*						*146.0*	
LOS	*A*						*F*	
Approach Delay	--	--					*146.0*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015- No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Lindenhouse Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*395*	*5*	*5*	*1370*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.84*	*0.84*	*0.88*
Hourly Flow Rate, HFR	*0*	*420*	*5*	*5*	*1630*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.60*	*1.00*	*0.60*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*58*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*66*				
C (m) (vph)		*1129*		*0*				
v/c		*0.00*						
95% queue length		*0.01*						
Control Delay		*8.2*						
LOS		*A*		*F*				
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Lindenhouse Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1380*	*30*	*10*	*700*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1380*	*30*	*10*	*700*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*10*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*10*		*20*				
C (m) (vph)		*481*		*59*				
v/c		*0.02*		*0.34*				
95% queue length		*0.06*		*1.23*				
Control Delay		*12.6*		*94.6*				
LOS		*B*		*F*				
Approach Delay	--	--	*94.6*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*375*	*5*	*5*	*1315*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.80*	*0.80*	*0.91*	*0.91*	*0.88*
Hourly Flow Rate, HFR	*0*	*468*	*6*	*5*	*1445*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.58*	*1.00*	*0.58*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*17*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*25*				
C (m) (vph)		*1083*		*103*				
v/c		*0.00*		*0.24*				
95% queue length		*0.01*		*0.88*				
Control Delay		*8.3*		*50.8*				
LOS		*A*		*F*				
Approach Delay	--	--	*50.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1295*	*5*	*5*	*665*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1295*	*5*	*5*	*665*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*10*				
C (m) (vph)		*530*		*101*				
v/c		*0.01*		*0.10*				
95% queue length		*0.03*		*0.32*				
Control Delay		*11.9*		*44.5*				
LOS		*B*		*E*				
Approach Delay	--	--	*44.5*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street:	*Framingham Drive*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*370*	*10*	*5*	*1210*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.82*	*0.82*	*0.87*	*0.87*	*0.88*
Hourly Flow Rate, HFR	*0*	*451*	*12*	*5*	*1390*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*110*	*0*	*45*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.76*	*1.00*	*0.76*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*144*	*0*	*59*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*203*				
C (m) (vph)		*1093*		*111*				
v/c		*0.00*		*1.83*				
95% queue length		*0.01*		*16.20*				
Control Delay		*8.3*		*471.8*				
LOS		*A*		*F*				
Approach Delay	--	--	*471.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1210*	*90*	*30*	*630*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.82*	*0.82*	*0.88*
Hourly Flow Rate, HFR	*0*	*1287*	*95*	*36*	*768*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*40*	*0*	*25*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.94*	*1.00*	*0.90*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*42*	*0*	*27*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*36*		*69*				
C (m) (vph)		*493*		*72*				
v/c		*0.07*		*0.96*				
95% queue length		*0.24*		*4.90*				
Control Delay		*12.9*		*192.8*				
LOS		*B*		*F*				
Approach Delay	--	--	*192.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*385*	*20*	*10*	*1155*	*10*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*12*	*469*	*24*	*10*	*1269*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*0*	*10*	*10*	*0*	*30*
Peak-Hour Factor, PHF	*0.73*	*0.73*	*0.73*	*0.54*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*41*	*0*	*13*	*18*	*0*	*33*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*12*	*10*		*54*			*51*	
C (m) (vph)	*550*	*1081*		*64*			*110*	
v/c	*0.02*	*0.01*		*0.84*			*0.46*	
95% queue length	*0.07*	*0.03*		*3.92*			*2.03*	
Control Delay	*11.7*	*8.4*		*176.4*			*63.3*	
LOS	*B*	*A*		*F*			*F*	
Approach Delay	--	--	*176.4*			*63.3*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*35*	*1165*	*35*	*20*	*620*	*15*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.84*	*0.84*	*0.84*
Hourly Flow Rate, HFR	*37*	*1252*	*37*	*23*	*738*	*17*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*20*	*0*	*15*	*15*	*0*	*20*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.83*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*24*	*0*	*18*	*18*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*37*	*23*		*42*			*41*	
C (m) (vph)	*865*	*545*		*49*			*64*	
v/c	*0.04*	*0.04*		*0.86*			*0.64*	
95% queue length	*0.13*	*0.13*		*3.56*			*2.74*	
Control Delay	*9.3*	*11.9*		*217.7*			*131.2*	
LOS	*A*	*B*		*F*			*F*	
Approach Delay	--	--	*217.7*			*131.2*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/20/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Sterwartown Road*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - No Build*

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*30*	*375*	*0*	*0*	*1115*	*20*
Peak-Hour Factor, PHF	*0.77*	*0.77*	*0.77*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*38*	*487*	*0*	*0*	*1225*	*21*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*5*	*20*	*0*	*50*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*15*	*7*	*7*	*26*	*0*	*66*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*38*	*0*		*29*			*92*	
C (m) (vph)	*566*	*1086*		*60*			*117*	
v/c	*0.07*	*0.00*		*0.48*			*0.79*	
95% queue length	*0.22*	*0.00*		*1.89*			*4.52*	
Control Delay	*11.8*	*8.3*		*111.7*			*102.6*	
LOS	*B*	*A*		*F*			*F*	
Approach Delay	--	--	*111.7*			*102.6*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/09/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*60*	*1125*	*10*	*0*	*590*	*30*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*60*	*1125*	*10*	*0*	*590*	*30*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*0*	*25*	*0*	*60*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*5*	*0*	*28*	*0*	*60*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*60*	*0*		*10*			*88*	
C (m) (vph)	*970*	*623*		*55*			*132*	
v/c	*0.06*	*0.00*		*0.18*			*0.67*	
95% queue length	*0.20*	*0.00*		*0.60*			*3.62*	
Control Delay	*9.0*	*10.8*		*84.5*			*74.8*	
LOS	*A*	*B*		*F*			*F*	
Approach Delay	--	--	*84.5*			*74.8*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/20/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/bramble Bush Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - No Build*

Project Description *199-73-17*

East/West Street: *Bramble Bush Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*390*	*10*	*5*	*1105*	*10*
Peak-Hour Factor, PHF	*0.77*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*0*	*458*	*11*	*5*	*1214*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*10*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*32*	*10*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*LT*					
v (vph)		*5*	*42*					
C (m) (vph)		*1087*	*101*					
v/c		*0.00*	*0.42*					
95% queue length		*0.01*	*1.73*					
Control Delay		*8.3*	*64.0*					
LOS		*A*	*F*					
Approach Delay	--	--	*64.0*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Bramble Bush Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*1110*	*40*	*20*	*585*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1110*	*40*	*20*	*585*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*20*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*35*	*20*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*LT*					
v (vph)		*20*	*55*					
C (m) (vph)		*604*	*88*					
v/c		*0.03*	*0.63*					
95% queue length		*0.10*	*2.93*					
Control Delay		*11.2*	*98.0*					
LOS		*B*	*F*					
Approach Delay	--	--	*98.0*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*90*	*300*	*10*	*5*	*930*	*80*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*94*	*315*	*10*	*5*	*978*	*84*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration	*LTR*			*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*15*	*110*	*0*	*170*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*10*	*5*	*15*	*115*	*0*	*178*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LT*		*LTR*		*LT*		*R*
v (vph)	*94*	*5*		*30*		*115*		*178*
C (m) (vph)	*652*	*1229*		*73*		*80*		*307*
v/c	*0.14*	*0.00*		*0.41*		*1.44*		*0.58*
95% queue length	*0.50*	*0.01*		*1.61*		*9.11*		*3.42*
Control Delay	*11.4*	*7.9*		*85.1*		*345.4*		*31.7*
LOS	*B*	*A*		*F*		*F*		*D*
Approach Delay	--	--	*85.1*			*154.8*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/20/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Rothbury Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - No Build*

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*215*	*895*	*20*	*15*	*420*	*200*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.97*	*0.97*	*0.97*
Hourly Flow Rate, HFR	*231*	*962*	*21*	*15*	*432*	*206*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration	*LTR*			*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*10*	*110*	*10*	*170*
Peak-Hour Factor, PHF	*0.65*	*0.65*	*0.65*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR	*7*	*7*	*15*	*134*	*12*	*207*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LT*		*LTR*		*LT*		*R*
v (vph)	*231*	*15*		*29*		*146*		*207*
C (m) (vph)	*941*	*699*		*25*		*20*		*628*
v/c	*0.25*	*0.02*		*1.16*		*7.30*		*0.33*
95% queue length	*0.97*	*0.07*		*3.56*		*18.68*		*1.44*
Control Delay	*10.1*	*10.3*		*461.5*				*13.5*
LOS	*B*	*B*		*F*		*F*		*B*
Approach Delay	--	--	*461.5*					
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Goshen Crossing*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*45*	*380*	*6*	*3*	*910*	*165*
Peak-Hour Factor, PHF	*0.80*	*0.86*	*0.84*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*56*	*441*	*0*	*0*	*1034*	*187*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*70*	*1*	*105*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.80*	*0.82*	*0.80*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*87*	*0*	*131*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*56*						*218*	
C (m) (vph)	*607*						*238*	
v/c	*0.09*						*0.92*	
95% queue length	*0.30*						*7.88*	
Control Delay	*11.5*						*82.4*	
LOS	*B*						*F*	
Approach Delay	--	--				*82.4*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Goshen Crossing*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*90*	*1020*	*6*	*3*	*540*	*240*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.84*	*0.88*	*0.73*	*0.73*
Hourly Flow Rate, HFR	*109*	*1243*	*0*	*0*	*739*	*328*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*235*	*1*	*95*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.83*	*0.82*	*0.83*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*283*	*0*	*114*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*109*						*397*	
C (m) (vph)	*643*						*85*	
v/c	*0.17*						*4.67*	
95% queue length	*0.61*						*42.50*	
Control Delay	*11.7*							
LOS	*B*						*F*	
Approach Delay	--	--						
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Mother of God School* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*345*	*105*	*95*	*740*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*20*	*460*	*140*	*102*	*795*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*120*	*5*	*75*	*0*	*0*	*5*
Peak-Hour Factor, PHF	*0.46*	*0.45*	*0.45*	*0.25*	*0.25*	*0.25*
Hourly Flow Rate, HFR	*260*	*11*	*166*	*0*	*0*	*20*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*20*	*102*		*437*			*20*	
C (m) (vph)	*835*	*987*		*107*			*391*	
v/c	*0.02*	*0.10*		*4.08*			*0.05*	
95% queue length	*0.07*	*0.34*		*44.90*			*0.16*	
Control Delay	*9.4*	*9.1*					*14.7*	
LOS	*A*	*A*		*F*			*B*	
Approach Delay	--	--					*14.7*	
Approach LOS	--	--		*F*			*B*	

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1115*	*20*	*10*	*365*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*1115*	*20*	*10*	*365*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*20*	*0*	*5*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*20*	*0*	*5*	*10*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*5*	*10*		*30*			*15*	
C (m) (vph)	*1205*	*623*		*159*			*257*	
v/c	*0.00*	*0.02*		*0.19*			*0.06*	
95% queue length	*0.01*	*0.05*		*0.67*			*0.18*	
Control Delay	*8.0*	*10.9*		*32.8*			*19.9*	
LOS	*A*	*B*		*D*			*C*	
Approach Delay	--	--	*32.8*			*19.9*		
Approach LOS	--	--	*D*			*C*		

>

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	9/20/2002
Analysis Time Period	AM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2015 - No Build

Project ID 199-73-17

East/West Street: Warfield Road North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	0	70	40	95	80	5
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	55	260	105	15	700	5
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.91		0.90		0.79		0.92	
Flow Rate	119		198		530		781	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.5		0.1		0.0	
Prop. Right-Turns	0.4		0.0		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	7.99		7.99		7.99		7.99	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.11		0.18		0.47		0.69	
hd, final value	7.99		7.99		7.99		7.99	
x, final value	0.26		0.43		0.94		1.39	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	6.0		6.0		6.0		6.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	369		444		565		781	
Delay	13.83		16.75		48.54		204.58	
LOS	B		C		E		F	
Approach: Delay	13.83		16.75		48.54		204.58	
LOS	B		C		E		F	
Intersection Delay	116.99							
Intersection LOS	F							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	9/20/2002
Analysis Time Period	PM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2015 - No Build

Project ID 199-73-17

East/West Street: Warfield Road North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	10	150	20	100	95	10
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	40	930	165	15	255	20
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.77		0.76		0.90		0.79	
Flow Rate	231		269		1260		365	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.0		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	8.27		8.27		8.27		8.27	

Departure Headway and Service Time

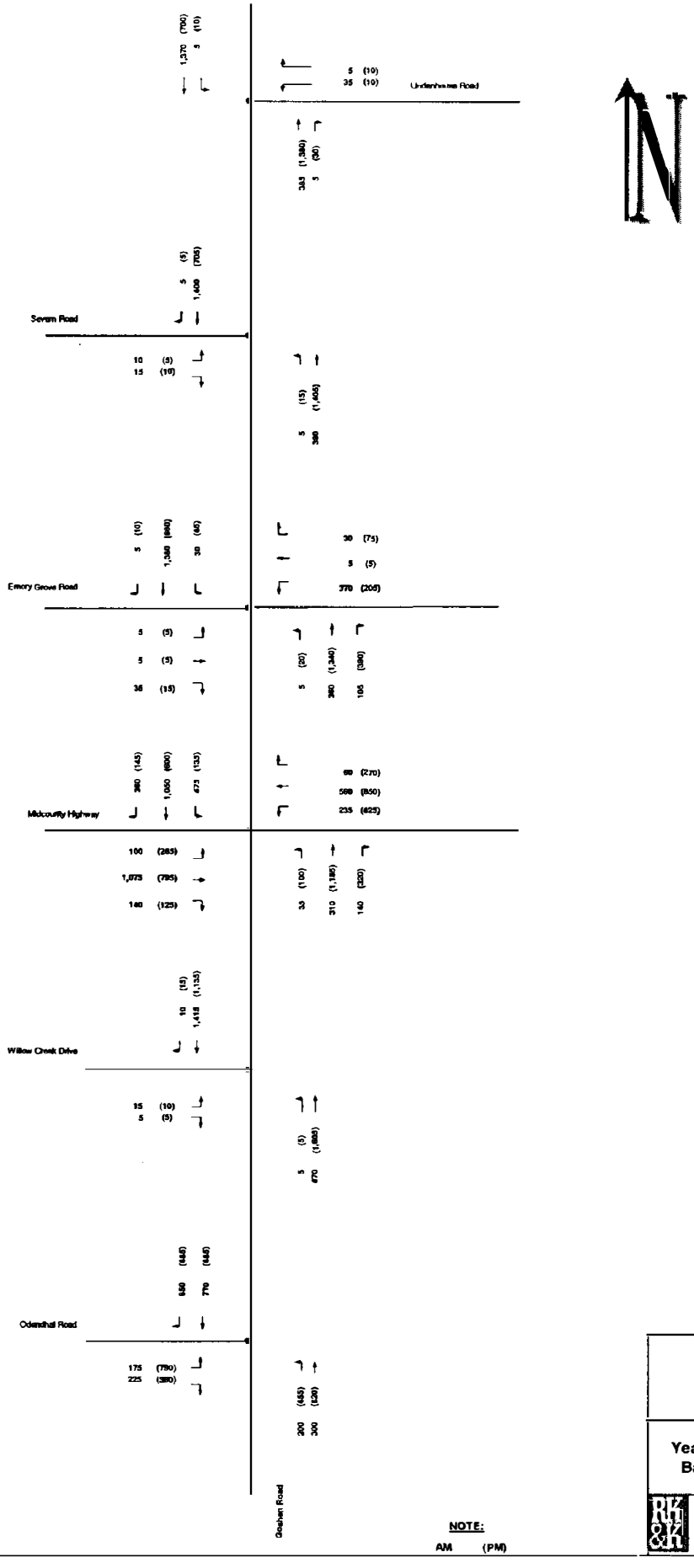
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.21		0.24		1.12		0.32	
hd, final value	8.27		8.27		8.27		8.27	
x, final value	0.53		0.61		2.50		0.77	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	6.3		6.3		6.3		6.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	405		417		1260		463	
Delay	20.23		23.34		696.94		31.52	
LOS	C		C		F		D	
Approach: Delay	20.23		23.34		696.94		31.52	
LOS	C		C		F		D	
Intersection Delay	423.81							
Intersection LOS	F							

APPENDIX E: 2015 – 2 Lane Capacity Analyses w/ TSM Improvements

Turning Movement Volumes
Synchro
Critical Lane Volume
Highway Capacity Software



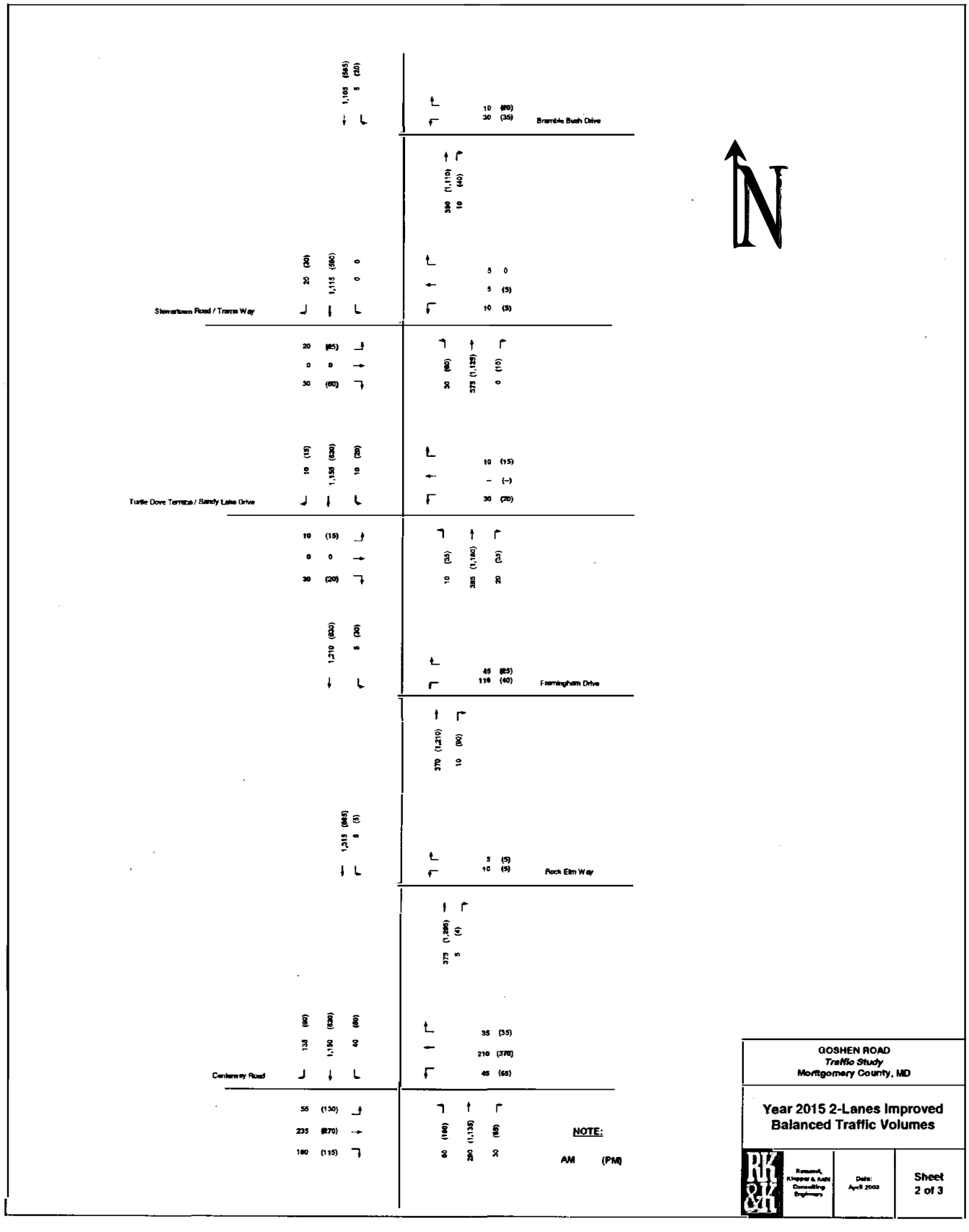
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2015 2-Lanes Improved Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

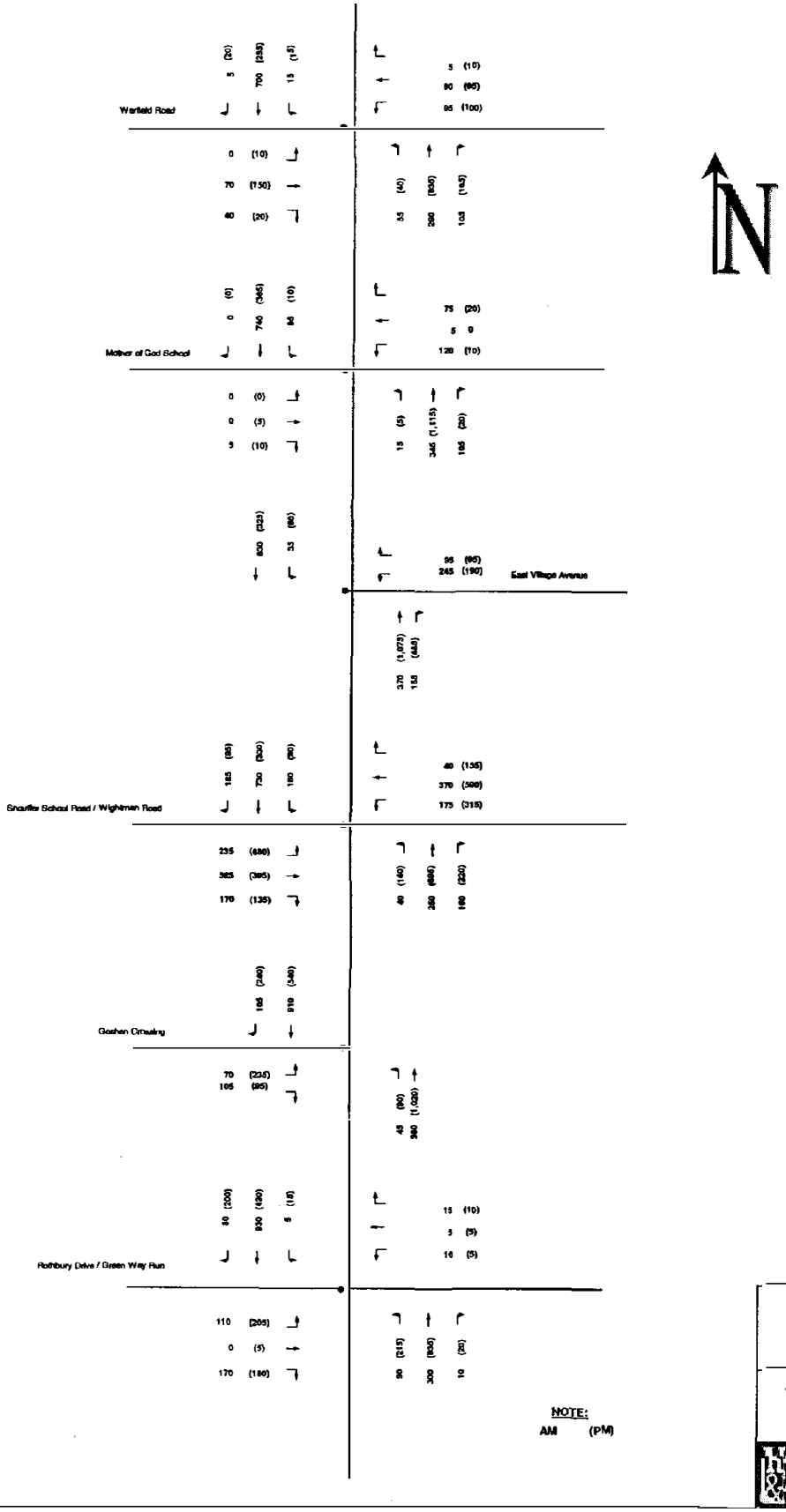
Date: April 2009

Sheet 1 of 3



Bramble Bush Drive
Stewartown Road / Trams Way
Turtle Dove Terrace / Sandy Lake Drive
Framingham Drive
Rock Elm Way
Centerway Road
N
NOTE:
AM (PM)
GOSHEN ROAD
Traffic Study
Montgomery County, MD
Year 2015 2-Lanes Improved
Balanced Traffic Volumes
Date:
April 2003
Sheet
2 of 3

North End of Corridor



GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2015 2-Lanes Improved Balanced Traffic Volumes

Date: April 2002

Sheet 3 of 3

Lane Group						
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			400
Storage Lanes	1	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15			9
Satd. Flow (prot)	3502	1615	1805	1845	1845	1615
Flt Permitted	0.950		0.160			
Satd. Flow (perm)	3502	1615	304	1845	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		247				722
Link Speed (mph)	30			37	35	
Link Distance (ft)	1524			786	803	
Travel Time (s)	34.9			14.5	15.6	
Volume (vph)	175	225	200	300	770	650
Peak Hour Factor	0.91	0.91	0.87	0.87	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%
Lane Group Flow (vph)	192	247	230	345	856	722
Turn Type		custom	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	9.0	34.0	34.0	34.0
Total Split (s)	22.0	22.0	20.0	98.0	78.0	78.0
Total Split (%)	15%	15%	13%	82%	65%	65%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Coord	Coord	Coord
Act Effct Green (s)	12.9	12.9	96.1	99.1	85.1	85.1
Actuated g/C Ratio	0.11	0.11	0.53	0.83	0.71	0.71
v/c Ratio	0.51	0.63	0.61	0.23	0.65	0.63
Uniform Delay, d1	50.6	0.0	2.1	2.2	9.5	0.0
Delay	50.1	9.0	8.7	2.5	5.1	2.5
LOS	D	A	A	A	A	A
Approach Delay	25.9			3.0	3.9	
Approach LOS	C			A	A	
Queue Length 50th (ft)	73	0	27	43	47	85
Queue Length 95th (ft)	107	76	61	77	m55	m93
Internal Link Dist (ft)	1444			706	723	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			200			400
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 29 (24%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 73.3%	ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.	

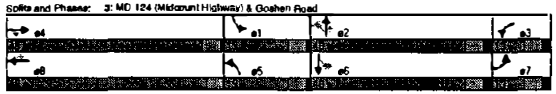
Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Group												
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	300		200	200		200	200		500	500		200
Storage Lanes	1		1	2		1	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	3505	1583	3400	3505	1648	1739	4986	1648	1770	3540	1584
Flt Permitted	0.950			0.950			0.111			0.480		
Satd. Flow (perm)	1752	3505	1583	3400	3505	1648	203	4986	1583	844	3540	1584
Right Turn on Red			Yes				Yes			Yes		Yes
Satd. Flow (RTOR)			108				44			147		127
Link Speed (mph)		30			30			37			27	
Link Distance (ft)		857			744			818			683	
Travel Time (s)		14.9			17.5			11.4			22.3	
Volume (vph)	100	1075	140	225	560	60	35	810	140	475	1050	260
Peak Hour Factor	0.82	0.82	0.82	0.96	0.96	0.96	0.83	0.83	0.83	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	122	1311	171	245	583	62	42	976	169	490	1082	268
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		8			Free
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	10.0	29.0	29.0	10.0	20.0	20.0	9.0	33.0	33.0	9.0	33.0	
Total Split (s)	18.0	48.0	48.0	13.0	44.0	48.0	19.0	40.0	40.0	19.0	40.0	0.0
Total Split (%)	11%	40%	40%	11%	40%	40%	16%	33%	33%	16%	33%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	0.5	0.5	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	
Act Effct Green (s)	9.0	44.0	44.0	9.0	44.0	44.0	51.0	36.0	36.0	51.0	36.0	120.0
Actuated g/C Ratio	0.08	0.37	0.37	0.08	0.37	0.37	0.43	0.30	0.30	0.43	0.30	1.00
v/c Ratio	0.93	1.02	0.27	0.96	0.45	0.10	0.15	0.25	0.30	1.00	1.02	0.17
Uniform Delay, d1	55.5	36.0	9.6	53.3	26.8	0.0	16.1	33.7	3.8	26.8	42.0	0.0
Delay	99.5	62.2	10.8	88.7	29.1	6.2	19.8	28.0	6.2	55.3	61.7	0.0
LOS	F	E	B	F	C	A	B	C	A	E	E	A
Approach Delay		59.1			43.9			21.1			51.0	
Approach LOS		E			D			C			D	
Queue Length 50th (ft)	86	~556	33	39	178	0	15	60	0	~190	~435	0
Queue Length 95th (ft)	#188	#903	70	#182	232	20	33	76	29	#498	#695	0
Internal Link Dist (ft)		577			664			538			603	
50th Up Block Time (%)												
95th Up Block Time (%)		3%										
Turn Bay Length (ft)	200		200	200		200	200		200	500		200
50th Bay Block Time %		41%										
95th Bay Block Time %		83%			10%					9%	14%	
Queuing Penalty (veh)		51			12					13	34	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 5 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 44.0	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
~ 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: MD 124 (Midcount Highway) & Goshen Road



Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%		
Storage Length (ft)	0		0	200		0	0		800	200		0	0
Storage Lanes	0		0	1		0	1		1	1		0	0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9	9
Satd. Flow (prot)	0	1699	0	1723	1703	0	1747	3470	1568	1736	3464	0	0
Flt Permitted		0.994		0.950	0.961		0.078			0.431			
Satd. Flow (perm)	0	1688	0	1723	1703	0	147	3470	1568	813	3464	0	0
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		44			7				185		1		
Link Speed (mph)		30			30			28			36		
Link Distance (ft)		304			355			883			497		
Travel Time (s)		6.9			8.1			21.5			9.6		
Volume (vph)	5	5	35	370	5	30	5	360	105	30	1360	5	5
Peak Hour Factor	0.72	0.72	0.72	0.76	0.76	0.76	0.82	0.82	0.82	0.86	0.86	0.86	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	0%	0%
Lane Group Flow (vph)	0	63	0	276	257	0	6	439	128	34	1574	0	0
Turn Type	Split			Split			Perm		Perm	pm+pt			
Protected Phases	4	4		8	8			2		1	6		
Permitted Phases							2		2	6			
Detector Phases	4	4		8	8		2	2	2	1	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0		
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0		
Total Split (s)	13.0	13.0	0.0	34.0	34.0	0.0	88.0	88.0	88.0	8.0	73.0	0.0	
Total Split (%)	11%	11%	0%	28%	28%	0%	54%	54%	54%	7%	61%	0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.5	3.5	3.5	3.5	3.5		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	0.5	1.0		
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord		
Act Effct Green (s)		7.7		23.5	23.5		74.2	74.2	74.2	79.0	79.0		
Actuated g/C Ratio		0.06		0.20	0.20		0.62	0.62	0.62	0.66	0.66		
v/c Ratio		0.42		0.82	0.78		0.07	0.20	0.12	0.06	0.69		
Uniform Delay, d1		19.4		46.2	44.2		10.0	11.1	9.0	7.4	13.3		
Delay		23.1		48.5	43.5		13.0	10.2	3.4	8.7	7.1		
LOS		C		D	D		B	B	A	A	A		
Approach Delay		23.1			44.5			8.7			7.1		
Approach LOS		C			D			A			A		
Queue Length 50th (ft)		14		216	193		1	53	6	3	136		
Queue Length 95th (ft)		39		245	222		m5	m58	m0	m12	182		
Internal Link Dist (ft)		224			275			803			357		
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)				200					800	200			
50th Bay Block Time %				7%									
95th Bay Block Time %				15%	8%								
Queuing Penalty (veh)				28	12								

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 115 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 71.7%	ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.	

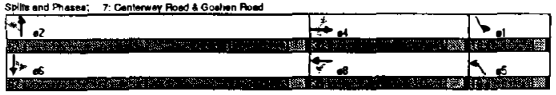
Splits and Phases: 4: Emory Grove Road & Goshen Road



Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		200			0	0
Storage Lanes	1		1	1		1	1		1			0	0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9	9
Satd. Flow (prot)	1752	1845	1568	1752	3431	0	1752	3456	0	1752	3449	0	0
Flt Permitted	0.538			0.950			0.095			0.506			
Satd. Flow (perm)	974	1845	1568	715	3431	0	165	3456	0	926	3449	0	0
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			198		15			14			16		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		374			432			792			367		
Travel Time (s)		8.5			9.8			18.0			8.3		
Volume (vph)	55	235	180	45	210	35	50	200	30	40	1150	135	
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.85	0.85	0.85	0.94	0.94	0.94	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Lane Group Flow (vph)	60	258	198	48	260	0	64	276	0	43	1367	0	
Turn Type	Perm		Perm	Perm			pm+pt			pm+pt			
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4		4	8			2			6			
Detector Phases	4	4	4	8	8		5	2		1	6		
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		4.0	7.0		4.0	7.0		
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	27.0		8.0	27.0		
Total Split (s)	35.0	35.0	35.0	35.0	35.0	0.0	18.0	67.0	0.0	18.0	67.0	0.0	
Total Split (%)	29%	29%	29%	29%	29%	0%	15%	56%	0%	15%	56%	0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None	None	None	None	None		None	Coord		None	Coord		
Act Effct Green (s)	22.7	22.7	22.7	22.7	22.7		85.3	78.2		85.3	78.2		
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.71	0.65		0.71	0.65		
v/c Ratio	0.32	0.74	0.43	0.35	0.39		0.44	0.17		0.06	0.61		
Uniform Delay, d1	42.0	45.9	0.0	42.2	40.0		4.3	7.8		4.1	11.9		
Delay	40.8	45.0	5.1	40.3	39.0		15.9	9.7		25.3	13.2		
LOS	D	D	A	D	D		B	A		C	B		
Approach Delay		39.1			39.2			9.2			13.6		
Approach LOS		D			D			A			B		
Queue Length 50th (ft)	41	191	0	33	88		8	6		8	281		
Queue Length 95th (ft)	77	261	51	66	118		48	15		22	483		
Internal Link Dist (ft)		294			352			712			287		
50th Up Block Time (%)											3%		
95th Up Block Time (%)											19%		
Turn Bay Length (ft)	200		200	200			200			200			
50th Bay Block Time %		1%									12%		
95th Bay Block Time %		21%									28%		
Queuing Penalty (veh)		6									153		

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 60 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 78.4%	ICU Level of Service D

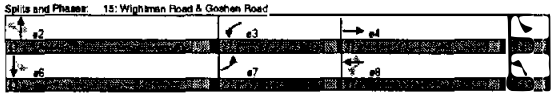
Splits and Phases: 7: Centerway Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	200		0
Storage Lanes			0									0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	3511	0	1796	1580	1597	1744	5011	1607	1823	3434	0
Flt Permitted	0.950			0.189			0.094			0.550		
Satd. Flow (perm)	1770	3511	0	319	1580	1597	173	5011	1607	1054	3434	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			40			180			
Link Speed (mph)		30			30			38			28	
Link Distance (ft)		872			834			415			881	
Travel Time (s)		15.4			14.4			7.4			21.7	
Volume (vph)	235	825	170	170	720	40	40	250	160	160	730	185
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	3%	0%	0%	3%	0%	0%	3%	0%
Lane Group Flow (vph)	237	702	0	183	398	43	48	298	190	178	1017	0
Turn Type	Prot			pmpt		Perm	pmpt		Perm	pmpt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		8	2		2	6		
Detector Phases	7	4		3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0		4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	8.0	28.0		8.0	28.0	28.0	8.0	24.0	24.0	8.0	24.0	
Total Split (s)	27.0	37.0	0.0	37.0	37.0	37.0	8.0	47.0	47.0	8.0	47.0	0.0
Total Split (%)	23%	31%	0%	23%	31%	31%	8%	39%	39%	8%	39%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Coord	Coord	None	Coord	
Act Effct Green (s)	19.8	30.8		30.4	30.8	30.8	53.7	48.8	48.8	53.7	48.8	
Actuated g/C Ratio	0.17	0.26		0.42	0.26	0.26	0.45	0.41	0.41	0.45	0.41	
v/c Ratio	0.81	0.75		0.50	0.83	0.10	0.34	0.15	0.25	0.35	0.72	
Uniform Delay, d1	46.2	39.0		22.5	42.5	23.3	16.9	22.6	0.0	16.8	29.0	
Delay	48.9	39.0		19.4	43.6	11.0	19.4	24.0	3.8	19.6	28.3	
LOS	D	D		B	D	B	B	C	A	B	C	
Approach Delay		41.5			34.2			16.4			27.0	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	177	245		52	284	3	21	55	0	80	234	
Queue Length 95th (ft)	264	315		123	#404	30	42	74	0	m124	306	
Internal Link Dist (ft)		587			554			335			811	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200			200		200	200			200		
50th Bay Block Time %		14%			25%			10%			10%	
95th Bay Block Time %	23%	25%			38%			14%			24%	
Queuing Penalty (veh)	41	47			60			30			30	

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 30.4 — Intersection LOS: C
Intersection Capacity Utilization 79.7% — ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

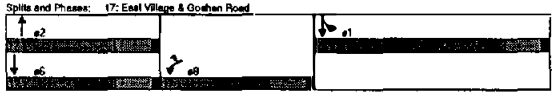
Splits and Phases: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0
Leading Detector (ft)	50	50	50	50		50
Trailing Detector (ft)	0	0	0	0		0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1781	1524	3461	0	1782	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1781	1524	3461	0	1782	1845
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		102	88			
Link Speed (mph)	30		28			28
Link Distance (ft)	556		881			988
Travel Time (s)	12.7		21.7			9.5
Volume (vph)	845	95	570	155	35	930
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	263	102	559	0	38	912
Turn Type	custom				Prot	
Protected Phases	8	8	2		1	6
Permitted Phases	7	8				
Detector Phases	8	8	2		1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	9.0		9.0	9.0
Total Split (s)	17.0	17.0	17.0	0.0	26.0	43.0
Total Split (%)	24%	24%	24%	0%	43%	72%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord		None	Coord
Act Effct Green (s)	12.4	12.4	14.7		20.9	39.5
Actuated g/C Ratio	0.21	0.21	0.25		0.35	0.66
v/c Ratio	0.72	0.25	0.62		0.06	0.75
Uniform Delay, d1	22.5	18.8	18.4		10.0	5.9
Delay	26.0	5.4	7.8		12.5	8.1
LOS	C	A	A		B	A
Approach Delay	20.3		7.8			8.3
Approach LOS	C		A			A
Queue Length 50th (ft)	88	0	118		9	186
Queue Length 95th (ft)	#191	36	184		28	302
Internal Link Dist (ft)	479		811			908
50th Up Block Time (%)						
95th Up Block Time (%)						12%
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						38

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 24 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 10.8 — Intersection LOS: B
Intersection Capacity Utilization 69.5% — ICU Level of Service B
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 17: East Village & Goshen Road



Lane Group							
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			400	
Storage Lanes	2	1	1			1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15			9	
Satd. Flow (prot)	3502	1615	1805	1845	1845	1615	
Flt Permitted	0.950		0.146				
Satd. Flow (perm)	3502	1615	262	1845	1845	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		383				599	
Link Speed (mph)	30			35	33		
Link Distance (ft)	1524			797	803		
Travel Time (s)	34.8			15.5	16.8		
Volume (vph)	790	360	455	820	455	682	
Peak Hour Factor	0.94	0.94	0.89	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	
Lane Group Flow (vph)	840	383	535	995	529	797	
Turn Type		custom	pm+pt			Perm	
Protected Phases	4		5	2	6		
Permitted Phases		4	2			6	
Detector Phases	4	4	5	2	6	6	
Minimum Initial (s)	4.0	4.0	4.0	7.0	7.0	7.0	
Minimum Split (s)	20.0	20.0	9.0	34.0	34.0	34.0	
Total Split (s)	36.0	36.0	38.0	84.0	48.0	48.0	
Total Split (%)	30%	30%	32%	70%	40%	40%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag			Lead		Lag	Lag	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	Coord	Coord	Coord	
Act Effct Green (s)	31.7	31.7	80.5	80.4	45.3	45.3	
Actuated g/C Ratio	0.26	0.26	0.67	0.67	0.38	0.38	
v/c Ratio	0.91	0.54	0.99	0.79	0.76	0.61	
Uniform Delay, d1	42.6	9.0	27.4	13.7	32.5	7.2	
Delay	48.3	9.8	33.7	14.6	34.8	11.8	
LOS	D	A	C	B	C	B	
Approach Delay	34.8			21.4	29.9		
Approach LOS	C			C	C		
Queue Length 50th (ft)	324	0	304	478	348	348	
Queue Length 95th (ft)	#435	78	#442	596	477	348	
Internal Link Dist (ft)	1444			717	723		
50th Up Block Time (%)							
95th Up Block Time (%)							
Turn Bay Length (ft)			200			400	
50th Bay Block Time %			21%	22%			
95th Bay Block Time %			34%	24%	12%		
Queuing Penalty (veh)			266	121	48		

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 39 (33%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 25.1	Intersection LOS: C
Intersection Capacity Utilization 91.5%	ICU Level of Service E
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%				2%	
Storage Length (ft)	200			200	200		200	200			200	200	200
Storage Lanes	1			1	2		1	1			1	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9		15		9
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	1752	4986	1552	1770	3540	1584	
Flt Permitted	0.950			0.950			0.227			0.111			
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	418	4986	1552	207	3540	1584	
Right Turn on Red			Yes			Yes			Yes				Yes
Satd. Flow (RTOR)			112			177			282				124
Link Speed (mph)		30			30			35				30	
Link Distance (ft)		857			706			818				653	
Travel Time (s)		19.0			17.5			12.0				20.1	
Volume (vph)	285	795	125	425	850	270	100	1196	320	135	800	146	
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.95	0.95	0.95	0.92	0.92	0.92	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Lane Group Flow (vph)	320	893	140	457	914	290	105	1258	337	147	652	158	
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt			Free
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8	2		2	6			Free
Detector Phases	7	4	4	3	8	8	5	2	2	1	6		
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	9.0	33.0	33.0	9.0	33.0		
Total Split (s)	30.0	36.0	36.0	30.0	36.0	36.0	12.0	40.0	40.0	12.0	40.0	0.0	
Total Split (%)	25%	30%	30%	25%	30%	30%	10%	33%	33%	10%	33%	0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord		
Act Effct Green (s)	25.1	33.7	33.7	25.1	33.7	33.7	45.1	57.1	57.1	45.1	57.1	120.0	
Actuated g/C Ratio	0.21	0.28	0.28	0.21	0.28	0.28	0.38	0.51	0.51	0.38	0.51	1.00	
v/c Ratio	0.87	0.90	0.27	0.64	0.93	0.51	0.43	0.82	0.50	0.81	0.80	0.10	
Uniform Delay, d1	49.8	41.3	8.9	43.3	41.8	13.1	22.4	26.2	14.8	45.1	26.1	0.0	
Delay	54.4	46.7	9.4	43.4	49.0	13.9	19.8	31.1	4.1	46.5	31.6	0.0	
LOS	D	D	A	D	D	B	B	C	A	D	C	A	
Approach Delay		44.7			41.3			25.1			28.7		
Approach LOS		D			D			C			C		
Queue Length 50th (ft)	239	350	16	186	381	66	41	242	17	77	182	0	
Queue Length 95th (ft)	#384	#455	54	222	#464	156	m53	m332	m23	#177	265	0	
Internal Link Dist (ft)		577			626			538			603		
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)	200		200	200		200	200		200	200		200	
50th Bay Block Time %	17%	32%			33%			7%			1%		
95th Bay Block Time %	42%	41%		10%	43%			24%			33%		
Queuing Penalty (veh)	130	115		23	173			16			24		

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 16 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 34.1	Intersection LOS: D
Intersection Capacity Utilization 86.8%	ICU Level of Service D
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%		
Storage Length (ft)	0		0	200		0	0		600	200		0	
Storage Lanes	0		0	1		0	1		1	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	30		50	50		50	50	50	50	50		
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	0	1735	0	1723	1534	0	1787	3470	1599	1790	3467	0	
Flt Permitted		0.990		0.950	0.978		0.328			0.076			
Satd. Flow (perm)	0	1734	0	1723	1534	0	618	3470	1599	144	3467	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		22			41				406		2		
Link Speed (mph)		30			30			24			32		
Link Distance (ft)		304			554			693			447		
Travel Time (s)		6.9			12.6			25.1			10.0		
Volume (vph)	5	4	18	208	4	75	20	1540	390	45	960	10	
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	0.89	0.89	0.89	0.77	0.77	0.77	
Heavy Vehicles (%)	0%	0%	0%	6%	0%	0%	0%	3%	0%	0%	3%	0%	
Lane Group Flow (vph)	0	36	0	179	181	0	21	1396	406	58	870	0	
Turn Type	Split			Split			Perm		Perm	custom			
Protected Phases	4	4		8	8			2		1	15	6	
Permitted Phases							2		2	6			
Detector Phases	4	4		8	8		2	2	2	1	14		
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0		7.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	5.0		11.0	
Total Split (s)	13.0	13.0	0.0	27.0	27.0	0.0	66.0	66.0	66.0	14.0	94.0	0.0	80.0
Total Split (%)	11%	11%	0%	23%	23%	0%	55%	55%	55%	12%	78%	0%	67%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	5.0		3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0		1.0	
Lead/Lag							Lag	Lag	Lag	Lead			
Lead-Lag Optimize?							Yes	Yes	Yes	Yes			
Recall Mode	None	None		None	None		Coord	Coord	Coord	None		Coord	
Act Effct Green (s)		7.5		17.2	17.2		73.8	73.8	73.8	87.8	87.8		
Actuated g/C Ratio		0.06		0.14	0.14		0.62	0.62	0.62	0.73	0.73		
v/c Ratio		0.28		0.73	0.67		0.06	0.65	0.38	0.24	0.34		
Uniform Delay, d1		21.2		49.2	47.4		6.8	13.9	9.0	4.9	6.3		
Delay		29.0		48.5	36.7		4.8	5.5	0.0	11.9	5.9		
LOS		C		D	D		A	A	A	B	A		
Approach Delay		29.0			42.6			5.0			6.5		
Approach LOS		C			D			A			A		
Queue Length 50th (ft)		10		141	109		2	30	0	11	112		
Queue Length 95th (ft)		30		183	152		m6	576	m1	34	107		
Internal Link Dist (ft)		224			274			803			367		
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)				200						600	200		
50th Bay Block Time %													
95th Bay Block Time %													
Queuing Penalty (veh)													

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 21 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 12.0	Intersection LOS: A
Intersection Capacity Utilization 62.2%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 4: Emory Grove Road & Goshen Road

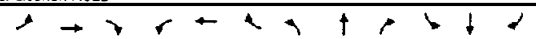


Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0	
Storage Lanes	1		1	1		0	1		0	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50		50	50		50	50		
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	1752	1845	1564	1752	3459	0	1752	3477	0	1752	3428	0	
Flt Permitted	0.078			0.420			0.208			0.075			
Satd. Flow (perm)	694	1845	1564	766	3459	0	348	3477	0	140	3428	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			119				8			7			
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		574			432			791			368		
Travel Time (s)		13.0			9.8			18.0			7.0		
Volume (vph)	130	270	115	65	370	35	190	1135	65	50	530	90	
Peak Hour Factor	0.97	0.97	0.97	0.87	0.87	0.87	0.89	0.89	0.89	0.86	0.86	0.86	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Lane Group Flow (vph)	134	278	119	75	465	0	213	1343	0	58	761	0	
Turn Type	Perm		Perm	Perm			pm+pt			pm+pt			
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4		4	8			2			6			
Detector Phases	4	4	4	8	8		5	2		1	6		
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		4.0	7.0		4.0	7.0		
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	27.0		8.0	27.0		
Total Split (s)	43.0	43.0	43.0	43.0	43.0	0.0	15.0	82.0	0.0	15.0	82.0	0.0	
Total Split (%)	36%	36%	36%	36%	36%	0%	13%	62%	0%	13%	62%	0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None	None	None	None	None		None	Coord		None	Coord		
Act Effct Green (s)		31.1	31.1	31.1	31.1		76.9	99.7		76.9	99.7		
Actuated g/C Ratio		0.26	0.26	0.26	0.26		0.64	0.83		0.64	0.83		
v/c Ratio		0.74	0.28	0.24	0.47		0.50	0.47		0.51	0.26		
Uniform Delay, d1		40.8	38.7	0.0	38.4		37.2	7.4		17.1	6.7		
Delay		38.7	37.9	5.2	54.2		36.2	5.8		9.4	6.7		
LOS		D	D	A	C		D	A		A	A		
Approach Delay		36.8			35.9			9.2			13.9		
Approach LOS		D			D			A			B		
Queue Length 50th (ft)		94	184	0	47		156	18		14	144		
Queue Length 95th (ft)		161	253	41	83		185	25		33	207		
Internal Link Dist (ft)			494				352			711			
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)		200		200	200			200			200		
50th Bay Block Time %								3%					
95th Bay Block Time %								18%			4%		
Queuing Penalty (veh)								12					

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 98 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 74.7%	ICU Level of Service C

Splits and Phases: 7: Centerway Road & Goshen Road

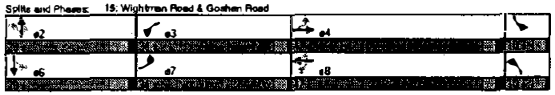


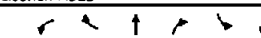


Lane Configurations																
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%				1%			-2%				
Storage Length (ft)	200		0	200		0	200	200		0	200		0	0		0
Storage Lanes	1		0	1		0	1	1		1	1		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15			9	15		9	9		9
Satd. Flow (prot)	1770	3508	0	1795	1880	1567	1744	5011	1807	1625	3425		0	0		0
Flt Permitted	0.093			0.325			0.216			0.160						
Satd. Flow (perm)	173	3508	0	618	1880	1567	396	5011	1807	307	3425		0	0		0
Right Turn on Red			Yes			Yes			Yes			Yes				Yes
Satd. Flow (RTOR)			44			110			250			27				
Link Speed (mph)		30			30			32				25				
Link Distance (ft)		474			534			414				891				
Travel Time (s)		10.8			12.1			8.8				24.3				
Volume (vph)	480	805	135	315	580	165	140	895	220	90	330	55				
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.88	0.88	0.88	0.81	0.81	0.81				
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	3%	3%				
Lane Group Flow (vph)	511	864	0	366	674	180	159	1017	250	111	524	0				
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt						
Protected Phases	7	4		3	8		5	2		1	6					
Permitted Phases	4			8		8	2		2	6						
Detector Phases	7	4		3	8	8	5	2	2	1	6					
Minimum Initial (s)	4.0	7.0		4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0					
Minimum Split (s)	8.0	28.0		8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0					
Total Split (s)	34.0	47.0	0.0	34.0	47.0	47.0	10.0	28.0	28.0	10.0	28.0	0.0				
Total Split (%)	28%	39%	0%	28%	39%	39%	8%	24%	24%	8%	24%	0%				
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0					
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0					
Lead/Lag																
Lead-Lag Optimize?																
Recall Mode	None	None		None	None	None	None	Coord	Coord	None	Coord					
Act Effct Green (s)	73.0	43.0		73.0	43.0	43.0	31.0	25.0	25.0	31.0	25.0					
Actuated g/C Ratio	0.61	0.36		0.61	0.36	0.36	0.26	0.21	0.21	0.26	0.21					
v/c Ratio	1.01	0.44		0.55	1.01	0.28	0.84	0.67	0.47	0.72	0.71					
Uniform Delay, d1	15.2	29.8		9.8	35.5	19.3	39.3	47.1	9.0	32.8	41.7					
Delay	69.1	27.1		10.1	68.0	11.2	76.1	62.3	5.0	43.2	39.3					
LOS	E	C		B	E	B	E	E	A	D	D					
Approach Delay		47.0			42.5			53.8			40.0					
Approach LOS		D			D			D			D					
Queue Length 50th (ft)	~354	160		118	~542	34	96	259	0	53	144					
Queue Length 95th (ft)	#584	#211		180	#732	82	#198	#356	62	#108	199					
Internal Link Dist (ft)		394			454			334			811					
50th Up Block Time (%)					4%											
95th Up Block Time (%)	2%				28%			6%								
Turn Bay Length (ft)	200			200		200	200				200					
50th Bay Block Time %	31%				42%			23%								
95th Bay Block Time %	58%	5%			50%			34%			1%					
Queuing Penalty (veh)	127	13			170			75								

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 46.8	Intersection LOS: D
Intersection Capacity Utilization 103.5%	ICU Level of Service F
~: 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: 15: Wightman Road & Goshen Road

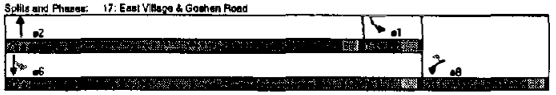




Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1751	1823	3340	0	1732	1845
Flt Permitted	0.950				0.967	
Satd. Flow (perm)	1741	1823	3340	0	1724	1845
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		72	110			
Link Speed (mph)	30		29			28
Link Distance (ft)	940		991			359
Travel Time (s)	12.7		20.9			10.2
Volume (vph)	190	65	1075	485	60	925
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	211	72	1714	0	75	406
Turn Type		Perm			prot	
Protected Phases	8		2		1	6
Permitted Phases		8				
Detector Phases	8	8	2		1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	9.0		9.0	9.0
Total Split (s)	28.0	28.0	79.0	0.0	13.0	92.0
Total Split (%)	23%	23%	66%	0%	11%	77%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Coord		None	Coord
Act Effct Green (s)	19.8	19.8	82.0		92.4	92.4
Actuated g/C Ratio	0.16	0.16	0.68		0.77	0.77
v/c Ratio	0.74	0.22	0.74		0.34	0.29
Uniform Delay, d1	47.7	0.0	13.7		0.0	3.1
Delay	47.2	9.3	8.7		17.4	4.6
LOS	D	A	A		B	A
Approach Delay	37.5		8.7			6.6
Approach LOS	D		A			A
Queue Length 50th (ft)	157	0	206		12	79
Queue Length 95th (ft)	229	99	m230		34	114
Internal Link Dist (ft)	480		911			309
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 104 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 10.2	Intersection LOS: B
Intersection Capacity Utilization 75.6%	ICU Level of Service C
m: Volume may be metered by upstream signal.	

Splits and Phases: 17: East Village & Goshen Road



Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2015 - 2 Lane Improved (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:01.9	*00:01.9*
From Odendhal Road to Midcounty Hwy	00:49.0	00:47.1
Midcounty Highway	01:10.5	*00:21.5*
From Midcounty Hwy to Emory Grove Rd	01:35.3	00:24.8
Emory Grove Road	01:43.1	*00:07.8*
From Emory Grove Rd to Centerway Rd	02:44.2	01:01.1
Centerway Road	02:47.0	*00:02.8*
From Centerway Rd to Snouffer School Rd	04:57.8	02:10.8
Snouffer School Road	05:16.3	*00:18.5*
From Snouffer School Rd to East Village Ave	05:40.7	00:24.4
East Village Avenue	05:46.7	*00:06.0*
From East Village Ave to Warfield Rd	06:33.0	00:46.3
Warfield Road	06:33.0	*00:00.0*
TOTAL MOVING TIME		05:34.5
TOTAL STOPPED TIME		00:58.5
TOTAL TRAVEL TIME	**06:33.0**	**06:33.0**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:47.7	00:47.7
East Village Avenue	00:53.9	*00:06.2*
From East Village Ave to Snouffer School Rd	01:25.7	00:31.8
Snouffer School Road	01:47.5	*00:21.8*
From Snouffer School Rd to Centerway Rd	03:55.9	02:08.4
Centerway Road	04:06.1	*00:10.2*
From Centerway Rd to Emory Grove Rd	05:13.0	01:06.9
Emory Grove Road	05:18.5	*00:05.5*
From Emory Grove Rd to Midcounty Hwy	06:02.8	00:44.3
Midcounty Highway	06:50.3	*00:47.5*
From Midcounty Hwy to Odendhal Rd	07:38.7	00:48.4
Odendhal Road	07:42.6	*00:03.9*
TOTAL MOVING TIME		06:07.5
TOTAL STOPPED TIME		01:35.1
TOTAL TRAVEL TIME	**07:42.6**	**07:42.6**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2015 - 2 Lane Improved (PM) Date 01/08/03

NORTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:11.2	*00:11.2*
From Odendhal Road to Midcounty Hwy	01:05.7	00:54.5
Midcounty Highway	01:29.6	*00:23.9*
From Midcounty Hwy to Emory Grove Rd	02:01.2	00:31.6
Emory Grove Road	02:06.2	*00:05.0*
From Emory Grove Rd to Centerway Rd	03:20.9	01:14.7
Centerway Road	03:25.1	*00:04.2*
From Centerway Rd to Snouffer School Rd	06:08.3	02:43.2
Snouffer School Road	06:56.2	*00:47.9*
From Snouffer School Rd to East Village Ave	07:23.0	00:26.8
East Village Avenue	07:28.2	*00:05.2*
From East Village Ave to Warfield Rd	08:14.5	00:46.3
Warfield Road	08:14.5	*00:00.0*
TOTAL MOVING TIME		06:37.1
TOTAL STOPPED TIME		01:37.4
TOTAL TRAVEL TIME	**08:14.5**	**08:14.5**

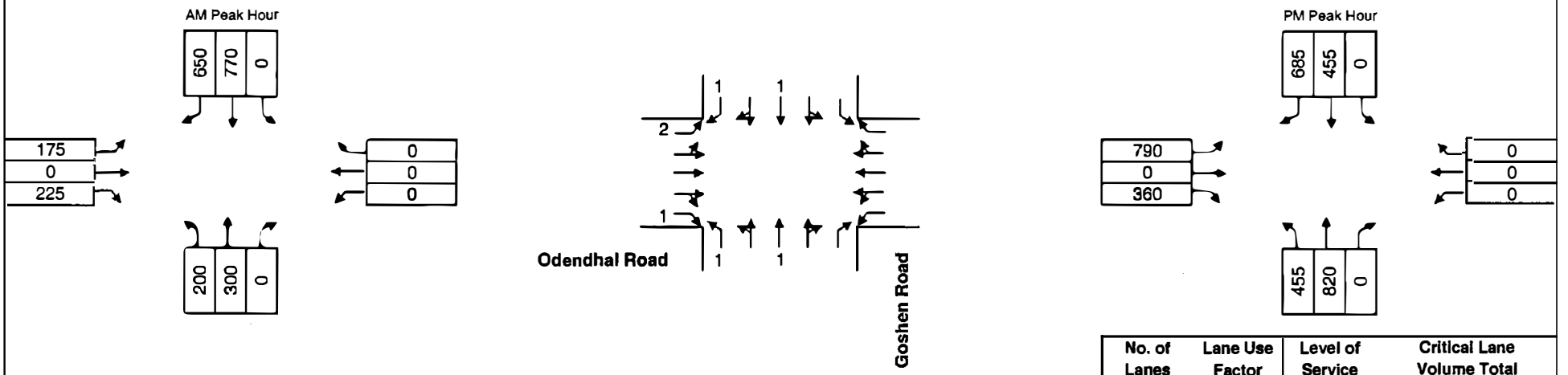
SOUTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:54.2	00:54.2
East Village Avenue	00:57.7	*00:03.5*
From East Village Ave to Snouffer School Rd	01:37.2	00:39.5
Snouffer School Road	02:07.4	*00:30.2*
From Snouffer School Rd to Centerway Rd	04:23.2	02:15.8
Centerway Road	04:34.2	*00:11.0*
From Centerway Rd to Emory Grove Rd	05:49.1	01:14.9
Emory Grove Road	05:53.6	*00:04.5*
From Emory Grove Rd to Midcounty Hwy	06:26.0	00:32.4
Midcounty Highway	06:50.3	*00:24.3*
From Midcounty Hwy to Odendhal Rd	07:45.5	00:55.2
Odendhal Road	08:12.3	*00:26.8*
TOTAL MOVING TIME		06:32.0
TOTAL STOPPED TIME		01:40.3
TOTAL TRAVEL TIME	**08:12.3**	**08:12.3**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2015 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	300	1	300	0	300	970
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	770	1	770	200	970	
	SBR	545	1	545	200	745	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	105
	EBR	25	1	25	0	25	
	EBL	175	0.6	105		105	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,075
						Level Of Service	B
						v/c ratio	0.67

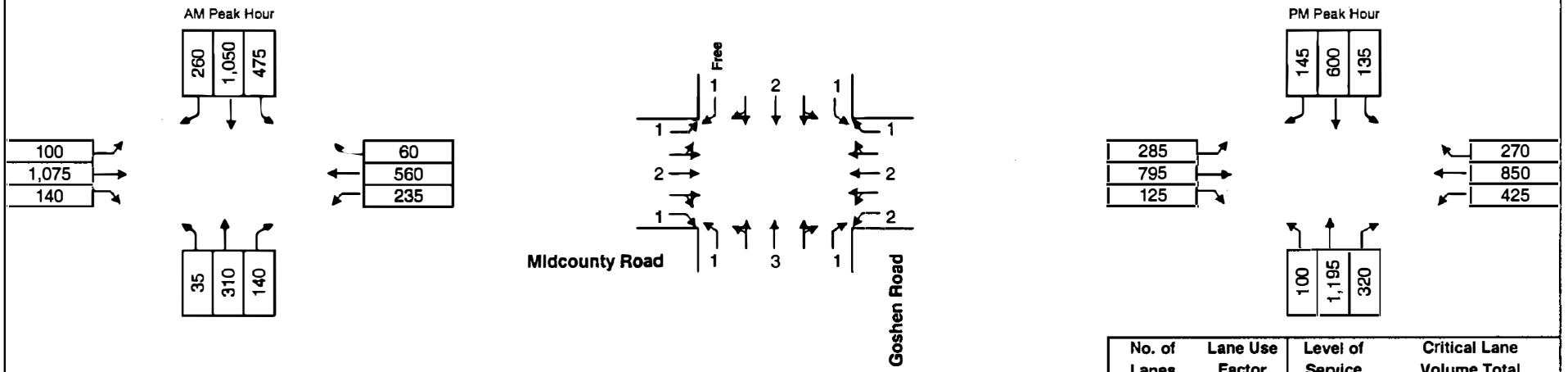
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	820	1	820	0	820	910
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	455	1	455	455	910	
	SBR	211	1	211	455	666	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	474
	EBR	0	1	0	0	0	
	EBL	790	0.6	474		474	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,384
						Level Of Service	D
						v/c ratio	0.87

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2015 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	310	0.4	124	475	599	613
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,050	0.55	578	35	613	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	1,075	0.55	591	141	732	732
	EBR	105	1	105	141	246	
	EBL	0	1	0		0	
	WB	560	0.55	308	100	408	
	WBR	0	1	0	0	0	
	WBL	0	0.6	0		0	
							1,345
						Level Of Service	D
						v/c ratio	0.84

PM Peak Hour

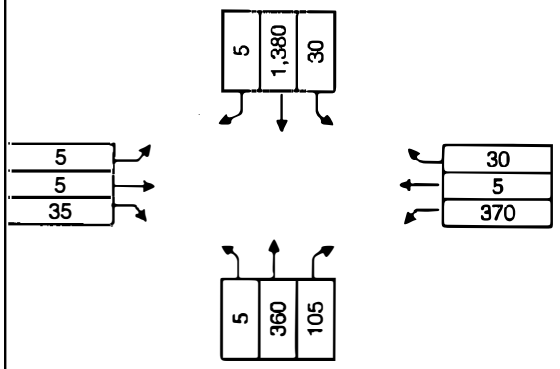
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,195	0.4	478	135	613	613
	NBR	65	1	65	135	200	
	NBL	0	1	0		0	
	SB	600	0.55	330	100	430	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	795	0.55	437	255	692	753
	EBR	25	1	25	255	280	
	EBL	0	1	0		0	
	WB	850	0.55	468	285	753	
	WBR	135	1	135	285	420	
	WBL	0	0.6	0		0	
							1,366
						Level Of Service	D
						v/c ratio	0.85

Turning Movement Summary and Level of Service

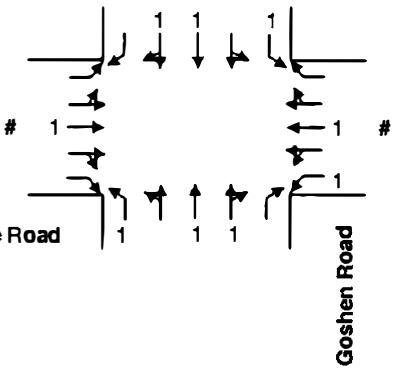
Count Date: 2/6/02 Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2015 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522

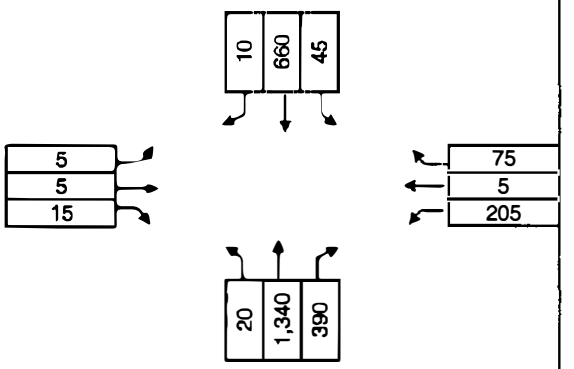
AM Peak Hour



# Indicates shared lane for all movements



PM Peak Hour



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	465	0.55	256	30	286	767
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,385	0.55	762	5	767	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	45	1	45	0	45	45
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	405	0.55	223	0	223	223
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,035
						Level Of Service	B
						v/c ratio	0.65

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,730	0.55	952	45	997	997
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	670	0.55	369	20	389	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	25	1	25	0	25	25
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	285	0.55	157	0	157	157
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,179
						Level Of Service	C
						v/c ratio	0.74

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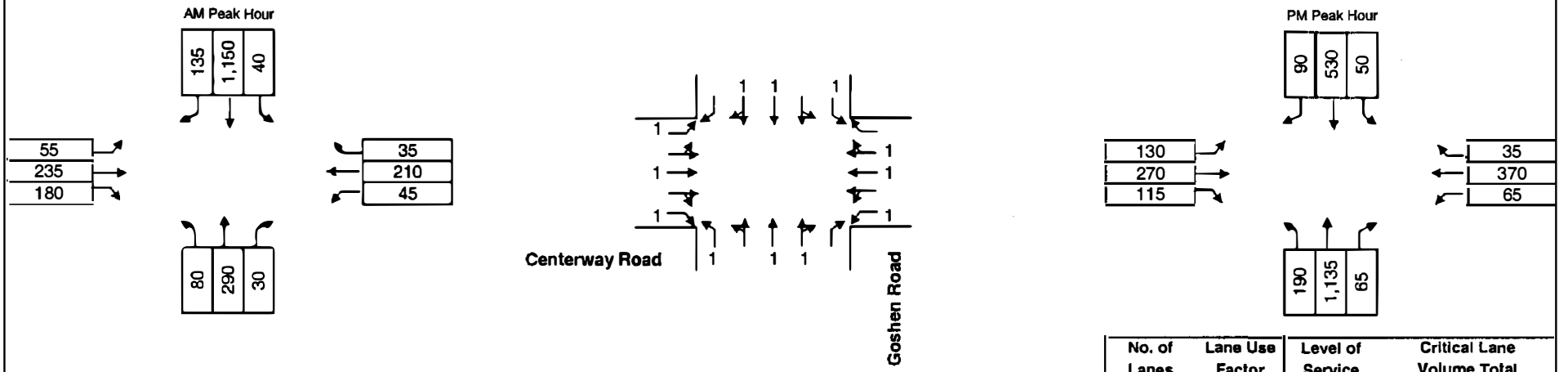
Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2015 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

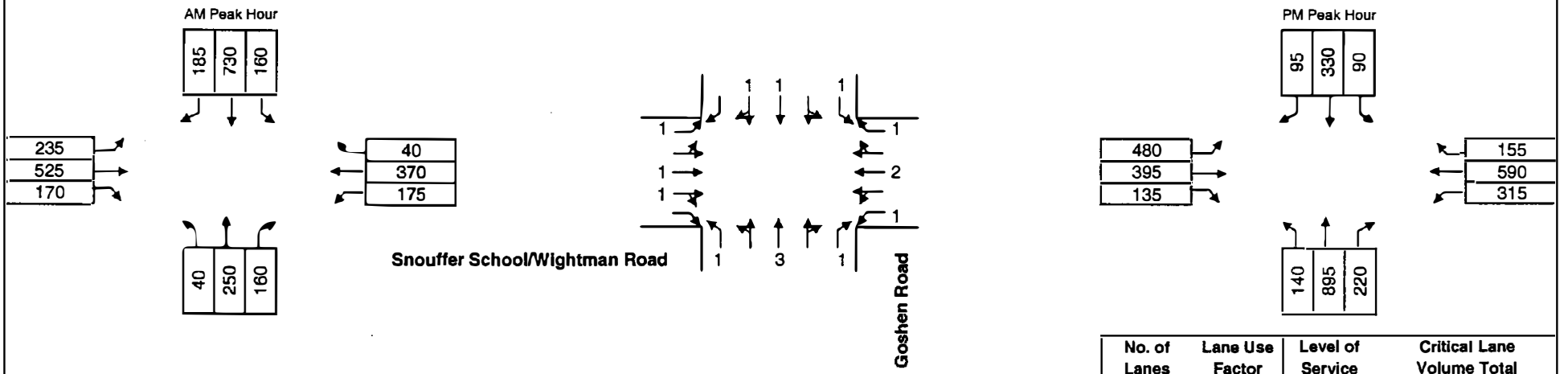
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	320	0.55	176	40	216	787
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,285	0.55	707	80	787	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	235	1	235	45	280	280
	EBR	100	1	100	45	145	
	EBL	0	1	0		0	
	WB	245	0.55	135	55	190	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,067
						Level Of Service	B
						v/c ratio	0.67

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,200	0.55	660	50	710	710
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	620	0.55	341	190	531	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	270	1	270	65	335	353
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	405	0.55	223	130	353	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,063
						Level Of Service	B
						v/c ratio	0.66

Turning Movement Summary and Level of Service

Count Date: 2/13/02 | Location: Goshen Road/Snouffer School/Wightman Road
Conditions/ Design Year: 2015 - 2 Lane Improved
Computed by: MAM | Date: 9/9/2002 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	250	0.4	100	160	260	543
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	915	0.55	503	40	543	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	695	0.55	382	175	557	557
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	370	0.55	204	235	439	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,100
						Level Of Service	B
						v/c ratio	0.69

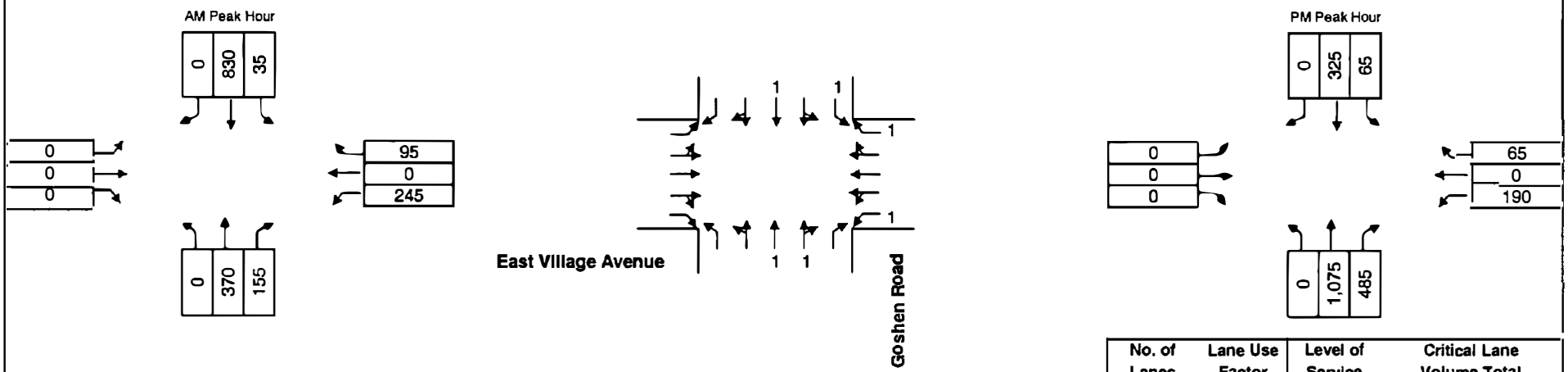
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	895	0.4	358	90	448	448
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	425	0.55	234	140	374	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	530	0.55	292	315	607	805
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	590	0.55	325	480	805	
	WBR	65	1	65	480	545	
	WBL	0	1	0		0	
							1,253
						Level Of Service	C
						v/c ratio	0.78

Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/East Village Avenue
Conditions/
Design Year: 2015 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	525	0.55	289	35	324	830
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	830	1	830	0	830	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	245
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	60	1	60	0	60	
	WBL	245	1	245		245	
							1,075
						Level Of Service	B
						v/c ratio	0.67

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,560	0.55	858	65	923	923
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	325	1	325	0	325	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	190
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	190	1	190		190	
							1,113
						Level Of Service	B
						v/c ratio	0.70

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Unsignalized Intersection CLV Eqivalent Calculations

LOS	HCS			CLV			LOS
A	0	10	10	0	1000	1000	A
B	10	15	5	1000	1150	150	B
C	15	25	10	1150	1300	150	C
D	25	35	10	1300	1450	150	D
E	35	50	15	1450	1600	150	E
F	50	190	140	1600	3000	1400	F

2015 2 Lanes

#2 Willow Creek Drive

	Delay					CLV	LOS
AM	192.7	50	1600	140	1400	3,000	F
PM	45.2	35	1450	15	150	1,552	E

#5 Severn Road

	Delay					CLV	LOS
AM	46.7	35	1450	15	150	1,567	E
PM	25.1	25	1300	10	150	1,302	D

#6 Lindenhouse Road

	Delay					CLV	LOS
AM	874.0	50	1600	140	1400	3,000	F
PM	29.1	25	1300	10	150	1,362	D

#8 Rock Elm Way

	Delay					CLV	LOS
AM	23.3	15	1150	10	150	1,275	C
PM	28.8	25	1300	10	150	1,357	D

#9 Framingham Drive

	Delay					CLV	LOS
AM	55.8	50	1600	140	1400	1,658	F
PM	30.6	25	1300	10	150	1,384	D

#10 Turtle Dove Terrace

	Delay					CLV	LOS
AM	41.2	35	1450	15	150	1,512	E
PM	40.0	35	1450	15	150	1,500	E

#11 Stewartown Road

	Delay					CLV	LOS
AM	40.1	35	1450	15	150	1,501	E
PM	30.9	25	1300	10	150	1,389	D

#12 Bramble Bush Drive

	Delay					CLV	LOS
AM	26.3	25	1300	10	150	1,320	D
PM	28.6	25	1300	10	150	1,354	D

#13 Rothbury Drive

	Delay					CLV	LOS
AM	377.4	50	1600	140	1400	3,000	F
PM	190.7	50	1600	140	1400	3,000	F

#14 Goshen Crossing

	Delay					CLV	LOS
AM	31.4	25	1300	10	150	1,396	D
PM	953.9	50	1600	140	1400	3,000	F

#17 Mother of God School

	Delay					CLV	LOS
AM	434.2	50	1600	140	1400	3,000	F
PM	23.1	15	1150	10	150	1,272	C

#18 Warfield Road

	Delay					CLV	LOS
AM	117.0	50	1600	140	1400	2,270	F
PM	423.8	50	1600	140	1400	3,000	F

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Willow Creek Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*470*	*0*	*0*	*1415*	*10*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*534*	*0*	*0*	*1489*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*15*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.61*	*1.00*	*0.61*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*24*	*0*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*32*	
C (m) (vph)	*82*						*45*	
v/c	*0.06*						*0.71*	
95% queue length	*0.19*						*2.75*	
Control Delay	*51.7*						*192.7*	
LOS	*F*						*F*	
Approach Delay	--	--				*192.7*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Willow Creek*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1605*	*0*	*0*	*1135*	*15*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*5*	*1783*	*0*	*0*	*1233*	*16*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*9*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*27*	
C (m) (vph)	*564*						*116*	
v/c	*0.01*						*0.23*	
95% queue length	*0.03*						*0.85*	
Control Delay	*11.4*						*45.2*	
LOS	*B*						*E*	
Approach Delay	--	--				*45.2*		
Approach LOS	--	--				*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street:	*Severn Road*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*390*	*0*	*0*	*1400*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*5*	*443*	*0*	*0*	*1590*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*27*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*45*	
C (m) (vph)	*416*						*130*	
v/c	*0.01*						*0.35*	
95% queue length	*0.04*						*1.40*	
Control Delay	*13.8*						*46.7*	
LOS	*B*						*E*	
Approach Delay	--	--				*46.7*		
Approach LOS	--	--				*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Severn Road*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*1405*	*0*	*0*	*705*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*15*	*1478*	*0*	*0*	*801*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*5*	*0*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*15*						*27*	
C (m) (vph)	*828*						*206*	
v/c	*0.02*						*0.13*	
95% queue length	*0.06*						*0.44*	
Control Delay	*9.4*						*25.1*	
LOS	*A*						*D*	
Approach Delay	--	--				*25.1*		
Approach LOS	--	--				*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Lindenhouse Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*395*	*5*	*5*	*1370*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.84*	*0.84*	*0.88*
Hourly Flow Rate, HFR	*0*	*420*	*5*	*5*	*1630*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.60*	*1.00*	*0.60*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*58*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*66*				
C (m) (vph)		*1129*		*29*				
v/c		*0.00*		*2.28*				
95% queue length		*0.01*		*7.80*				
Control Delay		*8.2*		*874.0*				
LOS		*A*		*F*				
Approach Delay	--	--	*874.0*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Lindenhouse Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1380*	*30*	*10*	*700*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1380*	*30*	*10*	*700*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*10*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*10*		*20*				
C (m) (vph)		*481*		*169*				
v/c		*0.02*		*0.12*				
95% queue length		*0.06*		*0.39*				
Control Delay		*12.6*		*29.1*				
LOS		*B*		*D*				
Approach Delay	--	--	*29.1*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*375*	*5*	*5*	*1315*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.80*	*0.80*	*0.91*	*0.91*	*0.88*
Hourly Flow Rate, HFR	*0*	*468*	*6*	*5*	*1445*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.58*	*1.00*	*0.58*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*17*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*25*				
C (m) (vph)		*1083*		*222*				
v/c		*0.00*		*0.11*				
95% queue length		*0.01*		*0.38*				
Control Delay		*8.3*		*23.3*				
LOS		*A*		*C*				
Approach Delay	--	--		*23.3*				
Approach LOS	--	--		*C*				

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1295*	*5*	*5*	*665*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1295*	*5*	*5*	*665*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*10*				
C (m) (vph)		*353*		*161*				
v/c		*0.01*		*0.06*				
95% queue length		*0.04*		*0.20*				
Control Delay		*15.3*		*28.8*				
LOS		*C*		*D*				
Approach Delay	--	--	*28.8*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*370*	*10*	*5*	*1210*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.82*	*0.82*	*0.87*	*0.87*	*0.88*
Hourly Flow Rate, HFR	*0*	*451*	*12*	*5*	*1390*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*110*	*0*	*45*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.76*	*1.00*	*0.76*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*144*	*0*	*59*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*5*	*144*		*59*			
C (m) (vph)		*1093*	*182*		*613*			
v/c		*0.00*	*0.79*		*0.10*			
95% queue length		*0.01*	*5.35*		*0.32*			
Control Delay		*8.3*	*74.0*		*11.5*			
LOS		*A*	*F*		*B*			
Approach Delay	--	--	*55.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Framingham Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1210*	*90*	*30*	*630*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.82*	*0.82*	*0.88*
Hourly Flow Rate, HFR	*0*	*1287*	*95*	*36*	*768*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*40*	*0*	*25*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.94*	*1.00*	*0.90*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*42*	*0*	*27*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*36*	*42*		*27*			
C (m) (vph)		*493*	*166*		*203*			
v/c		*0.07*	*0.25*		*0.13*			
95% queue length		*0.24*	*0.96*		*0.45*			
Control Delay		*12.9*	*33.9*		*25.4*			
LOS		*B*	*D*		*D*			
Approach Delay	--	--	*30.6*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*385*	*20*	*10*	*1155*	*10*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*12*	*469*	*24*	*10*	*1269*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*0*	*10*	*10*	*0*	*30*
Peak-Hour Factor, PHF	*0.73*	*0.73*	*0.73*	*0.54*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*41*	*0*	*13*	*18*	*0*	*33*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*12*	*10*		*54*			*51*	
C (m) (vph)	*550*	*1081*		*152*			*183*	
v/c	*0.02*	*0.01*		*0.36*			*0.28*	
95% queue length	*0.07*	*0.03*		*1.48*			*1.09*	
Control Delay	*11.7*	*8.4*		*41.2*			*32.1*	
LOS	*B*	*A*		*E*			*D*	
Approach Delay	--	--	*41.2*			*32.1*		
Approach LOS	--	--	*E*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*35*	*1165*	*35*	*20*	*620*	*15*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.84*	*0.84*	*0.84*
Hourly Flow Rate, HFR	*37*	*1252*	*37*	*23*	*738*	*17*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*20*	*0*	*15*	*15*	*0*	*20*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.83*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*24*	*0*	*18*	*18*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*37*	*23*		*42*			*41*	
C (m) (vph)	*865*	*545*		*144*			*180*	
v/c	*0.04*	*0.04*		*0.29*			*0.23*	
95% queue length	*0.13*	*0.13*		*1.13*			*0.84*	
Control Delay	*9.3*	*11.9*		*40.0*			*30.8*	
LOS	*A*	*B*		*E*			*D*	
Approach Delay	--	--	*40.0*			*30.8*		
Approach LOS	--	--	*E*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street:	*Sterwartown Road*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*30*	*375*	*0*	*0*	*1115*	*20*
Peak-Hour Factor, PHF	*0.77*	*0.77*	*0.77*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*38*	*487*	*0*	*0*	*1225*	*21*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*5*	*20*	*0*	*50*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*15*	*7*	*7*	*26*	*0*	*66*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*38*	*0*		*29*			*92*	
C (m) (vph)	*566*	*1086*		*131*			*196*	
v/c	*0.07*	*0.00*		*0.22*			*0.47*	
95% queue length	*0.22*	*0.00*		*0.80*			*2.26*	
Control Delay	*11.8*	*8.3*		*40.1*			*38.6*	
LOS	*B*	*A*		*E*			*E*	
Approach Delay	--	--	*40.1*			*38.6*		
Approach LOS	--	--	*E*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street: *Sterwartown Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*60*	*1125*	*10*	*0*	*590*	*30*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*60*	*1125*	*10*	*0*	*590*	*30*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*0*	*25*	*0*	*60*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*5*	*0*	*28*	*0*	*60*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*60*	*0*		*10*			*88*	
C (m) (vph)	*970*	*623*		*149*			*284*	
v/c	*0.06*	*0.00*		*0.07*			*0.31*	
95% queue length	*0.20*	*0.00*		*0.21*			*1.28*	
Control Delay	*9.0*	*10.8*		*30.9*			*23.3*	
LOS	*A*	*B*		*D*			*C*	
Approach Delay	--	--	*30.9*			*23.3*		
Approach LOS	--	--	*D*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/bramble Bush Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Bramble Bush Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*390*	*10*	*5*	*1105*	*10*
Peak-Hour Factor, PHF	*0.77*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*0*	*458*	*11*	*5*	*1214*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*10*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*32*	*10*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*LT*					
v (vph)		*5*	*42*					
C (m) (vph)		*1087*	*211*					
v/c		*0.00*	*0.20*					
95% queue length		*0.01*	*0.72*					
Control Delay		*8.3*	*26.3*					
LOS		*A*	*D*					
Approach Delay	--	--	*26.3*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Bramble Bush Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*1110*	*40*	*20*	*585*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1110*	*40*	*20*	*585*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*20*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*35*	*20*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*LT*					
v (vph)		*20*	*55*					
C (m) (vph)		*604*	*207*					
v/c		*0.03*	*0.27*					
95% queue length		*0.10*	*1.03*					
Control Delay		*11.2*	*28.6*					
LOS		*B*	*D*					
Approach Delay	--	--	*28.6*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Rothbury Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*90*	*300*	*10*	*5*	*930*	*80*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*94*	*315*	*10*	*5*	*978*	*84*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*1*
Configuration	*L*		*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*15*	*110*	*0*	*170*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*10*	*5*	*15*	*115*	*0*	*178*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*LT*		*R*
v (vph)	*94*	*5*		*30*		*115*		*178*
C (m) (vph)	*652*	*1229*		*29*		*200*		*307*
v/c	*0.14*	*0.00*		*1.03*		*0.57*		*0.58*
95% queue length	*0.50*	*0.01*		*3.42*		*3.13*		*3.42*
Control Delay	*11.4*	*7.9*		*377.4*		*44.9*		*31.7*
LOS	*B*	*A*		*F*		*E*		*D*
Approach Delay	--	--	*377.4*			*36.9*		
Approach LOS	--	--	*F*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*PM Peak*

Project Description *199-73-17*

East/West Street: *Rothbury Drive*

Intersection Orientation: *North-South*

Vehicle Volumes and Adjustments

Major Street	Northbound					
Movement	1	2				
	L	T				
Volume	*215*	*895*				
Peak-Hour Factor, PHF	*0.93*	*0.93*				
Hourly Flow Rate, HFR	*231*	*962*				
Percent Heavy Vehicles	*3*	--				
Median Type						
RT Channelized						
Lanes	*1*	*1*				
Configuration	*L*					
Upstream Signal		*0*				

Minor Street	Westbound					
Movement	7	8				
	L	T				
Volume	*5*	*5*				
Peak-Hour Factor, PHF	*0.65*	*0.65*				
Hourly Flow Rate, HFR	*7*	*7*				
Percent Heavy Vehicles	*0*	*0*				
Percent Grade (%)		*0*				
Flared Approach		*N*				
Storage		*0*				
RT Channelized						
Lanes	*0*	*1*				
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB						
Movement	1	4						
Lane Configuration	*L*	*L*						
v (vph)	*231*	*15*						
C (m) (vph)	*941*	*699*						
v/c	*0.25*	*0.02*						
95% queue length	*0.97*	*0.07*						
Control Delay	*10.1*	*10.3*						
LOS	*B*	*B*						
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Goshen Crossing*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*45*	*380*	*6*	*3*	*910*	*165*
Peak-Hour Factor, PHF	*0.80*	*0.86*	*0.84*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*56*	*441*	*0*	*0*	*1034*	*187*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*70*	*1*	*105*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.80*	*0.82*	*0.80*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*87*	*0*	*131*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*56*						*218*	
C (m) (vph)	*534*						*347*	
v/c	*0.10*						*0.63*	
95% queue length	*0.35*						*4.05*	
Control Delay	*12.5*						*31.4*	
LOS	*B*						*D*	
Approach Delay	--	--				*31.4*		
Approach LOS	--	--				*D*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2015 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Goshen Crossing*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*90*	*1020*	*6*	*3*	*540*	*240*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.84*	*0.88*	*0.73*	*0.73*
Hourly Flow Rate, HFR	*109*	*1243*	*0*	*0*	*739*	*328*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*235*	*1*	*95*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.83*	*0.82*	*0.83*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*283*	*0*	*114*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*109*						*397*	
C (m) (vph)	*643*						*134*	
v/c	*0.17*						*2.96*	
95% queue length	*0.61*						*36.91*	
Control Delay	*11.7*						*953.9*	
LOS	*B*						*F*	
Approach Delay	--	--					*953.9*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*345*	*105*	*95*	*740*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*20*	*460*	*140*	*102*	*795*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*120*	*5*	*75*	*0*	*0*	*5*
Peak-Hour Factor, PHF	*0.46*	*0.45*	*0.45*	*0.25*	*0.25*	*0.25*
Hourly Flow Rate, HFR	*260*	*11*	*166*	*0*	*0*	*20*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*20*	*102*		*437*			*20*	
C (m) (vph)	*835*	*987*		*236*			*391*	
v/c	*0.02*	*0.10*		*1.85*			*0.05*	
95% queue length	*0.07*	*0.34*		*30.50*			*0.16*	
Control Delay	*9.4*	*9.1*		*434.2*			*14.7*	
LOS	*A*	*A*		*F*			*B*	
Approach Delay	--	--	*434.2*			*14.7*		
Approach LOS	--	--	*F*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1115*	*20*	*10*	*365*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*1115*	*20*	*10*	*365*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*20*	*0*	*5*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*20*	*0*	*5*	*10*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	*7*	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*5*	*10*		*30*			*15*	
C (m) (vph)	*1205*	*623*		*229*			*392*	
v/c	*0.00*	*0.02*		*0.13*			*0.04*	
95% queue length	*0.01*	*0.05*		*0.44*			*0.12*	
Control Delay	*8.0*	*10.9*		*23.1*			*14.5*	
LOS	*A*	*B*		*C*			*B*	
Approach Delay	--	--	*23.1*			*14.5*		
Approach LOS	--	--	*C*			*B*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	April 2003
Analysis Time Period	AM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2015 - 2 Lane (Alts. 2 & 3)

Project ID 199-73-17

East/West Street: Warfield Road North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	0	70	40	95	80	5
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	55	260	105	15	700	5
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.91		0.90		0.79		0.92	
Flow Rate	119		198		530		781	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.5		0.1		0.0	
Prop. Right-Turns	0.4		0.0		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	7.99		7.99		7.99		7.99	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.11		0.18		0.47		0.69	
hd, final value	7.99		7.99		7.99		7.99	
x, final value	0.26		0.43		0.94		1.39	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	6.0		6.0		6.0		6.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	369		444		565		781	
Delay	13.83		16.75		48.54		204.58	
LOS	B		C		E		F	
Approach: Delay	13.83		16.75		48.54		204.58	
LOS	B		C		E		F	
Intersection Delay	116.99							
Intersection LOS	F							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	April 2003
Analysis Time Period	PM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2015 - 2 Lane (Alts. 2 & 3)

Project ID 199-73-17

East/West Street: Warfield Road | North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	10	150	20	100	95	10
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	40	930	165	15	255	20
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.77		0.76		0.90		0.79	
Flow Rate	231		269		1260		365	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.0		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	8.27		8.27		8.27		8.27	

Departure Headway and Service Time

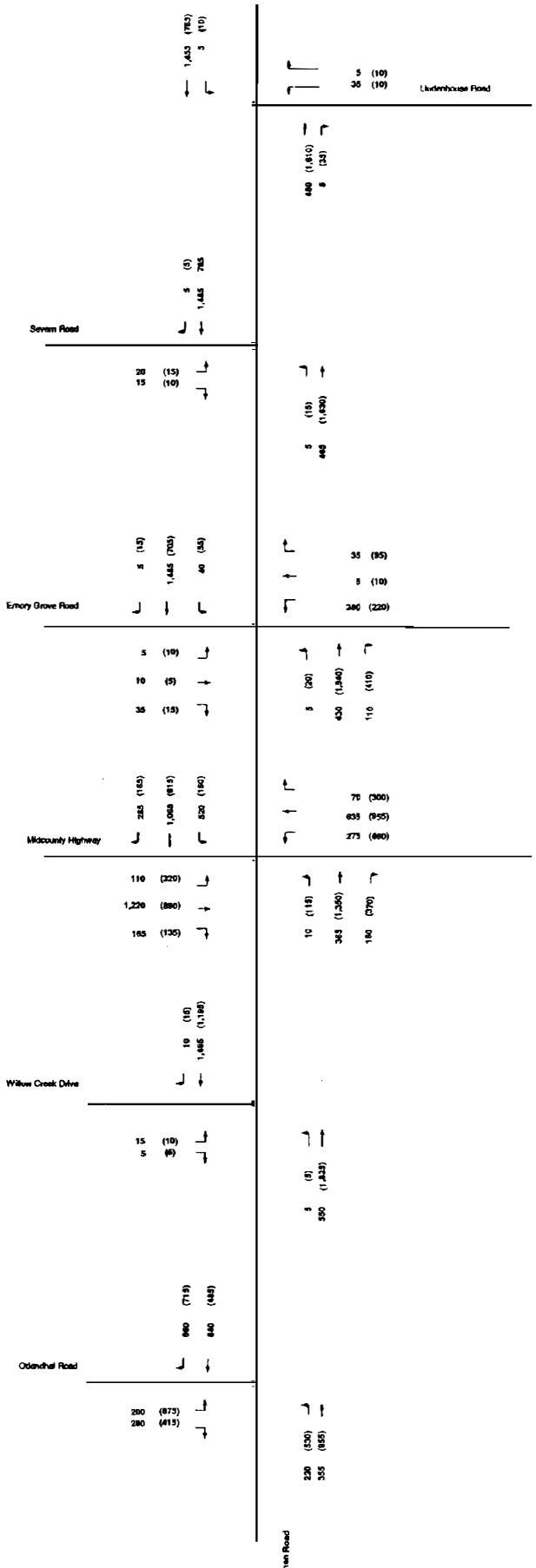
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.21		0.24		1.12		0.32	
hd, final value	8.27		8.27		8.27		8.27	
x, final value	0.53		0.61		2.50		0.77	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	6.3		6.3		6.3		6.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	405		417		1260		463	
Delay	20.23		23.34		696.94		31.52	
LOS	C		C		F		D	
Approach: Delay	20.23		23.34		696.94		31.52	
LOS	C		C		F		D	
Intersection Delay	423.81							
Intersection LOS	F							

APPENDIX F: 2015 – 4 Lane Capacity Analyses w/ TSM Improvements

Turning Movement Volumes
Synchro
Critical Lane Volume
Highway Capacity Software



NOTE:

AM (PM)

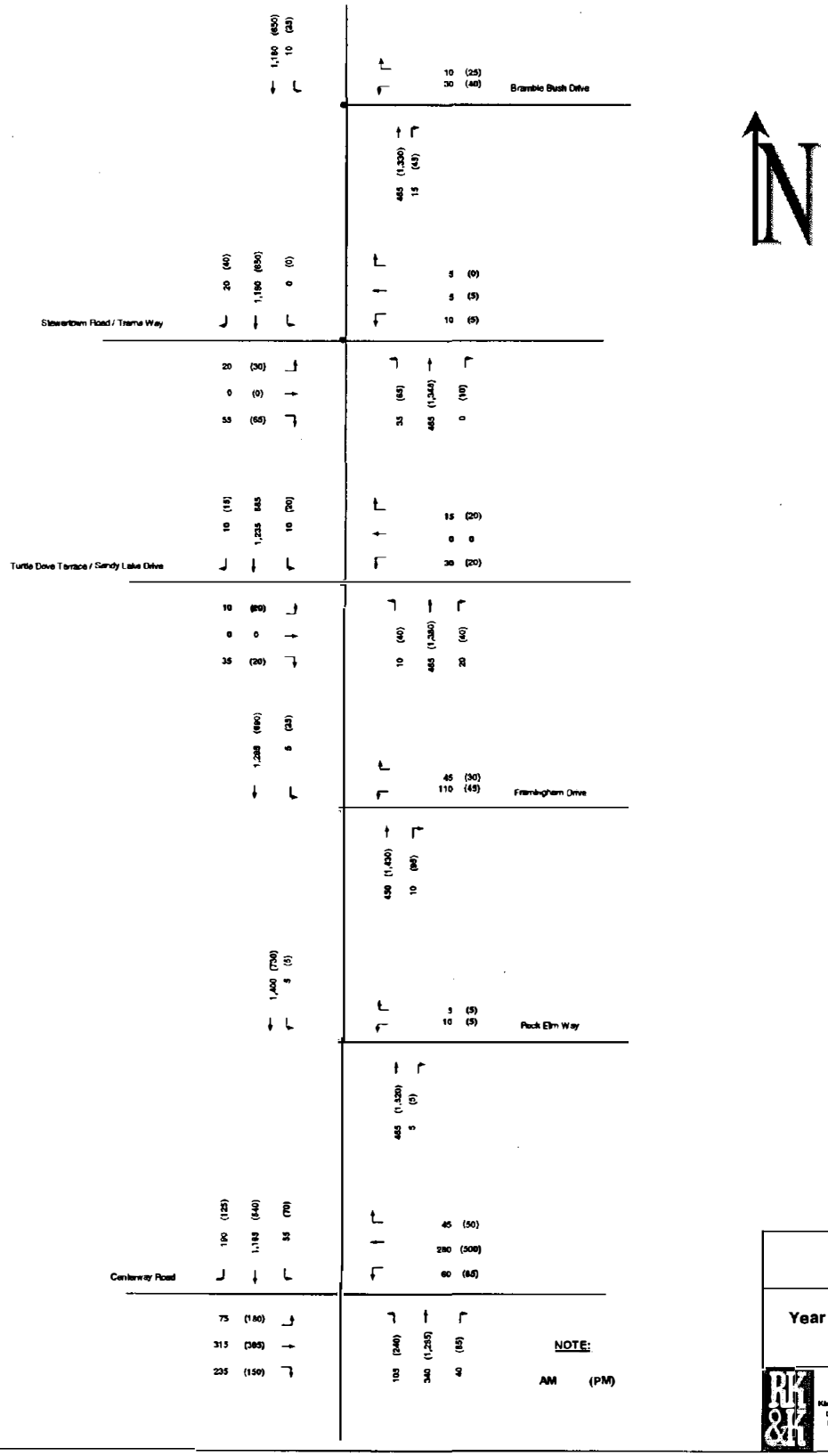
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2015 4-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2003

Sheet 1 of 3



GOSHEN ROAD
Traffic Study
Montgomery County, MD

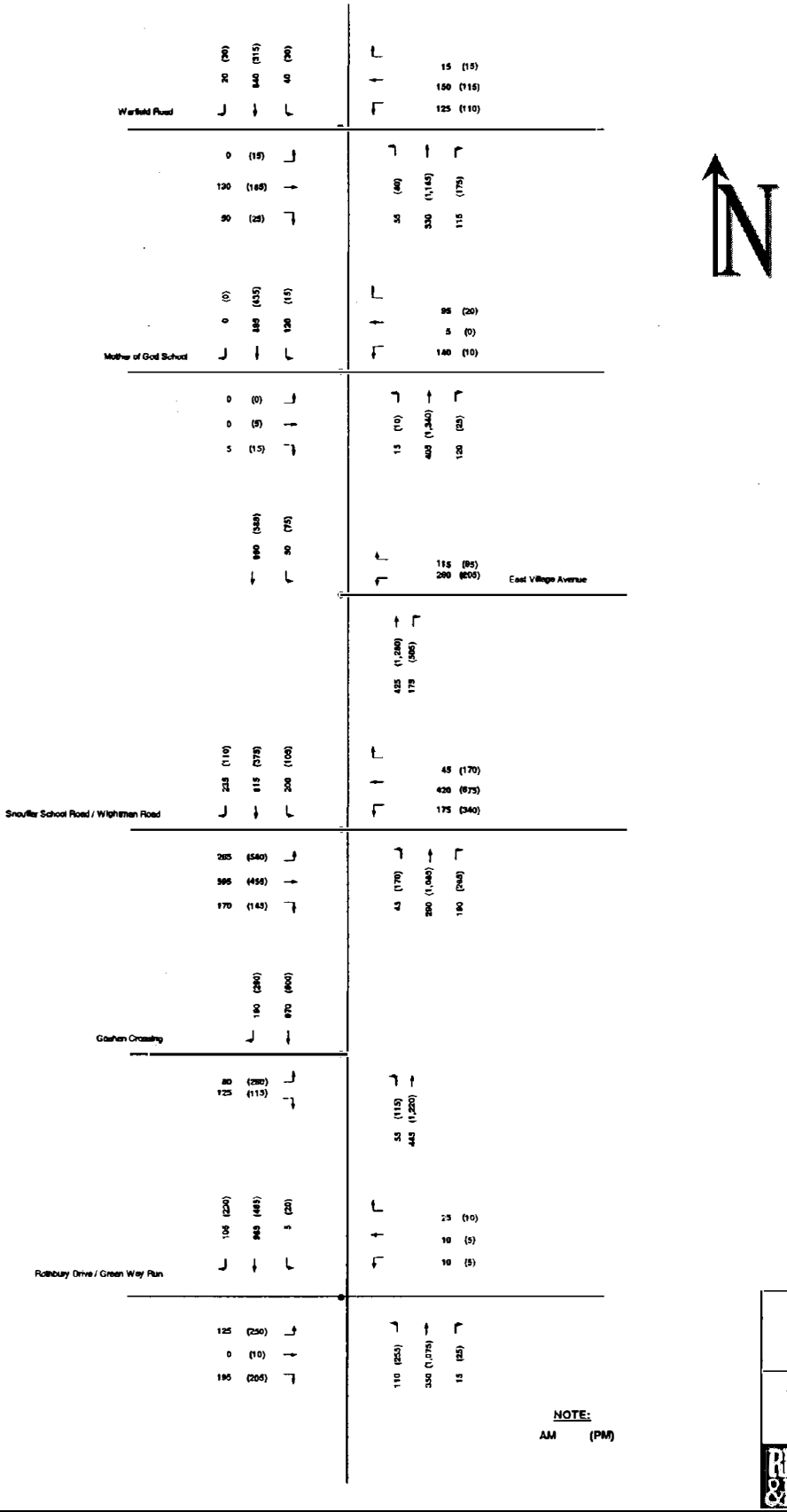
Year 2015 4-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2002

Sheet 2 of 3

North End of Corridor



GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2015 4-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

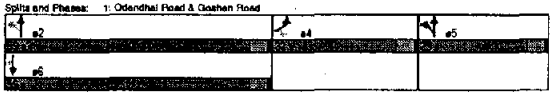
Date: April 2003

Sheet 3 of 3

Lane Group							
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	200			200	
Storage Lanes	0	1	1			1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15			9	
Satd. Flow (prot)	3502	1615	1805	3505	3505	1615	
Flt Permitted	0.950		0.183				
Satd. Flow (perm)	3502	1615	367	3505	3505	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		308				733	
Link Speed (mph)	30			40	40		
Link Distance (ft)	1524			796	803		
Travel Time (s)	34.6			13.6	14.4		
Volume (vph)	200	280	220	355	840	680	
Peak-hour Factor	0.91	0.91	0.87	0.92	0.90	0.90	
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	
Lane Group Flow (vph)	220	308	253	386	933	733	
Turn Type		Perm	custom			Perm	
Protected Phases		4		5	2		
Permitted Phases			4			6	
Detector Phases		4	4	5	2	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	34.0	34.0	9.0		36.0	36.0	
Total Split (s)	32.0	32.0	29.0	24.0	58.0	58.0	
Total Split (%)	27%	27%	24%	20%	48%	48%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Coord	Coord	Coord	
Act Effct Green (s)	13.8	25.8	54.2	82.2	82.2	82.2	
Actuated g/C Ratio	0.12	0.22	0.46	0.69	0.69	0.69	
v/c Ratio	0.55	0.87	0.80	0.14	0.39	0.55	
Uniform Delay, d1	50.1	0.0	2.5	2.2	7.8	0.0	
Delay	49.8	5.4	9.7	2.4	2.0	1.6	
LOS	D	A	A	A	A	A	
Approach Delay	22.8			2.9	1.9		
Approach LOS	C			A	A		
Queue Length 50th (ft)	84	0	34	33	48	0	
Queue Length 95th (ft)	120	83	59	43	m45	m20	
Internal Link Dist (ft)	1444			716	723		
50th Up Block Time (%)							
95th Up Block Time (%)							
Turn Bay Length (ft)			200			200	
50th Bay Block Time %							
95th Bay Block Time %							
Queuing Penalty (veh)							

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 56.1%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

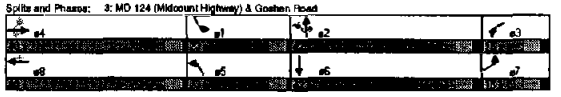
Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Group												
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	300		200	200		200	500		200
Storage Lanes	1		1	2		1	1		1	2		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	3539	1568	3400	3505	1568	1752	3505	1552	3454	3540	1554
Flt Permitted	0.221		0.850			0.850	0.165					
Satd. Flow (perm)	408	3539	1568	3400	3505	1568	302	3505	1552	3454	3540	1554
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142			78			182			137
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		967			788			819			863	
Travel Time (s)		14.9			17.5			10.0			19.6	
Volume (vph)	110	1220	165	375	830	70	10	385	150	820	1065	285
Peak-hour Factor	0.82	0.82	0.82	0.90	0.90	0.90	0.83	0.83	0.81	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	134	1488	201	286	661	78	12	440	193	536	1098	294
Turn Type	pmpt		Perm	Prot		Perm	pmpt		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8	2		2			Free
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	9.0	39.0	39.0	9.0	39.0	
Total Split (s)	13.0	40.0	40.0	15.0	40.0	40.0	23.0	42.0	42.0	23.0	42.0	0.0
Total Split (%)	13%	33%	33%	13%	33%	33%	19%	35%	35%	19%	35%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	None	None
Act Effct Green (s)	47.0	36.0	36.0	11.0	36.0	36.0	57.0	38.0	38.0	19.0	38.0	120.0
Actuated g/C Ratio	0.39	0.30	0.30	0.09	0.30	0.30	0.48	0.32	0.32	0.16	0.32	1.00
v/c Ratio	0.47	0.98	0.35	0.92	0.63	0.14	0.04	0.26	0.32	0.99	0.98	0.19
Uniform Delay, d1	25.6	41.7	30.0	54.0	36.2	30.5	14.7	30.7	4.8	50.3	40.6	0.0
Delay	21.9	55.5	10.7	75.1	36.6	7.1	9.8	19.9	1.0	77.2	48.8	0.0
LOS	C	E	B	E	D	A	A	B	A	E	D	A
Approach Delay		48.1			45.3			14.0			49.0	
Approach LOS		D			D			B			D	
Queue Length 50th (ft)	64	419	31	115	232	0	3	80	0	208	456	0
Queue Length 95th (ft)	99	429	77	#197	287	35	9	72	7	#330	#567	0
Internal Link Dist (ft)		577			588			539			803	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200		200	200		200	200		200	500		200
50th Bay Block Time %		35%			11%							
95th Bay Block Time %		36%			24%						13%	
Queuing Penalty (veh)		48			50						35	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 81 (68%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 43.9	Intersection LOS: D
Intersection Capacity Utilization 83.9%	ICU Level of Service D
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road





Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			2%			1%		
Storage Length (ft)	0		0	200		0	0		300	200		0	
Storage Lanes	0		0	1		0	1		1	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	0	1721	0	1723	1868	0	1747	3470	1568	1736	3444	0	
Flt Permitted		0.995		0.950	0.961		0.085			0.385			
Satd. Flow (perm)	0	1721	0	1723	1868	0	122	3470	1568	728	3444	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		40			6				184			447	
Link Speed (mph)		30			30			33			41		
Link Distance (ft)		304			355			853			1457		
Travel Time (s)		6.9			8.1			18.2			24.2		
Volume (vph)	5	100	35	380	5	35	5	430	110	40	1835	5	
Peak Hour Factor	0.72	0.72	0.72	0.79	0.79	0.79	0.82	0.82	0.82	0.88	0.88	0.88	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%	
Lane Group Flow (vph)	0	70	0	286	267	0	6	524	134	45	1858	0	
Turn Type	Split			Split			Perm		Perm	pm+pt			
Protected Phases	4	4		8	8			2		1	6		
Permitted Phases							2		2	6			
Detector Phase	4	4		8	8		2	2	2	1	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0		
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0		
Total Split (s)	12.0	12.0	0.0	34.0	34.0	0.0	86.0	86.0	86.0	8.0	74.0	0.0	
Total Split (%)	10%	10%	0%	28%	28%	0%	55%	55%	55%	7%	62%	0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0		
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?													
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord		
Act Effct Green (s)		7.5		24.1	24.1		72.2	72.2	72.2	78.6	78.6		
Actuated g/C Ratio		0.06		0.20	0.20		0.60	0.60	0.60	0.66	0.66		
v/c Ratio		0.48		0.83	0.77		0.08	0.25	0.13	0.09	0.73		
Uniform Delay, d1		52.6		46.9	43.9		10.7	12.0	0.0	7.6	14.2		
Delay		27.6		45.3	43.2		16.0	13.3	4.5	5.2	5.1		
LOS		C		D	D		B	B	A	A	A		
Approach Delay		27.9			44.3			11.2			6.0		
Approach LOS		C			D			B			A		
Queue Length 50th (ft)		14		224	201		2	91	0	6	123		
Queue Length 95th (ft)		37		253	230		m4	121	0	m1	184		
Internal Link Dist (ft)		224			275			903			387		
50th Up Block Time (%)													
95th Up Block Time (%)											2%		
Turn Bay Length (ft)				200						300	200		
50th Bay Block Time %					10%			1%					
95th Bay Block Time %					37%			11%			2%		
Queuing Penalty (veh)					35			15			1		

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 74.8%	ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 4: Emory Grove Road & Goshen Road

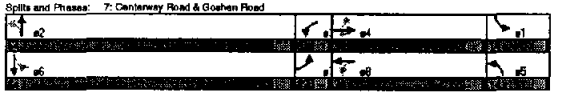




Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		0	200		0	
Storage Lanes	1		1	1		1	1		0	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50		
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	1752	1845	1585	1752	3431	0	1752	3449	0	1752	3431	0	
Flt Permitted	0.455			0.230			0.087			0.452			
Satd. Flow (perm)	799	1845	1585	425	3431	0	164	3449	0	834	3431	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			206		14			15			22		
Link Speed (mph)		30			30			44			45		
Link Distance (ft)		374			432			792			367		
Travel Time (s)		8.5			9.8			12.3			5.6		
Volume (vph)	75	315	235	60	280	45	105	340	40	55	1185	190	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.85	0.85	0.85	0.84	0.84	0.84	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	7%	7%	3%	3%	3%	3%	
Lane Group Flow (vph)	82	346	258	64	346	0	124	447	0	59	1441	0	
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt			
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4		4	8			2			6			
Detector Phase	7	4	4	3	8		5	2		1	6		
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0		
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0		8.0	27.0		8.0	27.0		
Total Split (s)	8.0	34.0	34.0	8.0	34.0	0.0	14.0	64.0	0.0	14.0	64.0	0.0	
Total Split (%)	7%	28%	28%	7%	28%	0%	12%	53%	0%	12%	53%	0%	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None	None	None	None	None		None	Coord		None	Coord		
Act Effct Green (s)	90.8	29.8	29.8	90.8	26.0		75.0	66.1		75.0	66.1		
Actuated g/C Ratio	0.76	0.22	0.22	0.76	0.22		0.63	0.55		0.63	0.55		
v/c Ratio	0.35	0.85	0.61	0.44	0.45		0.68	0.83		0.10	0.78		
Uniform Delay, d1	33.5	44.7	7.6	32.3	38.6		11.6	13.7		7.6	20.9		
Delay	32.1	45.9	8.3	31.4	38.1		26.3	7.8		8.8	22.4		
LOS	C	D	A	C	D		C	A		A	C		
Approach Delay		20.5			37.3			11.8			21.0		
Approach LOS		C			D			B			C		
Queue Length 50th (ft)	48	254	82	56	115		41	85		16	424		
Queue Length 95th (ft)	85	#363	108	69	158		86	117		34	515		
Internal Link Dist (ft)		294			352			712			287		
50th Up Block Time (%)											16%		
95th Up Block Time (%)		18%									21%		
Turn Bay Length (ft)	200		200	200			200			200			
50th Bay Block Time %		60%									25%		
95th Bay Block Time %		36%									28%		
Queuing Penalty (veh)		23									885		

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 4 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 23.9	Intersection LOS: C
Intersection Capacity Utilization 82.8%	ICU Level of Service D
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 7: Centerway Road & Goshen Road

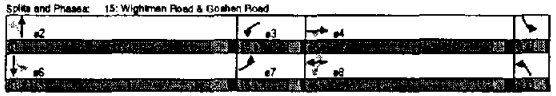


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	200		0
Storage Lanes	2		1	2		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3434	1919	1631	1795	3592	1607	1744	4770	0	1823	3420	0
Flt Permitted	0.950			0.095			0.085			0.378		
Satd. Flow (perm)	3434	1919	1631	180	3592	1607	156	4770	0	722	3420	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138			48				142		
Link Speed (mph)		30			30			43			33	
Link Distance (ft)		677			634			415			891	
Travel Time (s)		15.4			14.4			6.6			18.4	
Volume (vph)	285	503	172	178	430	45	45	290	190	200	850	235
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	3%	3%
Lane Group Flow (vph)	288	901	172	191	462	48	54	571	0	222	1167	0
Turn Type	Prot		Perm	pmtpl		Perm	pmtpl			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4	4	8		8	2			6		
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	8.0	30.0	30.0	8.0	30.0	30.0	8.0	23.0		8.0	23.0	
Total Split (s)	15.0	48.0	48.0	15.0	48.0	48.0	8.0	51.0	0.0	8.0	51.0	0.0
Total Split (%)	13%	34%	34%	13%	34%	34%	7%	43%	0%	7%	43%	0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	11.0	40.9	40.9	51.8	40.9	40.9	92.1	48.1		52.1	48.1	
Actuated g/C Ratio	0.06	0.24	0.24	0.30	0.24	0.24	0.45	0.40		0.43	0.40	
v/c Ratio	0.85	0.92	0.27	0.83	0.37	0.08	0.45	0.29		0.83	0.84	
Uniform Delay, d1	83.7	57.9	5.3	74.9	46.8	9.0	37.8	16.8		22.7	31.8	
Delay	84.9	45.5	7.3	40.3	29.8	7.4	18.7	17.3		19.1	27.9	
LOS	F	D	A	D	C	A	B	B		B	C	
Approach Delay		44.2			31.1			17.4			26.8	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	107	436	0	92	136	0	23	75		89	239	
Queue Length 95th (ft)	#179	#651	#7	#215	182	0	44	93		124	355	
Internal Link Dist (ft)		597			554			335			811	
50th Up Block Time (%)												
95th Up Block Time (%)		13%										
Turn Bay Length (ft)	200				200		200			200		
50th Bay Block Time %		38%									14%	
95th Bay Block Time %		48%			33%						27%	
Queuing Penalty (veh)		114			14						48	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 57 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 92.1% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Wightman Road & Goshen Road

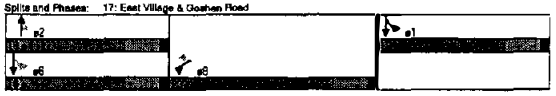


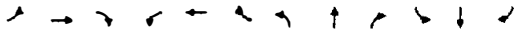
Lane Group	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1781	1823	3505	1568	1752	3505
Flt Permitted	0.950				0.386	
Satd. Flow (perm)	1781	1823	3505	1568	718	3505
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		124		194		
Link Speed (mph)	30		30			33
Link Distance (ft)	439		891			3884
Travel Time (s)	12.7		18.4			80
Volume (vph)	390	115	425	175	50	990
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	280	124	452	186	55	1088
Turn Type		Perm		Perm	custom	
Protected Phases	1		2			6
Permitted Phases		6		2	6	
Detector Phases	5	5	2	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	23.0	23.0	18.0	18.0	19.0	37.0
Total Split (%)	38%	38%	30%	30%	32%	62%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord	Coord	None	Coord
Act Effct Green (s)	14.9	14.9	18.1	18.1	33.1	37.1
Actuated g/C Ratio	0.25	0.25	0.30	0.30	0.55	0.62
v/c Ratio	0.64	0.25	0.43	0.31	0.09	0.50
Uniform Delay, d1	20.1	15.0	15.9	14.6	4.7	6.3
Delay	19.6	3.8	9.4	1.8	4.3	5.1
LOS	B	A	A	A	A	A
Approach Delay	14.8		7.2			5.1
Approach LOS	B		A			A
Queue Length 50th (ft)	90	0	110	0	8	84
Queue Length 95th (ft)	148	43	183	49	31	309
Internal Link Dist (ft)	479		811			3804
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 18 (30%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 7.5 Intersection LOS: A
Intersection Capacity Utilization 52.2% ICU Level of Service A
95th percentile volume exceeds capacity, queue may be longer.

Splits and Phases: 17: East Village & Goshen Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			-1%	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1645	1787	0	1752	1818	0	1744	3368	0	1781	3508	0
Flt Permitted				0.400			0.246			0.056		
Satd. Flow (perm)	1645	1787	0	738	1818	0	452	3368	0	104	3508	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			4			78			4	
Link Speed (mph)		30			30			33			33	
Link Distance (ft)		1116			1218			388			730	
Travel Time (s)		25.4			27.7			8.2			15.1	
Volume (vph)	0	130	60	125	156	15	15	530	115	40	840	20
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.79	0.79	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	0	198	0	139	184	0	70	543	0	43	935	0
Turn Type	Perm			custom			custom			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		5	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0			4.0			4.0	4.0	
Minimum Split (s)	26.0	26.0		8.0			8.0			23.0	23.0	
Total Split (s)	26.0	26.0	0.0	10.0	36.0	0.0	8.0	84.0	0.0	76.0	76.0	0.0
Total Split (%)	22%	22%	0%	8%	30%	0%	7%	70%	0%	63%	63%	0%
Yellow Time (s)	4.0	4.0		4.0			4.0			4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0			1.0			1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None			None			Coord	Coord	
Act Effct Green (s)		17.9		23.8	27.9		80.1	84.1		76.1	76.1	
Actuated g/C Ratio		0.15		0.20	0.23		0.67	0.70		0.63	0.63	
v/c Ratio		0.72		0.70	0.43		0.20	0.23		0.85	0.42	
Uniform Delay, d1		46.1		38.2	34.4		5.7	5.5		16.7	13.8	
Delay		44.7		40.2	37.8		5.8	5.2		50.0	11.5	
LOS		D		D	D		A	A		D	B	
Approach Delay		44.7			38.9			5.3			13.2	
Approach LOS		D			D			A			B	
Queue Length 50th (ft)		137		90	119		18	59		20	177	
Queue Length 95th (ft)		213		144	182		31	75		#68	241	
Internal Link Dist (ft)		1036			1138			315			650	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 19 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 17.8 Intersection LOS: B
Intersection Capacity Utilization 61.7% ICU Level of Service B
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 19: Warfield Road & Goshen Road

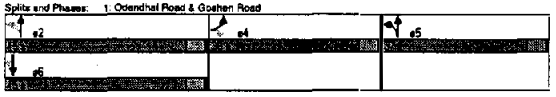


Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			200
Storage Lanes	2	1	0			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15			9
Satd. Flow (prot)	3502	1615	1805	3505	3505	1615
Flt Permitted	0.950		0.316			
Satd. Flow (perm)	3502	1615	600	3505	3505	1615
Right Turn on Red			Yes			Yes
Satd. Flow (RTOR)			423			618
Link Speed (mph)		30		45	45	
Link Distance (ft)		1524		797	803	
Travel Time (s)		34.6		12.1	12.2	
Volume (vph)	875	415	550	955	485	715
Peak Hour Factor	0.94	0.94	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%
Lane Group Flow (vph)	931	441	625	1124	564	531
Turn Type		Perm	custom			Perm
Protected Phases	1		1	5 2	6	
Permitted Phases		4	2			6
Detector Phase	1	4	1	5 2	6	6
Minimum Initial (s)	4.0	4.0	4.0		7.0	7.0
Minimum Split (s)	24.0	24.0	9.0		39.0	39.0
Total Split (s)	39.0	39.0	37.0	82.0	45.0	45.0
Total Split (%)	32%	32%	31%	68%	38%	38%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None		Coord	Coord
Act Effct Green (s)	34.9	34.6	71.0	77.0	42.2	42.2
Actuated g/C Ratio	0.29	0.29	0.62	0.65	0.35	0.35
v/c Ratio	0.94	0.56	0.93	0.49	0.46	0.86
Uniform Delay, d1	42.0	1.3	16.1	10.8	30.0	8.2
Delay	51.5	4.1	24.1	11.6	31.6	15.5
LOS	D	A	C	B	C	B
Approach Delay	36.3			15.2	22.1	
Approach LOS	D			B	C	
Queue Length 50th (ft)	853	0	278	217	188	202
Queue Length 95th (ft)	#989	86	#428	243	153	241
Internal Link Dist (ft)	1444			717	723	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			200			200
50th Bay Block Time %			14%	8%		6%
95th Bay Block Time %			27%	9%		15%
Queuing Penalty (veh)			112	47		30

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 112 (93%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 23.8 Intersection LOS: C
Intersection Capacity Utilization 82.7% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Odendhal Road & Goshen Road

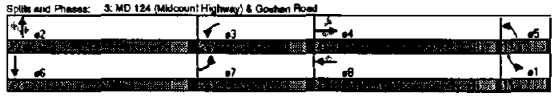


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		200	200		200	200		200
Storage Lanes	1		1	2		1	1		1	2		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	3036	1568	3400	3505	1568	1735	4968	1552	3434	3540	1564
Flt Permitted	0.108			0.950			0.231			0.950		
Satd. Flow (perm)	199	3036	1568	3400	3505	1568	422	4968	1552	3434	3540	1564
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			147			285			147
Link Speed (mph)		30			30			40			43	
Link Distance (ft)		857			799			518			583	
Travel Time (s)		14.9			17.5			10.5			14.0	
Volume (vph)	320	890	155	490	953	300	115	1360	370	160	615	165
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	1%	3%	1%	3%	3%	1%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	360	1000	153	490	1027	323	121	1431	389	174	669	179
Turn Type	pmpt		Perm	Prot		Perm	pmpt		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8	2		2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	10.0	39.0	39.0	10.0	39.0	39.0	9.0	39.0	39.0	9.0	39.0	
Total Split (s)	26.0	41.0	41.0	26.0	41.0	41.0	13.0	42.0	42.0	13.0	42.0	0.0
Total Split (%)	22%	34%	34%	22%	34%	34%	9%	35%	35%	9%	35%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Coord	C-Coord	None	C-Coord	None
Act Effct Green (s)	59.0	37.0	37.0	22.0	37.0	37.0	45.0	38.0	38.0	7.0	38.0	120.0
Actuated g/C Ratio	0.49	0.31	0.31	0.18	0.31	0.31	0.38	0.32	0.32	0.06	0.32	1.00
v/c Ratio	0.94	0.64	0.26	0.79	0.95	0.55	0.51	0.90	0.56	0.87	0.60	0.11
Uniform Delay, d1	33.0	36.5	0.0	46.0	40.4	17.8	22.7	38.2	1.3	54.0	34.5	0.0
Delay	55.5	36.0	4.9	48.9	51.1	18.5	18.0	31.8	4.2	52.9	27.9	0.0
LOS	E	D	A	D	D	B	B	C	A	F	C	A
Approach Delay		37.8			44.4			25.4			32.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	225	244	0	190	408	111	38	358	21	65	177	0
Queue Length 95th (ft)	#405	290	48	#254	#548	206	m57	m408	145	#152	225	0
Internal Link Dist (ft)		577			559			538			503	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200		200	400		200	200		200	200		200
50th Bay Block Time %	12%	11%		34%				17%			2%	
95th Bay Block Time %	31%	31%		85%	44%	45%		41%			10%	
Queuing Penalty (veh)	104	87		59	201	18		22			5	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 84 (70%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 34.1 Intersection LOS: D
Intersection Capacity Utilization 94.1% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road





Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%			
Storage Length (ft)	0		0	200		0	0		300	200		0	0	
Storage Lanes	0		0	1		0	1		1	1		0	0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50		50	50		50	50	50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9	9	
Sald. Flow (prot)	0	1748	0	1723	1626	0	1787	3470	1599	1786	3479	0	0	
Flt Permitted		0.984		0.950	0.982		0.253			0.065				
Sald. Flow (perm)	0	1748	0	1723	1626	0	479	3470	1599	124	3479	0	0	
Right Turn on Red			Yes			Yes			Yes			Yes		
Sald. Flow (RTOR)		22			30				467		3			
Link Speed (mph)		30			30			29			37			
Link Distance (ft)		304			354			883			447			
Travel Time (s)		6.9			8.0			20.8			8.4			
Volume (vph)	15	3	15	220	10	95	20	1540	410	55	705	115		
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	0.96	0.95	0.96	0.77	0.77	0.77		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%		
Lane Group Flow (vph)	0	43	0	202	209	0	21	1604	427	71	935	0		
Turn Type	Split			Split			Perm		Perm	Prot+pt				
Protected Phases	4	4		8	8			2		1	6			
Permitted Phases							2		2	6				
Detector Phases	4	4		8	8		2	2	2	1	6			
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0			
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0			
Total Split (s)	11.0	11.0	0.0	27.0	27.0	0.0	73.0	73.0	73.0	10.0	83.0	0.0		
Total Split (%)	9%	9%	0%	23%	23%	0%	60%	60%	60%	8%	68%	0%		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0			
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0			
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lead	Lead	Lag	Lead			
Lead-Lag Optimize?				Yes	Yes		Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord			
Act Effct Green (s)		7.0		18.4	18.4		76.8	76.8	76.8	84.8	84.8			
Actuated g/C Ratio		0.06		0.15	0.15		0.64	0.64	0.64	0.71	0.71			
v/c Ratio		0.35		0.77	0.72		0.07	0.72	0.36	0.42	0.38			
Uniform Delay, d1		27.0		48.7	38.4		6.7	16.5	8.0	12.8	7.3			
Delay		32.7		48.2	36.0		9.0	10.3	8.0	18.2	4.0			
LOS		C		D	D		A	B	A	B	A			
Approach Delay		32.7			42.0			9.3			5.0			
Approach LOS		C			D			A			A			
Queue Length 50th (ft)		15		158	124		5	211	15	7	58			
Queue Length 95th (ft)		36		204	170		m7	240	24	30	85			
Internal Link Dist (ft)		224			274			803			367			
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)				200						300	200			
50th Bay Block Time %														
95th Bay Block Time %				5%										
Queuing Penalty (veh)				3										

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 76.7%	ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 4: Emory Grove Road & Goshen Road

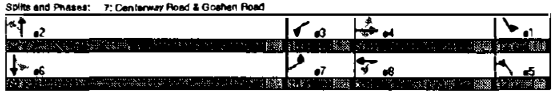




Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0	0	
Storage Lanes	1		1	1		0	1		0	1		0	0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50		50	50		50	50			
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9	9	
Sald. Flow (prot)	1752	1845	1568	1752	3456	0	1752	3473	0	1752	3407	0		
Flt Permitted	0.950			0.140			0.272			0.060				
Sald. Flow (perm)	279	1845	1585	273	3456	0	502	3473	0	127	3407	0		
Right Turn on Red			Yes			Yes			Yes			Yes		
Sald. Flow (RTOR)			144								32			
Link Speed (mph)		30			30			37			37			
Link Distance (ft)		374			432			791			368			
Travel Time (s)		8.5			9.8			14.6			6.1			
Volume (vph)	180	365	150	85	500	50	240	1295	85	70	540	125		
Peak Hour Factor	0.97	0.97	0.97	0.87	0.87	0.87	0.89	0.92	0.83	0.92	0.96	0.88		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%		
Lane Group Flow (vph)	186	376	155	98	632	0	270	1551	0	84	719	0		
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt				
Protected Phases	7	4		3	8		5	2		1	6			
Permitted Phases	4		4	8			2			6				
Detector Phases	7	4	4	3	8		5	2		1	6			
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0			
Minimum Split (s)	9.0	20.0	20.0	9.0	20.0		9.0	27.0		9.0	27.0			
Total Split (s)	15.0	31.0	31.0	15.0	31.0	0.0	12.0	62.0	0.0	12.0	62.0	0.0		
Total Split (%)	13%	26%	26%	13%	26%	0%	10%	52%	0%	10%	52%	0%		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0			
Lead/Lag														
Lead-Lag Optimize?														
Recall Mode	None	None	None	None	None		None	Coord		None	Coord			
Act Effct Green (s)	35.0	27.0	27.0	35.0	27.0		66.1	55.0		66.1	55.0			
Actuated g/C Ratio	0.32	0.23	0.23	0.32	0.23		0.55	0.46		0.55	0.46			
v/c Ratio	0.35	0.91	0.33	0.44	0.81		0.75	0.99		0.46	0.46			
Uniform Delay, d1	28.6	45.3	2.6	27.0	43.5		13.0	28.6		11.1	19.6			
Delay	45.3	60.2	7.7	27.4	46.1		13.4	17.2		14.3	19.9			
LOS	D	E	A	C	D		B	B		B	B			
Approach Delay		45.0			42.7			16.7			19.2			
Approach LOS		D			D			B			B			
Queue Length 50th (ft)	104	268	7	52	242		33	250		20	195			
Queue Length 95th (ft)	#215	#465	62	90	299		#116	#128		56	233			
Internal Link Dist (ft)		294			352			711			288			
50th Up Block Time (%)		3%												
95th Up Block Time (%)		33%												
Turn Bay Length (ft)	200		200	200			200			200				
50th Bay Block Time %		27%			14%			8%			2%			
95th Bay Block Time %	10%	48%			26%			1%			9%			
Queuing Penalty (veh)	39	70			20			7			4			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 89.1%	ICU Level of Service D
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 7: Centerway Road & Goshen Road

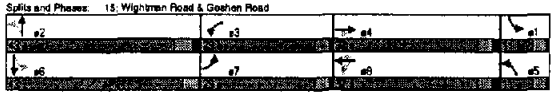


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	300		0
Storage Lanes	2		1	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3434	1919	1631	3295	3502	1607	1744	4289	0	1823	3420	0
Flt Permitted	0.950			0.121			0.252			0.103		
Satd. Flow (perm)	3434	1919	1631	420	3502	1607	516	4289	0	198	3420	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145			124			68			54
Link Speed (mph)		30			30			37			31	
Link Distance (ft)		870			834			414			891	
Travel Time (s)		15.4			14.4			7.6			19.6	
Volume (vph)	940	483	145	340	978	170	170	1045	285	105	975	310
Peak Hour Factor	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.96	0.96	0.81	0.81	0.81
Heavy Vehicles (%)	3%	0%	0%	0%	3%	0%	0%	3%	0%	0%	3%	0%
Lane Group Flow (vph)	574	464	154	385	785	198	193	1488	0	130	1506	0
Turn Type	Prot		Perm	pmpt		Perm	pmpt			pmpt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8				6		
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	4.0	
Minimum Split (s)	8.0	30.0	30.0	8.0	30.0	30.0	8.0	33.0		8.0	20.0	
Total Split (s)	29.0	37.0	37.0	29.0	37.0	37.0	11.0	43.0	0.0	11.0	43.0	0.0
Total Split (%)	24%	31%	31%	24%	31%	31%	9%	36%	0%	9%	36%	0%
Yellow Time (s)	3.0	3.0	3.0	3.0	5.0	5.0	3.0	4.0		3.0	3.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	0.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	24.1	32.2	32.2	56.3	32.2	32.2	47.6	40.7		47.6	40.7	
Actuated g/C Ratio	0.20	0.27	0.27	0.47	0.27	0.27	0.40	0.34		0.40	0.34	
v/c Ratio	0.83	0.94	0.28	0.94	0.81	0.38	0.70	0.88		0.75	0.51	
Uniform Delay, d1	46.0	42.9	1.9	38.5	41.1	12.9	22.5	36.9		21.1	29.6	
Delay	47.5	55.9	6.5	47.2	41.3	13.8	29.6	40.0		34.2	22.9	
LOS	D	E	A	D	D	B	C	D		C	C	
Approach Delay		43.7			38.1			38.0			24.9	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	219	364	0	246	297	10	97	382		58	142	
Queue Length 95th (ft)	256	#564	21	#393	351	62	#157	444		#116	176	
Internal Link Dist (ft)		598			554			334			811	
50th Up Block Time (%)								8%				
95th Up Block Time (%)								15%				
Turn Bay Length (ft)	200			200		200	200			300		
50th Bay Block Time %	10%	35%		16%	25%			28%				
95th Bay Block Time %	28%	51%		43%	32%			28%				
Queuing Penalty (veh)	85	247		114	111			234				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 36.6 Intersection LOS: D
Intersection Capacity Utilization 97.6% ICU Level of Service E
#: 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1761	1863	3505	1585	1752	3505
Flt Permitted	0.950				0.129	
Satd. Flow (perm)	1761	1863	3505	1585	238	3505
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		106		334		
Link Speed (mph)	30		34			31
Link Distance (ft)	990		891			389
Travel Time (s)	12.7		17.9			8.6
Volume (vph)	205	95	1280	505	75	345
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	3%	0%	3%	3%	3%	0%
Lane Group Flow (vph)	228	106	1407	555	94	481
Turn Type	Prot			Perm	custom	
Protected Phases	5		2		1	6
Permitted Phases		5		2	6	
Detector Phases	5	5	2	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	19.0	19.0	60.0	60.0	9.0	41.0	50.0
Total Split (%)	27%	27%	55%	55%	15%	73%	58%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	Coord	Coord	None		Coord
Act Effct Green (s)	11.4	11.4	31.6	31.6	36.6	40.6	
Actuated g/C Ratio	0.10	0.10	0.29	0.29	0.33	0.36	
v/c Ratio	0.84	0.27	0.76	0.51	0.85	0.20	
Uniform Delay, d1	22.8	0.0	11.2	0.0	3.5	3.8	
Delay	25.4	5.5	9.2	2.3	6.2	1.9	
LOS	C	A	A	A	A	A	
Approach Delay	19.1		7.3			2.6	
Approach LOS	B		A			A	
Queue Length 50th (ft)	74	0	242	56	8	21	
Queue Length 95th (ft)	#157	33	311	m#0	m#0	34	
Internal Link Dist (ft)	460		811			309	
50th Up Block Time (%)							
95th Up Block Time (%)							
Turn Bay Length (ft)							
50th Bay Block Time %							
95th Bay Block Time %							
Queuing Penalty (veh)							

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 11 (13%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 7.7 Intersection LOS: A
Intersection Capacity Utilization 66.7% ICU Level of Service B
#: 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m: Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: East Village & Goshen Road

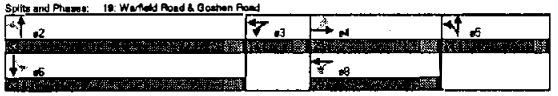




Lane Configurations																
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Grade (%)		0%			0%			1%			-1%					
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Leading Detector (ft)	50	50		50	50		50	50		50	50		50			
Trailing Detector (ft)	0	0		0	0		0	0		0	0		0			
Turning Speed (mph)	15		9	15		9	15		9	15		9				
Sat. Flow (prot)	1752	1811	0	1752	1811	0	1744	3416	0	1781	3477	0				
Flt Permitted	0.649			0.286			0.433			0.062						
Sat. Flow (perm)	1197	1811	0	528	1811	0	795	3416	0	182	3477	0				
Right Turn on Red			Yes			Yes			Yes			Yes				
Sat. Flow (RTOR)		6			6			26			10					
Link Speed (mph)		30			30			54			31					
Link Distance (ft)		1117			1217			394			731					
Travel Time (s)		25.4			27.7			7.9			16.1					
Volume (vph)	15	165	85	110	115	15	40	1145	175	20	915	30				
Peak Hour Factor	0.77	0.77	0.77	0.78	0.78	0.78	0.90	0.90	0.90	0.78	0.78	0.78				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%				
Lane Group Flow (vph)	19	272	0	145	171	0	44	1466	0	25	1197	0				
Turn Type	Perm			custom			custom			Perm						
Protected Phases		4		3	3 8		5	5 2			6		2	6		
Permitted Phases	4			8			2			6						
Detector Phases	4	4		3	3 8		5	5 2		6	6					
Minimum Initial (s)	4.0	4.0		4.0			4.0			4.0	4.0		4.0	4.0		
Minimum Split (s)	26.0	26.0		9.0			9.0			23.0	23.0		23.0	26.0		
Total Split (s)	29.0	29.0	0.0	14.0	43.0	0.0	24.0	77.0	0.0	53.0	53.0	0.0	43.0	29.0		
Total Split (%)	24%	24%	0%	12%	36%	0%	20%	64%	0%	44%	44%	0%	36%	24%		
Yellow Time (s)	4.0	4.0		3.0			3.0			4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	1.0		1.0			1.0			1.0	1.0		1.0	1.0		
Lead/Lag																
Lead-Lag Optimize?																
Recall Mode	None	None		None			None			Coord	Coord		Coord	None		
Act Effct Green (s)		31.9	35.9				72.1	78.1			52.1	52.1				
Actuated g/C Ratio		0.18	0.14		0.27	0.30		0.60	0.63		0.43	0.43				
v/c Ratio		0.09	0.61		0.80	0.31		0.07	0.67		0.38	0.29				
Uniform Delay, d1		40.5	46.0		52.1	31.2		8.3	13.6		23.0	21.3				
Delay		39.2	46.7		52.1	30.8		4.2	8.2		29.7	22.2				
LOS		D	D		D	C		A	A		C	C				
Approach Delay			46.2			31.4			8.1			22.6				
Approach LOS			D			C			A			C				
Queue Length 50th (ft)		12	197		84	56		10	14		13	113				
Queue Length 95th (ft)		29	240		112	107		m#3	364		39	333				
Internal Link Dist (ft)			1037			1137			315			651				
50th Up Block Time (%)																
95th Up Block Time (%)									14%							
Turn Bay Length (ft)																
50th Bay Block Time %																
95th Bay Block Time %																
Queuing Penalty (veh)									99							

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 90 (75%), Referenced to phase 2 NBTL and 6 SBTL at Begin of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 74.0% ICU Level of Service C
m: Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Warfield Road & Goshen Road



Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2015 -4 Lane (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:01.8	*00:01.8*
From Odendhal Road to Midcounty Hwy	00:43.5	00:41.7
Midcounty Highway	00:58.8	*00:15.3*
From Midcounty Hwy to Emory Grove Rd	01:22.4	00:23.6
Emory Grove Road	01:31.3	*00:08.9*
From Emory Grove Rd to Centerway Rd	02:26.5	00:55.2
Centerway Road	02:32.3	*00:05.8*
From Centerway Rd to Snouffer School Rd	04:27.1	01:54.8
Snouffer School Road	04:40.4	*00:13.3*
From Snouffer School Rd to East Village Ave	05:03.7	00:23.3
East Village Avenue	05:10.9	*00:07.2*
From East Village Ave to Warfield Rd	05:49.6	00:38.7
Warfield Road	05:53.6	*00:04.0*
TOTAL MOVING TIME		04:57.3
TOTAL STOPPED TIME		00:56.3
TOTAL TRAVEL TIME	**05:53.6**	**05:53.6**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:08.8	*00:08.8*
From Warfield Rd to East Village Ave	00:47.5	00:38.7
East Village Avenue	00:51.4	*00:03.9*
From East Village Ave to Snouffer School Rd	01:18.9	00:27.5
Snouffer School Road	01:40.4	*00:21.5*
From Snouffer School Rd to Centerway Rd	03:36.4	01:56.0
Centerway Road	03:53.6	*00:17.2*
From Centerway Rd to Emory Grove Rd	04:52.4	00:58.8
Emory Grove Road	04:57.1	*00:04.7*
From Emory Grove Rd to Midcounty Hwy	05:30.8	00:33.7
Midcounty Highway	06:08.3	*00:37.5*
From Midcounty Hwy to Odendhal Rd	06:45.9	00:37.6
Odendhal Road	06:47.4	*00:01.5*
TOTAL MOVING TIME		05:12.3
TOTAL STOPPED TIME		01:35.1
TOTAL TRAVEL TIME	**06:47.4**	**06:47.4**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2015 -4 Lane (PM) Date 01/08/03

NORTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:08.5	*00:08.5*
From Odendhal Road to Midcounty Hwy	00:52.9	00:44.4
Midcounty Highway	01:17.4	*00:24.5*
From Midcounty Hwy to Emory Grove Rd	01:42.0	00:24.6
Emory Grove Road	01:49.3	*00:07.3*
From Emory Grove Rd to Centerway Rd	02:56.6	01:07.3
Centerway Road	03:08.9	*00:12.3*
From Centerway Rd to Snouffer School Rd	05:26.9	02:18.0
Snouffer School Road	05:57.7	*00:30.8*
From Snouffer School Rd to East Village Ave	06:20.9	00:23.2
East Village Avenue	06:28.0	*00:07.1*
From East Village Ave to Warfield Rd	07:07.4	00:39.4
Warfield Road	07:13.7	*00:06.3*
TOTAL MOVING TIME		05:36.9
TOTAL STOPPED TIME		01:36.8
TOTAL TRAVEL TIME	**07:13.7**	**07:13.7**

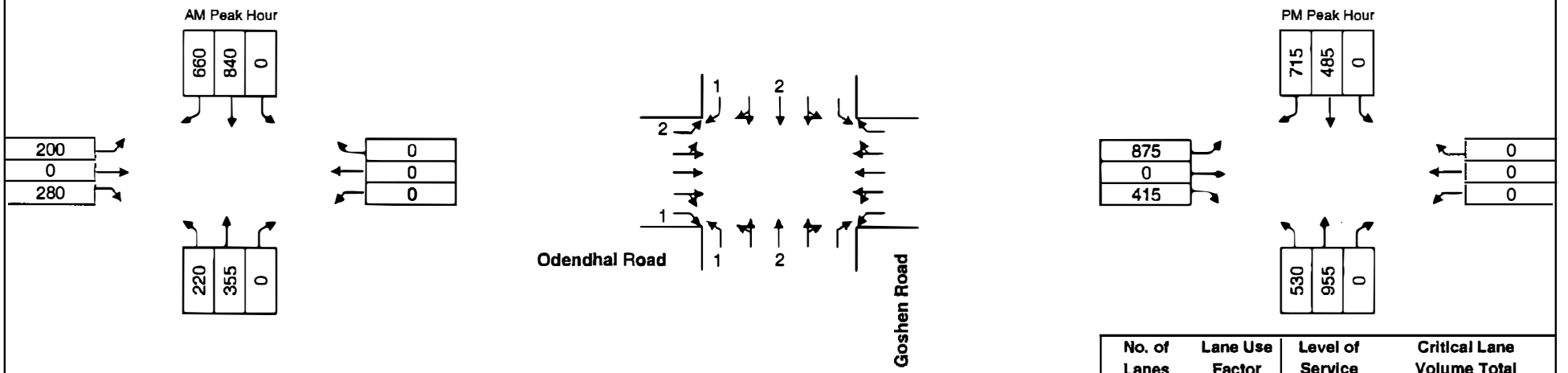
SOUTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:17.1	*00:17.1*
From Warfield Rd to East Village Ave	01:01.6	00:44.5
East Village Avenue	01:03.1	*00:01.5*
From East Village Ave to Snouffer School Rd	01:31.0	00:27.9
Snouffer School Road	01:48.6	*00:17.6*
From Snouffer School Rd to Centerway Rd	03:49.4	02:00.8
Centerway Road	04:04.7	*00:15.3*
From Centerway Rd to Emory Grove Rd	05:09.2	01:04.5
Emory Grove Road	05:12.3	*00:03.1*
From Emory Grove Rd to Midcounty Hwy	05:34.9	00:22.6
Midcounty Highway	05:49.5	*00:14.6*
From Midcounty Hwy to Odendhal Rd	06:34.2	00:44.7
Odendhal Road	06:59.6	*00:25.4*
TOTAL MOVING TIME		05:25.0
TOTAL STOPPED TIME		01:34.6
TOTAL TRAVEL TIME	**06:59.6**	**06:59.6**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2015 - 4 Lanes

Computed by: MAM Date: 09/10/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	355	0.55	195	0	195	760
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	840	0.55	462	220	682	
	SBR	540	1	540	220	760	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	120
	EBR	60	1	60	0	60	
	EBL	200	0.6	120		120	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							880
						Level Of Service	A
						v/c ratio	0.55

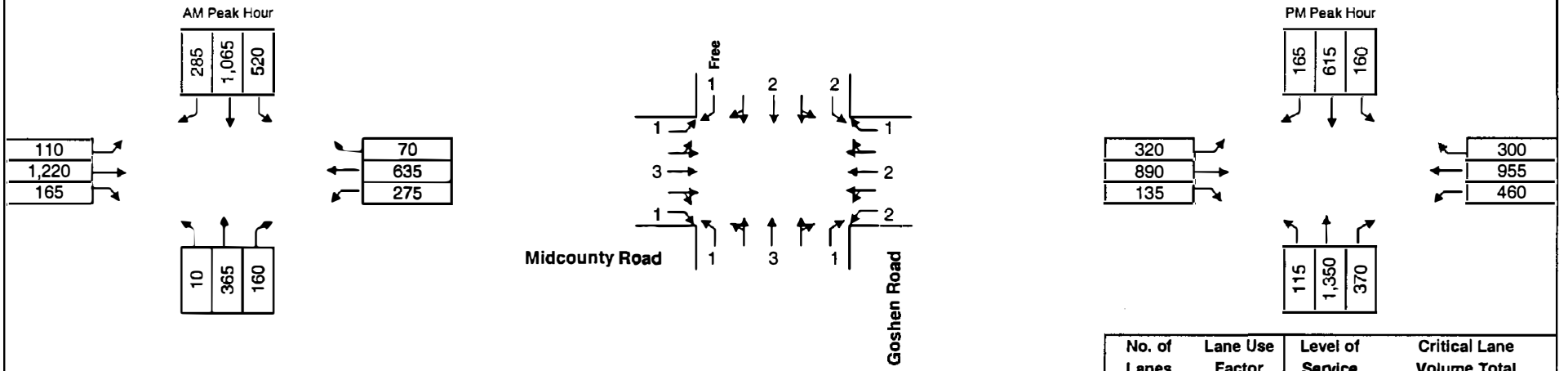
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	955	0.55	525	0	525	797
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	485	0.55	267	530	797	
	SBR	190	1	190	530	720	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	525
	EBR	0	1	0	0	0	
	EBL	875	0.6	525		525	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,322
						Level Of Service	D
						v/c ratio	0.83

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2015 - 4 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	365	0.4	146	312	458	596
	NBR	160	1	160	312	472	
	NBL	0	1	0		0	
	SB	1,065	0.55	586	10	596	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0		0	
2	EB	1,220	0.4	488	165	653	653
	EBR	155	1	155	165	320	
	EBL	0	1	0		0	
	WB	635	0.55	349	110	459	
	WBR	0	1	0	0	0	
	WBL	0	0.6	0		0	
							1,249
						Level Of Service	C
						v/c ratio	0.78

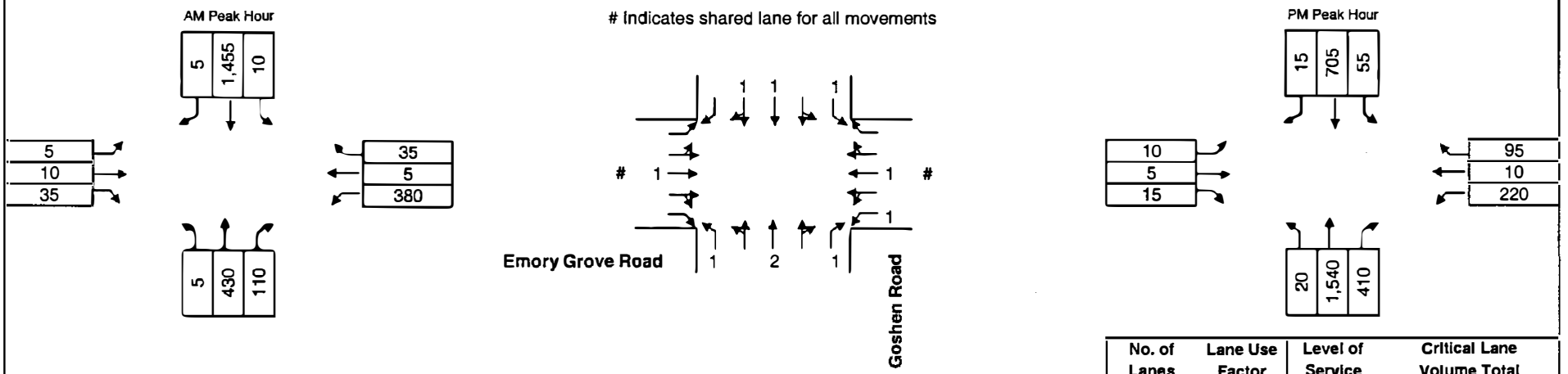
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,350	0.4	540	96	636	636
	NBR	370	1	370	96	466	
	NBL	0	1	0		0	
	SB	615	0.55	338	115	453	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0	0	0	
2	EB	890	0.4	356	276	632	845
	EBR	20	1	20	276	296	
	EBL	0	1	0		0	
	WB	955	0.55	525	320	845	
	WBR	204	1	204	320	524	
	WBL	0	0.6	0		0	
							1,481
						Level Of Service	E
						v/c ratio	0.93

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2015 - 4 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 37522



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	430	0.55	237	10	247	808
	NBR	110	1	110	10	120	
	NBL	0	1	0		0	
	SB	1,460	0.55	803	5	808	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	50	1	50	0	50	50
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	420	0.55	231	0	231	231
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,089
						Level Of Service	B
						v/c ratio	0.68

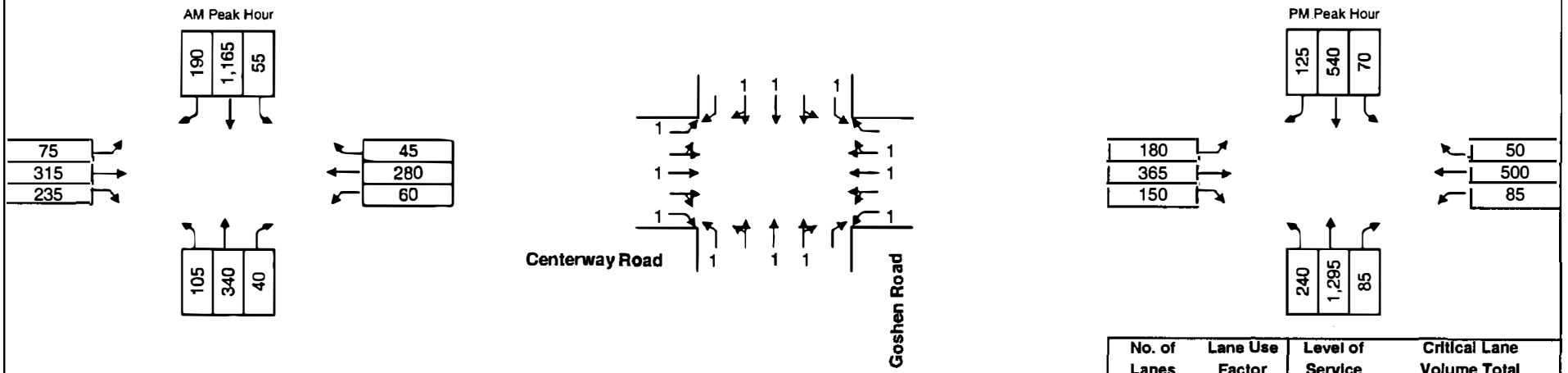
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,540	0.55	847	55	902	902
	NBR	410	1	410	55	465	
	NBL	0	1	0		0	
	SB	720	0.55	396	20	416	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	30	1	30	0	30	30
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	325	0.55	179	0	179	179
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,111
						Level Of Service	B
						v/c ratio	0.69

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2015 - 4 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

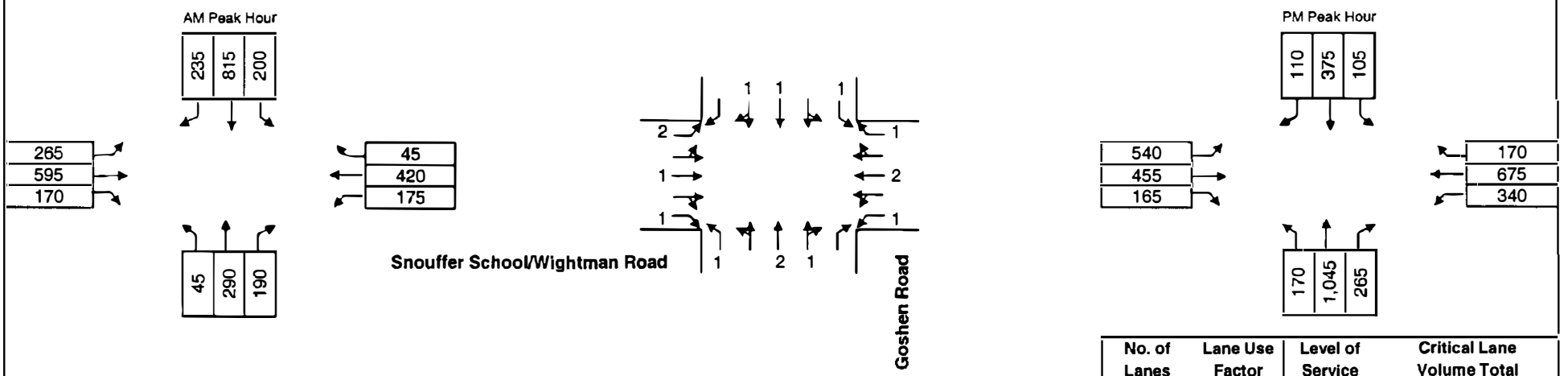
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	380	0.55	209	55	264	850
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,355	0.55	745	105	850	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	315	1	315	60	375	375
	EBR	130	1	130	60	190	
	EBL	0	1	0		0	
	WB	325	0.55	179	75	254	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,225
						Level Of Service	C
						v/c ratio	0.77

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,380	0.55	759	70	829	829
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	665	0.55	366	240	606	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	365	1	365	85	450	483
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	550	0.55	303	180	483	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,312
						Level Of Service	D
						v/c ratio	0.82

Turning Movement Summary and Level of Service

Count Date: 2/13/02 | Location: Goshen Road/Snouffer School/Wightman Road
Conditions/
Design Year: 2015 - 4 Lanes
Computed by: MAM | Date: 9/10/2002 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	480	0.4	192	200	392	623
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,050	0.55	578	45	623	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	595	1	595	175	770	770
	EBR	170	1	170	175	345	
	EBL	0	0.6	0		0	
	WB	420	0.55	231	159	390	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,393
						Level Of Service	D
						v/c ratio	0.87

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,310	0.4	524	105	629	629
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	485	0.55	267	170	437	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	455	1	455	340	795	795
	EBR	165	1	165	340	505	
	EBL	0	0.6	0		0	
	WB	675	0.55	371	324	695	
	WBR	65	1	65	324	389	
	WBL	0	1	0		0	
							1,424
						Level Of Service	D
						v/c ratio	0.89

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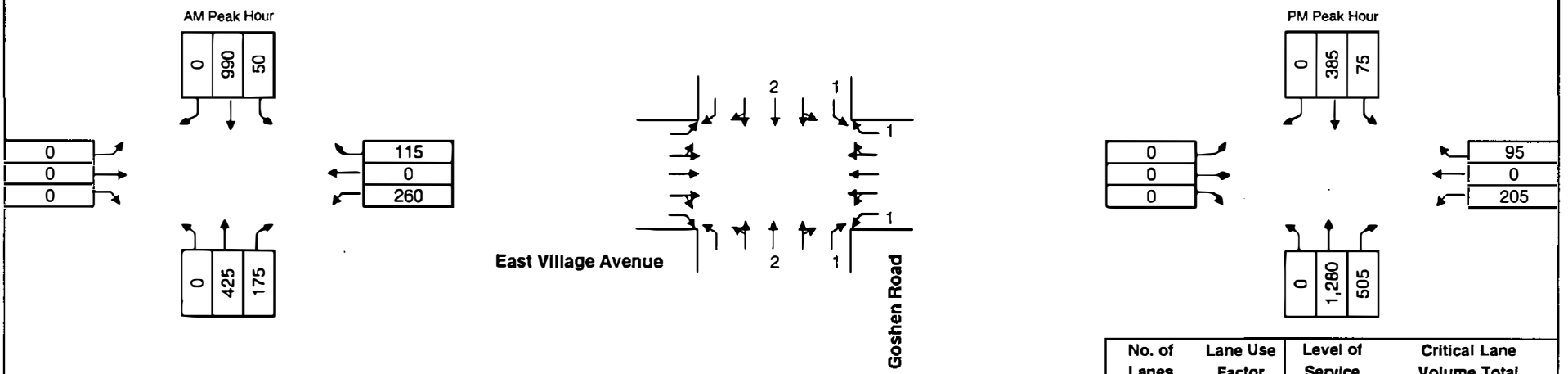
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/East Village Avenue
Conditions/
Design Year: 2015 - 4 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	425	0.55	234	50	284	545
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	990	0.55	545	0	545	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	260
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	65	1	65	0	65	
	WBL	260	1	260		260	
							805
						Level Of Service	A
						v/c ratio	0.50

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,280	0.55	704	75	779	779
	NBR	300	1	300	75	375	
	NBL	0	1	0		0	
	SB	385	0.55	212	0	212	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	205
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	20	1	20	0	20	
	WBL	205	1	205		205	
							984
						Level Of Service	A
						v/c ratio	0.62

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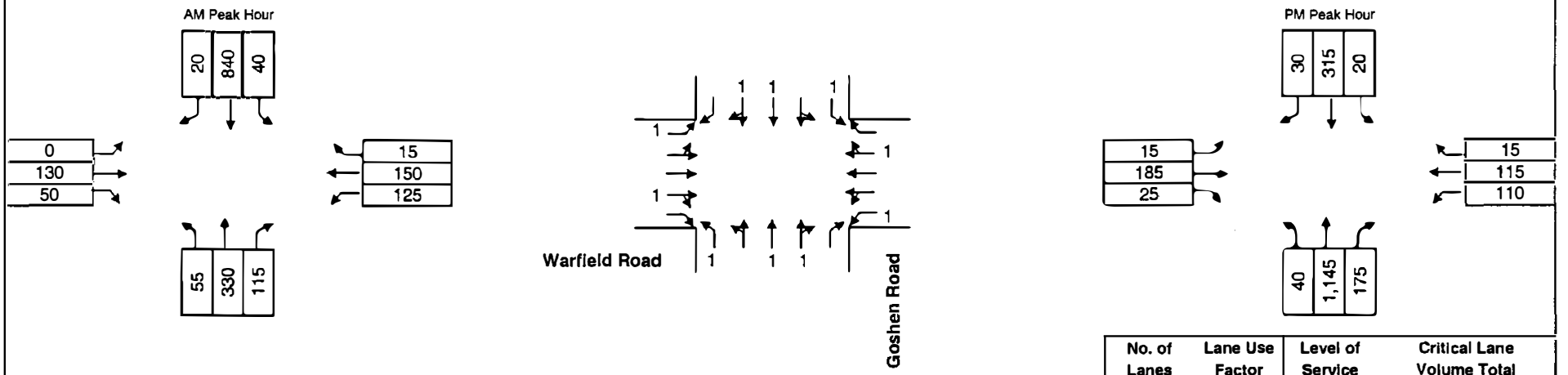
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/Warfield Road
Conditions/
Design Year: 2015 - 4 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	445	0.55	245	40	285	528
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	860	0.55	473	55	528	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	180	1	180	125	305	305
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	165	1	165	0	165	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							833
						Level Of Service	A
						v/c ratio	0.52

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,320	0.55	726	20	746	746
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	345	0.55	190	40	230	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	210	1	210	110	320	320
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	130	1	130	15	145	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,066
						Level Of Service	B
						v/c ratio	0.67

Unsignalized Intersection CLV Eqivalent Calculations

LOS	HCS			CLV			LOS
A	0	10	*10*	0	1000	*1000*	A
B	10	15	*5*	1000	1150	*150*	B
C	15	25	*10*	1150	1300	*150*	C
D	25	35	*10*	1300	1450	*150*	D
E	35	50	*15*	1450	1600	*150*	E
F	50	190	*140*	1600	3000	*1400*	F

2015 4 Lanes

#2 Willow Creek Drive

	Delay					CLV	LOS
AM	23.0	*15*	*1150*	*10*	*150*	1,270	C
PM	30.0	*25*	*1300*	*10*	*150*	1,375	D

#5 Severn Road

	Delay					CLV	LOS
AM	29.9	*25*	*1300*	*10*	*150*	1,374	D
PM	38.0	*35*	*1450*	*15*	*150*	1,480	E

#6 Lindenhouse Road

	Delay					CLV	LOS
AM	15.2	*15*	*1150*	*10*	*150*	1,153	C
PM	27.3	*25*	*1300*	*10*	*150*	1,335	D

#8 Rock Elm Way

	Delay					CLV	LOS
AM	16.2	*15*	*1150*	*10*	*150*	1,168	C
PM	17.6	*15*	*1150*	*10*	*150*	1,189	C

#9 Framingham Drive

	Delay					CLV	LOS
AM	23.7	*15*	*1150*	*10*	*150*	1,281	C
PM	34.5	*25*	*1300*	*10*	*150*	1,443	D

#10 Turtle Dove Terrace

	Delay					CLV	LOS
AM	22.5	*15*	*1150*	*10*	*150*	1,263	C
PM	38.3	*35*	*1450*	*15*	*150*	1,483	E

#11 Stewartown Road

	Delay					CLV	LOS
AM	25.1	*25*	*1300*	*10*	*150*	1,302	D
PM	39.6	*35*	*1450*	*15*	*150*	1,496	E

#12 Bramble Bush Drive

	Delay					CLV	LOS
AM	14.6	*10*	*1000*	*5*	*150*	1,138	B
PM	26.0	*25*	*1300*	*10*	*150*	1,315	D

#13 Rothbury Drive

	Delay					CLV	LOS
AM	33.1	*25*	*1300*	*10*	*150*	1,422	D
PM	574.8	*50*	*1600*	*140*	*1400*	3,000	F

#14 Goshen Crossing

	Delay					CLV	LOS
AM	22.7	*15*	*1150*	*10*	*150*	1,266	C
PM	760.7	*50*	*1600*	*140*	*1400*	3,000	F

#17 Mother of God School

	Delay					CLV	LOS
AM	193.0	*50*	*1600*	*140*	*1400*	3,000	F
PM	21.3	*15*	*1150*	*10*	*150*	1,245	C

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lane*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*550*	*0*	*0*	*1495*	*10*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*625*	*0*	*0*	*1573*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*15*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.61*	*1.00*	*0.61*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*24*	*0*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*32*	
C (m) (vph)	*513*						*232*	
v/c	*0.01*						*0.14*	
95% queue length	*0.03*						*0.47*	
Control Delay	*12.1*						*23.0*	
LOS	*B*						*C*	
Approach Delay	--	--				*23.0*		
Approach LOS	--	--				*C*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street: *Willow Creek Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1825*	*0*	*0*	*1195*	*15*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*5*	*2027*	*0*	*0*	*1298*	*16*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*9*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*27*	
C (m) (vph)	*533*						*171*	
v/c	*0.01*						*0.16*	
95% queue length	*0.03*						*0.55*	
Control Delay	*11.8*						*30.0*	
LOS	*B*						*D*	
Approach Delay	--	--					*30.0*	
Approach LOS	--	--					*D*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Severn Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*465*	*0*	*0*	*1485*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*5*	*528*	*0*	*0*	*1687*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*27*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*45*	
C (m) (vph)	*382*						*189*	
v/c	*0.01*						*0.24*	
95% queue length	*0.04*						*0.89*	
Control Delay	*14.5*						*29.9*	
LOS	*B*						*D*	
Approach Delay	--	--				*29.9*		
Approach LOS	--	--				*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street: *Severn Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*1630*	*0*	*0*	*765*	*10*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*15*	*1715*	*0*	*0*	*869*	*11*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*15*	*0*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*27*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*15*						*45*	
C (m) (vph)	*777*						*153*	
v/c	*0.02*						*0.29*	
95% queue length	*0.06*						*1.15*	
Control Delay	*9.7*						*38.0*	
LOS	*A*						*E*	
Approach Delay	--	--					*38.0*	
Approach LOS	--	--					*E*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lane*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Lindenhouse Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*480*	*5*	*5*	*1455*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.84*	*0.84*	*0.88*
Hourly Flow Rate, HFR	*0*	*510*	*5*	*5*	*1732*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.60*	*1.00*	*0.60*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*58*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*66*				
C (m) (vph)		*1040*		*420*				
v/c		*0.00*		*0.16*				
95% queue length		*0.01*		*0.55*				
Control Delay		*8.5*		*15.2*				
LOS		*A*		*C*				
Approach Delay	--	--	*15.2*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Lindenhouse Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1610*	*35*	*10*	*765*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1610*	*35*	*10*	*765*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*10*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*10*		*20*				
C (m) (vph)		*385*		*181*				
v/c		*0.03*		*0.11*				
95% queue length		*0.08*		*0.37*				
Control Delay		*14.6*		*27.3*				
LOS		*B*		*D*				
Approach Delay	--	--	*27.3*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Rock Elm Way*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*455*	*5*	*5*	*1400*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.80*	*0.80*	*0.91*	*0.91*	*0.88*
Hourly Flow Rate, HFR	*0*	*568*	*6*	*5*	*1538*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.58*	*1.00*	*0.58*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*17*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*25*				
C (m) (vph)		*988*		*345*				
v/c		*0.01*		*0.07*				
95% queue length		*0.02*		*0.23*				
Control Delay		*8.7*		*16.2*				
LOS		*A*		*C*				
Approach Delay	--	--	*16.2*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lane*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1520*	*5*	*5*	*730*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1520*	*5*	*5*	*730*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*10*				
C (m) (vph)		*512*		*296*				
v/c		*0.01*		*0.03*				
95% queue length		*0.03*		*0.10*				
Control Delay		*12.1*		*17.6*				
LOS		*B*		*C*				
Approach Delay	--	--	*17.6*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/23/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Framingham Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - 4 Lanes*

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*450*	*10*	*5*	*1295*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.82*	*0.82*	*0.87*	*0.87*	*0.88*
Hourly Flow Rate, HFR	*0*	*548*	*12*	*5*	*1488*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*1*	*1*	*2*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*110*	*0*	*45*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.76*	*1.00*	*0.76*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*144*	*0*	*59*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*5*	*144*		*59*			
C (m) (vph)		*1000*	*289*		*730*			
v/c		*0.00*	*0.50*		*0.08*			
95% queue length		*0.02*	*2.60*		*0.26*			
Control Delay		*8.6*	*29.2*		*10.4*			
LOS		*A*	*D*		*B*			
Approach Delay	--	--	*23.7*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/23/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Framingham Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2015 - 4 Lanes*

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1430*	*95*	*35*	*690*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.82*	*0.82*	*0.88*
Hourly Flow Rate, HFR	*0*	*1521*	*101*	*42*	*841*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*1*	*1*	*2*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*45*	*0*	*30*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.94*	*1.00*	*0.90*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*48*	*0*	*33*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*42*	*48*		*33*			
C (m) (vph)		*393*	*132*		*353*			
v/c		*0.11*	*0.36*		*0.09*			
95% queue length		*0.36*	*1.50*		*0.31*			
Control Delay		*15.3*	*47.1*		*16.2*			
LOS		*C*	*E*		*C*			
Approach Delay	--	--	*34.5*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*465*	*20*	*10*	*1235*	*10*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*12*	*567*	*24*	*10*	*1357*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*5*	*15*	*10*	*0*	*35*
Peak-Hour Factor, PHF	*0.73*	*0.73*	*0.73*	*0.54*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*41*	*6*	*20*	*18*	*0*	*38*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*12*	*10*	*41*		*26*	*18*		*38*
C (m) (vph)	*509*	*995*	*226*		*379*	*126*		*396*
v/c	*0.02*	*0.01*	*0.18*		*0.07*	*0.14*		*0.10*
95% queue length	*0.07*	*0.03*	*0.65*		*0.22*	*0.48*		*0.32*
Control Delay	*12.2*	*8.7*	*24.4*		*15.2*	*38.3*		*15.1*
LOS	*B*	*A*	*C*		*C*	*E*		*C*
Approach Delay	--	--	*20.8*			*22.5*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Turtle Dove Ter/Sandy Lake*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*40*	*1380*	*40*	*20*	*685*	*15*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.84*	*0.84*	*0.84*
Hourly Flow Rate, HFR	*43*	*1483*	*43*	*23*	*815*	*17*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*20*	*0*	*20*	*20*	*0*	*20*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.83*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*24*	*0*	*24*	*24*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*43*	*23*	*24*		*24*	*24*		*23*
C (m) (vph)	*809*	*443*	*88*		*351*	*154*		*591*
v/c	*0.05*	*0.05*	*0.27*		*0.07*	*0.16*		*0.04*
95% queue length	*0.17*	*0.16*	*1.00*		*0.22*	*0.54*		*0.12*
Control Delay	*9.7*	*13.6*	*60.6*		*16.0*	*32.6*		*11.3*
LOS	*A*	*B*	*F*		*C*	*D*		*B*
Approach Delay	--	--	*38.3*			*22.2*		
Approach LOS	--	--	*E*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*35*	*455*	*0*	*0*	*1190*	*20*
Peak-Hour Factor, PHF	*0.77*	*0.77*	*0.77*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*45*	*590*	*0*	*0*	*1307*	*21*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*5*	*20*	*0*	*55*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*15*	*7*	*7*	*26*	*0*	*73*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*45*	*0*		*29*			*99*	
C (m) (vph)	*527*	*995*		*208*			*265*	
v/c	*0.09*	*0.00*		*0.14*			*0.37*	
95% queue length	*0.28*	*0.00*		*0.48*			*1.66*	
Control Delay	*12.5*	*8.6*		*25.1*			*26.5*	
LOS	*B*	*A*		*D*			*D*	
Approach Delay	--	--	*25.1*			*26.5*		
Approach LOS	--	--	*D*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*65*	*1345*	*10*	*0*	*650*	*40*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*65*	*1345*	*10*	*0*	*650*	*40*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*0*	*30*	*0*	*65*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*5*	*0*	*34*	*0*	*65*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*65*	*0*		*10*			*99*	
C (m) (vph)	*914*	*514*		*114*			*368*	
v/c	*0.07*	*0.00*		*0.09*			*0.27*	
95% queue length	*0.23*	*0.00*		*0.28*			*1.07*	
Control Delay	*9.2*	*12.0*		*39.6*			*18.3*	
LOS	*A*	*B*		*E*			*C*	
Approach Delay	--	--	*39.6*			*18.3*		
Approach LOS	--	--	*E*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Bramble Bush Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*465*	*15*	*10*	*1180*	*10*
Peak-Hour Factor, PHF	*0.77*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*0*	*547*	*17*	*10*	*1296*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*10*	*10*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*32*	*0*	*15*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*10*	*32*		*15*			
C (m) (vph)		*997*	*338*		*721*			
v/c		*0.01*	*0.09*		*0.02*			
95% queue length		*0.03*	*0.31*		*0.06*			
Control Delay		*8.6*	*16.8*		*10.1*			
LOS		*A*	*C*		*B*			
Approach Delay	--	--	*14.6*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Bramble Bush Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*1330*	*45*	*25*	*650*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1330*	*45*	*25*	*650*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*40*	*25*	*25*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*40*	*0*	*25*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*25*	*40*		*25*			
C (m) (vph)		*490*	*168*		*393*			
v/c		*0.05*	*0.24*		*0.06*			
95% queue length		*0.16*	*0.89*		*0.20*			
Control Delay		*12.7*	*33.0*		*14.8*			
LOS		*B*	*D*		*B*			
Approach Delay	--	--	*26.0*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*110*	*350*	*15*	*5*	*985*	*105*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*110*	*350*	*15*	*5*	*985*	*105*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*1*
Configuration	*L*	*T*	*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*10*	*25*		*5*	*195*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*10*	*25*	*130*	*5*	*195*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration		*LTR*		*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*L*		*TR*
v (vph)	*110*	*5*		*45*		*130*		*200*
C (m) (vph)	*630*	*1183*		*280*		*188*		*508*
v/c	*0.17*	*0.00*		*0.16*		*0.69*		*0.39*
95% queue length	*0.63*	*0.01*		*0.56*		*4.24*		*1.86*
Control Delay	*11.9*	*8.1*		*20.3*		*58.5*		*16.6*
LOS	*B*	*A*		*C*		*F*		*C*
Approach Delay	--	--	*20.3*			*33.1*		
Approach LOS	--	--	*C*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rothbury Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*255*	*1075*	*25*	*20*	*465*	*230*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.97*	*0.97*	*0.97*
Hourly Flow Rate, HFR	*274*	*1155*	*26*	*20*	*479*	*237*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*1*
Configuration	*L*	*T*	*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*10*	*250*	*10*	*205*
Peak-Hour Factor, PHF	*0.65*	*0.65*	*0.65*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR	*7*	*7*	*15*	*304*	*12*	*250*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration		*LTR*		*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*L*		*TR*
v (vph)	*274*	*20*		*29*		*304*		*262*
C (m) (vph)	*874*	*581*		*100*		*97*		*521*
v/c	*0.31*	*0.03*		*0.29*		*3.13*		*0.50*
95% queue length	*1.35*	*0.11*		*1.09*		*29.71*		*2.79*
Control Delay	*11.0*	*11.4*		*55.1*				*18.7*
LOS	*B*	*B*		*F*		*F*		*C*
Approach Delay	--	--	*55.1*			*574.8*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lane*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Goshen Crossing*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*55*	*445*	*6*	*3*	*970*	*190*
Peak-Hour Factor, PHF	*0.80*	*0.86*	*0.84*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*68*	*517*	*0*	*0*	*1102*	*215*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*80*	*1*	*125*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.80*	*0.82*	*0.80*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*99*	*0*	*156*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*68*						*255*	
C (m) (vph)	*599*						*453*	
v/c	*0.11*						*0.56*	
95% queue length	*0.38*						*3.40*	
Control Delay	*11.8*						*22.7*	
LOS	*B*						*C*	
Approach Delay	--	--					*22.7*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*115*	*1220*	*6*	*3*	*600*	*260*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.84*	*0.88*	*0.73*	*0.73*
Hourly Flow Rate, HFR	*140*	*1487*	*0*	*0*	*821*	*356*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*	*T*			*T*	*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*260*	*1*	*115*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.83*	*0.82*	*0.83*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*313*	*0*	*138*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*140*						*451*	
C (m) (vph)	*584*						*176*	
v/c	*0.24*						*2.56*	
95% queue length	*0.93*						*38.74*	
Control Delay	*13.1*						*760.7*	
LOS	*B*						*F*	
Approach Delay	--	--				*760.7*		
Approach LOS	--	--				*F*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*405*	*120*	*120*	*895*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*20*	*540*	*160*	*129*	*962*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*140*	*5*	*95*	*0*	*0*	*5*
Peak-Hour Factor, PHF	*0.46*	*0.45*	*0.45*	*0.25*	*0.25*	*0.25*
Hourly Flow Rate, HFR	*304*	*11*	*211*	*0*	*0*	*20*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*20*	*129*	*304*		*222*	*0*		*20*
C (m) (vph)	*724*	*906*	*194*		*558*	*116*		*537*
v/c	*0.03*	*0.14*	*1.57*		*0.40*	*0.00*		*0.04*
95% queue length	*0.09*	*0.50*	*19.57*		*1.90*	*0.00*		*0.12*
Control Delay	*10.1*	*9.6*	*322.5*		*15.6*	*36.0*		*12.0*
LOS	*B*	*A*	*F*		*C*	*E*		*B*
Approach Delay	--	--	*193.0*			*12.0*		
Approach LOS	--	--	*F*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2015 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Mother of God School* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*1340*	*25*	*15*	*435*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*1340*	*25*	*15*	*435*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*20*	*0*	*5*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*20*	*0*	*5*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*10*	*15*	*10*		*20*	*0*		*20*
C (m) (vph)	*1135*	*510*	*131*		*397*	*260*		*392*
v/c	*0.01*	*0.03*	*0.08*		*0.05*	*0.00*		*0.05*
95% queue length	*0.03*	*0.09*	*0.24*		*0.16*	*0.00*		*0.16*
Control Delay	*8.2*	*12.3*	*34.7*		*14.5*	*18.8*		*14.7*
LOS	*A*	*B*	*D*		*B*	*C*		*B*
Approach Delay	--	--	*21.3*			*14.7*		
Approach LOS	--	--	*C*			*B*		

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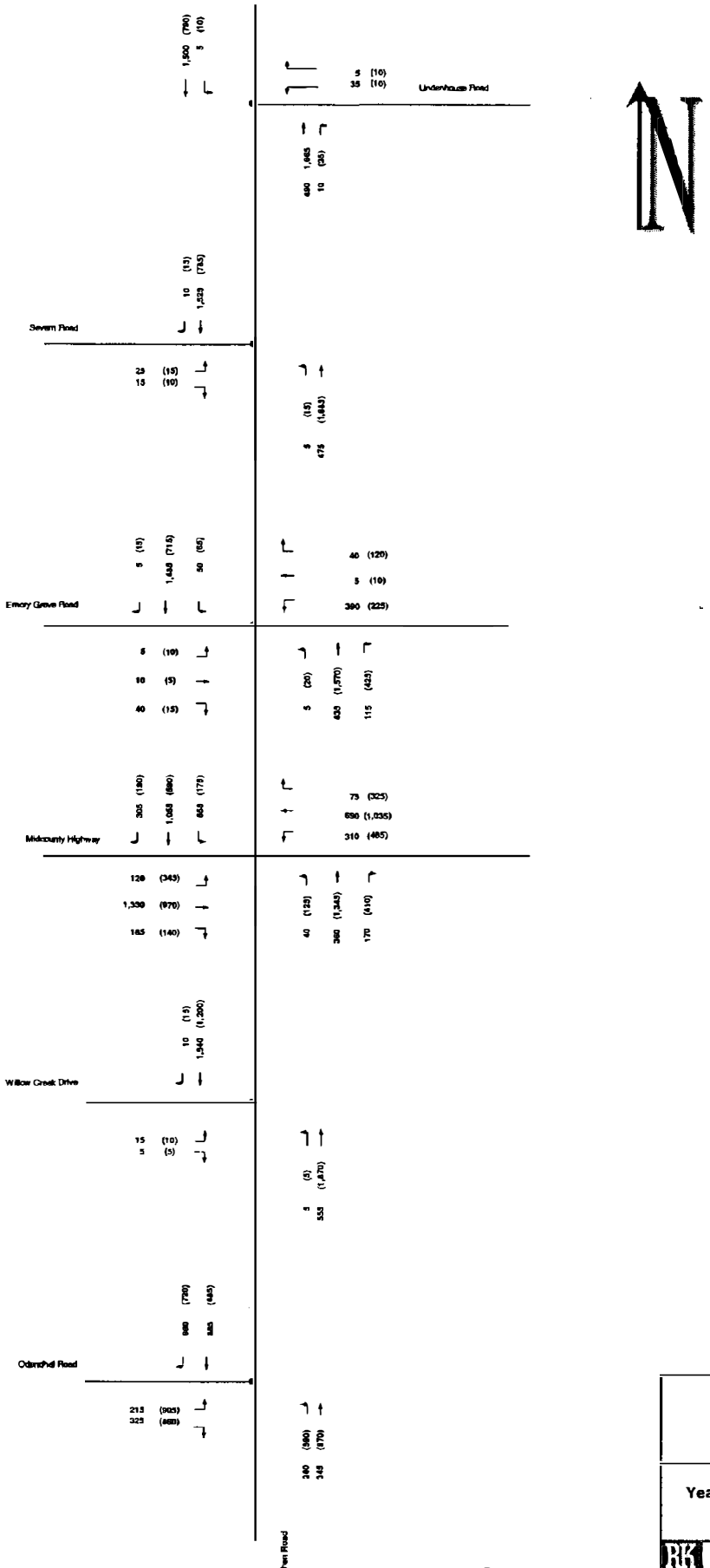
APPENDIX G: 2015 – 6 Lane Capacity Analyses w/ TSM Improvements

Turning Movement Volumes
Synchro
Critical Lane Volume



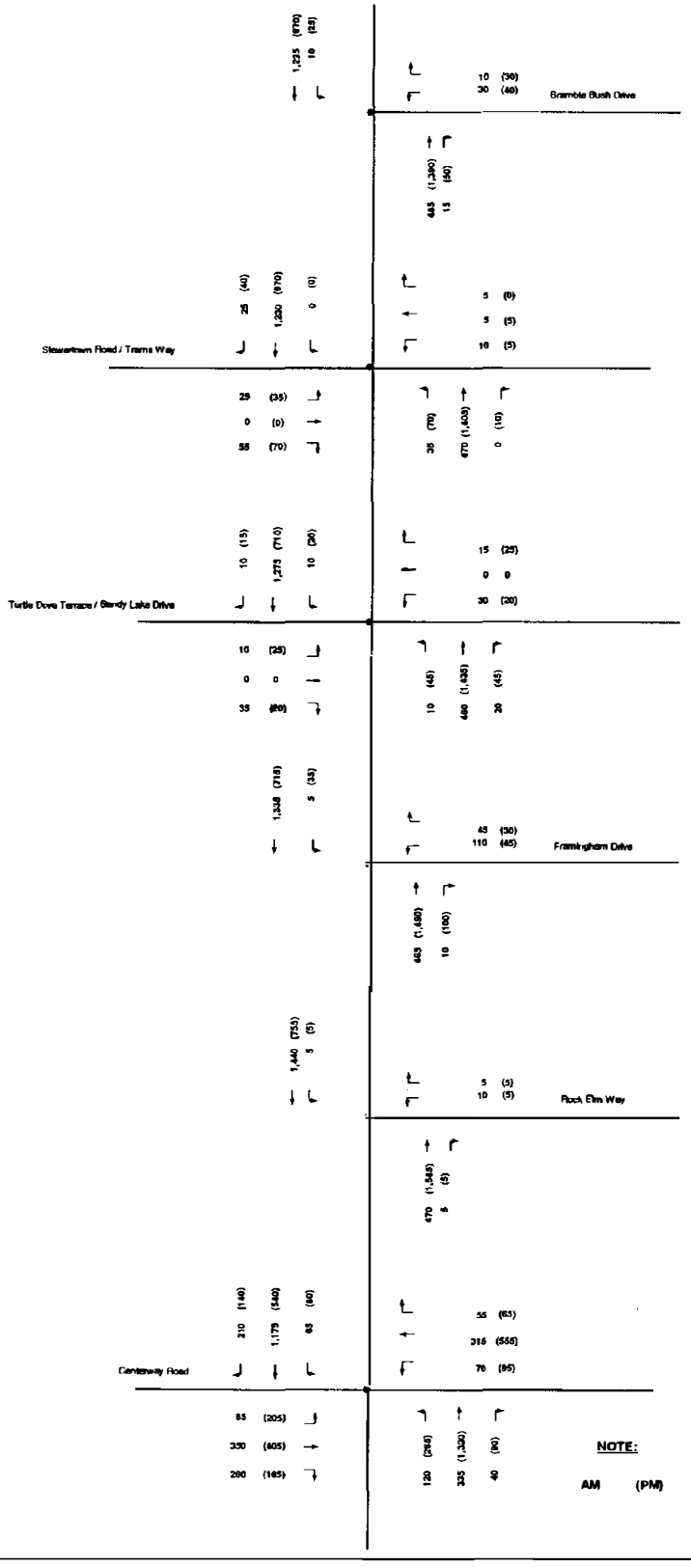
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2015 6-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2003

Sheet 1 of 3





GOSHEN ROAD
Traffic Study
Montgomery County, MD

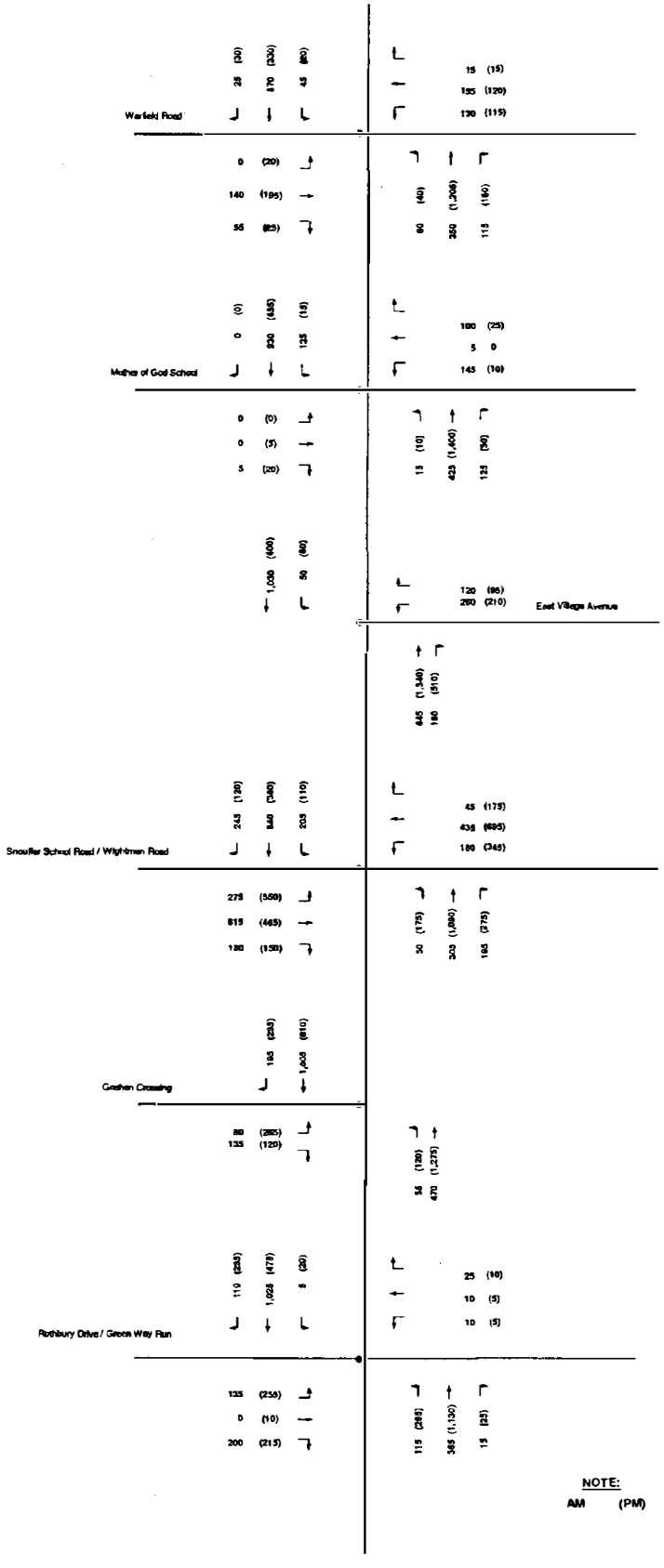
Year 2015 6-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2003

Sheet 2 of 3

North End of Corridor





GOSHEN ROAD *Traffic Study* Montgomery County, MD	
Year 2015 6-Lanes Balanced Traffic Volumes	
Rummel, Klepper & Kahl Consulting Engineers	Date: April 2008
	Sheet 3 of 3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500	0	200				200
Storage Lanes	1	1	1				1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15				9
Satd. Flow (prot)	3502	1615	1805	5036	5036	1615	
Flt Permitted	0.950		0.207				
Satd. Flow (perm)	3502	1615	393	5036	5036	1615	
Right Turn on Red			Yes			Yes	
Satd. Flow (RTOR)		337				717	
Link Speed (mph)	30			47	53		
Link Distance (ft)	1524			798	803		
Travel Time (s)	34.6			11.6	12.2		
Volume (vph)	215	325	240	345	585	660	
Peak Hour Factor	0.91	0.91	0.91	0.97	0.90	0.92	
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	
Lane Group Flow (vph)	236	357	264	356	650	717	
Turn Type		Perm	custom			Perm	
Protected Phases	4		6	8 2	8		2
Permitted Phases		4	2			6	
Detector Phases	4	4	5	8 2	8	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	26.0	26.0	8.0		56.0	56.0	56.0
Total Split (s)	33.0	33.0	30.0	65.0	65.0	65.0	55.0
Total Split (%)	28%	28%	25%	77%	46%	46%	46%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None		Coord	Coord	Coord
Act Effct Green (s)	14.8	14.8	34.4	97.4	81.4	81.4	
Actuated g/C Ratio	0.12	0.12	0.28	0.81	0.68	0.68	
v/c Ratio	0.55	0.70	0.62	0.13	0.29	0.54	
Uniform Delay, d1	49.6	0.0	2.7	2.5	7.7	0.0	
Delay	49.6	4.0	4.1	2.5	1.4	5.6	
LOS	D	A	A	A	A	A	
Approach Delay	22.4			2.2		2.3	
Approach LOS	C			A		A	
Queue Length 50th (ft)	90	0	38	17	13	114	
Queue Length 95th (ft)	125	87	72	31	m24	m135	
Internal Link Dist (ft)	1444			718	723		
50th Up Block Time (%)							
95th Up Block Time (%)							
Turn Bay Length (ft)	500		200			200	
50th Bay Block Time %						2%	
95th Bay Block Time %							
Queuing Penalty (veh)							

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 6.5 Intersection LOS: A
Intersection Capacity Utilization 96.4% ICU Level of Service E
m Volume for 95th percentile queue is metered by upstream signal.

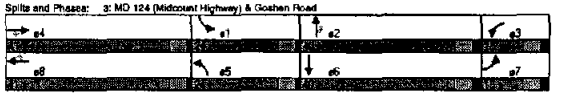
Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		300	200		200	500		300
Storage Lanes	2		1	2		1	1		1	2		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3400	5036	1568	3400	5036	1568	1736	4986	1552	3434	5085	1564
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3400	5036	1568	3400	5036	1568	1736	4986	1552	3434	5085	1564
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142			75			167			212
Link Speed (mph)		30			30			47			37	
Link Distance (ft)		957			798			819			883	
Travel Time (s)		14.8			17.5			9.0			16.3	
Volume (vph)	120	1230	160	510	600	75	40	360	170	535	1065	350
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.83	0.83	0.83	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	146	1822	201	325	719	78	48	434	205	372	1065	314
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	9.0	36.0	36.0	9.0	36.0	
Total Split (s)	13.0	41.0	41.0	13.0	41.0	41.0	24.0	40.0	40.0	24.0	40.0	0.0
Total Split (%)	13%	34%	34%	13%	34%	34%	20%	33%	33%	20%	33%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	
Act Effct Green (s)	11.0	37.0	37.0	11.0	37.0	37.0	20.0	36.0	36.0	20.0	36.0	120.0
Actuated g/C Ratio	0.09	0.31	0.31	0.09	0.31	0.31	0.17	0.30	0.30	0.17	0.30	1.00
v/c Ratio	0.47	1.04	0.35	1.04	0.67	0.15	0.17	0.29	0.36	1.00	0.71	0.20
Uniform Delay, d1	51.7	41.5	30.9	54.5	36.1	0.0	42.5	32.2	7.1	50.0	37.4	0.0
Delay	52.1	70.7	11.7	100.2	36.5	6.6	55.8	20.8	1.8	74.3	27.2	0.0
LOS	D	E	B	F	D	A	E	C	A	E	C	A
Approach Delay		53.3			32.8			17.8			36.5	
Approach LOS		D			C			B			D	
Queue Length 50th (ft)	36	~499	39	~135	254	0	35	80	0	207	293	0
Queue Length 95th (ft)	81	#902	87	#223	323	36	57	72	14	#344	270	0
Internal Link Dist (ft)		877			685			539			803	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200		200	200		200	200		200	500		200
50th Bay Block Time %		41%			16%							
95th Bay Block Time %		41%			18%			27%				
Queuing Penalty (veh)		60			29			70				

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 45.6 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service C
~ 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.

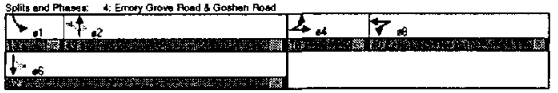
Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%				1%		
Storage Length (ft)	0		0	200		0	100		0	200			0	
Storage Lanes	0		0	1		0	1		1	1			0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50		
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0		
Turning Speed (mph)	15		9	15		9	15		0	15			9	
Satd. Flow (prot)	0	1714	0	1723	1694	0	1787	4964	1568	1796	5008	0		
Flt Permitted		0.995		0.950	0.962		0.089			0.363				
Satd. Flow (perm)	0	1714	0	1723	1694	0	167	4968	1568	686	5008	0		
Right Turn on Red			Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)		51			10				140					
Link Speed (mph)		30			30			35			40			
Link Distance (ft)		364			358			953			467			
Travel Time (s)		8.3			8.1			15.6			8.0			
Volume (vph)	5	10	40	390	5	40	1	435	115	60	1465	5		
Peak Hour Factor	0.72	0.72	0.72	0.76	0.76	0.76	0.82	0.82	0.82	0.88	0.88	0.88		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%		
Lane Group Flow (vph)	0	77	0	287	278	0	6	530	140	57	1694	0		
Turn Type	Split			Split			Perm		Perm	pmept				
Protected Phases	4	4		8	8			2		1	6			
Permitted Phases							2		2					
Detector Phases	4	4		8	8		2	2	2	1	6			
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	5.0	7.0			
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0			
Total Split (s)	18.0	18.0	0.0	40.0	40.0	0.0	48.0	48.0	48.0	12.0	62.0	0.0		
Total Split (%)	15%	15%	0%	33%	33%	0%	41%	41%	41%	11%	52%	0%		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0			
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0			
Lead/Lag							Lag	Lag	Lag	Lead				
Lead-Lag Optimize?							Yes	Yes	Yes	Yes				
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord			
Act Effct Green (s)		8.3		25.2	25.2		86.5	86.5	86.5	78.7	78.7			
Actuated g/C Ratio		0.07		0.21	0.21		0.37	0.37	0.37	0.64	0.66			
v/c Ratio		0.46		0.82	0.76		0.08	0.19	0.14	0.12	0.53			
Uniform Delay, d1		18.3		45.2	42.6		12.2	9.0	8.4	12.2	14.0			
Delay		22.8		44.2	41.9		14.6	15.0	5.4	4.3	5.5			
LOS		C		D	D		B	B	A	A	A			
Approach Delay		22.8			43.2			13.1			5.7			
Approach LOS		C			D			B			A			
Queue Length 50th (ft)		19		233	206		2	62	0	5	58			
Queue Length 95th (ft)		45		290	228		m4	81	0	m10	156			
Internal Link Dist (ft)		284			278			873			387			
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)				200			100			200				
50th Bay Block Time %				12%	4%									
95th Bay Block Time %				14%	9%						4%			
Queuing Penalty (veh)				38	19						1			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 20 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 82.1%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

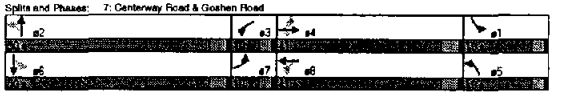
Splits and Phases: 4: Emory Grove Road & Goshen Road



Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200			0	
Storage Lanes	1		1	1		0	1		0	1			0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50		
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0		
Turning Speed (mph)	15		9	15		9	15		0	15			9	
Satd. Flow (prot)	1752	1845	1568	1752	3428	0	1752	4955	0	1752	4920	0		
Flt Permitted	0.424		0.296	0.687			0.067			0.462				
Satd. Flow (perm)	782	1845	1568	491	3428	0	160	4955	0	934	4920	0		
Right Turn on Red			Yes						Yes			Yes		
Satd. Flow (RTOR)			286		17			20			34			
Link Speed (mph)		30			30			30			40			
Link Distance (ft)		374			432			792			367			
Travel Time (s)		8.5			9.8			18.0			6.2			
Volume (vph)	55	350	280	70	315	55	120	335	40	65	1775	210		
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.85	0.85	0.85	0.94	0.94	0.94		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%		
Lane Group Flow (vph)	60	385	308	83	394	0	141	441	0	69	1973	0		
Turn Type	pmept		Perm	pmept			pmept			pmept				
Protected Phases	3	4		5	5		5	2		1	6			
Permitted Phases	4		4	5			2			6				
Detector Phases	3	4	4	5	5		5	2		1	6			
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0			
Minimum Split (s)	8.0	23.0	23.0	8.0	23.0		8.0	27.0		8.0	27.0			
Total Split (s)	10.0	41.0	41.0	10.0	41.0	0.0	19.0	50.0	0.0	19.0	50.0	0.0		
Total Split (%)	8%	34%	34%	8%	34%	0%	16%	42%	0%	16%	42%	0%		
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0			
Lead/Lag														
Lead-Lag Optimize?														
Recall Mode	None	None	None	None	None		None	Coord		None	Coord			
Act Effct Green (s)	34.1	80.1	80.1	36.1	30.1		67.9	67.9		67.9	67.9			
Actuated g/C Ratio	0.30	0.25	0.25	0.30	0.25		0.57	0.48		0.57	0.48			
v/c Ratio	0.33	0.69	0.67	0.35	0.45		0.63	0.18		0.13	0.82			
Uniform Delay, d1	28.1	42.6	0.0	27.8	36.2		11.0	16.5		10.1	22.3			
Delay	28.9	41.9	3.2	28.1	36.4		24.9	9.0		11.0	24.0			
LOS	C	D	A	C	D		C	A		B	C			
Approach Delay		15.8			33.9			12.3			23.5			
Approach LOS		C			C			B			C			
Queue Length 50th (ft)	30	280	0	30	125		44	0		22	900			
Queue Length 95th (ft)	83	373	80	69	185		92	80		48	414			
Internal Link Dist (ft)		294			352			712			287			
50th Up Block Time (%)		1%									3%			
95th Up Block Time (%)		16%									18%			
Turn Bay Length (ft)	200		200	200			200			200				
50th Bay Block Time %		25%									19%			
95th Bay Block Time %		35%									31%			
Queuing Penalty (veh)		27									170			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 72 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 23.6	Intersection LOS: C
Intersection Capacity Utilization 74.7%	ICU Level of Service D

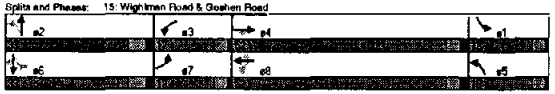
Splits and Phases: 7: Centerway Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		200	200		200
Storage Lanes	2		1	1		1	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3434	1919	1631	1795	3582	1607	1744	4774	0	1822	5086	1584
Flt Permitted	0.950			0.126			0.139			0.284		
Satd. Flow (perm)	3434	1919	1631	238	3582	1607	253	4774	0	544	5086	1584
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191				45			127		272
Link Speed (mph)		30			30			45			35	
Link Distance (ft)		877			804			413			891	
Travel Time (s)		15.4			14.4			5.8			16.0	
Volume (vph)	278	618	180	180	435	45	50	803	196	205	840	245
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	3%	3%
Lane Group Flow (vph)	278	621	182	194	485	48	60	595	0	228	933	272
Turn Type	Prot		Perm	pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4	4	8		8	2			6		6
Detector Phases	7	4	4	3	8	8	5	2		1	6	6
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	8.0	32.0	32.0	8.0	32.0	32.0	8.0	27.0		8.0	27.0	27.0
Total Split (s)	17.0	52.0	52.0	17.0	52.0	52.0	18.0	53.0	0.0	18.0	35.0	35.0
Total Split (%)	14%	43%	43%	14%	43%	43%	15%	28%	0%	15%	29%	29%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Coord		Min	Min	Min
Act Effct Green (s)	13.0	44.5	44.5	57.5	44.5	44.5	48.4	32.7		48.4	32.7	32.7
Actuated g/C Ratio	0.11	0.37	0.37	0.48	0.37	0.37	0.38	0.27		0.39	0.27	0.27
v/c Ratio	0.75	0.87	0.26	0.69	0.35	0.08	0.22	0.43		0.83	0.67	0.43
Uniform Delay, d1	51.9	35.7	2.6	18.3	27.5	0.0	20.9	27.9		23.1	38.9	0.0
Delay	54.8	36.4	5.0	19.8	26.8	6.3	22.9	28.9		23.8	33.2	6.7
LOS	D	D	A	B	C	A	C	C		C	C	A
Approach Delay		35.8			23.5			28.3			28.6	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	109	421	10	74	130	0	29	113		66	257	15
Queue Length 95th (ft)	#165	576	54	145	172	24	54	139		109	316	0
Internal Link Dist (ft)		797			554			333			811	
50th Up Block Time (%)												
95th Up Block Time (%)		3%										
Turn Bay Length (ft)	200			200		200	200			200		200
50th Bay Block Time %		34%									12%	
95th Bay Block Time %		63%									15%	
Queuing Penalty (veh)		104									24	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 94 (78%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 28.8 Intersection LOS: C
Intersection Capacity Utilization 81.6% ICU Level of Service D
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			0%			0%
Storage Length (ft)	0		0	100	200		200
Storage Lanes	1		0	1			1
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0
Leading Detector (ft)	50	50		50	50		50
Trailing Detector (ft)	0	0		0	0		0
Turning Speed (mph)	15	9	9	15			15
Satd. Flow (prot)	1781	1633	1618	0	1752		3038
Flt Permitted	0.950				0.344		
Satd. Flow (perm)	1781	1633	1618	0	633		3038
Right Turn on Red			Yes				
Satd. Flow (RTOR)		128	183				
Link Speed (mph)	30		30				35
Link Distance (ft)	558		801				349
Travel Time (s)	12.7		18.0				7.0
Volume (vph)	280	129	445	884	55	1132	
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91	
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%	
Lane Group Flow (vph)	280	129	664	0	55	1132	
Turn Type		Perm			pm+pt		
Protected Phases	8		2		1	6	
Permitted Phases		8			6		
Detector Phases	8	8	2		1	6	
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	9.0	9.0		9.0	9.0	
Total Split (s)	24.0	24.0	24.0	0.0	18.0	84.0	
Total Split (%)	40%	40%	40%	0%	20%	40%	
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	Coord		None	Coord	
Act Effct Green (s)	15.0	15.0	30.1		34.6	30.1	
Actuated g/C Ratio	0.25	0.25	0.50		0.58	0.50	
v/c Ratio	0.63	0.28	0.28		0.11	0.45	
Uniform Delay, d1	20.1	0.0	8.7		4.7	10.6	
Delay	19.4	3.8	6.8		4.7	8.7	
LOS	B	A	A		A	A	
Approach Delay	14.4		8.6		8.5		
Approach LOS	B		A		A		
Queue Length 50th (ft)	90	0	74		6	61	
Queue Length 95th (ft)	140	35	109		m14	87	
Internal Link Dist (ft)	479		811			309	
50th Up Block Time (%)							
95th Up Block Time (%)							
Turn Bay Length (ft)						200	
50th Bay Block Time %							
95th Bay Block Time %							
Queuing Penalty (veh)							

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 54 (93%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 9.0 Intersection LOS: A
Intersection Capacity Utilization 44.0% ICU Level of Service A
m Volume for 95th percentile queue is metered by upstream signal.

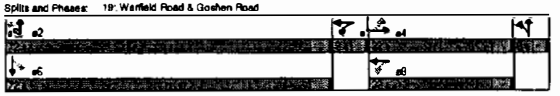
Splits and Phases: 17: East Village & Goshen Road



Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			-1%			
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50			
Trailing Detector (ft)	0	0		0	0		0	0		0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9		
Satd. Flow (prot)	1645	1767	0	1752	1821	0	1744	4845	0	1781	5041	0		
Flt Permitted				0.437			0.245			0.058				
Satd. Flow (perm)	1645	1767	0	806	1821	0	450	4845	0	109	5041	0		
Right Turn on Red			Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)		18			4			116			6			
Link Speed (mph)		30			30			35			35			
Link Distance (ft)		1116			1219			388			730			
Travel Time (s)		25.4			27.7			7.1			13.1			
Volume (vph)	0	140	55	130	155	15	60	350	115	45	870	85		
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.79	0.79	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%		
Lane Group Flow (vph)	0	214	0	144	189	0	76	568	0	49	973	0		
Turn Type	Perm			custom			custom			Perm				
Protected Phases		4		3	3 8		5	5 2			6		2	8
Permitted Phases	4			8			5			6				
Detector Phase	4	4		3	3 8		5	5 2		6	6			
Minimum Initial (s)	4.0	4.0		4.0			4.0			4.0	4.0		4.0	4.0
Minimum Split (s)	32.0	32.0		8.0			8.0			23.0	23.0		23.0	32.0
Total Split (s)	32.0	32.0	0.0	8.0	40.0	0.0	8.0	80.0	0.0	72.0	72.0	0.0	72.0	80.0
Total Split (%)	27%	27%	0%	7%	33%	0%	7%	67%	0%	60%	60%	0%	60%	27%
Yellow Time (s)	4.0	4.0		3.0			3.0			4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0		1.0			1.0			1.0	1.0		1.0	1.0
Lead/Lag														
Lead-Lag Optimize?														
Recall Mode	None	None		None			None			Coord	Coord		Coord	None
Act Effct Green (s)		19.4		23.4	27.4		80.6	84.7		76.7	76.7			
Actuated g/C Ratio		0.16		0.20	0.23		0.67	0.71		0.64	0.64			
v/c Ratio		0.72		0.77	0.45		0.22	0.16		0.70	0.30			
Uniform Delay, d1		44.2		45.2	34.8		5.5	4.6		14.2	9.7			
Delay		43.5		42.0	38.1		4.6	3.2		58.1	10.2			
LOS		D		D	D		A	A		E	B			
Approach Delay		43.5			39.8			3.3			12.6			
Approach LOS		D			D			A			B			
Queue Length 50th (ft)		148		95	124		11	20		23	113			
Queue Length 95th (ft)		218		144	162		23	50		#112	163			
Internal Link Dist (ft)		1036			1139			315			650			
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)														
50th Bay Block Time %														
95th Bay Block Time %														
Queuing Penalty (veh)														

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 90 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 56.2%	ICU Level of Service A
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 19: Warfield Road & Goshen Road

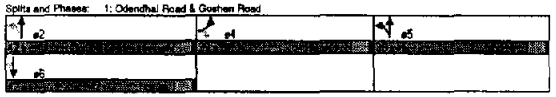


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Storage Length (ft)	500	0	200			200						
Storage Lanes	1		1			1						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0						
Leading Detector (ft)	50	50	50	50	50	50						
Trailing Detector (ft)	0	0	0	0	0	0						
Turning Speed (mph)	15	0	15			9						
Satd. Flow (prot)	3502	1615	1805	5036	5036	1615						
Flt Permitted	0.950		0.355									
Satd. Flow (perm)	3502	1615	674	5036	5036	1615						
Right Turn on Red			Yes									
Satd. Flow (RTOR)			459			904						
Link Speed (mph)	30			45	45							
Link Distance (ft)	1524			797	803							
Travel Time (s)	34.6			12.1	12.7							
Volume (vph)	905	460	590	970	485	720						
Peak Hour Factor	0.94	0.94	0.85	0.85	0.88	0.88						
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%						
Lane Group Flow (vph)	963	489	694	1141	551	827						
Turn Type		Perm	custom			Perm						
Protected Phases	4		5	1 2	6		2					
Permitted Phases		4	2			6						
Detector Phase	4	4	5	1 2	6	6						
Minimum Initial (s)	4.0	4.0	4.0	7.0	7.0	7.0						
Minimum Split (s)	26.0	26.0	9.0	34.0	34.0	34.0						
Total Split (s)	39.0	39.0	39.0	81.0	42.0	42.0						
Total Split (%)	33%	33%	33%	68%	35%	35%						
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0					
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0					
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None		Coord	Coord	Coord					
Act Effct Green (s)	35.0	35.0	78.0	77.0	38.4	38.4						
Actuated g/C Ratio	0.29	0.29	0.61	0.64	0.32	0.32						
v/c Ratio	0.84	0.61	0.84	0.95	0.35	0.80						
Uniform Delay, d1	41.5	1.9	17.1	8.9	31.2	10.0						
Delay	51.9	4.3	30.6	10.0	29.5	15.6						
LOS	D	A	C	B	C	B						
Approach Delay	38.8			12.8	25.3							
Approach LOS	D			B	C							
Queue Length 50th (ft)	375	17	330	136	119	145						
Queue Length 95th (ft)	#505	111	#502	153	137	#392						
Internal Link Dist (ft)	1444			717	723							
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	500		200			200						
50th Bay Block Time %	3%		19%			22%						
95th Bay Block Time %	3%		33%			22%						
Queuing Penalty (veh)	7		98			28						

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 50 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 24.9 Intersection LOS: C
Intersection Capacity Utilization 97.0% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Odendhal Road & Goshen Road

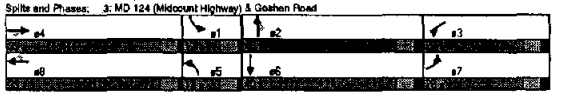


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		200	200		200	200		200
Storage Lanes	1		1	2		1	1		1	2		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15			9	15		9	15		9
Satd. Flow (prot)	1752	5036	1568	3400	3505	1568	1735	4986	1552	3434	5084	1564
Flt Permitted	0.950		0.950				0.950			0.950		
Satd. Flow (perm)	1752	5036	1568	3400	3505	1568	1735	4986	1552	3434	5084	1564
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			155			321			207
Link Speed (mph)		30			30			45			40	
Link Distance (ft)		857			769			818			853	
Travel Time (s)		14.9			17.5			8.4			15.1	
Volume (vph)	345	970	140	485	925	325	125	1045	410	175	890	190
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	6%	6%	3%	3%	6%
Lane Group Flow (vph)	388	1090	157	522	1113	349	132	1416	432	190	841	207
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			Free
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	9.0	39.0	39.0	9.0	39.0	
Total Split (s)	24.0	36.0	36.0	28.0	39.0	39.0	13.0	40.0	40.0	13.0	40.0	0.0
Total Split (%)	23%	33%	33%	23%	33%	33%	11%	33%	33%	11%	33%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	
Act Effct Green (s)	24.0	35.0	35.0	24.0	35.0	35.0	9.0	36.0	36.0	9.0	36.0	120.0
Actuated g/C Ratio	0.20	0.29	0.29	0.20	0.29	0.29	0.08	0.30	0.30	0.08	0.30	1.00
v/c Ratio	1.11	0.74	0.28	0.77	1.09	0.61	1.02	0.95	0.83	0.74	0.42	0.13
Uniform Delay, d1	48.0	38.4	31.7	45.4	42.8	38.5	55.5	41.0	35.5	54.3	33.6	0.0
Delay	110.2	38.7	5.9	45.9	89.0	19.0	117.7	48.3	9.5	87.7	21.8	0.0
LOS	F	D	A	D	F	B	F	D	A	F	C	A
Approach Delay		52.5			65.3			44.5			25.9	
Approach LOS		D			E			D			C	
Queue Length 50th (ft)	~343	279	4	196	~510	121	~106	392	65	71	100	0
Queue Length 95th (ft)	#538	325	52	291	#644	224	#237	#481	144	#158	116	0
Internal Link Dist (ft)		777			689			538			803	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200		200	200		200	200		200	200		200
50th Bay Block Time %	37%	19%		2%	45%		34%					
95th Bay Block Time %	57%	37%		31%	83%	9%	80%	43%				
Queuing Penalty (veh)	171	89		58	255	26	47	49				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 48.8 Intersection LOS: D
Intersection Capacity Utilization 96.4% ICU Level of Service E
~ 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: MD 124 (Midcount Highway) & Goshen Road



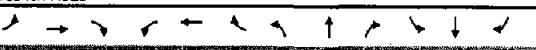


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	100		300	300		0
Storage Lanes	0		0	1		0	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1731	0	1728	1812	0	1787	4999	1599	1787	4999	0
Flt Permitted		0.964		0.950	0.966		0.290			0.075		
Satd. Flow (perm)	0	1731	0	1728	1812	0	546	4999	1599	141	4999	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			72				443		4	
Link Speed (mph)		30			30			34			42	
Link Distance (ft)		804			954			663			497	
Travel Time (s)		6.9			8.0			17.7			7.6	
Volume (vph)	10	5	10	220	10	120	20	1670	420	80	2135	10
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.96	0.96	0.96	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	3%	0%	3%	0%
Lane Group Flow (vph)	0	34	0	220	230	0	21	1635	443	84	948	0
Turn Type	Split			Split			Perm		Perm	pmwpt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2		2	6		
Detector Phases	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0	
Total Split (s)	13.0	13.0	0.0	33.0	33.0	0.0	58.0	58.0	58.0	17.0	72.0	0.0
Total Split (%)	13%	13%	0%	28%	28%	0%	48%	48%	48%	14%	60%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord	
Act Effct Green (s)		7.6		20.1	20.1		75.8	75.8	75.8	84.7	84.7	
Actuated g/C Ratio		0.06		0.17	0.17		0.63	0.63	0.63	0.71	0.71	
v/c Ratio		0.27		0.76	0.69		0.06	0.52	0.35	0.44	0.27	
Uniform Delay, d1		27.9		47.7	30.7		9.4	13.5	0.0	9.0	7.0	
Delay		32.8		48.8	29.0		7.8	8.8	0.0	17.0	3.6	
LOS		C		D	C		A	A	A	B	A	
Approach Delay		32.8			38.2			5.2			4.9	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		13		173	118		3	94	0	9	23	
Queue Length 95th (ft)		46		#309	188		m4	m105	m1	32	54	
Internal Link Dist (ft)		224			274			603			397	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200			100		300	300		
50th Bay Block Time %												
95th Bay Block Time %				6%				4%				
Queuing Penalty (veh)				5								

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 82 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 9.5	Intersection LOS: A
Intersection Capacity Utilization 65.8%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 4: Emory Grove Road & Goshen Road

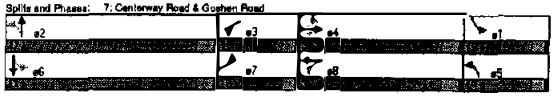




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	0	50	50	0	50	50	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3449	0	1752	4966	0	1752	4880	0
Flt Permitted	0.152			0.152			0.255			0.093		
Satd. Flow (perm)	280	1845	1568	280	3449	0	470	4966	0	172	4880	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150									
Link Speed (mph)		30						30			40	
Link Distance (ft)		374			432			791			368	
Travel Time (s)		8.5			9.8			18.0			6.3	
Volume (vph)	205	405	165	95	555	65	265	1320	90	80	540	140
Peak Hour Factor	0.97	0.97	0.97	0.87	0.87	0.87	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	211	418	170	109	719	0	298	1584	0	93	791	0
Turn Type	pmwpt		Perm	pmwpt			pmwpt			pmwpt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phases	7	4	4	3	8		5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	8.0	33.0	33.0	8.0	33.0		8.0	27.0		8.0	27.0	
Total Split (s)	18.0	36.0	36.0	18.0	36.0	0.0	19.0	47.0	0.0	19.0	47.0	0.0
Total Split (%)	15%	30%	30%	15%	30%	0%	16%	39%	0%	16%	39%	0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Coord		None	Coord	
Act Effct Green (s)	14.0	11.2	37.3	44.1	31.2		36.0	46.7		59.4	46.7	
Actuated g/C Ratio	0.37	0.26	0.28	0.37	0.26		0.50	0.39		0.50	0.39	
v/c Ratio	0.79	0.87	0.93	0.41	0.79		0.61	0.81		0.37	0.41	
Uniform Delay, d1	24.4	42.5	39	22.8	40.7		16.3	32.5		14.2	24.4	
Delay	31.8	49.5	77.8	22.8	40.9		20.3	19.0		15.5	25.2	
LOS	C	D	A	C	D		C	B		B	C	
Approach Delay		45.0			36.9			20.1			24.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	107	306	10	52	353		78	187		35	150	
Queue Length 95th (ft)	#210	#477	65	87	323		#206	234		61	184	
Internal Link Dist (ft)		294			352			711			288	
50th Up Block Time (%)		8%										
95th Up Block Time (%)		20%										
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		28%			16%							
95th Bay Block Time %	9%	46%			24%		18%	5%				
Queuing Penalty (veh)	66	78			68		43	9				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 81.1%	ICU Level of Service D
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 7: Centerway Road & Goshen Road



Lanes, Volumes, Timings
15: Wightman Road & Goshen Road

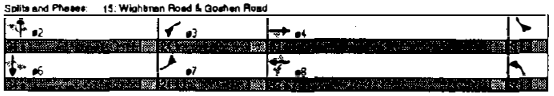
Timing Plan: Optimized
4/17/2003



Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%		
Storage Length (ft)	200		0	200		0	200		0	200		0	200
Storage Lanes	2		1	1		1	1		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	3434	1919	1631	1706	1900	1607	1744	5011	1607	1822	5085	1584	
Flt Permitted	0.950			0.257			0.387			0.133			
Satd. Flow (perm)	3434	1818	1631	461	1900	1607	710	5011	1607	255	5085	1584	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			160			103			247			148	
Link Speed (mph)		30			30			42			36		
Link Distance (ft)		678			834			414			306		
Travel Time (s)		15.4			14.4			6.7			5.8		
Volume (vph)	850	465	180	346	865	175	173	1060	276	110	880	120	
Peak Hour Factor	0.84	0.94	0.94	0.88	0.88	0.88	0.88	0.88	0.88	0.81	0.81	0.81	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	3%	3%	
Lane Group Flow (vph)	585	495	180	401	808	203	199	1239	312	136	469	148	
Turn Type	Prot		Perm	pmsplt		Perm	pmsplt		Perm	pmsplt		Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8			2			6	
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	24.0	53.0	53.0	24.0	53.0	53.0	9.0	44.0	34.0	9.0	34.0	34.0	
Total Split (%)	20%	44%	44%	20%	44%	44%	8%	28%	28%	8%	28%	28%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord	
Act Effct Green (s)	20.0	49.0	49.0	69.0	49.0	49.0	35.0	30.0	30.0	35.0	30.0	30.0	
Actuated g/C Ratio	0.17	0.41	0.41	0.58	0.41	0.41	0.29	0.25	0.25	0.29	0.25	0.25	
v/c Ratio	1.02	0.83	0.21	0.81	1.03	0.28	0.80	0.99	0.53	0.97	0.37	0.29	
Uniform Delay, d1	50.0	28.5	0.0	16.9	35.5	11.1	34.6	44.0	7.4	52.0	37.2	0.0	
Delay	83.5	28.9	3.5	18.2	72.5	11.5	45.8	61.2	8.3	84.9	26.0	4.6	
LOS	F	C	A	B	E	B	D	E	A	F	C	A	
Approach Delay		51.4			48.3			50.2			34.2		
Approach LOS		D			D			D			C		
Queue Length 50th (ft)	~248	301	0	147	~580	48	117	351	39	58	102	0	
Queue Length 95th (ft)	#362	419	41	#226	#853	88	#213	#438	117	#154	106	0	
Internal Link Dist (ft)		598			554			334			226		
50th Up Block Time (%)					16%			4%					
95th Up Block Time (%)					32%			10%					
Turn Bay Length (ft)	200			200		200	200		200	200		200	
50th Bay Block Time %	17%	23%			43%			31%					
95th Bay Block Time %	42%	33%		9%	48%		9%	31%					
Queuing Penalty (veh)	147	165		47	185		18	183					

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 58 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 47.6	Intersection LOS: D
Intersection Capacity Utilization 104.0%	ICU Level of Service F
~: 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: 15: Wightman Road & Goshen Road



Lanes, Volumes, Timings
17: East Village & Goshen Road

Timing Plan: Optimized
4/17/2003



Lane Group						
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Storage Length (ft)	0	0		100	200	
Storage Lanes	1	1		0	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1761	1629	4528	0	1752	5036
Flt Permitted	0.950				0.160	
Satd. Flow (perm)	1761	1629	4528	0	296	5036
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		108				
Link Speed (mph)	30		39			36
Link Distance (ft)	940		548			882
Travel Time (s)	12.7		10.2			7.4
Volume (vph)	210	95	1946	810	87	400
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	233	106	2033	0	100	500
Turn Type		Perm		custom		
Protected Phases	5		2		1	6
Permitted Phases		8			6	
Detector Phases	5	8	2		1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	9.0		9.0	9.0
Total Split (s)	20.0	20.0	29.0	0.0	11.0	40.0	29.0
Total Split (%)	33%	33%	48%	0%	18%	67%	48%
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord	None		Coord
Act Effct Green (s)	13.3	13.3	27.7		34.7	35.7
Actuated g/C Ratio	0.22	0.22	0.46		0.58	0.60
v/c Ratio	0.60	0.24	0.97		0.29	0.15
Uniform Delay, d1	20.8	0.0	13.0		4.4	4.2
Delay	20.8	4.8	13.5		10.1	8.5
LOS	C	A	B		B	A
Approach Delay	15.8		13.5		7.1	
Approach LOS	B		B		A	
Queue Length 50th (ft)	75	0	236		16	29
Queue Length 95th (ft)	130	50	m#277		m#40	47
Internal Link Dist (ft)	480		505			306
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)				200		
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 18 (27%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 69.4%	ICU Level of Service B
m: Volume for 95th percentile queue is metered by upstream signal.	

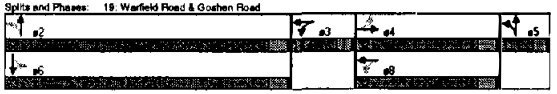
Splits and Phases: 17: East Village & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			-1%	
Storage Length (ft)	0		0	0		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sald. Flow (prot)	1752	1813	0	1752	1813	0	1744	4918	0	1781	5000	0
Flt Permitted	0.845			0.307			0.481			0.068		
Sald. Flow (perm)	1520	1813	0	566	1813	0	846	4918	0	128	5000	0
Right Turn on Red			Yes			Yes			Yes			Yes
Sald. Flow (RTOR)		6			6			60			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1137			1217			365			731	
Travel Time (s)		25.4			27.7			8.3			16.6	
Volume (vph)	20	166	25	119	192	15	40	1206	180	89	3067	35
Peak Hour Factor	0.77	0.77	0.77	0.76	0.76	0.76	0.90	0.90	0.90	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	26	255	0	151	178	0	44	1539	0	25	456	0
Turn Type	Perm			custom			custom			Perm		
Protected Phases		4		3	3 8		5	5 2			6	2 8
Permitted Phases	4			3 8			2			6		
Detector Phase	4	4		3	3 8		5	5 2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0			4.0	4.0	4.0
Minimum Split (s)	32.0	32.0		8.0			8.0			23.0	23.0	23.0
Total Split (s)	32.0	32.0	0.0	14.0	46.0	0.0	11.0	74.0	0.0	83.0	83.0	83.0
Total Split (%)	27%	27%	0%	12%	38%	0%	9%	62%	0%	53%	53%	0%
Yellow Time (s)	4.0	4.0		4.0			4.0			4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0			1.0			1.0	1.0	1.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None			None			Coord	Coord	
Act Effct Green (s)	23.4	23.4		33.3	37.3		70.7	74.7		83.7	83.7	
Actuated g/C Ratio	0.20	0.20		0.28	0.31		0.59	0.62		0.53	0.53	
v/c Ratio	0.11	0.50		0.59	0.31		0.08	0.50		0.37	0.17	
Uniform Delay, d1	38.7	45.2		31.2	30.4		8.8	12.0		18.5	13.8	
Delay	37.8	44.7		50.8	29.7		5.3	5.8		23.8	14.7	
LOS	D	D		D	C		A	A		C	B	
Approach Delay		44.2			36.2			5.8			15.1	
Approach LOS		D			D			A			B	
Queue Length 50th (ft)	17	207		87	101		0	24		11	81	
Queue Length 95th (ft)	34	242		112	126		m11	102		32	70	
Internal Link Dist (ft)		1037			1137			315			651	
50th Up Block Time (%)												
95th Up Block Time (%)								3%				
Turn Bay Length (ft)							100					
50th Bay Block Time %								1%				
95th Bay Block Time %								4%				
Queuing Penalty (veh)								23				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 64.0%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

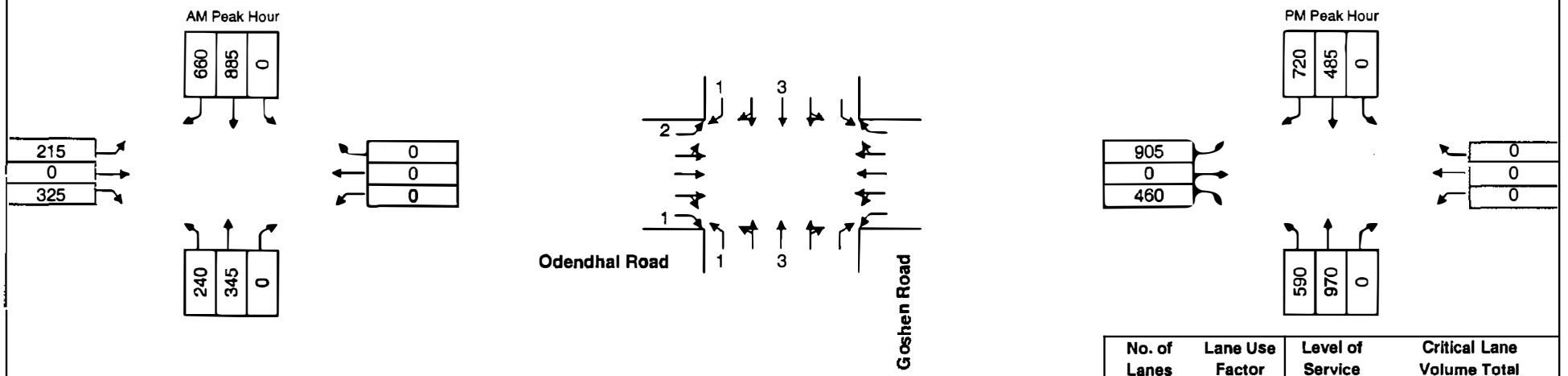
Splits and Phases: 19: Warfield Road & Goshen Road



Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2015 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	345	0.4	138	0	138	771
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	885	0.4	354	240	594	
	SBR	531	1	531	240	771	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	129
	EBR	85	1	85	0	85	
	EBL	215	0.6	129		129	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							900
						Level Of Service	A
						v/c ratio	0.56

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	970	0.4	388	0	388	784
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	485	0.4	194	590	784	
	SBR	177	1	177	590	767	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	543
	EBR	0	1	0	0	0	
	EBL	905	0.6	543		543	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,327
						Level Of Service	D
						v/c ratio	0.83

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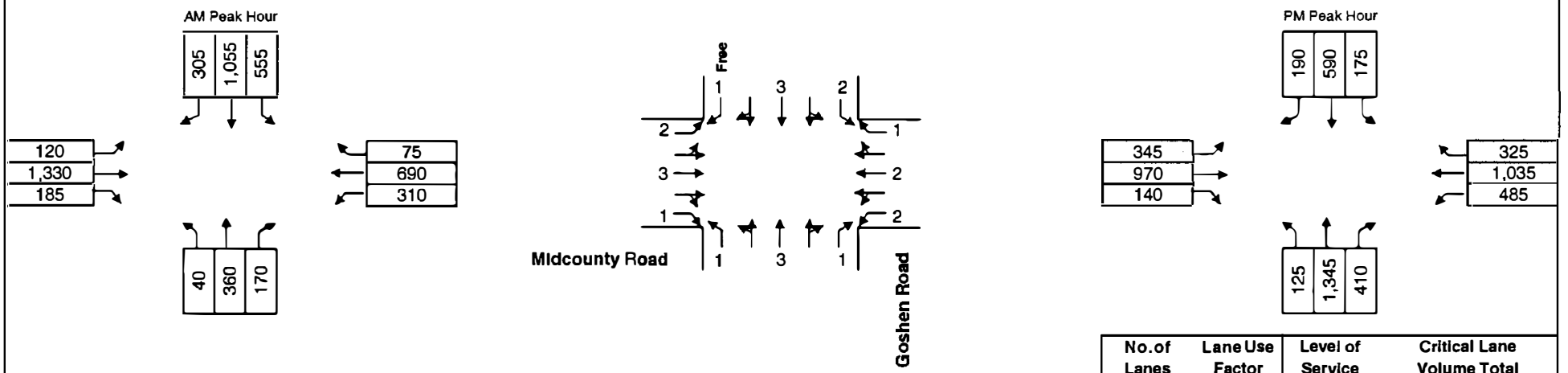
Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2015 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 37522



No.of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	360	0.4	144	333	477	477
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,055	0.4	422	40	462	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0		0	
2	EB	1,330	0.4	532	186	718	718
	EBR	145	1	145	186	331	
	EBL	0	0.6	0		0	
	WB	690	0.55	380	72	452	
	WBR	0	1	0	0	0	
	WBL	0	0.6	0		0	
							1,195
						Level Of Service	C
						v/c ratio	0.75

PM Peak Hour

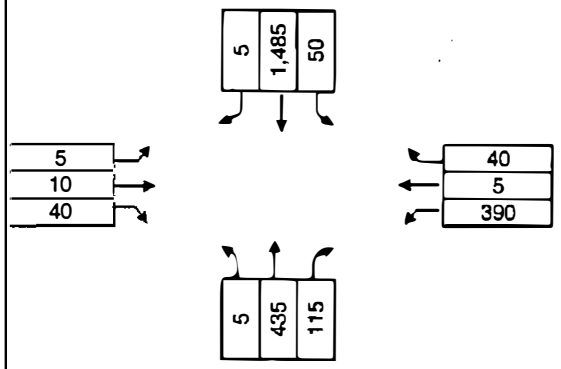
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,345	0.4	538	105	643	643
	NBR	119	1	119	105	224	
	NBL	0	1	0		0	
	SB	590	0.4	236	125	361	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0	0	0	
2	EB	970	0.4	388	291	679	776
	EBR	15	1	15	291	306	
	EBL	0	0.6	0		0	
	WB	1,035	0.55	569	207	776	
	WBR	220	1	220	207	427	
	WBL	0	0.6	0		0	
							1,419
						Level Of Service	D
						v/c ratio	0.89

Turning Movement Summary and Level of Service

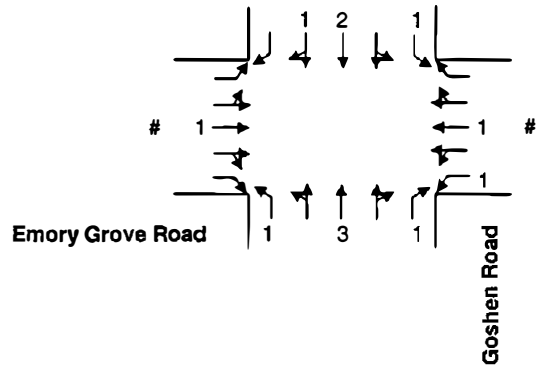
Count Date: 2/6/02 Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2015 - 6 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 37522

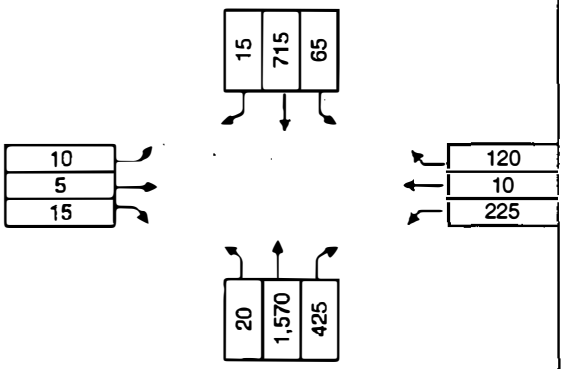
AM Peak Hour



# Indicates shared lane for all movements



PM Peak Hour



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	435	0.4	174	50	224	601
	NBR	115	1	115	50	165	
	NBL	0	1	0		0	
	SB	1,490	0.4	596	5	601	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	55	1	55	0	55	55
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	435	0.55	239	0	239	239
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							895
						Level Of Service	A
						v/c ratio	0.56

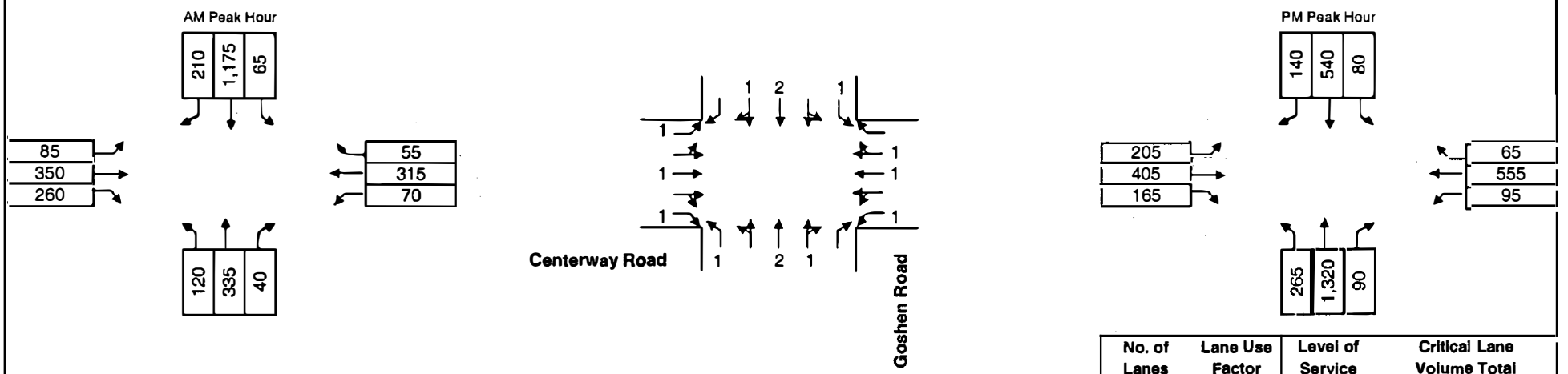
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,570	0.4	628	65	693	693
	NBR	425	1	425	65	490	
	NBL	0	1	0		0	
	SB	730	0.4	292	20	312	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	30	1	30	0	30	30
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	355	0.55	195	0	195	195
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							918
						Level Of Service	A
						v/c ratio	0.57

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2015 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

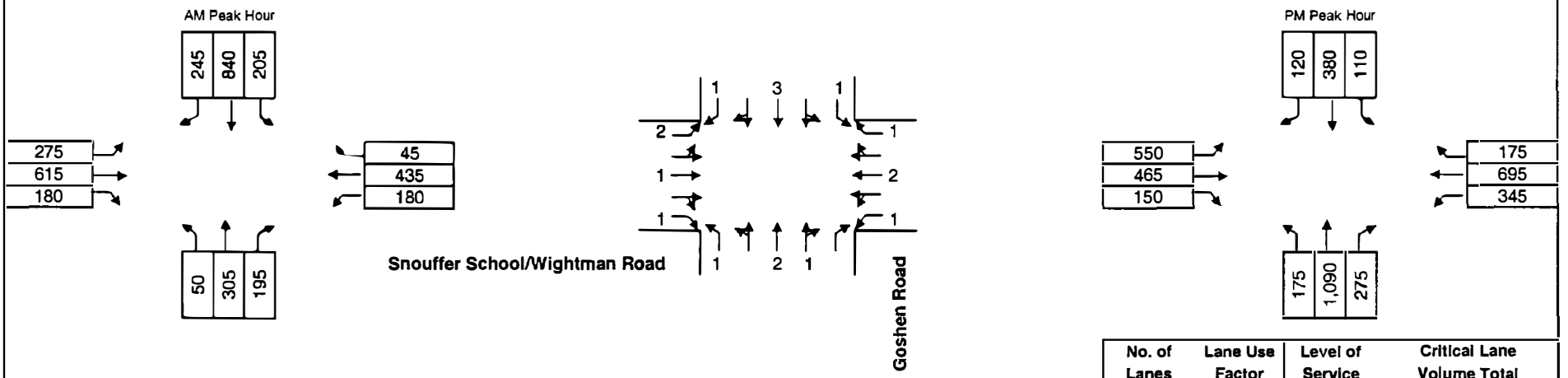
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	375	0.4	150	65	215	674
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,385	0.4	554	120	674	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	350	1	350	70	420	420
	EBR	140	1	140	70	210	
	EBL	0	1	0		0	
	WB	370	0.55	204	85	289	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,094
						Level Of Service	B
						v/c ratio	0.68

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,410	0.4	564	80	644	644
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	680	0.4	272	265	537	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	405	1	405	95	500	546
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	620	0.55	341	205	546	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,190
						Level Of Service	C
						v/c ratio	0.74

Turning Movement Summary and Level of Service

Count Date: 2/13/02 | Location: Goshen Road/Snouffer School/Wightman Road
Conditions/ Design Year: 2015 - 6 Lanes
Computed by: MAM | Date: 9/12/2002 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	500	0.4	200	205	405	405
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	840	0.4	336	50	386	
	SBR	80	1	80	50	130	
	SBL	0	1	0		0	
2	EB	615	1	615	180	795	795
	EBR	130	1	130	180	310	
	EBL	0	0.6	0		0	
	WB	435	0.55	239	165	404	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,200
						Level Of Service	C
						v/c ratio	0.75

PM Peak Hour

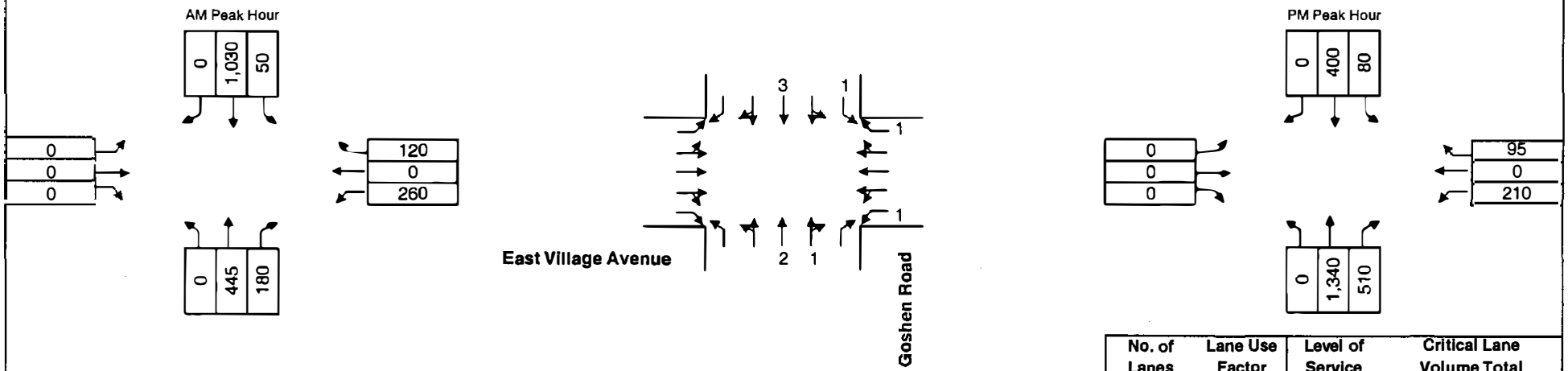
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,365	0.4	546	110	656	656
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	380	0.4	152	175	327	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	465	1	465	345	810	810
	EBR	0	1	0	0	0	
	EBL	0	0.6	0		0	
	WB	695	0.55	382	330	712	
	WBR	65	1	65	330	395	
	WBL	0	1	0		0	
							1,466
						Level Of Service	E
						v/c ratio	0.92

K:\projects\199-73-17\Admeng\Traffic\Analysis\2015\Build\6 Lane\Critical Lanes\[15 Snouffer School.xls]Report

Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/East Village Avenue
Conditions/
Design Year: 2015 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	625	0.4	250	50	300	412
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,030	0.4	412	0	412	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	260
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	70	1	70	0	70	
	WBL	260	1	260		260	
							672
						Level Of Service	A
						v/c ratio	0.42

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,850	0.4	740	80	820	820
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	400	0.4	160	0	160	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	210
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	15	1	15	0	15	
	WBL	210	1	210		210	
							1,030
						Level Of Service	B
						v/c ratio	0.64

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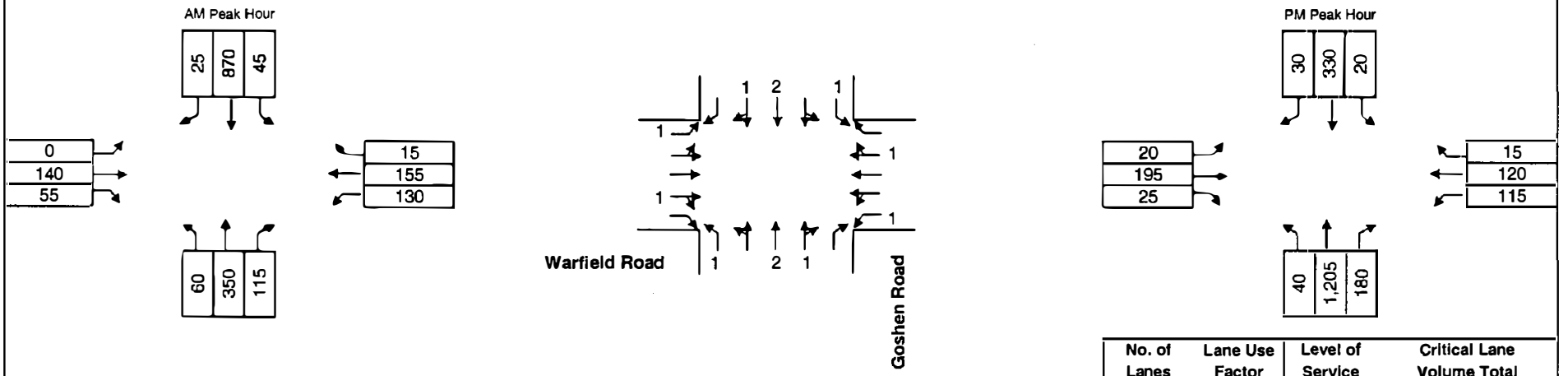
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/Warfield Road
Conditions/
Design Year: 2015 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	465	0.4	186	45	231	418
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	895	0.4	358	60	418	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	195	1	195	130	325	325
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	170	1	170	0	170	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							743
						Level Of Service	A
						v/c ratio	0.46

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,385	0.4	554	20	574	574
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	360	0.4	144	40	184	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	220	1	220	115	335	335
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	135	1	135	20	155	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							909
						Level Of Service	A
						v/c ratio	0.57

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Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2015 - 6 Lane (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:01.9	*00:01.9*
From Odendhal Road to Midcounty Hwy	00:43.0	00:41.1
Midcounty Highway	00:59.0	*00:16.0*
From Midcounty Hwy to Emory Grove Rd	01:21.7	00:22.7
Emory Grove Road	01:33.2	*00:11.5*
From Emory Grove Rd to Centerway Rd	02:26.0	00:52.8
Centerway Road	02:32.9	*00:06.9*
From Centerway Rd to Snouffer School Rd	04:18.8	01:45.9
Snouffer School Road	04:41.0	*00:22.2*
From Snouffer School Rd to East Village Ave	05:02.3	00:21.3
East Village Avenue	05:08.8	*00:06.5*
From East Village Ave to Warfield Rd	05:43.9	00:35.1
Warfield Road	05:46.4	*00:02.5*
TOTAL MOVING TIME		04:38.9
TOTAL STOPPED TIME		01:07.5
TOTAL TRAVEL TIME	**05:46.4**	**05:46.4**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:07.8	*00:07.8*
From Warfield Rd to East Village Ave	00:44.2	00:36.4
East Village Avenue	00:50.9	*00:06.7*
From East Village Ave to Snouffer School Rd	01:18.0	00:27.1
Snouffer School Road	01:43.5	*00:25.5*
From Snouffer School Rd to Centerway Rd	03:28.2	01:44.7
Centerway Road	03:46.7	*00:18.5*
From Centerway Rd to Emory Grove Rd	04:39.1	00:52.4
Emory Grove Road	04:43.6	*00:04.5*
From Emory Grove Rd to Midcounty Hwy	05:10.8	00:27.2
Midcounty Highway	05:31.7	*00:20.9*
From Midcounty Hwy to Odendhal Rd	06:08.3	00:36.6
Odendhal Road	06:09.4	*00:01.1*
TOTAL MOVING TIME		04:44.4
TOTAL STOPPED TIME		01:25.0
TOTAL TRAVEL TIME	**06:09.4**	**06:09.4**

Goshen Road Travel Time Study Sheet

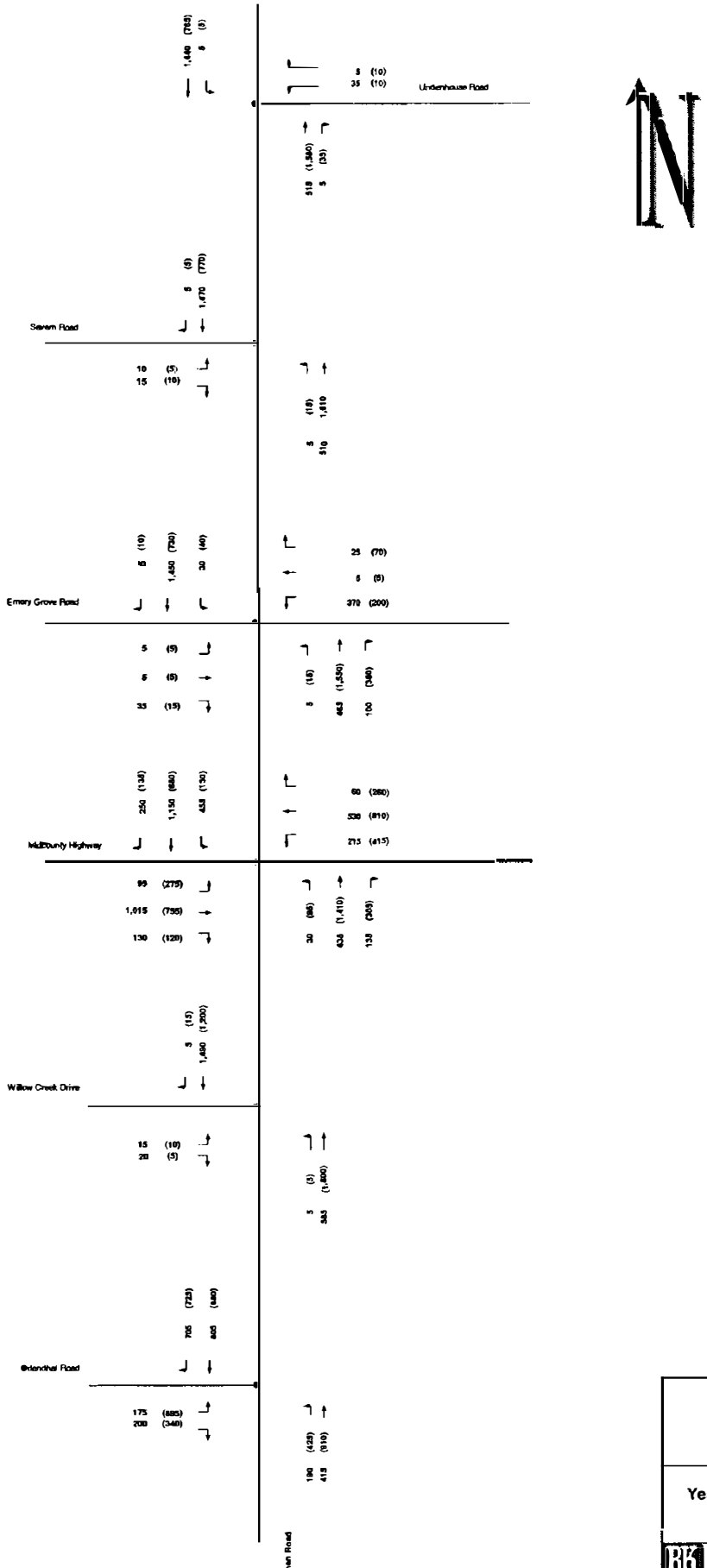
Travel Time Run # _____ Start Time 2015 - 6 Lane (PM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:07.7	*00:07.7*
From Odendhal Road to Midcounty Hwy	00:43.2	00:35.5
Midcounty Highway	01:20.4	*00:37.2*
From Midcounty Hwy to Emory Grove Rd	01:42.8	00:22.4
Emory Grove Road	01:47.9	*00:05.1*
From Emory Grove Rd to Centerway Rd	02:48.3	01:00.4
Centerway Road	03:02.9	*00:14.6*
From Centerway Rd to Snouffer School Rd	05:10.5	02:07.6
Snouffer School Road	05:57.6	*00:47.1*
From Snouffer School Rd to East Village Ave	06:19.3	00:21.7
East Village Avenue	06:26.8	*00:07.5*
From East Village Ave to Warfield Rd	07:02.5	00:35.7
Warfield Road	07:07.0	*00:04.5*
TOTAL MOVING TIME		05:03.3
TOTAL STOPPED TIME		02:03.7
TOTAL TRAVEL TIME	**07:07.0**	**07:07.0**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:11.3	*00:11.3*
From Warfield Rd to East Village Ave	00:50.3	00:39.0
East Village Avenue	00:55.3	*00:05.0*
From East Village Ave to Snouffer School Rd	01:23.1	00:27.8
Snouffer School Road	01:45.1	*00:22.0*
From Snouffer School Rd to Centerway Rd	03:44.4	01:59.3
Centerway Road	04:03.8	*00:19.4*
From Centerway Rd to Emory Grove Rd	05:00.7	00:56.9
Emory Grove Road	05:03.6	*00:02.9*
From Emory Grove Rd to Midcounty Hwy	05:27.8	00:24.2
Midcounty Highway	05:44.6	*00:16.8*
From Midcounty Hwy to Odendhal Rd	06:08.0	00:23.4
Odendhal Road	06:30.7	*00:22.7*
TOTAL MOVING TIME		04:50.6
TOTAL STOPPED TIME		01:40.1
TOTAL TRAVEL TIME	**06:30.7**	**06:30.7**

APPENDIX H: 2025 – No Build Capacity Analyses

Turning Movement Volumes
Synchro
Critical Lane Volume
Highway Capacity Software



South End of Corridor

NOTE:
AM (PM)

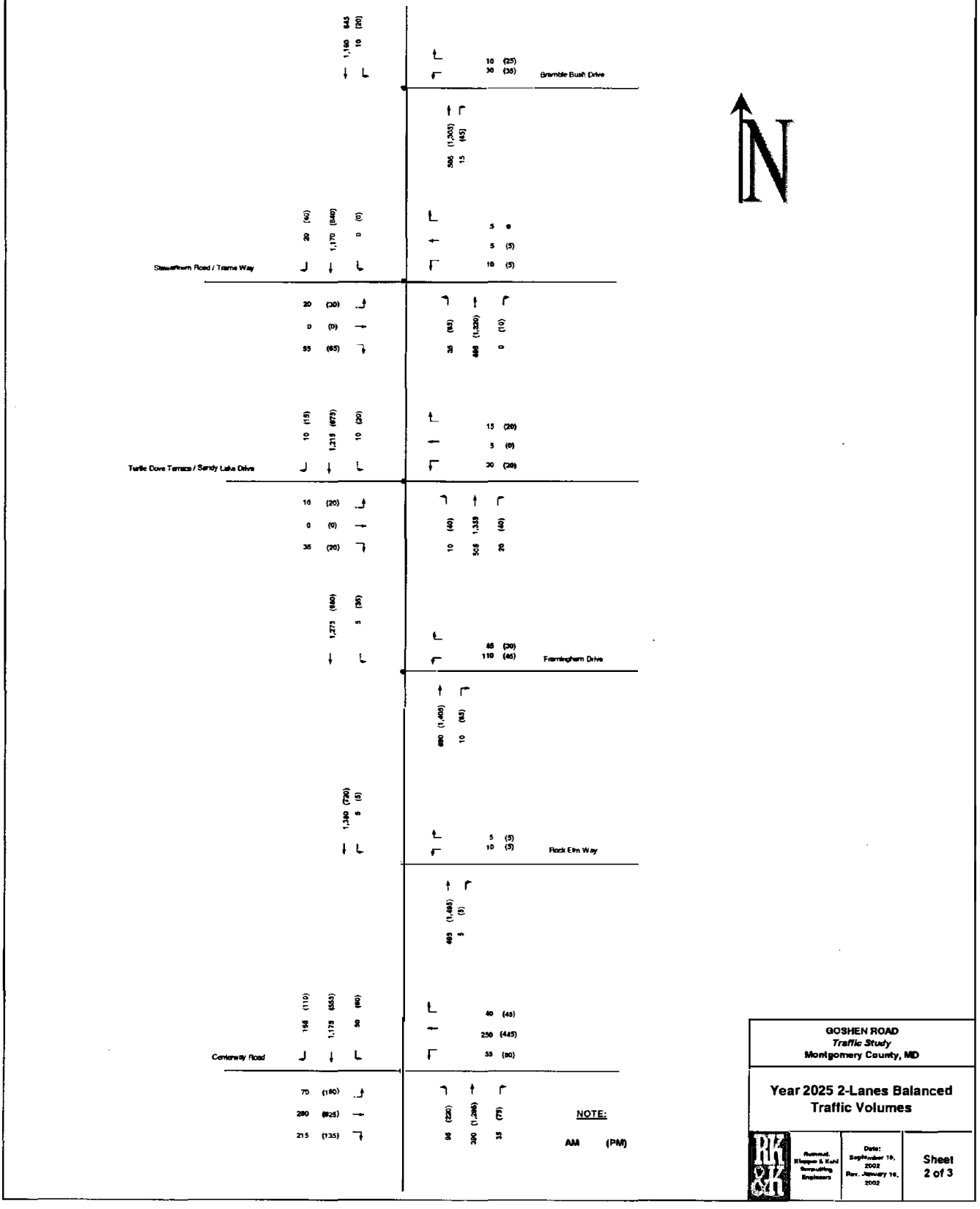
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 2-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: September 13, 2002
Rev. January 16, 2002

Sheet 1 of 3



GOSHEN ROAD
Traffic Study
Montgomery County, MD

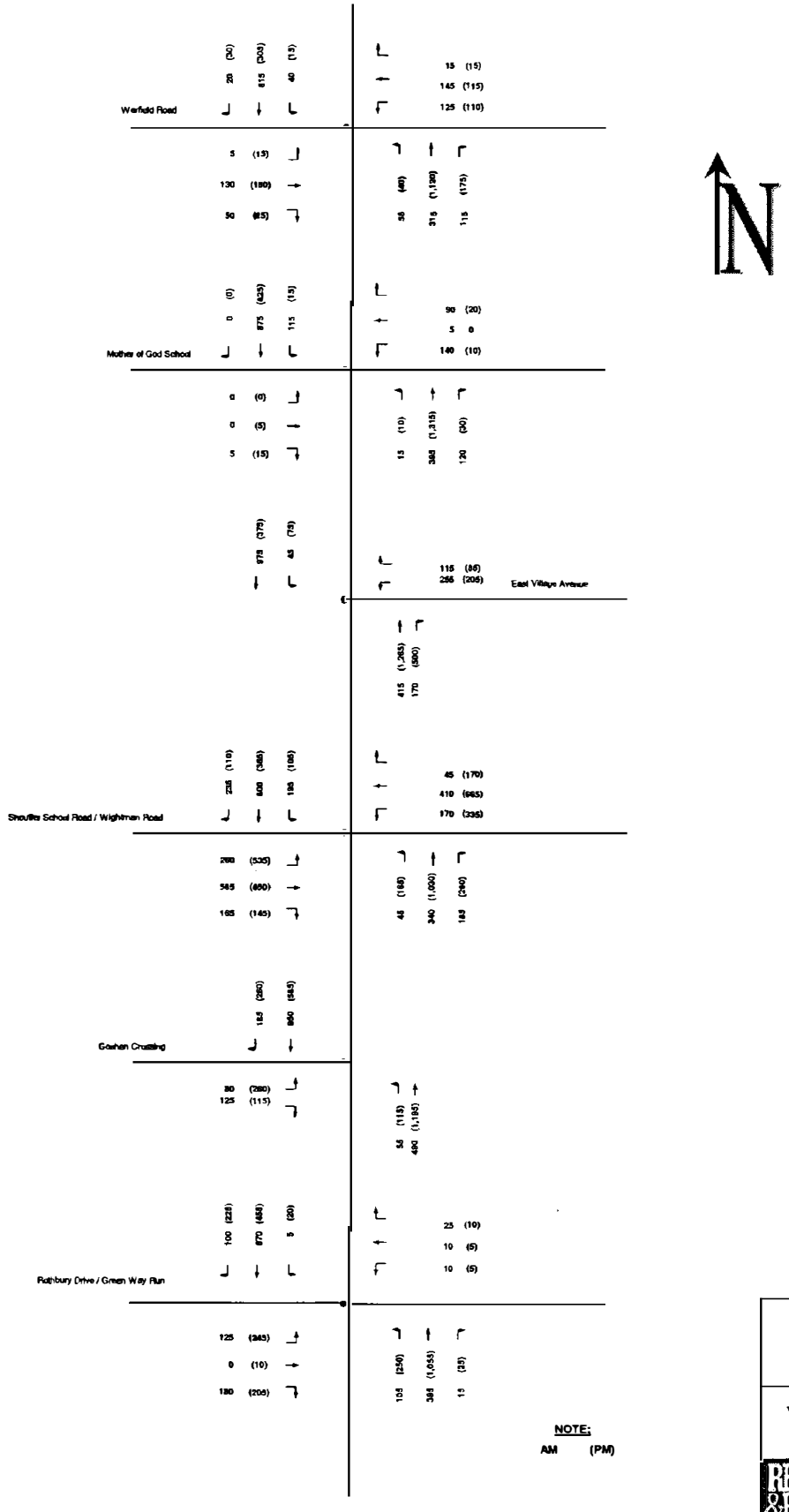
Year 2025 2-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2002

Sheet 2 of 3

North End of Corridor



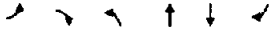
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 2-Lanes Balanced Traffic Volumes

Rand, Klepper & Kidd Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2002

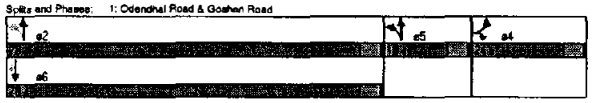
Sheet 3 of 3



Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Storage Length (ft)	0	0	200			200						
Storage Lanes	1	1	1			1						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0						
Leading Detector (ft)	50	50	50	50	50	50						
Trailing Detector (ft)	0	0	0	0	0	0						
Turning Speed (mph)	15	9	15			9						
Satd. Flow (prot)	1805	1615	1805	1845	1845	1615						
Flt Permitted	0.950		0.147									
Satd. Flow (perm)	1805	1615	279	1845	1845	1615						
Right Turn on Red		Yes				Yes						
Satd. Flow (RTOR)		220				617						
Link Speed (mph)		30			30							
Link Distance (ft)	1524			796	803							
Travel Time (s)	34.6			18.1	18.3							
Volume (vph)	175	200	190	415	805	705						
Peak Hour Factor	0.81	0.81	0.87	0.87	0.89	0.89						
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%						
Lane Group Flow (vph)	162	220	218	477	904	794						
Turn Type		custom	custom			Perm						
Protected Phases	1		4	5	2		6		2			
Permitted Phases			4	2			6					
Detector Phases	1		4	5	2		6					
Minimum Initial (s)	4.0		4.0	4.0		7.0	7.0	7.0				
Minimum Split (s)	20.0		20.0	9.0		38.0	38.0	38.0				
Total Split (s)	24.0		24.0	15.0	96.0	78.0	78.0	78.0				
Total Split (%)	20%		20%	15%	80%	65%	65%	65%				
Yellow Time (s)	4.0		4.0	4.0		4.0	4.0	4.0				
All-Red Time (s)	1.0		1.0	1.0		1.0	1.0	1.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None		None	None		Coord	Coord	Coord				
Act Effct Green (s)	17.4		17.4	90.6	84.6	80.8	80.8					
Actuated g/C Ratio	0.15		0.15	0.76	0.70	0.67	0.67					
v/c Ratio	0.74		0.52	0.34	0.69	0.72	0.61					
Uniform Delay, d1	49.1		0.0	12.4	3.6	12.5	1.6					
Delay	49.6		5.9	16.6	4.0	18.1	3.6					
LOS	D		A	B	A	B	A					
Approach Delay	26.6			8.0	8.6							
Approach LOS	C			A	A							
Queue Length 50th (ft)	142		0	36	93	296	77					
Queue Length 95th (ft)	221		59	82	131	m254	m19					
Internal Link Dist (ft)	1444			716	723							
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200			200					
50th Bay Block Time %						86%						
95th Bay Block Time %						22%						
Queuing Penalty (veh)						56						

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 73 (61%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 79.4%	ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1: Odendhal Road & Goshen Road





Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Grade (%)		0%			0%			2%			-2%			
Storage Length (ft)	200		200	200		200	200		200	500		200		
Storage Lanes	1		1	1		1	1		0	1		1		
Total Lost Time (s)	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0		
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50		
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9		
Satd. Flow (prot)	1752	3806	1668	1752	3506	1668	1752	3646	0	1770	1863	1564		
Flt Permitted	0.266			0.126			0.070			0.509				
Satd. Flow (perm)	489	3806	1668	231	3506	1668	129	3646	0	676	1863	1564		
Right Turn on Red			Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)			90			62		47				59		
Link Speed (mph)		30			30			30			30			
Link Distance (ft)		957			758			819			863			
Travel Time (s)		14.9			17.5			11.4			22.3			
Volume (vph)	95	1015	190	215	680	60	30	456	185	455	1180	280		
Peak Hour Factor	0.82	0.82	0.82	0.96	0.96	0.96	0.83	0.83	0.83	0.97	0.97	0.97		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%		
Lane Group Flow (vph)	116	1238	159	224	552	62	36	567	0	469	1186	258		
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		Free		
Protected Phases	7	4		3	8		5	2		1	6			
Permitted Phases	4		4	8		8	2			6		Free		
Detector Phases	7	4	4	3	8	8	5	2		1	6			
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0			
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	9.0	33.0		9.0	33.0			
Total Split (s)	12.0	36.0	36.0	12.0	36.0	36.0	11.0	81.0	0.0	11.0	81.0	0.0		
Total Split (%)	10%	30%	30%	10%	30%	30%	9%	51%	0%	9%	51%	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	1.0	1.0	2.0	1.0	1.0	1.0	2.0		1.0	2.0			
Lead/Lag														
Lead-Lag Optimize?														
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord			
Act Effct Green (s)	40.0	32.0	32.0	40.0	32.0	32.0	64.0	57.0		64.0	57.0	120.0		
Actuated g/C Ratio	0.33	0.27	0.27	0.33	0.27	0.27	0.53	0.48		0.53	0.48	1.00		
v/c Ratio	0.47	1.32	0.33	1.25	0.59	0.13	0.22	0.43		1.24	1.34	0.16		
Uniform Delay, d1	26.8	44.0	34.3	58.2	36.8	0.0	11.6	18.1		21.7	31.5	0.0		
Delay	26.5	166.5	15.1	147.2	36.8	8.4	10.8	14.4		78.1	146.0	0.0		
LOS	C	F	B	F	D	A	B	B		E	F	A		
Approach Delay		140.0			65.4			14.3			109.7			
Approach LOS		F			E			B			F			
Queue Length 50th (ft)	80	~853	56	~155	196	0	9	111		~300	~1204	0		
Queue Length 95th (ft)	95	#946	56	#390	256	29	m22	164		m#160	m#570	m0		
Internal Link Dist (ft)		877			668			539			803			
50th Up Block Time (%)		12%									48%			
95th Up Block Time (%)		16%									13%			
Turn Bay Length (ft)	200		200	200		200	200			500		200		
50th Bay Block Time %		56%									58%			
95th Bay Block Time %		97%		57%	17%						81%			
Queuing Penalty (veh)		66		73	19						553			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 52 (43%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 97.8	Intersection LOS: F
Intersection Capacity Utilization 126.7%	ICU Level of Service H
~ 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.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road

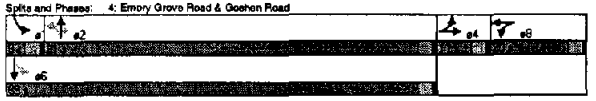


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		200			0
Storage Lanes	0		0	1		0	0		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1699	0	1723	1708	0	0	1625	1599	1736	1634	0
Flt Permitted		0.994			0.950			0.680		0.323		
Satd. Flow (perm)	0	1690	0	1725	1708	0	0	1242	1599	611	1634	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			41			5			122			
Link Speed (mph)		30			30			28			35	
Link Distance (ft)		304			368			599			467	
Travel Time (s)		6.9			8.1			21.5			9.5	
Volume (vph)	6	5	35	370	5	20	6	485	100	30	1460	5
Peak Hour Factor	0.72	0.72	0.72	0.75	0.76	0.76	0.82	0.82	0.82	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%
Lane Group Flow (vph)	0	63	0	272	255	0	0	597	122	34	1664	0
Turn Type	Split			Split			Perm		Perm	pm+ov		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0	
Total Split (s)	11.0	11.0	0.0	20.0	20.0	0.0	61.0	61.0	61.0	8.0	69.0	0.0
Total Split (%)	9%	9%	0%	17%	17%	0%	68%	68%	68%	7%	74%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord	
Act Effct Green (s)		7.0		16.0	16.0			82.4	82.4	87.2	87.2	
Actuated g/C Ratio		0.06		0.13	0.13			0.69	0.69	0.73	0.73	
v/c Ratio		0.46		1.16	1.10			0.70	0.11	0.07	1.24	
Uniform Delay, d1		119.3		62.0	60.6			12.6	6.9	4.6	15.4	
Delay		25.4		138.7	117.0			10.9	1.9	3.4	110.4	
LOS		C		F	F			B	A	A	F	
Approach Delay		25.4			128.2			9.4			108.2	
Approach LOS		C			F			A			F	
Queue Length 50th (ft)		13		~265	~232			74	0	4	~1619	
Queue Length 95th (ft)		36		#548	#515			185	0	m6	m#1497	
Internal Link Dist (ft)		224			275			805			387	
50th Up Block Time (%)											47%	
95th Up Block Time (%)				21%	15%						40%	
Turn Bay Length (ft)				200					200	200		
50th Bay Block Time %				25%	15%						42%	
95th Bay Block Time %				43%	30%						42%	
Queuing Penalty (veh)				87	72						727	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 86.9 Intersection LOS: F
Intersection Capacity Utilization 115.1% ICU Level of Service G
~: 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.
m: Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road

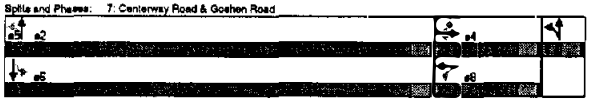


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3431	0	1752	1823	0	1752	1810	0
Flt Permitted	0.872			0.222			0.047			0.047		
Satd. Flow (perm)	686	1845	1568	410	3431	0	87	1823	0	87	1810	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			13			12			14
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		374			432			792			367	
Travel Time (s)		8.5			9.8			18.0			7.0	
Volume (vph)	70	280	215	55	250	40	95	390	35	50	1175	185
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.96	0.85	0.85	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	77	308	236	59	309	0	112	500	0	53	1429	0
Turn Type	Perm		Perm	Perm			custom			Perm		
Protected Phases		4			8		6	6			2	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		6	6		6	2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		4.0			7.0	7.0	7.0
Minimum Split (s)	17.0	17.0	17.0	17.0	17.0		9.0			27.0	27.0	27.0
Total Split (s)	22.0	22.0	22.0	22.0	22.0	0.0	9.0	98.0	0.0	89.0	89.0	0.0	89.0
Total Split (%)	18%	18%	18%	18%	18%	0%	8%	82%	0%	74%	74%	0%	74%
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)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	1.0		1.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None			Coord	Coord		Coord
Act Effct Green (s)	18.0	18.0	18.0	18.0	18.0		90.0	84.0		85.0	86.0		
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.75	0.70		0.71	0.71		
v/c Ratio	0.75	1.10	0.65	0.66	0.59		0.69	0.86		0.86	1.11		
Uniform Delay, d1	48.8	51.0	46.8	50.6	45.4		10.1	5.8		13.1	17.3		
Delay	70.4	144.9	46.5	127.1	48.8		42.6	1.7		29.6	74.5		
LOS	E	F	B	F	D		D	A		E	E		
Approach Delay		78.7			58.8			9.2			74.5		
Approach LOS		E			E			A			E		
Queue Length 50th (ft)	56	~279	81	46	115		44	0		27	~1202		
Queue Length 95th (ft)	#143	#452	151	#136	162		m#101	m0		#123	#1530		
Internal Link Dist (ft)		294			352			712			287		
50th Up Block Time (%)											30%		
95th Up Block Time (%)		39%									35%		
Turn Bay Length (ft)	200		200	200			200			200			
50th Bay Block Time %		27%									30%		
95th Bay Block Time %		55%									35%		
Queuing Penalty (veh)		32									460		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 69.5 Intersection LOS: E
Intersection Capacity Utilization 116.0% ICU Level of Service G
~: 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.
m: Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Centerway Road & Goshen Road



Lanes, Volumes, Timings
15: Wightman Road & Goshen Road

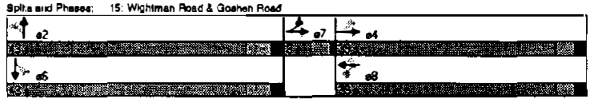
Timing Plan: Optimized
1/6/2003

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200			200	200	0	200		0
Storage Lanes	1		0	1			1	1	0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1856	0	1736	1880	1607	1744	3337	0	1823	3420	0
Flt Permitted	0.306			0.158			0.109			0.336		
Satd. Flow (perm)	570	1856	0	281	1880	1607	200	3337	0	646	3420	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			30		48			54		
Link Speed (mph)		30			30			48			49	
Link Distance (ft)		677			634			415			906	
Travel Time (s)		15.4			14.4			5.9			4.3	
Volume (vph)	260	585	165	170	410	45	45	340	165	195	800	235
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	3%	3%
Lane Group Flow (vph)	263	758	0	183	441	48	54	625	0	217	1150	0
Turn Type	custom			Perm		Perm	Perm			Perm		
Protected Phases	7	7 4			8		2	2			6	4
Permitted Phases	4	4		8		8	2			6		
Detector Phases	7	7 4		8	8	8	2	2		6	6	
Minimum Initial (s)	4.0			7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	8.0			26.0	26.0	26.0	22.0	22.0		22.0	22.0	26.0
Total Split (s)	8.0	47.0	0.0	39.0	39.0	39.0	43.0	43.0	0.0	43.0	43.0	39.0
Total Split (%)	9%	52%	0%	43%	43%	43%	48%	48%	0%	48%	48%	43%
Yellow Time (s)	3.0			3.0	3.0	3.0	4.0	4.0		4.0	4.0	3.0
All-Red Time (s)	1.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None			None	None	None	Coord	Coord		Coord	Coord	None
Act Effct Green (s)	39.0	43.0		35.0	35.0	35.0	39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.43	0.48		0.39	0.39	0.39	0.43	0.43		0.43	0.43	
v/c Ratio	0.86	0.84		1.79	0.60	0.07	0.62	0.41		0.76	0.76	
Uniform Delay, d1	19.8	19.4		27.6	21.9	18.0	18.8	13.1		21.8	20.4	
Delay	39.4	24.0		250.4	22.5	5.5	40.8	13.4		22.0	18.3	
LOS	D	C		F	C	A	D	B		C	B	
Approach Delay		28.0			83.3			15.6			18.9	
Approach LOS		C			F			B			B	
Queue Length 50th (ft)	88	353		~158	196	0	23	68		90	234	
Queue Length 95th (ft)	#204	#581		#298	294	21	479	116		m127	m210	
Internal Link Dist (ft)		597			554			335			226	
50th Up Block Time (%)											6%	
95th Up Block Time (%)		4%									4%	
Turn Bay Length (ft)	200			200		200	200			200		
50th Bay Block Time %		26%			5%						9%	
95th Bay Block Time %	6%	37%		36%	24%						17%	
Queuing Penalty (veh)	26	82		67	27						75	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.79
Intersection Signal Delay: 32.3 Intersection LOS: C
Intersection Capacity Utilization 103.4% ICU Level of Service F
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Wightman Road & Goshen Road



Lanes, Volumes, Timings
17: East Village & Goshen Road

Timing Plan: Optimized
1/6/2003

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1791	1623	1645	1568	0	1641
Flt Permitted	0.950					0.966
Satd. Flow (perm)	1791	1623	1645	1568	0	1782
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		124		181		
Link Speed (mph)	30		48			49
Link Distance (ft)	558		585			389
Travel Time (s)	12.7		8.3			5.4
Volume (vph)	255	115	415	170	45	975
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91
Heavy Vehicles (%)	3%	0%	3%	3%	4%	3%
Lane Group Flow (vph)	274	124	441	181	0	1120
Turn Type		Perm		Perm	Perm	
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Minimum Initial (s)	4.0	4.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	22.0	22.0	68.0	68.0	68.0	68.0
Total Split (%)	24%	24%	76%	76%	76%	76%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	CoorM	Coord	Coord	Coord
Act Effct Green (s)	17.2	17.2	64.8	64.8		64.8
Actuated g/C Ratio	0.19	0.19	0.72	0.72		0.72
v/c Ratio	0.82	0.50	0.33	0.15		0.87
Uniform Delay, d1	33.9	31.0	4.0	3.0		9.5
Delay	41.6	8.2	4.2	0.7		14.6
LOS	D	A	A	A		B
Approach Delay	30.6		3.2			14.6
Approach LOS	C		A			B
Queue Length 50th (ft)	149	0	71	0		420
Queue Length 95th (ft)	#259	44	#82	m0		#622
Internal Link Dist (ft)	478		505			309
50th Up Block Time (%)						19%
95th Up Block Time (%)						21%
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						186

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 107.5% ICU Level of Service F
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: East Village & Goshen Road



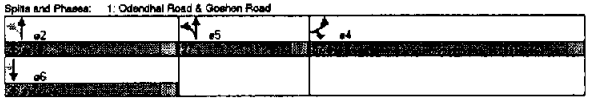
Lane Group	EBL	EBT	EBR	NBL	NBT	SBT	SBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	200			200	
Storage Lanes	1	1	1			1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15			9	
Satd. Flow (prot)	1805	1815	1805	1845	1845	1815	
Flt Permitted	0.960		0.125				
Satd. Flow (perm)	1805	1815	238	1845	1845	1815	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		225				556	
Link Speed (mph)	30			55	55		
Link Distance (ft)	1524			797	803		
Travel Time (s)	34.6			15.6	15.6		
Volume (vph)	695	340	425	910	460	725	
Peak Hour Factor	0.84	0.84	0.85	0.85	0.86	0.86	
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	
Lane Group Flow (vph)	952	362	500	1071	556	849	
Turn Type		custom	custom			Perm	
Protected Phases	4		4	5	2		6
Permitted Phases		4	2			6	
Detector Phase	4	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	9.0		20.0	20.0	20.0
Total Split (s)	57.0	57.0	27.0	63.0	36.0	36.0	36.0
Total Split (%)	48%	48%	23%	53%	30%	30%	30%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None		Coord	Coord	Coord
Act Effct Green (s)	53.0	53.0	56.0	59.0	32.0	32.0	
Actuated g/C Ratio	0.44	0.44	0.46	0.49	0.27	0.27	
v/c Ratio	1.19	0.45	1.22	1.18	1.19	1.01	
Uniform Delay, d1	33.5	7.9	43.6	30.5	44.0	44.8	
Delay	119.7	8.3	139.8	112.5	79.3	50.0	
LOS	F	A	F	F	E	D	
Approach Delay	58.0			120.5	49.8		
Approach LOS	F			F	D		
Queue Length 50th (ft)	~592	83	~426	~995	~499	~223	
Queue Length 95th (ft)	#1142	141	#612	#1140	m#533	m#261	
Internal Link Dist (ft)	1444			717	723		
50th Up Block Time (%)				26%			
95th Up Block Time (%)				57%			
Turn Bay Length (ft)			200			200	
50th Bay Block Time %			50%	44%	56%	12%	
95th Bay Block Time %			43%	47%	65%	21%	
Queuing Penalty (veh)			616	228	518	91	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 67.8 Intersection LOS: F
Intersection Capacity Utilization 119.8% ICU Level of Service G

- 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Odendhal Road & Goshen Road



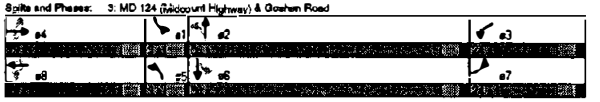
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		200	200		200	200		200
Storage Lanes	1		1	1		1	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1782	3606	1568	1782	3606	1568	1736	3376	0	1770	1863	1564
Flt Permitted	0.160			0.160			0.095			0.074		
Satd. Flow (perm)	299	3606	1568	299	3606	1568	187	3376	0	138	1863	1564
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			103			102		28				44
Link Speed (mph)		50			50			35			30	
Link Distance (ft)		667			709			618			863	
Travel Time (s)		14.9			17.6			12.0			20.1	
Volume (vph)	275	755	120	415	810	200	95	1410	305	150	560	135
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	309	848	135	446	871	280	100	1805	0	141	739	147
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		Free
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	9.0	33.0		9.0	33.0	
Total Split (s)	24.0	59.0	59.0	24.0	59.0	59.0	9.0	66.0	0.0	9.0	66.0	0.0
Total Split (%)	20%	24%	24%	20%	24%	24%	8%	45%	0%	8%	45%	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	1.0	1.0	2.0	1.0	1.0	1.0	2.0		1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	45.0	25.0	25.0	45.0	25.0	25.0	59.0	54.0		59.0	54.0	120.0
Actuated g/C Ratio	0.38	0.21	0.21	0.38	0.21	0.21	0.49	0.45		0.49	0.45	1.00
v/c Ratio	0.88	1.16	0.33	1.26	1.19	0.69	0.70	1.19		1.04	0.88	0.09
Uniform Delay, d1	30.2	47.5	31.1	33.7	47.5	37.3	14.2	32.4		48.0	30.1	0.0
Delay	44.3	119.2	12.5	145.2	129.4	28.1	17.2	94.5		53.9	26.8	0.0
LOS	D	F	B	F	F	C	B	F		F	C	A
Approach Delay		90.1			118.0			90.5			30.8	
Approach LOS		F			F			F			C	
Queue Length 50th (ft)	163	~409	20	~385	~428	129	38	~876		~75	397	0
Queue Length 95th (ft)	#336	#528	75	#502	#567	230	m32	m#891		m#161	m#805	m0
Internal Link Dist (ft)		577			689			538			803	
50th Up Block Time (%)								97%				
95th Up Block Time (%)								7%				
Turn Bay Length (ft)	200		200	200		200	200			200		200
50th Bay Block Time %		43%		50%	46%			53%			27%	
95th Bay Block Time %	40%	84%		79%	84%	12%		90%			45%	
Queuing Penalty (veh)	84	150		276	227	25		432			48	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 86.9 Intersection LOS: F
Intersection Capacity Utilization 120.8% ICU Level of Service H

- 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road

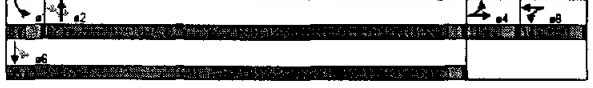


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		200	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1755	0	1728	1543	0	0	1827	1599	1736	1832	0
Flt Permitted		0.990			0.950	0.977		0.968		0.046		
Satd. Flow (perm)	0	1755	0	1728	1543	0	0	1808	1599	87	1832	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			31				394		2	
Link Speed (mph)		30			30			24			32	
Link Distance (ft)		904			354			885			1467	
Travel Time (s)		6.9			8.0			25.1			10.0	
Volume (vph)	5	5	10	200	5	70	15	1850	385	40	730	110
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	0.96	0.96	0.96	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
Lane Group Flow (vph)	0	36	0	166	162	0	0	1931	396	52	961	0
Turn Type		Split			Split		Perm		Perm	pm+pt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2		2	6		
Detector Phases	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0	
Total Split (s)	11.0	11.0	0.0	14.0	14.0	0.0	67.0	67.0	67.0	8.0	86.0	0.0
Total Split (%)	9%	9%	0%	12%	12%	0%	73%	73%	73%	7%	79%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord	
Act Effct Green (s)		7.0		10.0	10.0			89.0	89.0	95.4	95.4	
Actuated g/C Ratio		0.06		0.08	0.08			0.74	0.74	0.80	0.80	
v/c Ratio		0.30		1.15	1.10			1.22	0.31	0.41	0.66	
Uniform Delay, d1		21.9		55.0	44.6			16.2	0.0	2.9	5.0	
Delay		29.5		142.2	120.3			96.8	0.0	6.7	6.6	
LOS		C		F	F			F	A	A	A	
Approach Delay		29.5			130.7			79.3			6.6	
Approach LOS		C			F			E			A	
Queue Length 50th (ft)		10		~180	~144			~1695	0	9	323	
Queue Length 95th (ft)		30		#266	#244			m#1494	m0	37	319	
Internal Link Dist (ft)		224			274			803			387	
50th Up Block Time (%)								90%			1%	
95th Up Block Time (%)								24%			1%	
Turn Bay Length (ft)				200					800	200		
50th Bay Block Time %								30%			12%	
95th Bay Block Time %				22%	19%			24%			12%	
Queuing Penalty (veh)				20	15			543			6	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 82.5 Intersection LOS: F
Intersection Capacity Utilization 139.1% ICU Level of Service H
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3456	0	1752	1830	0	1752	1799	0
Flt Permitted	0.271			0.299			0.114			0.114		
Satd. Flow (perm)	500	1845	1568	546	3456	0	210	1830	0	210	1799	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139			11			6			11
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		374			432			791			358	
Travel Time (s)		8.5			9.8			18.0			8.1	
Volume (vph)	160	325	135	80	445	45	220	1295	75	60	554	110
Peak Hour Factor	0.97	0.97	0.97	0.87	0.87	0.87	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	165	335	139	92	663	0	247	1539	0	70	773	0
Turn Type	Perm		Perm	Perm			custom			Perm		
Protected Phases		4			8		5	2			6	2
Permitted Phases	4		4	8			2			6		
Detector Phases	4	4	4	8	8		5	2		6	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		4.0			7.0	7.0	7.0
Minimum Split (s)	17.0	17.0	17.0	17.0	17.0		8.0			17.0	17.0	17.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0	0.0	30.0	69.0	0.0	39.0	39.0	0.0
Total Split (%)	31%	31%	31%	31%	31%	0%	30%	69%	0%	39%	39%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0			4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0			1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None			Coord	Coord	Coord
Act Effct Green (s)	27.0	27.0	27.0	27.0	27.0		81.0	65.0		96.0	96.0	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27		0.81	0.65		0.96	0.96	
v/c Ratio	1.22	0.67	0.26	0.65	0.80		0.47	1.29		0.96	1.21	
Uniform Delay, d1	36.5	32.6	0.0	32.0	31.1		13.4	17.4		31.7	31.9	
Delay	140.1	33.8	5.2	39.9	31.6		16.0	129.3		104.6	117.0	
LOS	F	C	A	D	C		B	F		F	F	
Approach Delay		54.7			32.6			113.5			116.0	
Approach LOS		D			C			F			F	
Queue Length 50th (ft)	~130	190	0	52	161		75	~1266		48	~806	
Queue Length 95th (ft)	#251	289	44	#119	206		149	#1505		#127	#778	
Internal Link Dist (ft)		294			352			711			278	
50th Up Block Time (%)								47%			43%	
95th Up Block Time (%)		9%						88%			54%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		5%						39%			49%	
95th Bay Block Time %	28%	27%			5%			42%			57%	
Queuing Penalty (veh)	87	82			0			918			419	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 8:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 91.0 Intersection LOS: F
Intersection Capacity Utilization 125.6% ICU Level of Service H
~ 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.

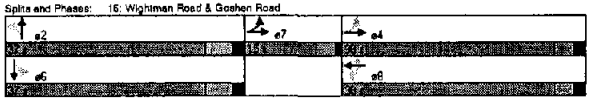
Splits and Phases: 7: Centerway Road & Goshen Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-2%			1%			1%			-2%		
Storage Length (ft)	200		0	200		200	200		0	200		0	
Storage Lanes	1		0	1		1	1		0	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50		
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	1770	1850	0	1796	1890	1607	1744	3403	0	1823	3416	0	
Flt Permitted	0.118			0.384			0.329			0.121			
Satd. Flow (perm)	220	1850	0	726	1890	1607	604	3403	0	232	3416	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			28			18		89			62		
Link Speed (mph)		30			30			45			49		
Link Distance (ft)		876			834			414			306		
Travel Time (s)		15.4			14.4			5.9			4.3		
Volume (vph)	535	450	105	335	865	170	165	1030	260	105	385	110	
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.88	0.88	0.88	0.81	0.81	0.81	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	0%	0%	0%	3%	
Lane Group Flow (vph)	569	633	0	390	773	198	188	1465	0	130	587	0	
Turn Type	custom			Perm		Perm	Perm			Perm			
Protected Phases	7	7 4			8			2			6	4	
Permitted Phases	7 4			8		8	2			6			
Detector Phases	7	7 4		8	8	8	2	2		6	6		
Minimum Initial (s)	4.0			7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0
Minimum Split (s)	8.0			28.0	28.0	28.0	22.0	22.0		22.0	22.0		28.0
Total Split (s)	15.0	53.0	0.0	38.0	38.0	38.0	37.0	37.0	0.0	37.0	37.0	0.0	55.0
Total Split (%)	17%	59%	0%	42%	42%	42%	41%	41%	0%	41%	41%	0%	42%
Yellow Time (s)	3.0			3.0	3.0	3.0	4.0	4.0		4.0	4.0		3.0
All-Red Time (s)	1.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None			None	None	None	Coord	Coord		Coord	Coord		None
Act Effct Green (s)	45.0			34.0	34.0	34.0	33.0	33.0		33.0	33.0		
Actuated g/C Ratio	0.50			0.38	0.38	0.38	0.37	0.37		0.37	0.37		
v/c Ratio	1.90			1.42	1.08	0.32	0.85	1.15		1.53	0.46		
Uniform Delay, d1	21.8			28.0	28.0	19.4	25.2	27.5		28.5	19.8		
Delay	258.6			179.1	78.3	18.9	48.8	96.3		211.6	19.9		
LOS	F			F	E	B	D	F		F	B		
Approach Delay		129.7			98.5			90.9			54.7		
Approach LOS		F			F			F			D		
Queue Length 50th (ft)	~457	222		~302	~497	73	97	~515		~108	113		
Queue Length 95th (ft)	#628	333		#448	#685	120	#215	#628		#181	197		
Internal Link Dist (ft)		598			554			334			226		
50th Up Block Time (%)								31%					
95th Up Block Time (%)	9%				23%			44%					
Turn Bay Length (ft)	200			200		200	200			200			
50th Bay Block Time %	71%	10%		39%	41%			43%					
95th Bay Block Time %	46%	22%		80%	50%		13%	50%					
Queuing Penalty (veh)	368	90		478	177		49	530					

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.90
Intersection Signal Delay: 97.2 Intersection LOS: F
Intersection Capacity Utilization 134.6% ICU Level of Service H
+ 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: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1781	1623	1845	1568	0	1830
Flt Permitted	0.950					0.200
Satd. Flow (perm)	1781	1623	1845	1568	0	389
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		49		548		
Link Speed (mph)	30		49			49
Link Distance (ft)	580		685			399
Travel Time (s)	12.7		9.3			5.4
Volume (vph)	205	1.85	1265	500	75	375
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	228	94	1390	549	0	563
Turn Type		Perm		Perm	Perm	
Protected Phases	6		2			6
Permitted Phases		6		2	6	
Detector Phases	6	6	2	2	6	6
Minimum Initial (s)	4.0	4.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	40.0	40.0	60.0	60.0	60.0	60.0
Total Split (%)	33%	33%	67%	67%	67%	67%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord	Coord	Coord	Coord
Act Effct Green (s)	13.2	13.2	38.8	38.8		38.8
Actuated g/C Ratio	0.22	0.22	0.65	0.65		0.65
v/c Ratio	0.58	0.24	1.16	0.45		2.36
Uniform Delay, d1	20.8	19.0	10.6	5.0		10.6
LOS	C	B	F	A		F
Approach Delay	17.6		61.4			267.4
Approach LOS	B		E			F
Queue Length 50th (ft)	74	13	~621	0		~346
Queue Length 95th (ft)	127	49	#975	27		#469
Internal Link Dist (ft)	480		605			309
50th Up Block Time (%)			27%			20%
95th Up Block Time (%)			50%			40%
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)			534			167

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.36
Intersection Signal Delay: 161.5 Intersection LOS: F
Intersection Capacity Utilization 125.8% ICU Level of Service H
+ 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: 17: East Village & Goshen Road

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - No Build (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:02.3	*00:02.3*
From Odendhal Road to Midcounty Hwy	00:47.7	00:45.4
Midcounty Highway	01:03.8	*00:16.1*
From Midcounty Hwy to Emory Grove Rd	01:27.0	00:23.2
Emory Grove Road	01:29.6	*00:02.6*
From Emory Grove Rd to Centerway Rd	02:29.9	01:00.3
Centerway Road	02:30.3	*00:00.4*
From Centerway Rd to Snouffer School Rd	04:38.6	02:08.3
Snouffer School Road	04:48.4	*00:09.8*
From Snouffer School Rd to East Village Ave	05:12.1	00:23.7
East Village Avenue	05:15.7	*00:03.6*
From East Village Ave to Warfield Rd	06:01.5	00:45.8
Warfield Road	06:01.5	*00:00.0*
TOTAL MOVING TIME		05:26.7
TOTAL STOPPED TIME		00:34.8
TOTAL TRAVEL TIME	**06:01.5**	**06:01.5**

SOUTHBOUND GOSHEN ROAD

Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:49.2	00:49.2
East Village Avenue	01:00.4	*00:11.2*
From East Village Ave to Snouffer School Rd	01:30.0	00:29.6
Snouffer School Road	01:44.4	*00:14.4*
From Snouffer School Rd to Centerway Rd	04:06.9	02:22.5
Centerway Road	05:04.2	*00:57.3*
From Centerway Rd to Emory Grove Rd	06:35.0	01:30.8
Emory Grove Road	07:59.9	*01:24.9*
From Emory Grove Rd to Midcounty Hwy	09:03.7	01:03.8
Midcounty Highway	10:56.0	*01:52.3*
From Midcounty Hwy to Odendhal Rd	11:46.2	00:50.2
Odendhal Road	11:56.3	*00:10.1*
TOTAL MOVING TIME		07:06.1
TOTAL STOPPED TIME		04:50.2
TOTAL TRAVEL TIME	**11:56.3**	**11:56.3**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - No Build (PM) Date 01/08/03

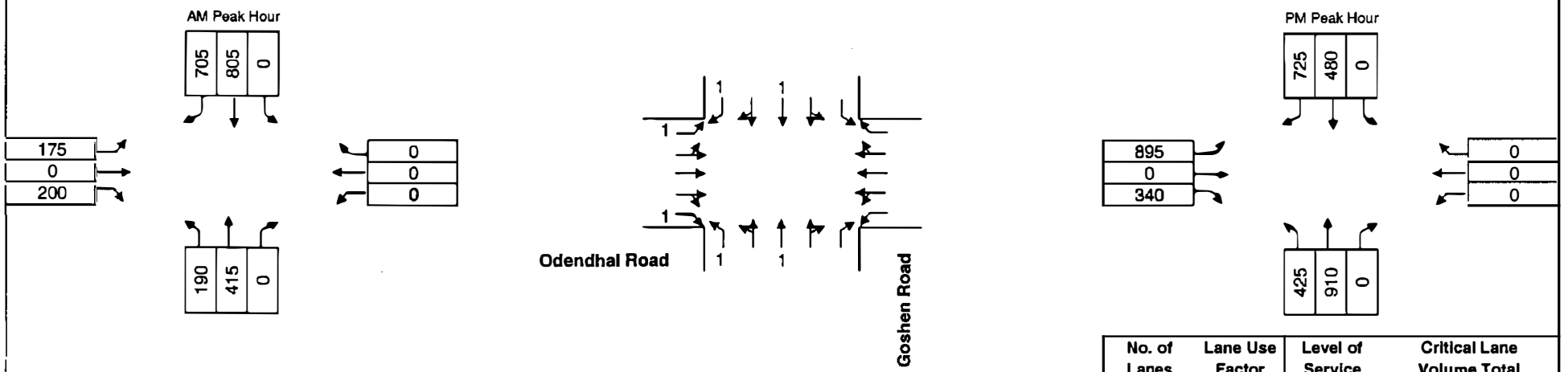
NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	01:26.5	*01:26.5*
From Odendhal Road to Midcounty Hwy	02:35.5	01:09.0
Midcounty Highway	03:48.2	*01:12.7*
From Midcounty Hwy to Emory Grove Rd	04:41.1	00:52.9
Emory Grove Road	05:56.9	*01:15.8*
From Emory Grove Rd to Centerway Rd	07:40.2	01:43.3
Centerway Road	09:19.7	*01:39.5*
From Centerway Rd to Snouffer School Rd	12:10.8	02:51.1
Snouffer School Road	13:24.9	*01:14.1*
From Snouffer School Rd to East Village Ave	14:09.9	00:45.0
East Village Avenue	15:15.6	*01:05.7*
From East Village Ave to Warfield Rd	16:08.7	00:53.1
Warfield Road	16:08.7	*00:00.0*
TOTAL MOVING TIME		08:14.4
TOTAL STOPPED TIME		07:54.3
TOTAL TRAVEL TIME	**16:08.7**	**16:08.7**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	01:59.4	01:59.4
East Village Avenue	05:40.5	*03:41.1*
From East Village Ave to Snouffer School Rd	06:15.5	00:35.0
Snouffer School Road	06:30.8	*00:15.3*
From Snouffer School Rd to Centerway Rd	09:10.3	02:39.5
Centerway Road	10:40.3	*01:30.0*
From Centerway Rd to Emory Grove Rd	11:55.3	01:15.0
Emory Grove Road	12:00.3	*00:05.0*
From Emory Grove Rd to Midcounty Hwy	12:31.6	00:31.3
Midcounty Highway	12:52.2	*00:20.6*
From Midcounty Hwy to Odendhal Rd	13:57.7	01:05.5
Odendhal Road	14:58.7	*01:01.0*
TOTAL MOVING TIME		08:05.7
TOTAL STOPPED TIME		06:53.0
TOTAL TRAVEL TIME	**14:58.7**	**14:58.7**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2025 - No Build

Computed by: MAM Date: 09/10/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	415	1	415	0	415	995
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	805	1	805	190	995	
	SBR	530	1	530	190	720	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	175
	EBR	10	1	10	0	10	
	EBL	175	1	175		175	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
						Level Of Service	1,170 C
						v/c ratio	0.73

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	910	1	910	0	910	910
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	480	1	480	425	905	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	895
	EBR	0	1	0	0	0	
	EBL	895	1	895		895	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
						Level Of Service	1,805 F
						v/c ratio	1.13

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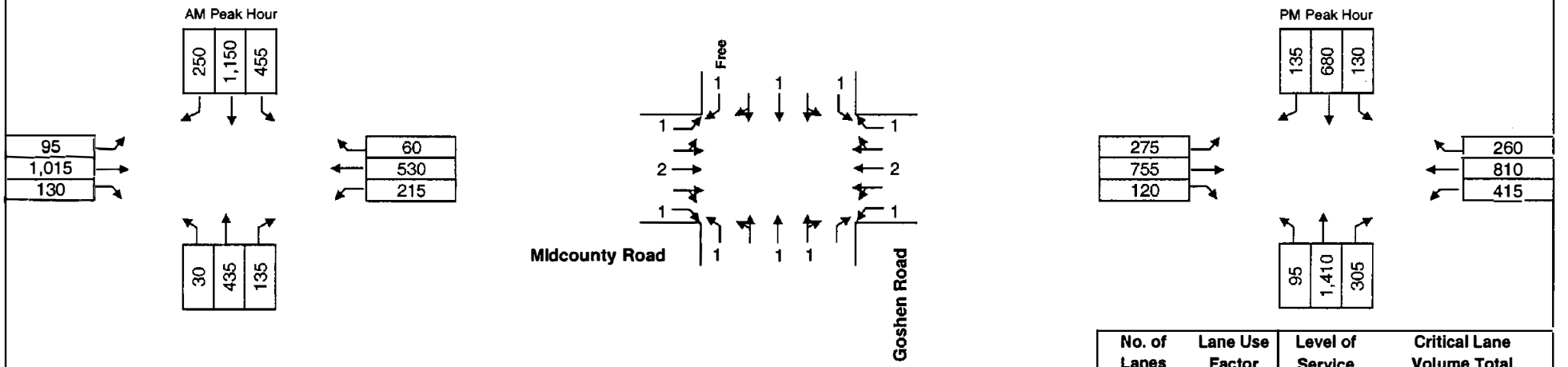
Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2025 - No Build

Computed by: MAM Date: 09/10/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	570	0.55	314	455	769	1,180
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,150	1	1,150	30	1,180	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	1,015	0.55	558	215	773	773
	EBR	100	1	100	215	315	
	EBL	0	1	0		0	
	WB	530	0.55	292	95	387	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,953
						Level Of Service	F
						v/c ratio	1.22

PM Peak Hour

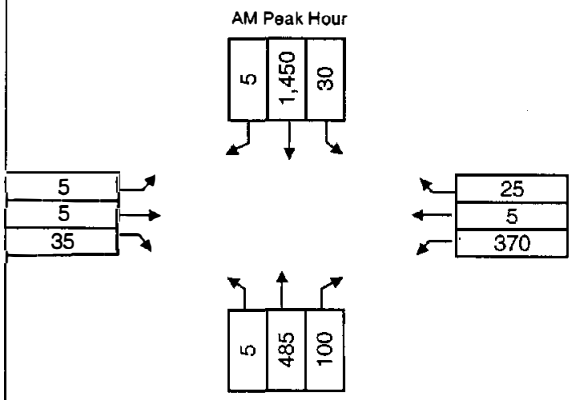
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,715	0.55	943	130	1,073	1,073
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	680	1	680	95	775	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	755	0.55	415	415	830	830
	EBR	25	1	25	415	440	
	EBL	0	1	0		0	
	WB	810	0.55	446	275	721	
	WBR	130	1	130	275	405	
	WBL	0	1	0		0	
							1,903
						Level Of Service	F
						v/c ratio	1.19

Turning Movement Summary and Level of Service

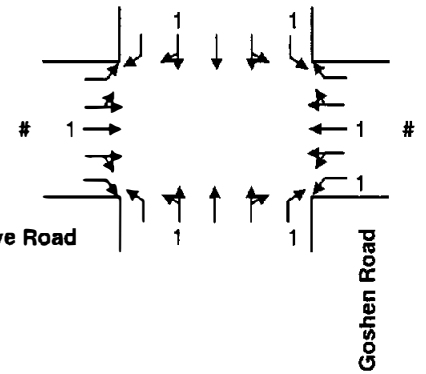
Count Date: 2/6/02 Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2025 - No Build

Computed by: MAM Date: 9/10/2002 Checked by: JCP Date: 37522

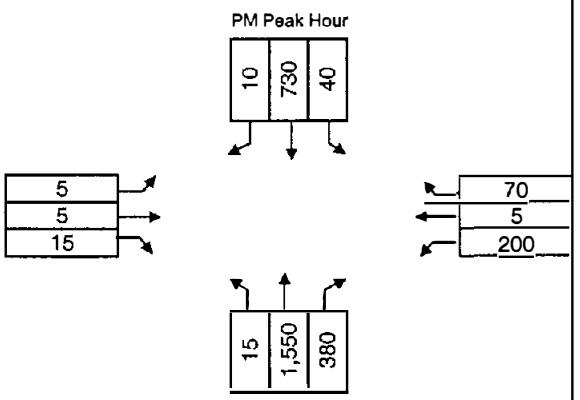
AM Peak Hour



# Indicates shared lane for all movements



PM Peak Hour



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	510	1	510	30	540	1,460
	NBR	100	1	100	30	130	
	NBL	0	1	0		0	
	SB	1,455	1	1,455	5	1,460	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	45	1	45	0	45	45
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	400	0.55	220	0	220	220
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,725
						Level Of Service	F
						v/c ratio	1.08

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,606	1	1,606	40	1,646	1,646
	NBR	380	1	380	40	420	
	NBL	0	1	0		0	
	SB	740	1	740	15	755	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	25	1	25	0	25	25
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	275	0.55	151	0	151	151
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,822
						Level Of Service	F
						v/c ratio	1.14

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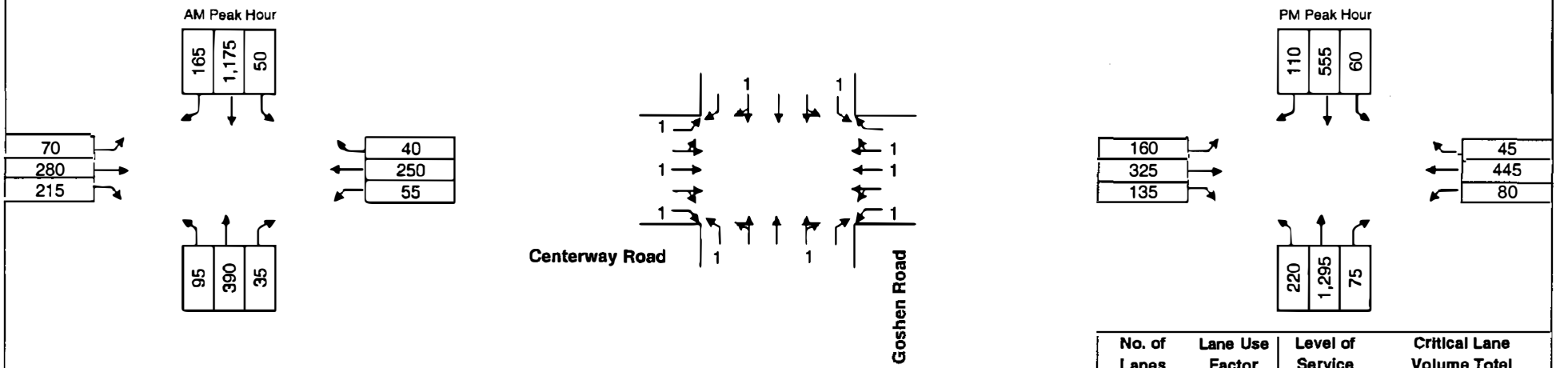
Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2025 - No Build

Computed by: MAM Date: 09/10/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	425	1	425	50	475	1,435
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,340	1	1,340	95	1,435	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	280	1	280	55	335	335
	EBR	120	1	120	55	175	
	EBL	0	1	0		0	
	WB	290	0.55	160	70	230	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,770
						Level Of Service	F
						v/c ratio	1.11

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,370	1	1,370	60	1,430	1,430
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	665	1	665	220	885	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	325	1	325	80	405	430
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	490	0.55	270	160	430	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,860
						Level Of Service	F
						v/c ratio	1.16

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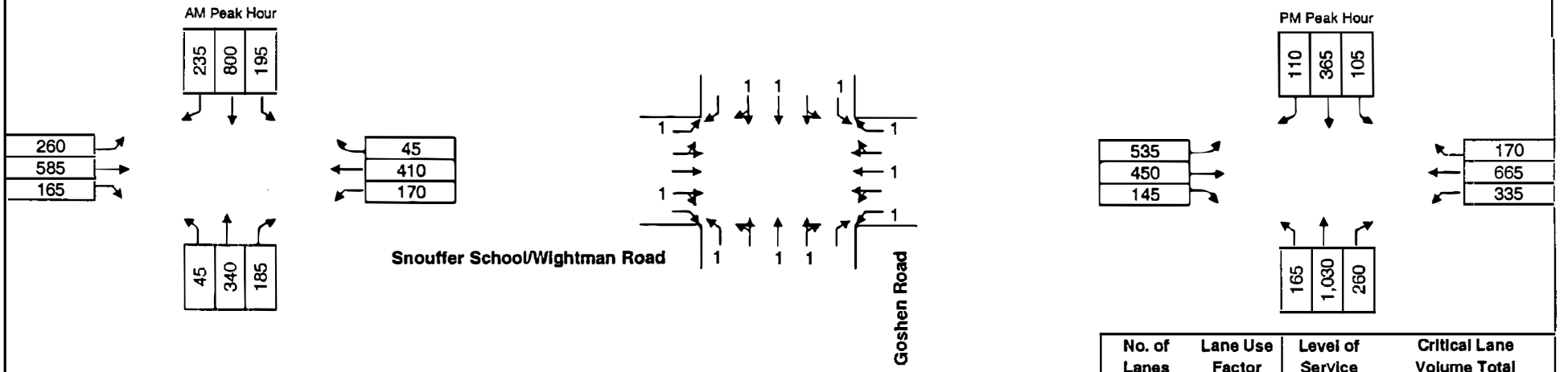
Turning Movement Summary and Level of Service

Count Date: 2/13/02 | Location: Goshen Road/Snouffer School/Wightman Road
Conditions/ Design Year: 2025 - No Build
Computed by: MAM | Date: 09/10/02 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	525	0.55	289	195	484	614
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,035	0.55	569	45	614	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	750	1	750	170	920	920
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	410	1	410	260	670	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,534
						Level Of Service	E
						v/c ratio	0.96

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,290	0.55	710	105	815	815
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	475	0.55	261	165	426	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	595	1	595	335	930	1,200
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	665	1	665	535	1,200	
	WBR	65	1	65	535	600	
	WBL	0	1	0		0	
							2,015
						Level Of Service	F
						v/c ratio	1.26

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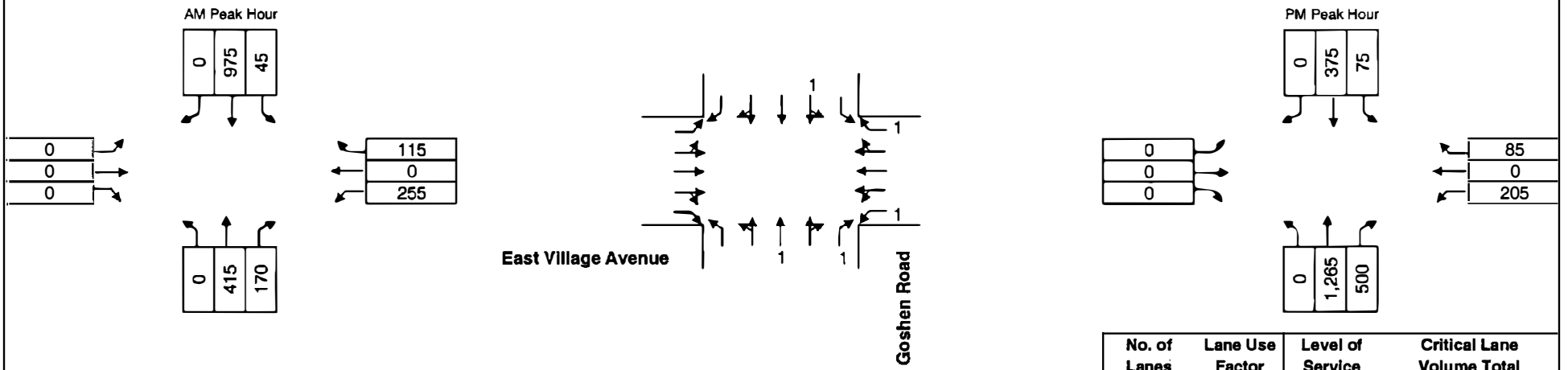
Turning Movement Summary and Level of Service

Count Date: 2/14/02 | Location: Goshen Road/East Village Avenue
Conditions/ Design Year: 2025 - No Build
Computed by: MAM | Date: 09/10/02 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	415	1	415	45	460	1,108
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,108	1	1,108	0	1,108	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	255
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	115	1	115	0	115	
	WBL	255	1	255		255	
							1,363
						Level Of Service	D
						v/c ratio	0.85

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,265	1	1,265	75	1,340	1,340
	NBR	295	1	295	75	370	
	NBL	0	1	0		0	
	SB	750	1	750	0	750	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	205
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	85	1	85	0	85	
	WBL	205	1	205		205	
							1,545
						Level Of Service	E
						v/c ratio	0.97

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Unsignalized Intersection CLV Eqivalent Calculations

LOS	HCS			CLV			LOS
A	0	10	10	0	1000	1000	A
B	10	15	5	1000	1150	150	B
C	15	25	10	1150	1300	150	C
D	25	35	10	1300	1450	150	D
E	35	50	15	1450	1600	150	E
F	50	190	140	1600	3000	1400	F

2025 No Build

#2 Willow Creek Drive

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	999.9	50	1600	140	1400	3,000	F

#5 Severn Road

	Delay					CLV	LOS
AM	135.8	50	1600	140	1400	2,458	F
PM	85.6	50	1600	140	1400	1,956	F

#6 Lindenhouse Road

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	158.0	50	1600	140	1400	2,680	F

#8 Rock Elm Way

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	62.9	50	1600	140	1400	1,729	F

#9 Framingham Drive

	Delay					CLV	LOS
AM	794.5	50	1600	140	1400	3,000	F
PM	519.1	50	1600	140	1400	3,000	F

#10 Turtle Dove Terrace

	Delay					CLV	LOS
AM	403.7	50	1600	140	1400	3,000	F
PM	515.3	50	1600	140	1400	3,000	F

#11 Stewartown Road

	Delay					CLV	LOS
AM	245.2	50	1600	140	1400	3,000	F
PM	256.9	50	1600	140	1400	3,000	F

#12 Bramble Bush Drive

	Delay					CLV	LOS
AM	104.3	50	1600	140	1400	2,143	F
PM	237.0	50	1600	140	1400	3,000	F

#13 Rothbury Drive

	Delay					CLV	LOS
AM	270.9	50	1600	140	1400	3,000	F
PM	999.9	50	1600	140	1400	3,000	F

#14 Goshen Crossing

	Delay					CLV	LOS
AM	167.0	50	1600	140	1400	2,770	F
PM	999.9	50	1600	140	1400	3,000	F

#17 Mother of God School

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	53.1	50	1600	140	1400	1,631	F

#18 Warfield Road

	Delay					CLV	LOS
AM	294.9	50	1600	140	1400	3,000	F
PM	704.9	50	1600	140	1400	3,000	F

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*585*	*0*	*0*	*1490*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*664*	*0*	*0*	*1568*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*15*	*0*	*20*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.61*	*1.00*	*0.61*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*24*	*0*	*32*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*5*						*56*	
C (m) (vph)								
v/c								
95% queue length								
Control Delay								
LOS								
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1800*	*0*	*0*	*1200*	*15*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*5*	*2000*	*0*	*0*	*1304*	*16*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*9*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*5*						*27*	
C (m) (vph)	*530*						*13*	
v/c	*0.01*						*2.08*	
95% queue length	*0.03*						*4.18*	
Control Delay	*11.9*							
LOS	*B*						*F*	
Approach Delay	--	--						
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Severn Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*510*	*0*	*0*	*1470*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*5*	*579*	*0*	*0*	*1670*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*27*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*45*	
C (m) (vph)	*388*						*66*	
v/c	*0.01*						*0.68*	
95% queue length	*0.04*						*3.00*	
Control Delay	*14.4*						*135.8*	
LOS	*B*						*F*	
Approach Delay	--	--					*135.8*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025- No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Severn Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*1610*	*0*	*0*	*770*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*15*	*1694*	*0*	*0*	*875*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*5*	*0*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*15*						*27*	
C (m) (vph)	*777*						*70*	
v/c	*0.02*						*0.39*	
95% queue length	*0.06*						*1.48*	
Control Delay	*9.7*						*85.6*	
LOS	*A*						*F*	
Approach Delay	--	--				*85.6*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/20/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Lindenhouse Road*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - No Build*

Project Description *199-73-17*

East/West Street: *Lindenhouse Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*515*	*5*	*5*	*1440*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.84*	*0.84*	*0.88*
Hourly Flow Rate, HFR	*0*	*547*	*5*	*5*	*1714*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.60*	*1.00*	*0.60*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*58*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*66*				
C (m) (vph)		*1013*						
v/c		*0.00*						
95% queue length		*0.01*						
Control Delay		*8.6*						
LOS		*A*						
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street: *Lindenhouse Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1580*	*35*	*5*	*765*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1580*	*35*	*5*	*765*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*10*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*20*				
C (m) (vph)		*401*		*41*				
v/c		*0.01*		*0.49*				
95% queue length		*0.04*		*1.72*				
Control Delay		*14.1*		*158.0*				
LOS		*B*		*F*				
Approach Delay	--	--	*158.0*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*495*	*5*	*1380*	*5*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.80*	*0.80*	*0.91*	*0.91*	*0.88*
Hourly Flow Rate, HFR	*0*	*618*	*6*	*1516*	*5*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.58*	*1.00*	*0.58*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*8*	*0*	*17*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*1516*		*25*				
C (m) (vph)		*952*		*0*				
v/c		*1.59*						
95% queue length		*77.81*						
Control Delay		*285.2*						
LOS		*F*		*F*				
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Rock Elm Way*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1495*	*5*	*5*	*720*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1495*	*5*	*5*	*720*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*10*				
C (m) (vph)		*444*		*72*				
v/c		*0.01*		*0.14*				
95% queue length		*0.03*		*0.46*				
Control Delay		*13.2*		*62.9*				
LOS		*B*		*F*				
Approach Delay	--	--	*62.9*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*490*	*10*	*5*	*1275*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.82*	*0.82*	*0.87*	*0.87*	*0.88*
Hourly Flow Rate, HFR	*0*	*597*	*12*	*5*	*1465*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*110*	*0*	*45*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.76*	*1.00*	*0.76*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*144*	*0*	*59*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*5*		*203*				
C (m) (vph)		*965*		*81*				
v/c		*0.01*		*2.51*				
95% queue length		*0.02*		*19.21*				
Control Delay		*8.8*		*794.5*				
LOS		*A*		*F*				
Approach Delay	--	--	*794.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1405*	*95*	*35*	*680*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.82*	*0.82*	*0.88*
Hourly Flow Rate, HFR	*0*	*1494*	*101*	*42*	*829*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration		*T*	*R*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*45*	*0*	*30*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.94*	*1.00*	*0.90*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*48*	*0*	*33*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*42*		*81*				
C (m) (vph)		*408*		*48*				
v/c		*0.10*		*1.69*				
95% queue length		*0.34*		*7.95*				
Control Delay		*14.8*		*519.1*				
LOS		*B*		*F*				
Approach Delay	--	--	*519.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*505*	*20*	*10*	*1215*	*10*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*12*	*615*	*24*	*10*	*1335*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*5*	*15*	*10*	*0*	*35*
Peak-Hour Factor, PHF	*0.73*	*0.73*	*0.73*	*0.54*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*41*	*6*	*20*	*18*	*0*	*38*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*12*	*10*		*67*			*56*	
C (m) (vph)	*519*	*955*		*48*			*81*	
v/c	*0.02*	*0.01*		*1.40*			*0.69*	
95% queue length	*0.07*	*0.03*		*6.34*			*3.28*	
Control Delay	*12.1*	*8.8*		*403.7*			*116.6*	
LOS	*B*	*A*		*F*			*F*	
Approach Delay	--	--	*403.7*			*116.6*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*40*	*1355*	*40*	*20*	*675*	*15*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.84*	*0.84*	*0.84*
Hourly Flow Rate, HFR	*43*	*1456*	*43*	*23*	*803*	*17*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*20*	*0*	*20*	*20*	*0*	*20*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.83*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*24*	*0*	*24*	*24*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*43*	*23*		*48*			*47*	
C (m) (vph)	*818*	*453*		*34*			*32*	
v/c	*0.05*	*0.05*		*1.41*			*1.47*	
95% queue length	*0.17*	*0.16*		*5.21*			*5.24*	
Control Delay	*9.6*	*13.4*		*478.9*			*515.3*	
LOS	*A*	*B*		*F*			*F*	
Approach Delay	--	--	*478.9*			*515.3*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*35*	*495*	*0*	*0*	*1170*	*20*
Peak-Hour Factor, PHF	*0.77*	*0.77*	*0.77*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*45*	*642*	*0*	*0*	*1285*	*21*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*5*	*20*	*0*	*55*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*15*	*7*	*7*	*26*	*0*	*73*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*45*	*0*		*29*			*99*	
C (m) (vph)	*537*	*952*		*37*			*91*	
v/c	*0.08*	*0.00*		*0.78*			*1.09*	
95% queue length	*0.27*	*0.00*		*2.84*			*6.61*	
Control Delay	*12.3*	*8.8*		*245.2*			*204.9*	
LOS	*B*	*A*		*F*			*F*	
Approach Delay	--	--	*245.2*			*204.9*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street: *Sterwartown Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*65*	*1320*	*10*	*0*	*640*	*40*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*65*	*1320*	*10*	*0*	*640*	*40*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*0*	*30*	*0*	*65*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*5*	*0*	*34*	*0*	*65*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*65*	*0*		*10*			*99*	
C (m) (vph)	*922*	*526*		*36*			*82*	
v/c	*0.07*	*0.00*		*0.28*			*1.21*	
95% queue length	*0.23*	*0.00*		*0.90*			*7.25*	
Control Delay	*9.2*	*11.8*		*139.7*			*256.9*	
LOS	*A*	*B*		*F*			*F*	
Approach Delay	--	--	*139.7*			*256.9*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Bramvle Bush Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*505*	*15*	*10*	*1160*	*10*
Peak-Hour Factor, PHF	*0.77*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*0*	*594*	*17*	*10*	*1274*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*10*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*32*	*10*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*LT*					
v (vph)		*10*	*42*					
C (m) (vph)		*963*	*74*					
v/c		*0.01*	*0.57*					
95% queue length		*0.03*	*2.44*					
Control Delay		*8.8*	*104.3*					
LOS		*A*	*F*					
Approach Delay	--	--	*104.3*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Bramble Bush Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*1305*	*45*	*20*	*645*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1305*	*45*	*20*	*645*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*25*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*35*	*25*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*LT*					
v (vph)		*20*	*60*					
C (m) (vph)		*507*	*59*					
v/c		*0.04*	*1.02*					
95% queue length		*0.12*	*4.81*					
Control Delay		*12.4*	*237.0*					
LOS		*B*	*F*					
Approach Delay	--	--	*237.0*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/20/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Rothbury Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - No Build*

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*105*	*395*	*15*	*5*	*970*	*100*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*105*	*395*	*15*	*5*	*970*	*100*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration	*LTR*			*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*10*	*25*	*125*	*0*	*190*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*10*	*25*	*125*	*0*	*190*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LT*		*LTR*		*LT*		*R*
v (vph)	*105*	*5*		*45*		*125*		*190*
C (m) (vph)	*648*	*1143*		*71*		*61*		*310*
v/c	*0.16*	*0.00*		*0.63*		*2.05*		*0.61*
95% queue length	*0.58*	*0.01*		*2.79*		*11.93*		*3.79*
Control Delay	*11.6*	*8.2*		*119.1*		*632.0*		*33.4*
LOS	*B*	*A*		*F*		*F*		*D*
Approach Delay	--	--	*119.1*			*270.9*		
Approach LOS	--	--	*F*			*F*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*250*	*1055*	*25*	*20*	*455*	*225*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.97*	*0.97*	*0.97*
Hourly Flow Rate, HFR	*268*	*1134*	*26*	*20*	*469*	*231*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration	*LTR*			*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*10*	*245*	*10*	*205*
Peak-Hour Factor, PHF	*0.65*	*0.65*	*0.65*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR	*7*	*7*	*15*	*298*	*12*	*250*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LT*		*LTR*		*LT*		*R*
v (vph)	*268*	*20*		*29*		*310*		*250*
C (m) (vph)	*892*	*599*		*0*		*0*		*598*
v/c	*0.30*	*0.03*						*0.42*
95% queue length	*1.27*	*0.10*						*2.06*
Control Delay	*10.8*	*11.2*						*15.3*
LOS	*B*	*B*		*F*		*F*		*C*
Approach Delay	--	--						
Approach LOS	--	--						

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*55*	*490*	*6*	*3*	*950*	*185*
Peak-Hour Factor, PHF	*0.80*	*0.86*	*0.84*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*68*	*569*	*0*	*0*	*1079*	*210*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*80*	*1*	*125*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.80*	*0.82*	*0.80*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*99*	*0*	*156*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*68*						*255*	
C (m) (vph)	*593*						*215*	
v/c	*0.11*						*1.19*	
95% queue length	*0.39*						*12.59*	
Control Delay	*11.9*						*167.0*	
LOS	*B*						*F*	
Approach Delay	--	--					*167.0*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*115*	*1195*	*6*	*3*	*585*	*260*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.84*	*0.88*	*0.73*	*0.73*
Hourly Flow Rate, HFR	*140*	*1457*	*0*	*0*	*801*	*356*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*260*	*1*	*115*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.83*	*0.82*	*0.83*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*313*	*0*	*138*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*140*						*451*	
C (m) (vph)	*594*						*57*	
v/c	*0.24*						*7.91*	
95% queue length	*0.91*						*52.47*	
Control Delay	*12.9*							
LOS	*B*						*F*	
Approach Delay	--	--						
Approach LOS	--	--					*F*	

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*395*	*120*	*115*	*875*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*20*	*526*	*160*	*123*	*940*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*140*	*5*	*90*	*0*	*0*	*5*
Peak-Hour Factor, PHF	*0.46*	*0.45*	*0.45*	*0.25*	*0.25*	*0.25*
Hourly Flow Rate, HFR	*304*	*11*	*200*	*0*	*0*	*20*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*20*	*123*		*515*			*20*	
C (m) (vph)	*737*	*917*		*64*			*322*	
v/c	*0.03*	*0.13*		*8.05*			*0.06*	
95% queue length	*0.08*	*0.46*		*59.61*			*0.20*	
Control Delay	*10.0+*	*9.5*					*16.9*	
LOS	*B*	*A*		*F*			*C*	
Approach Delay	--	--					*16.9*	
Approach LOS	--	--		*F*			*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - No Build*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*1315*	*25*	*15*	*425*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*1315*	*25*	*15*	*425*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*20*	*0*	*5*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*20*	*0*	*5*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*10*	*15*		*30*			*20*	
C (m) (vph)	*1145*	*521*		*104*			*217*	
v/c	*0.01*	*0.03*		*0.29*			*0.09*	
95% queue length	*0.03*	*0.09*		*1.09*			*0.30*	
Control Delay	*8.2*	*12.1*		*53.1*			*23.3*	
LOS	*A*	*B*		*F*			*C*	
Approach Delay	--	--	*53.1*			*23.3*		
Approach LOS	--	--	*F*			*C*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	9/20/2002
Analysis Time Period	AM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2025 - No Build

Project ID 199-73-17

East/West Street: Warfield Road

North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	5	130	50	125	145	15
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	55	315	115	40	815	20
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.91		0.90		0.79		0.92	
Flow Rate	201		315		612		949	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	0.0		0.4		0.1		0.0	
Prop. Right-Turns	0.3		0.1		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	9.03		9.03		9.03		9.03	

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.18		0.28		0.54		0.84	
hd, final value	9.03		9.03		9.03		9.03	
x, final value	0.50		0.75		1.32		2.08	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	7.0		7.0		7.0		7.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	386		415		612		949	
Delay	20.88		33.37		182.50		512.17	
LOS	C		D		F		F	
Approach: Delay	20.88		33.37		182.50		512.17	
LOS	C		D		F		F	
Intersection Delay	294.87							
Intersection LOS	F							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	9/20/2002
Analysis Time Period	PM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2025 - No Build

Project ID 199-73-17

East/West Street: Warfield Road | North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	15	180	25	110	115	15
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	40	1120	175	15	305	30
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.77		0.76		0.90		0.79	
Flow Rate	284		314		1482		441	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.1		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	9.28		9.28		9.28		9.28	

Departure Headway and Service Time

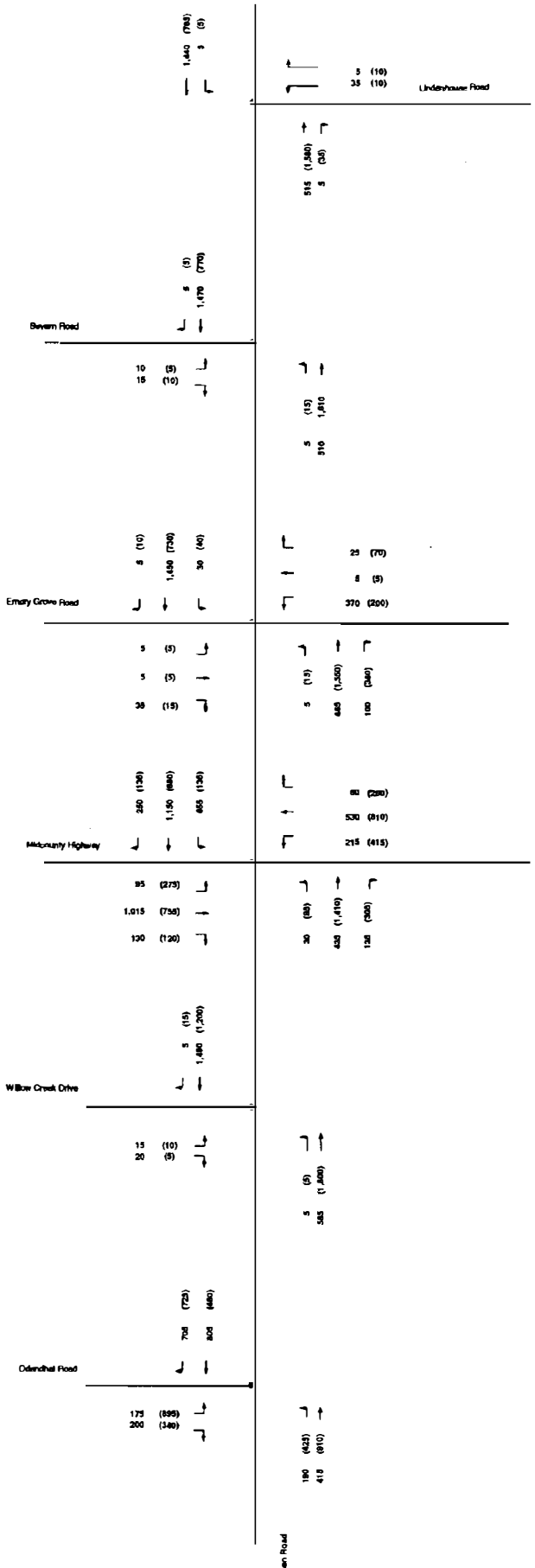
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.25		0.28		1.32		0.39	
hd, final value	9.28		9.28		9.28		9.28	
x, final value	0.73		0.80		3.52		1.05	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	7.3		7.3		7.3		7.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	382		387		1482		441	
Delay	33.79		40.58				87.99	
LOS	D		E		F		F	
Approach: Delay	33.79		40.58				87.99	
LOS	D		E		F		F	
Intersection Delay	704.88							
Intersection LOS	F							

APPENDIX I: 2025 – 2 Lane Capacity Analyses w/ TSM Improvements

Turning Movement Volumes
Synchro
Critical Lane Volume
Highway Capacity Software





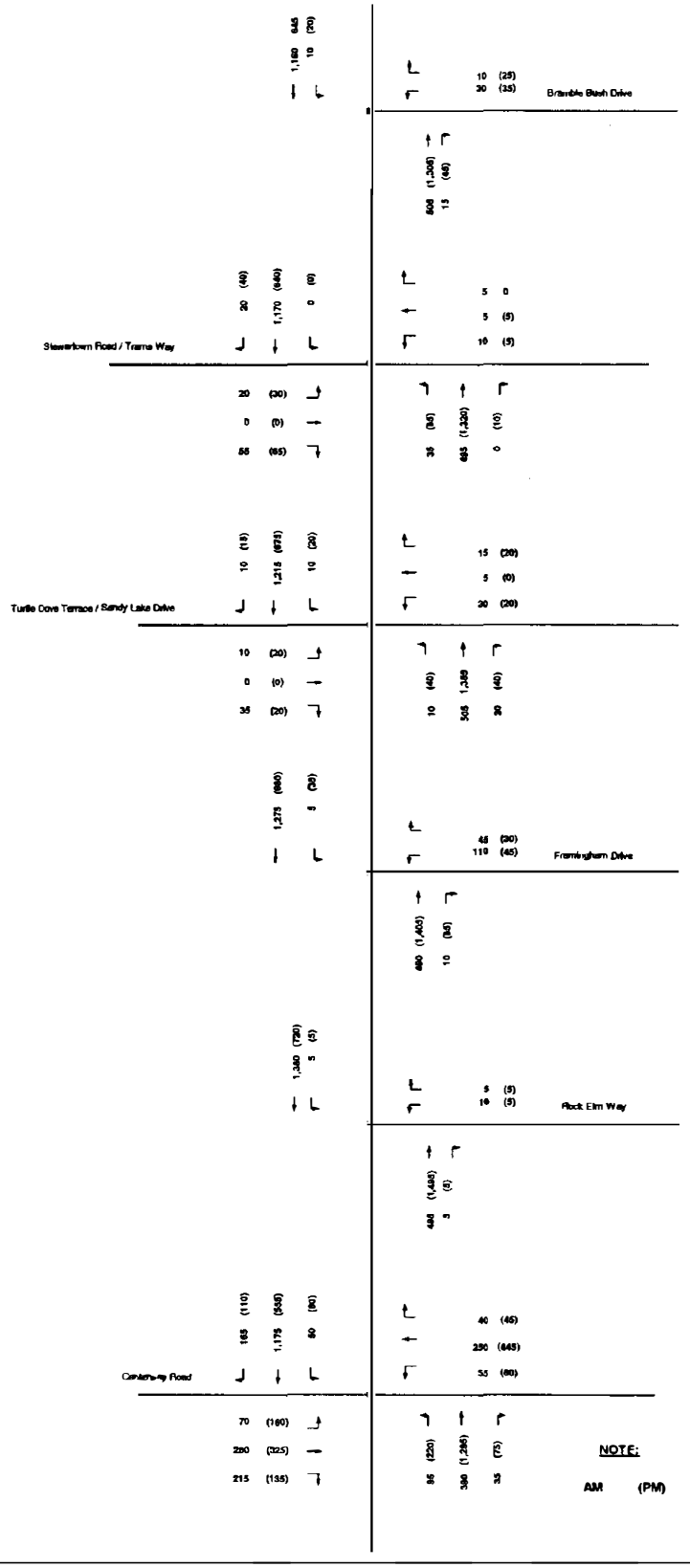
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 2-Lanes Improved Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2003

Sheet 1 of 3





GOSHEN ROAD
Traffic Study
Montgomery County, MD

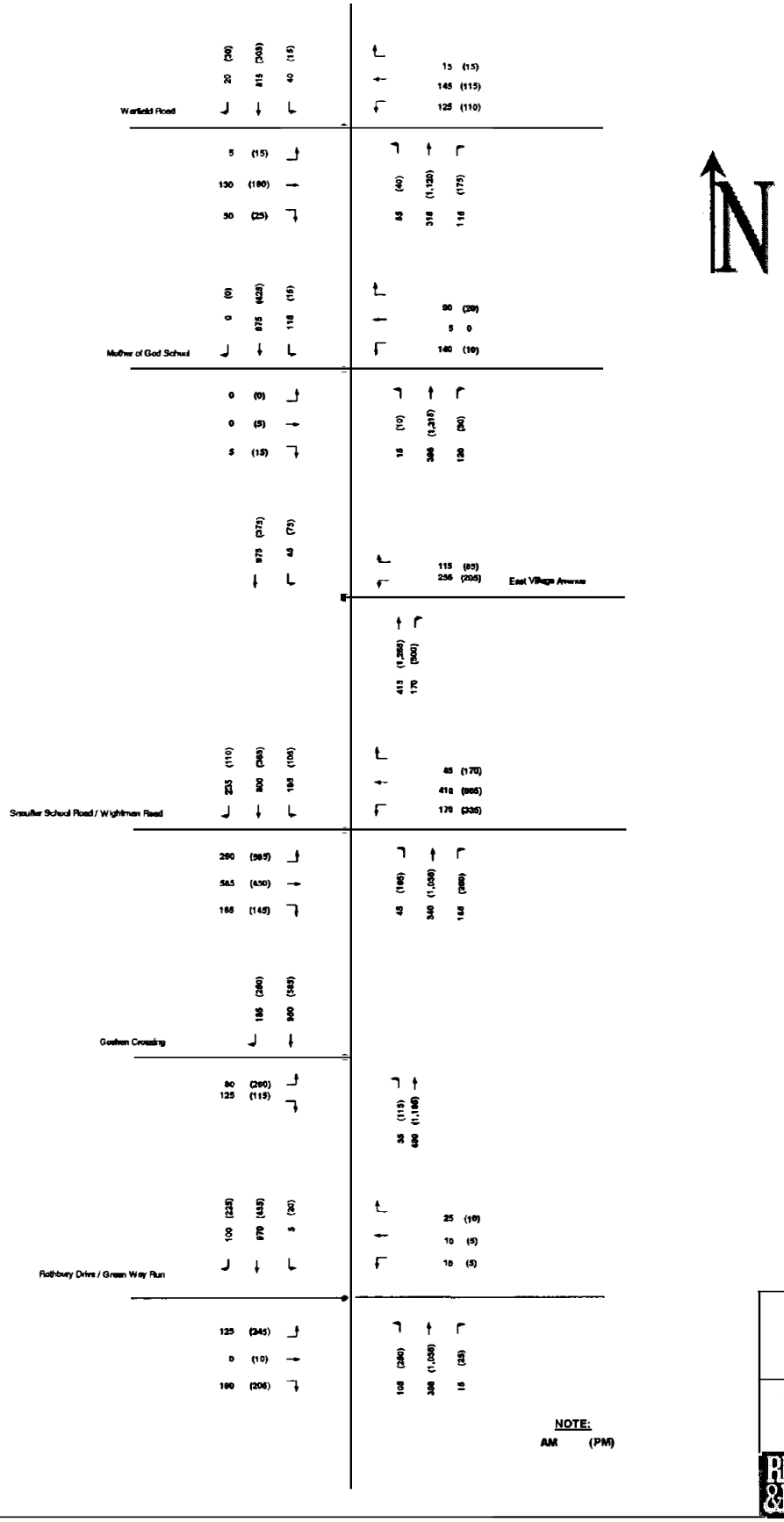
Year 2025 2-Lanes Improved Balanced Traffic Volumes

Rickert, Klapper & Kahl Consulting Engineers

Date: April 2003

Sheet 2 of 3

North End of Corridor



GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 2-Lanes Improved Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2003

Sheet 3 of 3

2025 - AM Peak
1: Odendhal Road & Goshen Road

2 Lanes
4/15/2003

Lane Group						
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			200
Storage Lanes	2	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Ft						0.850
Flt Protected		0.850	0.950			
Satd. Flow (prot)	3502	1615	1805	1845	1845	1615
Flt Permitted	0.950		0.152			
Satd. Flow (perm)	3502	1615	289	1845	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		220				545
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			37	35	
Link Distance (ft)	1624			798	803	
Travel Time (s)	34.6			14.7	16.5	
Volume (vph)	175	200	190	415	805	705
Peak Hour Factor	0.91	0.91	0.97	0.87	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%
Adj. Flow (vph)	192	220	218	477	894	783
Lane Group Flow (vph)	192	220	218	477	894	783
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	9.0	38.0	38.0	38.0
Total Split (s)	23.0	23.0	17.0	97.0	80.0	80.0
Total Split (%)	19%	19%	14%	81%	67%	67%
Maximum Green (s)	18.0	18.0	12.0	92.0	75.0	75.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Coord	Coord	Coord
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	8.0	8.0		26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	12.9	12.9	99.1	89.1	85.4	85.4
Actuated g/C Ratio	0.11	0.11	0.83	0.83	0.71	0.71
v/c Ratio	0.51	0.59	0.60	0.91	0.68	0.59
Uniform Delay, d1	50.8	0.0	2.1	2.4	9.7	1.0
Delay	50.1	6.4	5.9	2.7	7.8	4.3
LOS	D	A	A	A	A	A
Approach Delay	28.8			3.1	8.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	75	0	25	56	62	48
Queue Length 95th (ft)	108	72	59	112	m53	m48
Internal Link Dist (ft)	1544			718	723	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			200			200
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 102 (85%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 74.7%	ICU Level of Service C

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Odendhal Road & Goshen Road



2025 - AM Peak
3: MD 124 (Midcount Highway) & Goshen Road

2 Lanes
4/15/2003

Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%		
Storage Length (ft)	200		200	200		200	200		200	500		200	
Storage Lanes	1		1	2		1	1		1	1		1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	
Frt			0.850			0.850			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	1735	4966	1552	1770	3540	1584	
Flt Permitted	0.950			0.950			0.105			0.383			
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	188	4966	1552	714	3540	1584	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			100			62			136			112	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01	0.99	0.99	0.99	
Link Speed (mph)		30			30			37			27		
Link Distance (ft)		857			756			819			663		
Travel Time (s)		14.9			17.5			11.4			22.8		
Volume (vph)	95	1018	130	218	830	60	50	488	195	465	1150	350	
Peak Hour Factor	0.82	0.82	0.82	0.96	0.96	0.96	0.85	0.83	0.83	0.97	0.97	0.97	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	6%	6%	6%	3%	3%	3%	
Adj. Flow (vph)	116	1238	159	224	852	62	59	574	163	479	1186	358	
Lane Group Flow (vph)	116	1238	159	224	852	62	59	574	163	479	1186	358	
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Free	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8	2		2	6		Free	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6		
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	9.0	38.0	38.0	9.0	38.0		
Total Split (s)	12.0	45.0	45.0	12.0	45.0	45.0	20.0	43.0	43.0	20.0	43.0	0.0	
Total Split (%)	10%	38%	38%	10%	38%	38%	17%	36%	36%	17%	36%	0%	
Maximum Green (s)	8.0	40.0	40.0	8.0	40.0	40.0	15.0	37.0	37.0	15.0	37.0		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	7.0	7.0	3.0	7.0	7.0	3.0	3.0	3.0	3.0	3.0		
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord		
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0		
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		20.0	20.0		20.0		
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0		
Act Effct Green (s)	8.0	41.0	41.0	8.0	41.0	41.0	55.0	39.0	39.0	55.0	39.0	120.0	
Actuated g/C Ratio	0.07	0.34	0.34	0.07	0.34	0.34	0.46	0.33	0.33	0.46	0.33	1.00	
v/c Ratio	0.99	1.03	0.25	0.99	0.46	0.11	0.12	0.32	0.27	1.00	1.03	0.16	
Uniform Delay, d1	55.0	30.5	10.1	55.0	20.0	8.8	16.9	30.0	4.3	24.9	45.5	0.0	
Delay	116.4	67.8	11.5	97.4	31.1	8.8	16.5	25.4	5.5	53.0	63.1	0.0	
LOS	F	E	B	F	C	A	B	C	A	D	E	A	
Approach Delay		65.6			47.0			20.5			52.1		
Approach LOS		E			D			C			D		
Queue Length 50th (ft)	92	~542	27	90	174	0	11	61	0	~179	~510	0	
Queue Length 95th (ft)	#198	#576	66	#274	228	27	29	118	39	#413	#562	m0	
Internal Link Dist (ft)		577			684			539			583		
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)	200		200	200		200	200		200	500		200	
50th Bay Block Time %		42%			10%						3%		
95th Bay Block Time %		44%			10%						22%		
Queuing Penalty (veh)		80			11						59		

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 50.8	Intersection LOS: D
Intersection Capacity Utilization 90.1%	ICU Level of Service E

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road

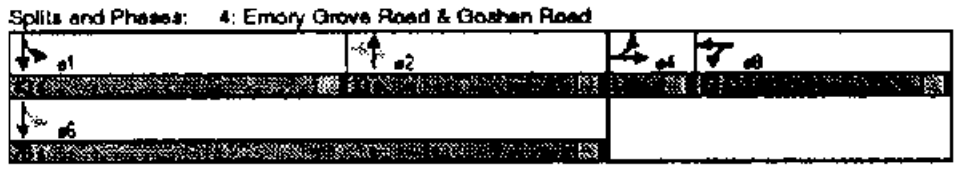


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		✢		↰	✢		↰	↑↑	↱	↰	↑↑↱		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-1%			-1%			2%			1%		
Storage Length (ft)	0		0	200		0	0		800	200		0	
Storage Lanes	0		0	1		0	1		1	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50		50	50		50	50	50	50	50		
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Frt		0.895			0.981				0.850		0.999		
Flt Protected		0.994		0.950	0.960		0.950			0.950			
Satd. Flow (prot)	0	1699	0	1723	1708	0	1787	3470	1599	1796	3484	0	
Flt Permitted		0.994		0.950	0.960		0.148			0.182			
Satd. Flow (perm)	0	1699	0	1723	1708	0	278	3470	1599	344	3484	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		41			6				122		1		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.01	1.01	
Link Speed (mph)		30			30			28			36		
Link Distance (ft)		304			355			883			467		
Travel Time (s)		6.9			8.1			21.5			8.8		
Volume (vph)	5	5	35	370	5	25	5	485	100	30	1450	5	
Peak Hour Factor	0.72	0.72	0.72	0.76	0.76	0.76	0.82	0.82	0.82	0.88	0.88	0.88	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	3%	0%	
Adj. Flow (vph)	7	7	49	487	7	33	6	591	122	34	1648	6	
Lane Group Flow (vph)	0	63	0	272	255	0	6	591	122	34	1654	0	
Turn Type	Split			Split			Perm		Perm	custom			
Protected Phases	4	4		8	8			2		1	1 6		6
Permitted Phases							2		2	6			
Detector Phases	4	4		8	8		2	2	2	1	1 6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0			7.0
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0			11.0
Total Split (s)	11.0	11.0	0.0	33.0	33.0	0.0	33.0	33.0	33.0	43.0	119.0	0.0	76.0
Total Split (%)	9%	9%	0%	28%	28%	0%	28%	28%	28%	36%	99%	0%	63%
Maximum Green (s)	7.0	7.0		29.0	29.0		29.0	29.0	29.0	39.0			72.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0			3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0			1.0
Lead/Lag							Lag	Lag	Lag	Lead			
Lead-Lag Optimize?							Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0			3.0
Recall Mode	None	None		None	None		Coord	Coord	Coord	None			Coord
Walk Time (s)							2.0	2.0	2.0				2.0
Flash Dont Walk (s)							2.0	2.0	2.0				2.0
Pedestrian Calls (#/hr)							0	0	0				0
Act Effct Green (s)		7.0		23.2	23.2		53.8	53.8	53.8	80.0	80.0		
Actuated g/C Ratio		0.06		0.19	0.19		0.45	0.45	0.45	0.67	0.67		
v/c Ratio		0.46		0.82	0.76		0.05	0.38	0.16	0.07	0.71		
Uniform Delay, d1		19.3		46.3	44.8		19.2	22.5	0.0	7.1	13.2		
Delay		25.4		45.7	44.0		17.8	17.1	2.4	6.1	6.2		
LOS		C		D	D		B	B	A	A	A		
Approach Delay		25.4			44.9			14.6			6.2		
Approach LOS		C			D			B			A		
Queue Length 50th (ft)		12		213	193		2	87	4	5	141		
Queue Length 95th (ft)		37		244	224		m4	m84	m0	m11	167		
Internal Link Dist (ft)		224			275			803			387		
50th Up Block Time (%)													
95th Up Block Time (%)													
Turn Bay Length (ft)				200					800	200			
50th Bay Block Time %				6%									
95th Bay Block Time %				15%	0%								
Queuing Penalty (veh)				25	12								

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 73.7% ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road

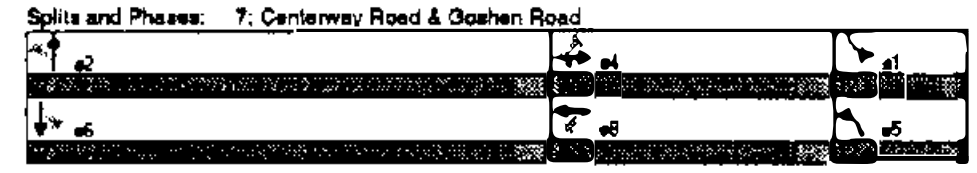


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↑↱		↰	↑↑↱		↰	↑↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.979			0.986			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1762	1845	1568	1762	3431	0	1752	3463	0	1752	3438	0
Flt Permitted	0.480			0.319			0.078			0.426		
Satd. Flow (perm)	885	1845	1568	586	3431	0	144	3463	0	756	3438	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			228		15			12			19	
Headway 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
Link Speed (mph)		30			30			40			36	
Link Distance (ft)		374			432			792			367	
Travel Time (s)		8.5			9.8			13.6			6.8	
Volume (vph)	70	280	215	55	250	40	95	390	35	50	1175	165
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.85	0.85	0.85	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	77	308	236	59	266	43	112	459	41	53	1250	176
Lane Group Flow (vph)	77	308	236	59	309	0	112	500	0	53	1426	0
Turn Type	Perm		Perm	Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phases	4	4	4	8	8		5	2		1	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	27.0		8.0	27.0	
Total Split (s)	36.0	36.0	36.0	36.0	36.0	0.0	17.0	67.0	0.0	17.0	67.0	0.0
Total Split (%)	30%	30%	30%	30%	30%	0%	14%	56%	0%	14%	56%	0%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		13.0	62.0		13.0	62.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
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	
Recall Mode	None	None	None	None	None		None	Coord		None	Coord	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	8.0	8.0	8.0	8.0	8.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	25.5	25.5	25.5	25.5	25.5		82.5	73.0		82.5	73.0	
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21		0.69	0.61		0.69	0.61	
v/c Ratio	0.41	0.79	0.48	0.47	0.42		0.30	0.24		0.09	0.68	
Uniform Delay, d1	40.8	44.7	1.6	41.3	38.7		5.3	10.5		4.9	15.4	
Delay	39.5	44.0	5.8	40.5	37.8		30.0	8.1		6.1	17.3	
LOS	D	D	A	D	D		C	A		A	B	
Approach Delay		28.8			38.2			8.0			16.9	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	61	225	5	40	103		32	13		11	320	
Queue Length 95th (ft)	95	309	69	81	137		93	20		27	388	
Internal Link Dist (ft)		294			352			712			287	
50th Up Block Time (%)											7%	
95th Up Block Time (%)		8%									12%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		13%									18%	
95th Bay Block Time %		29%									19%	
Queuing Penalty (veh)		15									139	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 12 (10%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 81.7% ICU Level of Service D

Splits and Phases: 7: Centerway Road & Goshen Road

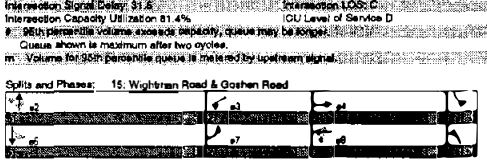


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	200		0
Storage Lanes	1		0	1		1	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	0.95
Fr		0.967				0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3526	0	1798	3592	1507	1744	5011	1507	1829	3420	0
Flt Permitted	0.950			0.139			0.095			0.479		
Satd. Flow (perm)	1770	3526	0	261	3592	1507	166	5011	1507	917	3420	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29				48			220		37	
Headway Factor	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99
Link Speed (mph)		30			30			30			25	
Link Distance (ft)		472			684			415			881	
Travel Time (s)		10.7			15.4			9.4			24.0	
Volume (vph)	260	585	155	170	410	46	45	1400	185	195	800	254
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	263	591	157	183	441	49	54	1667	220	217	889	281
Lane Group Flow (vph)	263	748	0	183	441	49	54	1667	220	217	1170	0
Turn Type	Prot			pm+pt		Perm	pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4		8		8	2		2	6		
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0		4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	8.0	29.0		8.0	26.0	26.0	8.0	26.0	26.0	8.0	26.0	
Total Split (s)	27.0	34.0	0.0	27.0	34.0	34.0	8.0	51.0	51.0	8.0	51.0	0.0
Total Split (%)	23%	28%	0%	23%	28%	28%	7%	43%	43%	7%	43%	0%
Maximum Green (s)	23.0	29.0		23.0	29.0	29.0	4.0	45.0	45.0	4.0	45.0	
Yellow Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	7.0	7.0	3.0	7.0	
Recall Mode	None	None		None	None	None	None	Coord	Coord	None	Coord	
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0			0	0		0	0		0	
Act Effct Green (s)	21.0	29.6		50.6	29.5	29.5	53.6	49.5	49.5	53.5	49.5	
Actuated g/C Ratio	0.18	0.25		0.42	0.25	0.25	0.45	0.41	0.41	0.45	0.41	
v/c Ratio	0.85	0.85		0.49	0.50	0.11	0.44	0.20	0.28	0.49	0.80	
Uniform Delay, d1	46.0	41.4		20.1	38.6	30.0	15.9	22.5	20.0	20.6	29.9	
Delay	52.6	43.6		21.5	39.0	9.9	18.5	23.2	3.2	19.7	29.6	
LOS	D	D		C	D	A	B	C	A	B	C	
Approach Delay		45.9			32.2			18.3			28.0	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	195	284		81	154	0	23	75	0	82	433	
Queue Length 95th (ft)	#320	#362		143	206	30	44	93	38	m124	260	
Internal Link Dist (ft)		597			584			335			811	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200			200			200			200		
50th Bay Block Time %	3%	19%									12%	
95th Bay Block Time %	24%	26%			4%						9%	
Queuing Penalty (veh)	70	59			3						30	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 94 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 81.4% ICU Level of Service D
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9	9	15		
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Fr		0.850	0.956			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	1623	3351	0	1762	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1761	1623	3351	0	1762	1845
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		124	101			
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Link Speed (mph)	30		25			25
Link Distance (ft)	559		881			666
Travel Time (s)	12.7		24.0			18.2
Volume (vph)	255	115	415	170	45	975
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Adj. Flow (vph)	274	124	441	181	49	1071
Lane Group Flow (vph)	274	124	622	0	49	1071
Turn Type		Perm		pm+pt		
Protected Phases	8		2		1	6
Permitted Phases		8		6		
Detector Phase	8	8	2	6	1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	9.0		9.0	9.0
Total Split (s)	31.0	31.0	80.0	0.0	9.0	89.0
Total Split (%)	26%	26%	67%	0%	8%	74%
Maximum Green (s)	25.0	25.0	75.0		4.0	84.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Coord		None	Coord
Walk Time (s)			7.0			7.0
Flash Dont Walk (s)			21.0			21.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)	23.2	23.2	81.6		88.8	88.8
Actuated g/C Ratio	0.19	0.19	0.68		0.74	0.74
v/c Ratio	0.81	0.30	0.27		0.09	0.78
Uniform Delay, d1	48.2	39.0	8.4		5.5	9.7
Delay	46.0	8.7	4.2		5.3	11.4
LOS	D	A	A		A	B
Approach Delay	33.7		4.2			11.1
Approach LOS	C		A			B
Queue Length 50th (ft)	202	0	2		9	465
Queue Length 95th (ft)	294	66	8		22	748
Internal Link Dist (ft)	479		811			309
50th Up Block Time (%)						12%
95th Up Block Time (%)						19%
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						169

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 62 (43%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 78.2% ICU Level of Service C

Splits and Phases: 17: East Village & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			200
Storage Lanes	0	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3502	1615	1802	1845	1845	1615
Flt Permitted	0.950		0.108			
Satd. Flow (perm)	3502	1615	205	1845	1845	1615
Right Turn on Red			Yes			Yes
Satd. Flow (RTOR)			343			625
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			35	35	
Link Distance (ft)	1524			797	803	
Travel Time (s)	34.6			15.5	15.6	
Volume (vph)	835	340	425	910	480	725
Peak Hour Factor	0.94	0.94	0.85	0.85	0.85	0.86
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%
Adj. Flow (vph)	962	362	500	1071	565	843
Lane Group Flow (vph)	962	362	500	1071	565	843
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	7.0	7.0	7.0
Minimum Split (s)	23.0	23.0	9.0	38.0	38.0	38.0
Total Split (s)	39.0	39.0	35.0	81.0	46.0	46.0
Total Split (%)	33%	33%	29%	68%	38%	38%
Maximum Green (s)	34.0	34.0	30.0	76.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Coord	Coord	Coord
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	34.9	34.9	77.2	77.2	43.5	43.5
Actuated g/C Ratio	0.29	0.29	0.64	0.64	0.36	0.36
v/c Ratio	0.94	0.51	0.98	0.90	0.84	0.88
Uniform Delay, d1	41.4	1.6	31.1	18.3	35.1	8.0
Delay	49.5	4.6	45.9	23.6	39.1	15.8
LOS	D	A	D	C	D	B
Approach Delay	37.4			30.1	23.3	
Approach LOS	D			C	C	
Queue Length 50th (ft)	370	10	308	667	418	173
Queue Length 95th (ft)	#495	67	#457	805	#564	206
Internal Link Dist (ft)	1444			717	723	
50th Up Block Time (%)				2%		
95th Up Block Time (%)				8%		
Turn Bay Length (ft)			200			200
50th Bay Block Time %			24%	28%	12%	
95th Bay Block Time %			43%	28%	56%	6%
Queuing Penalty (veh)			354	158	268	15

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 30.3 Intersection LOS: C
Intersection Capacity Utilization 94.2% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Odenthal Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	200		200	200		200	200		200
Storage Lanes			1	2		1	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	1735	4986	1552	1770	3540	1584
Flt Permitted	0.950			0.950						0.204		
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	373	4986	1552	166	3540	1584
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111			162			239			102
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01	0.99	0.99	0.99
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		667			782			612			883	
Travel Time (s)		14.9			17.8			12.0			20.1	
Volume (vph)	870	755	100	415	610	280	95	1410	305	130	660	135
Peak Hour Factor	0.95	0.89	0.89	0.95	0.93	0.89	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	0%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	916	848	135	448	671	250	100	1484	321	141	739	147
Lane Group Flow (vph)	916	848	135	448	671	250	100	1484	321	141	739	147
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		Free
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	8.0	55.0	55.0	9.0	34.0	
Total Split (s)	28.0	36.0	36.0	28.0	36.0	36.0	12.0	44.0	44.0	12.0	44.0	0.0
Total Split (%)	23%	30%	30%	23%	30%	30%	10%	37%	37%	10%	37%	0%
Maximum Green (s)	22.0	31.0	31.0	22.0	31.0	31.0	7.0	38.0	38.0	7.0	38.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	
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	3.0	
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		20.0	20.0		20.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	23.5	31.8	31.8	23.5	31.8	31.8	48.5	40.6	40.6	48.5	40.6	120.0
Actuated g/C Ratio	0.20	0.27	0.27	0.20	0.27	0.27	0.41	0.34	0.34	0.41	0.34	1.00
v/c Ratio	0.90	0.91	0.27	0.67	0.94	0.52	0.41	0.88	0.47	0.76	0.62	0.09
Uniform Delay, d1	47.1	42.7	5.8	44.6	43.1	14.8	20.1	37.9	7.1	20.6	33.1	0.0
Delay	51.2	46.9	9.5	44.8	52.1	15.5	16.0	29.4	4.2	31.1	30.7	0.0
LOS	D	D	A	D	D	B	B	C	A	C	C	A
Approach Delay		47.7			45.7			24.4			26.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	234	335	13	165	347	74	38	341	31	69	226	0
Queue Length 95th (ft)	#568	#641	63	221	#471	162	m38	m397	m16	m190	311	m0
Internal Link Dist (ft)		577			689			538			803	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200		200	200		200	200		200	200		200
50th Bay Block Time %	16%	30%			32%			22%			6%	
95th Bay Block Time %	44%	41%		10%	44%			24%			28%	
Queuing Penalty (veh)	127	110		22	168			23			24	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 80 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 91.0% ICU Level of Service E
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		300	200		0
Storage Lanes	0		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.918			0.925			0.970			0.998	
Flt Protected		0.990			0.950			0.950			0.950	
Satd. Flow (prot)	0	1735	0	1723	1639	0	1767	3385	0	1796	1832	0
Flt Permitted		0.990			0.950			0.202			0.048	
Satd. Flow (perm)	0	1735	0	1723	1639	0	380	3385	0	91	1832	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			34			53			1	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.01	1.01
Link Speed (mph)		30			30			24			32	
Link Distance (ft)		304			584			883			467	
Travel Time (s)		6.9			13.3			25.1			10.0	
Volume (vph)	5	5	16	200	6	70	15	1550	330	40	730	10
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	0.96	0.96	0.96	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%
Adj. Flow (vph)	7	7	23	253	8	89	16	1615	396	52	948	13
Lane Group Flow (vph)	0	37	0	170	178	0	16	2011	0	52	961	0
Turn Type	Split			Split			Perm			pm+pt		
Protected Phases	4	4		8	8		2			1	6	
Permitted Phases							2			6		
Detector Phases	4	4		8	8		2	2		1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		1.0	7.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0		6.0	11.0	
Total Split (s)	11.0	11.0	0.0	19.0	19.0	0.0	83.0	83.0	0.0	7.0	90.0	0.0
Total Split (%)	8%	9%	0%	16%	16%	0%	69%	69%	0%	6%	75%	0%
Maximum Green (s)	7.0	7.0		15.0	15.0		79.0	79.0		3.0	86.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Coord	Coord		None	Coord	
Walk Time (s)							7.0	7.0			7.0	
Flash Dont Walk (s)							11.0	11.0			11.0	
Pedestrian Calls (#/hr)							0	0			0	
Act Effct Green (s)		7.0		14.3	14.3		85.5	85.5		91.1	91.1	
Actuated g/C Ratio		0.06		0.12	0.12		0.71	0.71		0.76	0.76	
v/c Ratio		0.30		0.83	0.79		0.06	0.83		0.46	0.69	
Uniform Delay, d1		21.9		51.6	51.2		5.9	13.4		4.0	5.1	
Delay		29.6		62.6	48.8		2.4	10.4		16.3	10.4	
LOS		C		E	D		A	B		B	B	
Approach Delay		29.6			55.5			10.4			10.7	
Approach LOS		C			E			B			B	
Queue Length 50th (ft)		10		136	115		0	293		11	154	
Queue Length 95th (ft)		50		#202	#166		m0	297		38	191	
Internal Link Dist (ft)		224			274			803			387	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200						200		
50th Bay Block Time %											5%	
95th Bay Block Time %											4%	
Queuing Penalty (veh)											2	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 84 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 80.5% ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.998						0.976	
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1752	1845	1568	1752	3468	0	1752	3477	0	1752	3417	0
Flt Permitted	0.321			0.375			0.275			0.068		
Satd. Flow (perm)	592	1845	1568	692	3468	0	507	3477	0	125	3417	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159					7			27	
Headway 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
Link Speed (mph)		30			30			32			58	
Link Distance (ft)		374			432			791			368	
Travel Time (s)		8.5			9.8			16.8			7.0	
Volume (vph)	160	325	135	80	445	45	220	1295	75	60	555	110
Peak Hour Factor	0.92	0.87	0.87	0.87	0.87	0.87	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	165	335	139	92	511	52	247	1455	84	70	645	128
Lane Group Flow (vph)	165	335	139	92	563	0	247	1539	0	70	773	0
Turn Type	Perm		Perm	Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phases	4	4	4	8	8		5	2	1	6		
Minimum Initial (s)	7.0	7.0	7.0	4.0	4.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	27.0		8.0	27.0	
Total Split (s)	46.0	46.0	46.0	46.0	46.0	0.0	11.0	65.0	0.0	11.0	65.0	0.0
Total Split (%)	38%	38%	38%	38%	38%	0%	9%	53%	0%	9%	53%	0%
Maximum Green (s)	41.0	41.0	41.0	42.0	42.0		7.0	58.0		7.0	58.0	
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	0.5	0.5		1.0	1.0		1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	6.0	3.0	3.0		3.0	8.0		3.0	8.0	
Recall Mode	None	None	None	None	None		None	Coord		None	Coord	
Walk Time (s)	7.0	7.0	7.0	5.0	5.0			7.0			7.0	
Flash Dont Walk (s)	8.0	8.0	8.0	11.0	11.0			16.0			16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	38.0	38.0	38.0	38.0	38.0		70.0	63.1		70.0	58.1	
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32		0.58	0.53		0.58	0.53	
v/c Ratio	0.88	0.67	0.28	0.42	0.61		0.67	0.84		0.42	0.46	
Uniform Delay, d1	38.8	34.2	0.0	32.3	32.8		10.7	24.0		9.3	16.7	
Delay	60.7	38.8	4.8	31.9	50.2		5.6	18.8		12.6	17.6	
LOS	D	C	A	C	D		A	B		B	B	
Approach Delay		51.7			32.1			12.8			17.3	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	114	205	0	53	150		24	0		22	193	
Queue Length 95th (ft)	#241	296	29	100	188		m42	134		44	230	
Internal Link Dist (ft)		294			352			711			288	
50th Up Block Time (%)												
95th Up Block Time (%)		6%										
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		6%									1%	
95th Bay Block Time %	21%	25%						3%			9%	
Queuing Penalty (veh)	50%	65									3	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 84 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 20.0 Intersection LOS: B
Intersection Capacity Utilization 85.7% ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Centerway Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑↑	↱	↰	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	200		0
Storage Lanes	1		0	1		1	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	0.95
Frt		0.964				0.850			0.850		0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3515	0	1796	3592	1607	1744	5011	1607	1823	3416	0
Flt Permitted	0.950			0.164			0.230			0.129		
Satd. Flow (perm)	1770	3515	0	291	3592	1607	422	5011	1607	248	3416	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33				181			295		32	
Headway Factor	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99
Link Speed (mph)		30				30			32		29	
Link Distance (ft)		678				834			414		891	
Travel Time (s)		15.4				14.4			8.8		23.4	
Volume (vph)	536	480	145	355	866	170	148	1390	280	106	964	110
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.86	0.86	0.86	0.81	0.81	0.81
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	3%	0%	3%	3%
Adj. Flow (vph)	569	479	154	390	773	198	168	1170	295	150	451	136
Lane Group Flow (vph)	569	633	0	390	773	198	168	1170	295	150	587	0
Turn Type	Prot			pm+pt		Perm	pm+pt		Perm	pm+pt		
Protected Phases	7	4		5	6		5	2		1	6	
Permitted Phases		4		6		6	2		2	6		
Detector Phases	7	4		5	6	6	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0		4.0	7.0	4.0	7.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	8.0	28.0		8.0	28.0	28.0	8.0	28.0	28.0	8.0	28.0	
Total Split (s)	44.0	30.0	0.0	44.0	30.0	30.0	11.0	35.0	35.0	11.0	35.0	0.0
Total Split (%)	37%	25%	0%	37%	25%	25%	9%	29%	29%	9%	29%	0%
Maximum Green (s)	40.0	26.0		40.0	26.0	26.0	7.0	29.0	29.0	7.0	29.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	0.5	2.0	2.0	0.5	2.0	
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	
Recall Mode	None	None		None	None	None	None	Coord	Coord	None	Coord	
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0			0	0		0	0		0	
Act Effct Green (s)	39.4	26.0		65.5	26.0	26.0	38.5	31.6	31.5	38.6	31.6	
Actuated g/C Ratio	0.33	0.22		0.55	0.22	0.22	0.32	0.26	0.26	0.32	0.26	
v/c Ratio	0.98	0.80		0.50	0.99	0.42	0.86	0.89	0.46	0.76	0.64	
Uniform Delay, d1	50.5	42.1		21.0	48.9	27.1	30.2	42.6	29.0	37.1	39.6	
Delay	59.8	43.7		21.5	69.5	10.0	57.2	46.6	4.1	39.5	27.5	
LOS	E	D		C	E	B	E	D	A	D	C	
Approach Delay		51.3			47.1			40.2			29.7	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	431	222		189	316	0	105	322	0	54	110	
Queue Length 95th (ft)	#562	288		272	#417	76	#222	#373	52	m#116	145	
Internal Link Dist (ft)		598			554			334			811	
50th Up Block Time (%)												
95th Up Block Time (%)	14%							6%				
Turn Bay Length (ft)	200			200		200	200			200		
50th Bay Block Time %	38%	9%		2%	30%			27%				
95th Bay Block Time %	51%	23%		14%	45%		11%	53%				
Queuing Penalty (veh)	140	80		34	141		21	93				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 42.3 Intersection LOS: D
Intersection Capacity Utilization 96.0% ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%		0%	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	
Frt		0.850	0.968			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	1623	3358	0	1752	1845
Flt Permitted	0.950				0.846	
Satd. Flow (perm)	1761	1623	3358	0	89	1845
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		94	102			
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Link Speed (mph)	30		29			26
Link Distance (ft)	540		401			598
Travel Time (s)	12.7		20.0			10.2
Volume (vph)	205	85	1265	500	75	1678
Peak Hour Factor	0.90	0.90	0.91	0.91	0.85	0.90
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Adj. Flow (vph)	228	94	1390	549	94	1869
Lane Group Flow (vph)	228	94	1939	0	94	1869
Turn Type		Perm			pm+pt	
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phases	8	8	2		1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	8.0	8.0	8.0		8.0	8.0
Total Split (s)	26.0	26.0	83.0	0.0	11.0	94.0
Total Split (%)	22%	22%	69%	0%	9%	78%
Maximum Green (s)	21.0	21.0	78.0		6.0	89.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Coord		None	Coord
Walk Time (s)			7.0			7.0
Flash Dont Walk (s)			16.0			16.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)	19.8	19.8	81.3		92.2	92.2
Actuated g/C Ratio	0.17	0.17	0.68		0.77	0.77
v/c Ratio	0.79	0.27	0.84		0.57	0.33
Uniform Delay, d1	48.1	0.0	13.6		8.1	4.3
Delay	49.4	5.5	8.7		16.2	4.7
LOS	D	A	A		B	A
Approach Delay	37.5		8.7			6.8
Approach LOS	D		A			A
Queue Length 50th (ft)	168	0	244		20	104
Queue Length 95th (ft)	#263	41	m#87		62	124
Internal Link Dist (ft)	460		511			309
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 83.5% ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: East Village & Goshen Road



Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - 2 Lane Improved (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:02.1	*00:02.1*
From Odendhal Road to Midcounty Hwy	00:48.6	00:46.5
Midcounty Highway	01:08.1	*00:19.5*
From Midcounty Hwy to Emory Grove Rd	01:34.4	00:26.3
Emory Grove Road	01:47.6	*00:13.2*
From Emory Grove Rd to Centerway Rd	02:48.5	01:00.9
Centerway Road	02:50.9	*00:02.4*
From Centerway Rd to Snouffer School Rd	05:01.6	02:10.7
Snouffer School Road	05:19.4	*00:17.8*
From Snouffer School Rd to East Village Ave	05:43.0	00:23.6
East Village Avenue	05:46.2	*00:03.2*
From East Village Ave to Warfield Rd	06:32.0	00:45.8
Warfield Road	06:32.0	*00:00.0*
TOTAL MOVING TIME		05:33.8
TOTAL STOPPED TIME		00:58.2
TOTAL TRAVEL TIME	**06:32.0**	**06:32.0**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:48.4	00:48.4
East Village Avenue	00:57.2	*00:08.8*
From East Village Ave to Snouffer School Rd	01:29.3	00:32.1
Snouffer School Road	01:52.1	*00:22.8*
From Snouffer School Rd to Centerway Rd	04:01.4	02:09.3
Centerway Road	04:14.7	*00:13.3*
From Centerway Rd to Emory Grove Rd	05:21.4	01:06.7
Emory Grove Road	05:26.2	*00:04.8*
From Emory Grove Rd to Midcounty Hwy	06:10.9	00:44.7
Midcounty Highway	06:59.4	*00:48.5*
From Midcounty Hwy to Odendhal Rd	07:48.3	00:48.9
Odendhal Road	07:54.1	*00:05.8*
TOTAL MOVING TIME		06:10.1
TOTAL STOPPED TIME		01:44.0
TOTAL TRAVEL TIME	**07:54.1**	**07:54.1**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - 2 Lane Improved (PM) Date 01/08/03

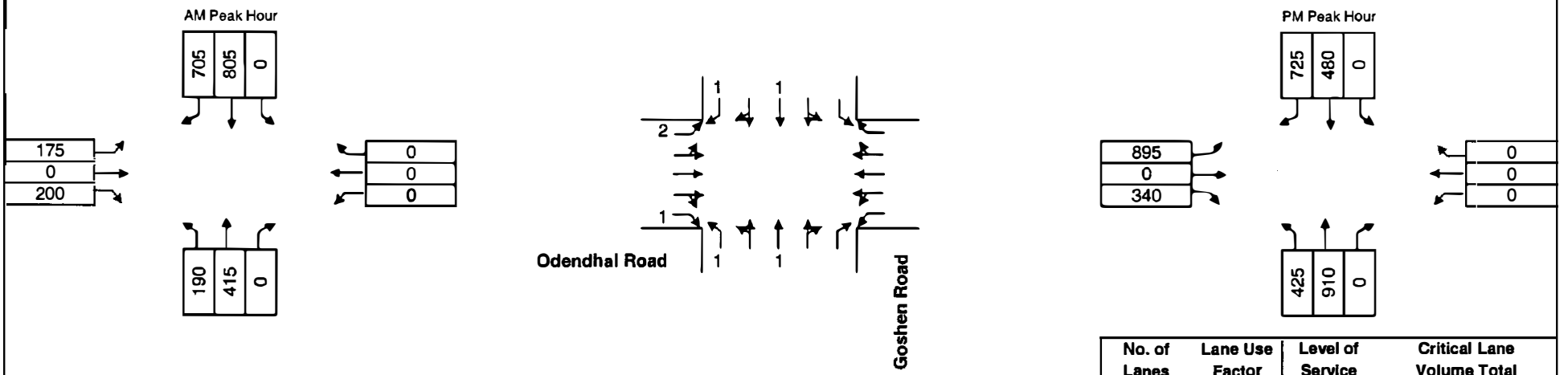
NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:18.2	*00:18.2*
From Odendhal Road to Midcounty Hwy	01:12.2	00:54.0
Midcounty Highway	01:34.8	*00:22.6*
From Midcounty Hwy to Emory Grove Rd	02:07.3	00:32.5
Emory Grove Road	02:15.3	*00:08.0*
From Emory Grove Rd to Centerway Rd	03:32.0	01:16.7
Centerway Road	03:42.6	*00:10.6*
From Centerway Rd to Snouffer School Rd	06:22.2	02:39.6
Snouffer School Road	06:58.0	*00:35.8*
From Snouffer School Rd to East Village Ave	07:25.3	00:27.3
East Village Avenue	07:32.0	*00:06.7*
From East Village Ave to Warfield Rd	08:25.1	00:53.1
Warfield Road	08:25.1	*00:00.0*
TOTAL MOVING TIME		06:43.2
TOTAL STOPPED TIME		01:41.9
TOTAL TRAVEL TIME	**08:25.1**	**08:25.1**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:00.0	*00:00.0*
From Warfield Rd to East Village Ave	00:54.2	00:54.2
East Village Avenue	00:57.8	*00:03.6*
From East Village Ave to Snouffer School Rd	01:34.5	00:36.7
Snouffer School Road	01:55.7	*00:21.2*
From Snouffer School Rd to Centerway Rd	04:12.3	02:16.6
Centerway Road	04:26.0	*00:13.7*
From Centerway Rd to Emory Grove Rd	05:41.9	01:15.9
Emory Grove Road	05:49.9	*00:08.0*
From Emory Grove Rd to Midcounty Hwy	06:22.1	00:32.2
Midcounty Highway	06:45.7	*00:23.6*
From Midcounty Hwy to Odendhal Rd	07:41.9	00:56.2
Odendhal Road	08:12.0	*00:30.1*
TOTAL MOVING TIME		06:31.8
TOTAL STOPPED TIME		01:40.2
TOTAL TRAVEL TIME	**08:12.0**	**08:12.0**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2025 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	415	1	415	0	415	995
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	805	1	805	190	995	
	SBR	600	1	600	190	790	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	105
	EBR	10	1	10	0	10	
	EBL	175	0.6	105		105	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,100
						Level Of Service	B
						v/c ratio	0.69

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	910	1	910	0	910	910
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	480	1	480	425	905	
	SBR	188	1	188	425	613	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	537
	EBR	0	1	0	0	0	
	EBL	895	0.6	537		537	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,447
						Level Of Service	D
						v/c ratio	0.90

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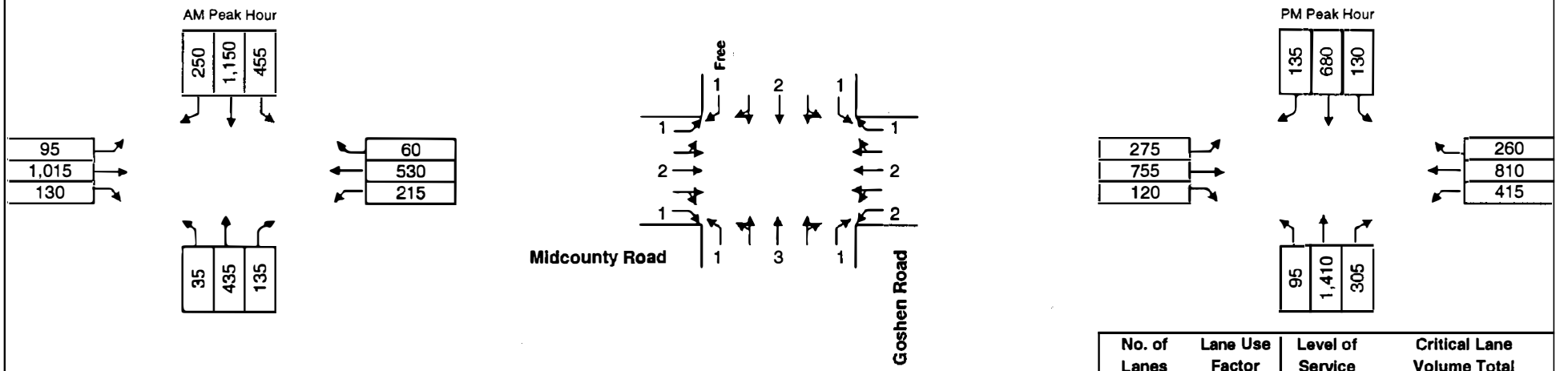
Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2025 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	435	0.4	174	455	629	668
	NBR	6	1	6	455	461	
	NBL	0	1	0		0	
	SB	1,150	0.55	633	35	668	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	1,015	0.55	558	129	687	687
	EBR	95	1	95	129	224	
	EBL	0	1	0		0	
	WB	530	0.55	292	95	387	
	WBR	0	1	0	0	0	
	WBL	0	0.6	0		0	
							1,355
						Level Of Service	D
						v/c ratio	0.85

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,410	0.4	564	130	694	694
	NBR	56	1	56	130	186	
	NBL	0	1	0		0	
	SB	680	0.55	374	95	469	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	755	0.55	415	249	664	721
	EBR	25	1	25	249	274	
	EBL	0	1	0		0	
	WB	810	0.55	446	275	721	
	WBR	130	1	130	275	405	
	WBL	0	0.6	0		0	
							1,415
						Level Of Service	D
						v/c ratio	0.88

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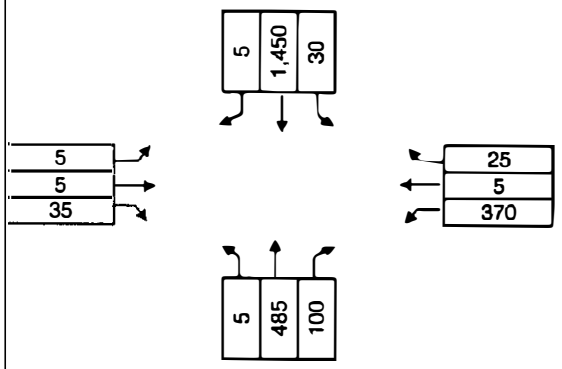
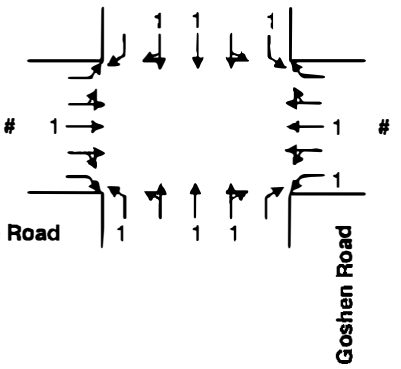
Turning Movement Summary and Level of Service

Count Date: 2/6/02 | Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2025 - 2 Lanes
Computed by: MAM | Date: 4/8/2003 | Checked by: JCP | Date: 37522

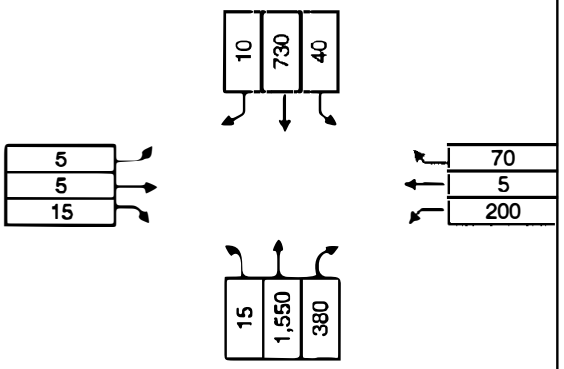
AM Peak Hour



# Indicates shared lane for all movements



PM Peak Hour



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	585	0.55	322	30	352	805
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,455	0.55	800	5	805	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	45	1	45	0	45	45
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	400	0.55	220	0	220	220
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,070
						Level Of Service	B
						v/c ratio	0.67

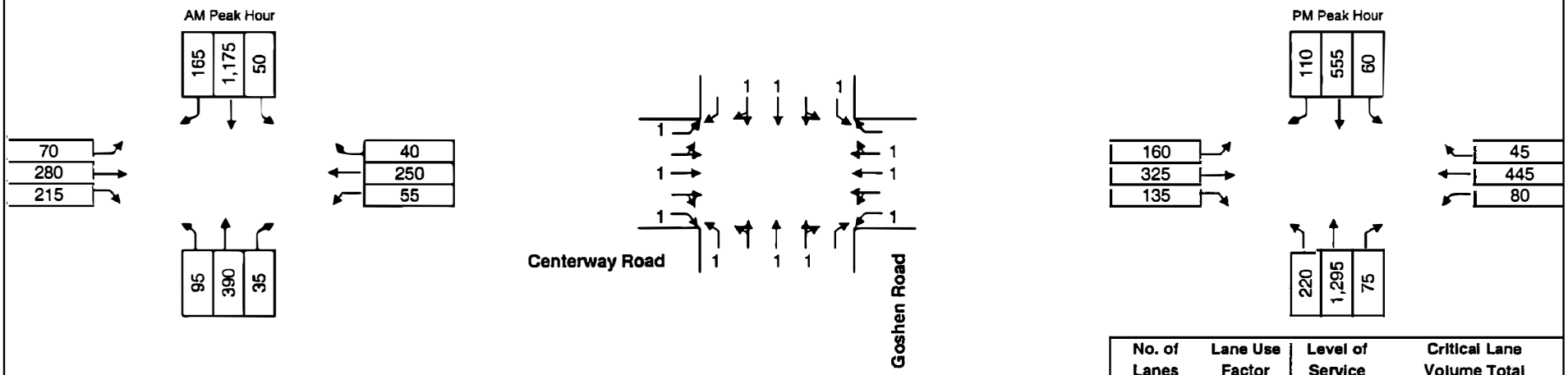
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,930	0.55	1,062	40	1,102	1,102
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	740	0.55	407	15	422	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	25	1	25	0	25	25
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	275	0.55	151	0	151	151
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,278
						Level Of Service	C
						v/c ratio	0.80

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2025 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	425	0.55	234	50	284	832
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,340	0.55	737	95	832	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	280	1	280	55	335	335
	EBR	120	1	120	55	175	
	EBL	0	1	0		0	
	WB	290	0.55	160	70	230	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,167
						Level Of Service	C
						v/c ratio	0.73

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,370	0.55	754	60	814	814
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	665	0.55	366	220	586	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	325	1	325	80	405	430
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	490	0.55	270	160	430	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,244
						Level Of Service	C
						v/c ratio	0.78

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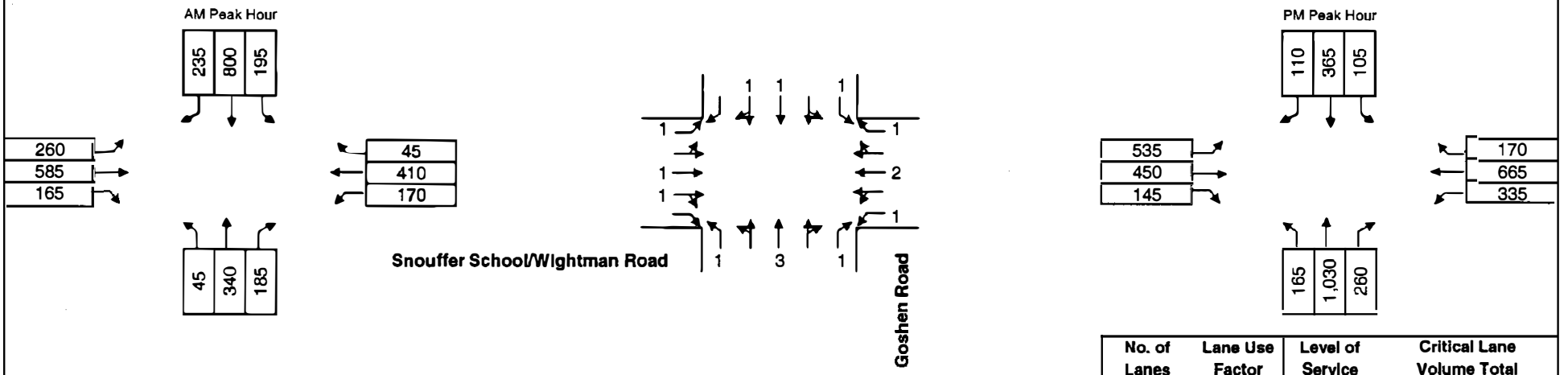
Turning Movement Summary and Level of Service

Count Date: 2/13/02 | Location: Goshen Road/Snouffer School/Wightman Road
Conditions/ Design Year: 2025 - 2 Lanes
Computed by: MAM | Date: 4/8/2003 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	340	0.4	136	195	331	614
	NBR	15	1	15	195	210	
	NBL	0	1	0		0	
	SB	1,035	0.55	569	45	614	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	750	0.55	413	170	583	583
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	410	0.55	226	260	486	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,197
						Level Of Service	C
						v/c ratio	0.75

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,030	0.4	412	105	517	517
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	475	0.55	261	165	426	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	595	0.55	327	335	662	901
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	665	0.55	366	535	901	
	WBR	65	1	65	535	600	
	WBL	0	1	0		0	
							1,418
						Level Of Service	D
						v/c ratio	0.89

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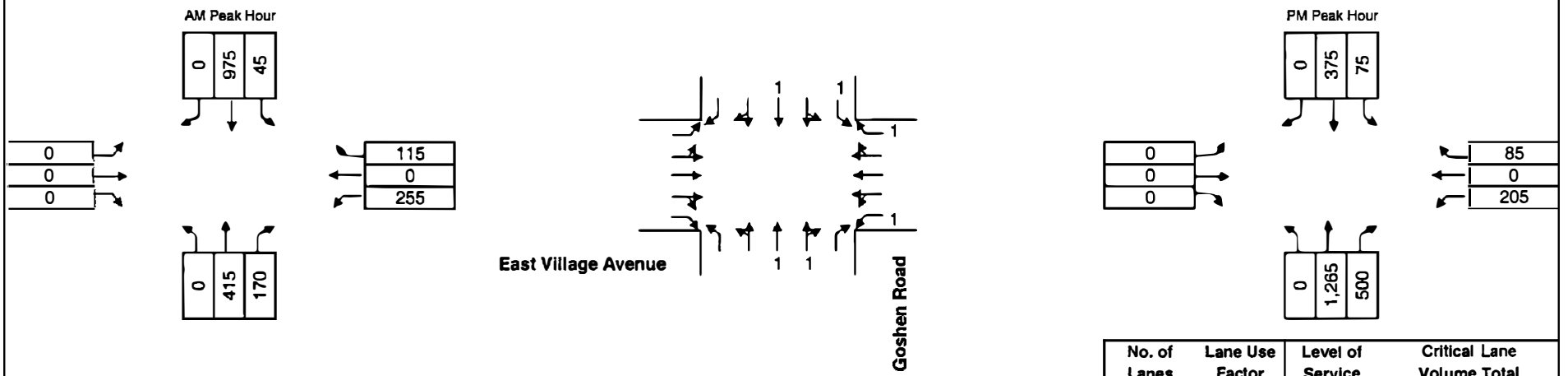
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/East Village Avenue
Conditions/
Design Year: 2025 - 2 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	585	0.55	322	45	367	975
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	975	1	975	0	975	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	255
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	70	1	70	0	70	
	WBL	255	1	255		255	
							1,230
						Level Of Service	C
						v/c ratio	0.77

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,765	0.55	971	75	1,046	1,046
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	375	1	375	0	375	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	205
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	10	1	10	0	10	
	WBL	205	1	205		205	
							1,251
						Level Of Service	C
						v/c ratio	0.78

Unsignalized Intersection CLV Eqivalent Calculations

LOS	HCS			CLV			LOS
A	0	10	10	0	1000	1000	A
B	10	15	5	1000	1150	150	B
C	15	25	10	1150	1300	150	C
D	25	35	10	1300	1450	150	D
E	35	50	15	1450	1600	150	E
F	50	190	140	1600	3000	1400	F

2025 2 Lanes

#2 Willow Creek Drive

	Delay					CLV	LOS
AM	159.2	50	1600	140	1400	2,692	F
PM	58.1	50	1600	140	1400	1,681	F

#5 Severn Road

	Delay					CLV	LOS
AM	42.6	35	1450	15	150	1,526	E
PM	23.7	15	1150	10	150	1,281	C

#6 Lindenhouse Road

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	34.2	25	1300	10	150	1,438	D

#8 Rock Elm Way

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	30.0	25	1300	10	150	1,375	D

#9 Framingham Drive

	Delay					CLV	LOS
AM	76.9	50	1600	140	1400	1,869	F
PM	42.7	35	1450	15	150	1,527	E

#10 Turtle Dove Terrace

	Delay					CLV	LOS
AM	44.2	35	1450	15	150	1,542	E
PM	49.6	35	1450	15	150	1,596	E

#11 Stewartown Road

	Delay					CLV	LOS
AM	51.4	50	1600	140	1400	1,614	F
PM	37.3	35	1450	15	150	1,473	E

#12 Bramble Bush Drive

	Delay					CLV	LOS
AM	39.6	35	1450	15	150	1,496	E
PM	38.2	35	1450	15	150	1,482	E

#13 Rothbury Drive

	Delay					CLV	LOS
AM	999.9	50	1600	140	1400	3,000	F
PM	999.9	50	1600	140	1400	3,000	F

#14 Goshen Crossing

	Delay					CLV	LOS
AM	24.6	15	1150	10	150	1,294	C
PM	999.9	50	1600	140	1400	3,000	F

#17 Mother of God School

	Delay					CLV	LOS
AM	414.6	50	1600	140	1400	3,000	F
PM	27.8	25	1300	10	150	1,342	D

#18 Warfield Road

	Delay					CLV	LOS
AM	294.9	50	1600	140	1400	3,000	F
PM	704.9	50	1600	140	1400	3,000	F

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Willow Creek Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*585*	*0*	*0*	*1490*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*664*	*0*	*0*	*1568*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*15*	*0*	*20*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.61*	*1.00*	*0.61*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*24*	*0*	*32*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*56*	
C (m) (vph)	*117*						*69*	
v/c	*0.04*						*0.81*	
95% queue length	*0.13*						*3.84*	
Control Delay	*37.1*						*159.2*	
LOS	*E*						*F*	
Approach Delay	--	--					*159.2*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Willow Creek Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1800*	*0*	*0*	*1200*	*15*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*5*	*2000*	*0*	*0*	*1304*	*16*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*9*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*27*	
C (m) (vph)	*530*						*94*	
v/c	*0.01*						*0.29*	
95% queue length	*0.03*						*1.07*	
Control Delay	*11.9*						*58.1*	
LOS	*B*						*F*	
Approach Delay	--	--					*58.1*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road / Severn Road*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Severn Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*510*	*0*	*0*	*1470*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*5*	*579*	*0*	*0*	*1670*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*27*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*5*					*18*		*27*
C (m) (vph)	*388*					*115*		*120*
v/c	*0.01*					*0.16*		*0.22*
95% queue length	*0.04*					*0.53*		*0.81*
Control Delay	*14.4*					*42.0*		*43.5*
LOS	*B*					*E*		*E*
Approach Delay	--	--				*42.9*		
Approach LOS	--	--				*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street: *Severn Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*1610*	*0*	*0*	*770*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*15*	*1694*	*0*	*0*	*875*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*5*	*0*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*15*					*9*		*18*
C (m) (vph)	*777*					*113*		*351*
v/c	*0.02*					*0.08*		*0.05*
95% queue length	*0.06*					*0.25*		*0.16*
Control Delay	*9.7*					*39.6*		*15.8*
LOS	*A*					*E*		*C*
Approach Delay	--	--				*23.7*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Lindenhouse Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*515*	*5*	*5*	*1440*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.84*	*0.84*	*0.88*
Hourly Flow Rate, HFR	*0*	*547*	*5*	*5*	*1714*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.60*	*1.00*	*0.60*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*58*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	*7*	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*5*	*58*		*8*			
C (m) (vph)		*1013*	*11*		*541*			
v/c		*0.00*	*5.27*		*0.01*			
95% queue length		*0.01*	*8.45*		*0.04*			
Control Delay		*8.6*			*11.8*			
LOS		*A*	*F*		*B*			
Approach Delay	--	--						
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Lindenhouse Road*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1580*	*35*	*5*	*765*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1580*	*35*	*5*	*765*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*10*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*5*	*10*		*10*			
C (m) (vph)		*401*	*131*		*136*			
v/c		*0.01*	*0.08*		*0.07*			
95% queue length		*0.04*	*0.24*		*0.23*			
Control Delay		*14.1*	*34.7*		*33.6*			
LOS		*B*	*D*		*D*			
Approach Delay	--	--	*34.2*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Rock Elm Way*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*495*	*5*	*1380*	*5*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.80*	*0.80*	*0.91*	*0.91*	*0.88*
Hourly Flow Rate, HFR	*0*	*618*	*6*	*1516*	*5*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.58*	*1.00*	*0.58*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*8*	*0*	*17*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*1516*	*8*		*17*			
C (m) (vph)		*952*			*491*			
v/c		*1.59*			*0.03*			
95% queue length		*77.81*			*0.11*			
Control Delay		*285.2*			*12.6*			
LOS		*F*			*B*			
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Rock Elm Way*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1495*	*5*	*5*	*720*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1495*	*5*	*5*	*720*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*5*	*5*		*5*			
C (m) (vph)		*444*	*146*		*152*			
v/c		*0.01*	*0.03*		*0.03*			
95% queue length		*0.03*	*0.11*		*0.10*			
Control Delay		*13.2*	*30.5*		*29.5*			
LOS		*B*	*D*		*D*			
Approach Delay	--	--	*30.0*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*490*	*10*	*5*	*1275*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.82*	*0.82*	*0.87*	*0.87*	*0.88*
Hourly Flow Rate, HFR	*0*	*597*	*12*	*5*	*1465*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*110*	*0*	*45*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.76*	*1.00*	*0.76*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*144*	*0*	*59*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*5*	*144*		*59*			
C (m) (vph)		*965*	*160*		*507*			
v/c		*0.01*	*0.90*		*0.12*			
95% queue length		*0.02*	*6.42*		*0.39*			
Control Delay		*8.8*	*103.1*		*13.0*			
LOS		*A*	*F*		*B*			
Approach Delay	--	--	*76.9*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Framingham Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lane (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1405*	*95*	*35*	*720*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.82*	*0.82*	*0.88*
Hourly Flow Rate, HFR	*0*	*1494*	*101*	*42*	*878*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*45*	*0*	*30*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.94*	*1.00*	*0.90*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*48*	*0*	*33*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*42*	*48*		*33*			
C (m) (vph)		*408*	*130*		*153*			
v/c		*0.10*	*0.37*		*0.22*			
95% queue length		*0.34*	*1.53*		*0.78*			
Control Delay		*14.8*	*48.1*		*34.9*			
LOS		*B*	*E*		*D*			
Approach Delay	--	--	*42.7*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*505*	*20*	*10*	*1215*	*10*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*12*	*615*	*24*	*10*	*1335*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*5*	*15*	*10*	*0*	*35*
Peak-Hour Factor, PHF	*0.73*	*0.73*	*0.73*	*0.54*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*41*	*6*	*20*	*18*	*0*	*38*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*12*	*10*	*41*		*26*	*18*		*38*
C (m) (vph)	*519*	*955*	*103*		*321*	*130*		*188*
v/c	*0.02*	*0.01*	*0.40*		*0.08*	*0.14*		*0.20*
95% queue length	*0.07*	*0.03*	*1.64*		*0.26*	*0.47*		*0.73*
Control Delay	*12.1*	*8.8*	*61.4*		*17.2*	*37.1*		*28.9*
LOS	*B*	*A*	*F*		*C*	*E*		*D*
Approach Delay	--	--	*44.2*			*31.6*		
Approach LOS	--	--	*E*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*40*	*1355*	*40*	*20*	*675*	*15*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.84*	*0.84*	*0.84*
Hourly Flow Rate, HFR	*43*	*1456*	*43*	*23*	*803*	*17*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*20*	*0*	*20*	*20*	*0*	*20*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.83*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*24*	*0*	*24*	*24*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*43*	*23*	*24*		*24*	*24*		*23*
C (m) (vph)	*818*	*453*	*89*		*156*	*69*		*382*
v/c	*0.05*	*0.05*	*0.27*		*0.15*	*0.35*		*0.06*
95% queue length	*0.17*	*0.16*	*0.99*		*0.53*	*1.30*		*0.19*
Control Delay	*9.6*	*13.4*	*59.8*		*32.2*	*82.8*		*15.0+*
LOS	*A*	*B*	*F*		*D*	*F*		*C*
Approach Delay	--	--	*46.0*			*49.6*		
Approach LOS	--	--	*E*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Sterwartown Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*35*	*495*	*0*	*0*	*1170*	*20*
Peak-Hour Factor, PHF	*0.77*	*0.77*	*0.77*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*45*	*642*	*0*	*0*	*1285*	*21*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*5*	*20*	*0*	*55*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*15*	*7*	*7*	*26*	*0*	*73*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*45*	*0*	*15*		*14*	*26*		*73*
C (m) (vph)	*537*	*952*	*64*		*212*	*134*		*200*
v/c	*0.08*	*0.00*	*0.23*		*0.07*	*0.19*		*0.37*
95% queue length	*0.27*	*0.00*	*0.81*		*0.21*	*0.69*		*1.57*
Control Delay	*12.3*	*8.8*	*77.7*		*23.2*	*38.2*		*33.0*
LOS	*B*	*A*	*F*		*C*	*E*		*D*
Approach Delay	--	--	*51.4*			*34.4*		
Approach LOS	--	--	*F*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*65*	*1320*	*10*	*0*	*640*	*40*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*65*	*1320*	*10*	*0*	*640*	*40*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*0*	*30*	*0*	*65*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*5*	*0*	*34*	*0*	*65*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*65*	*0*	*5*		*5*	*34*		*65*
C (m) (vph)	*922*	*526*	*105*		*131*	*112*		*467*
v/c	*0.07*	*0.00*	*0.05*		*0.04*	*0.30*		*0.14*
95% queue length	*0.23*	*0.00*	*0.15*		*0.12*	*1.17*		*0.48*
Control Delay	*9.2*	*11.8*	*41.0*		*33.6*	*50.6*		*14.0*
LOS	*A*	*B*	*E*		*D*	*F*		*B*
Approach Delay	--	--	*37.3*			*26.5*		
Approach LOS	--	--	*E*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Bramvle Bush Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*505*	*15*	*10*	*1160*	*10*
Peak-Hour Factor, PHF	*0.77*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*0*	*594*	*17*	*10*	*1274*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*10*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*32*	*10*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*LT*					
v (vph)		*10*	*42*					
C (m) (vph)		*961*	*145*					
v/c		*0.01*	*0.29*					
95% queue length		*0.03*	*1.13*					
Control Delay		*8.8*	*39.6*					
LOS		*A*	*E*					
Approach Delay	--	--	*39.6*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Bramble Bush Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*1305*	*45*	*20*	*645*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1305*	*45*	*20*	*645*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*25*	*2*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*35*	*25*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*LT*					
v (vph)		*20*	*60*					
C (m) (vph)		*507*	*167*					
v/c		*0.04*	*0.36*					
95% queue length		*0.12*	*1.51*					
Control Delay		*12.4*	*38.2*					
LOS		*B*	*E*					
Approach Delay	--	--	*38.2*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*105*	*395*	*15*	*5*	*970*	*100*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*105*	*395*	*15*	*5*	*970*	*100*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*		*TR*	*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*10*	*25*	*125*	*0*	*190*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*10*	*25*	*125*	*0*	*190*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration		*LTR*		*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LT*		*LTR*		*L*		*TR*
v (vph)	*105*	*5*		*45*		*125*		*190*
C (m) (vph)	*648*	*1143*		*0*		*181*		*310*
v/c	*0.16*	*0.00*				*0.69*		*0.61*
95% queue length	*0.58*	*0.01*				*4.19*		*3.79*
Control Delay	*11.6*	*8.2*				*60.3*		*33.4*
LOS	*B*	*A*		*F*		*F*		*D*
Approach Delay	--	--				*44.1*		
Approach LOS	--	--				*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Rothbury Drive*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*250*	*1055*	*25*	*20*	*455*	*225*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.97*	*0.97*	*0.97*
Hourly Flow Rate, HFR	*268*	*1134*	*26*	*20*	*469*	*231*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*		*TR*	*LT*		*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*10*	*245*	*10*	*205*
Peak-Hour Factor, PHF	*0.65*	*0.65*	*0.65*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR	*7*	*7*	*15*	*298*	*12*	*250*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration		*LTR*		*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LT*		*LTR*		*L*		*TR*
v (vph)	*268*	*20*		*29*		*298*		*262*
C (m) (vph)	*892*	*599*		*0*		*48*		*448*
v/c	*0.30*	*0.03*				*6.21*		*0.58*
95% queue length	*1.27*	*0.10*				*34.49*		*3.65*
Control Delay	*10.8*	*11.2*						*23.7*
LOS	*B*	*B*		*F*		*F*		*C*
Approach Delay	--	--						
Approach LOS	--	--				*F*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Goshen Crossing*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*55*	*490*	*6*	*3*	*950*	*185*
Peak-Hour Factor, PHF	*0.80*	*0.86*	*0.84*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*68*	*569*	*0*	*0*	*1079*	*210*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*80*	*1*	*125*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.80*	*0.82*	*0.80*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*99*	*0*	*156*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*68*					*99*		*156*
C (m) (vph)	*488*					*188*		*640*
v/c	*0.14*					*0.53*		*0.24*
95% queue length	*0.48*					*2.69*		*0.95*
Control Delay	*13.6*					*43.7*		*12.4*
LOS	*B*					*E*		*B*
Approach Delay	--	--				*24.6*		
Approach LOS	--	--				*C*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Goshen Crossing*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Goshen Crossing*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*115*	*1195*	*6*	*3*	*585*	*260*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.84*	*0.88*	*0.73*	*0.73*
Hourly Flow Rate, HFR	*140*	*1457*	*0*	*0*	*801*	*356*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*260*	*1*	*115*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.83*	*0.82*	*0.83*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*313*	*0*	*138*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*140*					*313*		*138*
C (m) (vph)	*594*					*72*		*457*
v/c	*0.24*					*4.35*		*0.30*
95% queue length	*0.91*					*33.62*		*1.26*
Control Delay	*12.9*							*16.2*
LOS	*B*					*F*		*C*
Approach Delay	--	--						
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*April 2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Mother of God Scho*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*

Project Description *199-73-17*

East/West Street: *Mother of God School* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*395*	*120*	*115*	*875*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*20*	*526*	*160*	*123*	*940*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*140*	*5*	*90*	*0*	*0*	*5*
Peak-Hour Factor, PHF	*0.46*	*0.45*	*0.45*	*0.25*	*0.25*	*0.25*
Hourly Flow Rate, HFR	*304*	*11*	*200*	*0*	*0*	*20*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	*7*	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*20*	*123*	*304*		*211*	*0*		*20*
C (m) (vph)	*737*	*917*	*129*		*449*	*74*		*322*
v/c	*0.03*	*0.13*	*2.36*		*0.47*	*0.00*		*0.06*
95% queue length	*0.08*	*0.46*	*26.22*		*2.46*	*0.00*		*0.20*
Control Delay	*10.0+*	*9.5*	*688.5*		*19.9*	*53.6*		*16.9*
LOS	*B*	*A*	*F*		*C*	*F*		*C*
Approach Delay	--	--	*414.6*			*16.9*		
Approach LOS	--	--	*F*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*April 2003*	Analysis Year	*2025 - 2 Lanes (Alts. 2 & 3)*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*	
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*1315*	*25*	*15*	*425*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*1315*	*25*	*15*	*425*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*20*	*0*	*5*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*20*	*0*	*5*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*10*	*15*	*10*		*20*	*0*		*20*
C (m) (vph)	*1145*	*521*	*145*		*192*	*123*		*364*
v/c	*0.01*	*0.03*	*0.07*		*0.10*	*0.00*		*0.05*
95% queue length	*0.03*	*0.09*	*0.22*		*0.34*	*0.00*		*0.17*
Control Delay	*8.2*	*12.1*	*31.7*		*25.9*	*34.3*		*15.5*
LOS	*A*	*B*	*D*		*D*	*D*		*C*
Approach Delay	--	--	*27.8*			*15.5*		
Approach LOS	--	--	*D*			*C*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	April 2003
Analysis Time Period	AM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2025 - 2 Lanes (Alts. 2 & 3)

Project ID 199-73-17

East/West Street: Warfield Road North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	5	130	50	125	145	15
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	55	315	115	40	815	20
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.91		0.90		0.79		0.92	
Flow Rate	201		315		612		949	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	0.0		0.4		0.1		0.0	
Prop. Right-Turns	0.3		0.1		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	9.03		9.03		9.03		9.03	

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.18		0.28		0.54		0.84	
hd, final value	9.03		9.03		9.03		9.03	
x, final value	0.50		0.75		1.32		2.08	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	7.0		7.0		7.0		7.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	386		415		612		949	
Delay	20.88		33.37		182.50		512.17	
LOS	C		D		F		F	
Approach: Delay	20.88		33.37		182.50		512.17	
LOS	C		D		F		F	
Intersection Delay	294.87							
Intersection LOS	F							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	MAM
Agency/Co.	RK&K
Date Performed	April 2003
Analysis Time Period	PM Peak

Site Information

Intersection	Goshen Road/Warfield Road
Jurisdiction	Montgomery County
Analysis Year	2025 - 2 Lanes (Alts. 2 & 3)

Project ID 199-73-17

East/West Street: Warfield Road | North/South Street: Goshen Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	15	180	25	110	115	15
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	40	1120	175	15	305	30
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.77		0.76		0.90		0.79	
Flow Rate	284		314		1482		441	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	0.1		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.1		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	9.28		9.28		9.28		9.28	

Departure Headway and Service Time

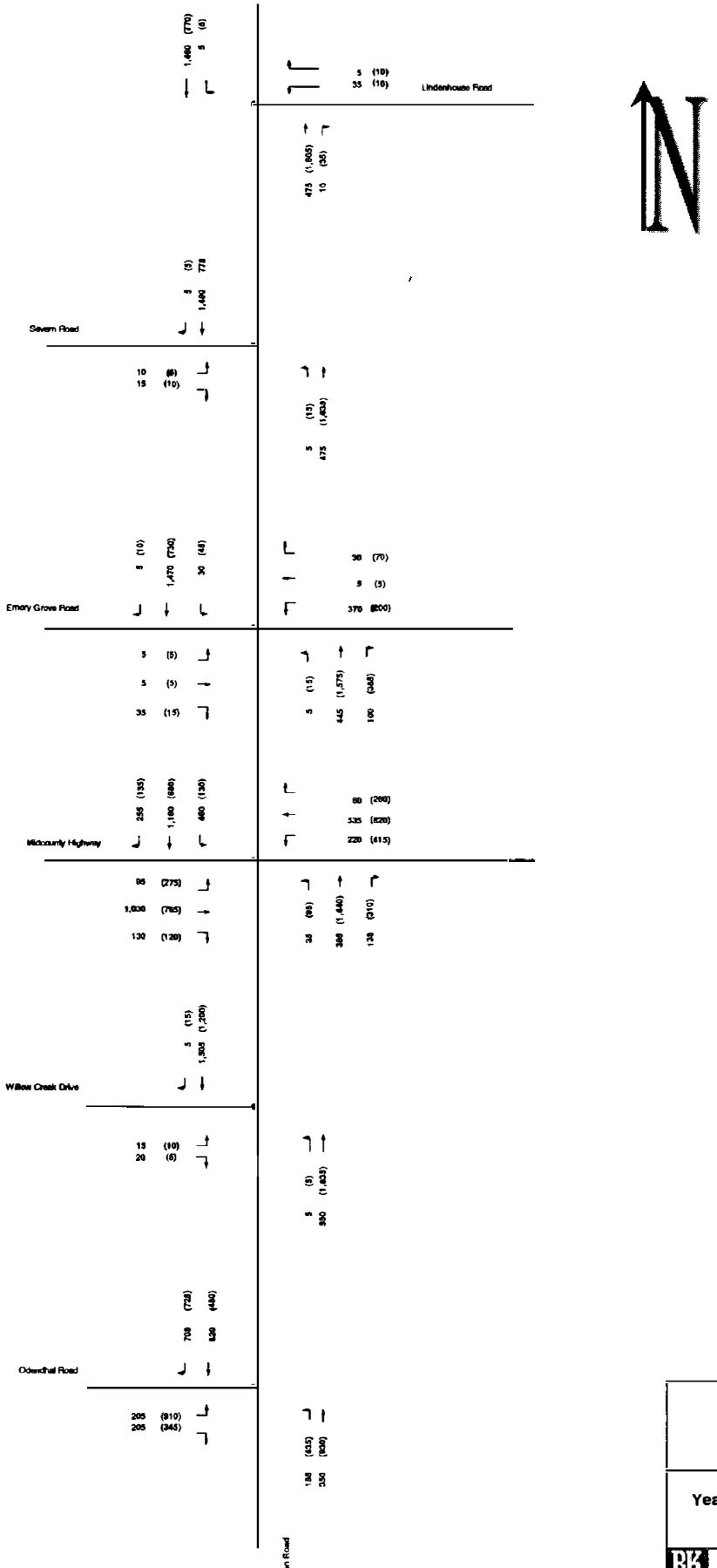
	Eastbound		Westbound		Northbound		Southbound	
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.25		0.28		1.32		0.39	
hd, final value	9.28		9.28		9.28		9.28	
x, final value	0.73		0.80		3.52		1.05	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	7.3		7.3		7.3		7.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	382		387		1482		441	
Delay	33.79		40.58				87.99	
LOS	D		E		F		F	
Approach: Delay	33.79		40.58				87.99	
LOS	D		E		F		F	
Intersection Delay	704.88							
Intersection LOS	F							

APPENDIX J: 2025 – 4 Lane Capacity Analyses w/ TSM Improvements

Turning Movement Volumes
Synchro
Critical Lane Volume
Highway Capacity Software



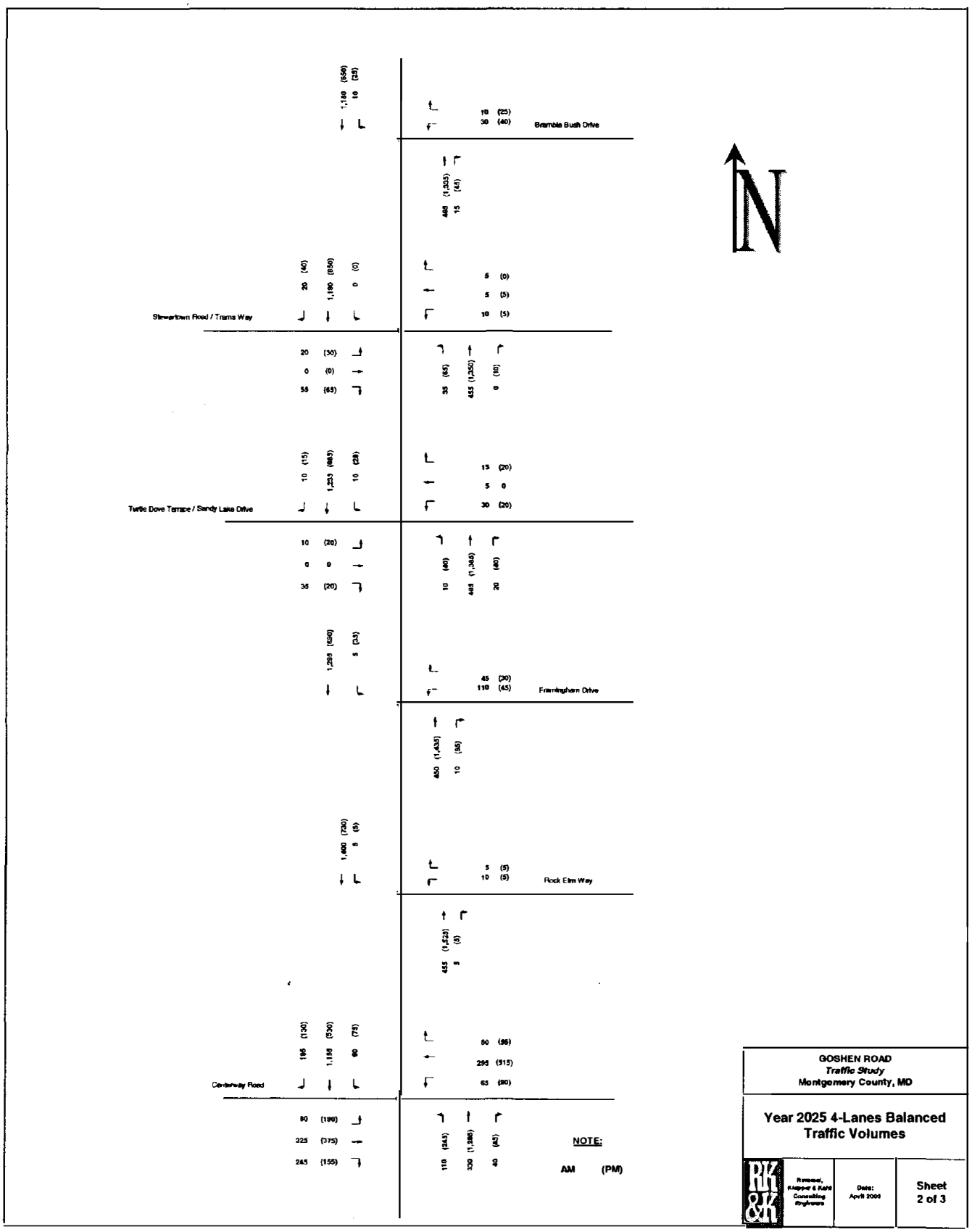
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 4-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2003

Sheet 1 of 3



GOSHEN ROAD
Traffic Study
Montgomery County, MD

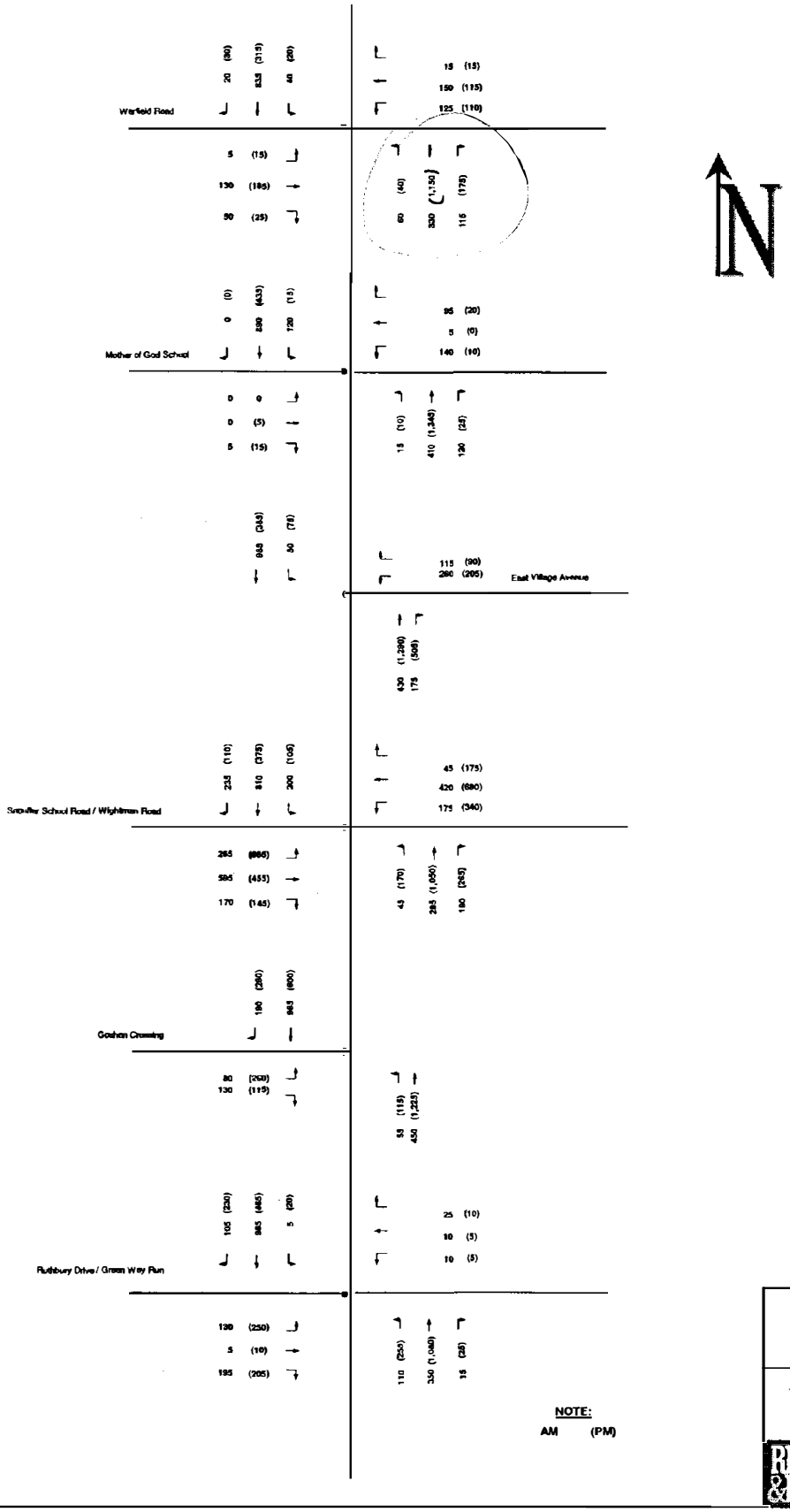
Year 2025 4-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2008

Sheet 2 of 3

North End of Corridor



NOTE:
AM (PM)

GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 4-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: April 2009

Sheet 3 of 3

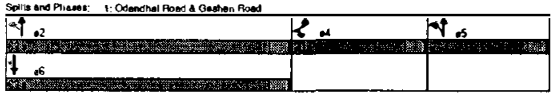
Lanes, Volumes, Timings
1: Odendhal Road & Goshen Road

Timing Plan: Optimized
4/17/2003

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations									
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	300	0	200			200			
Storage Lanes	1	0	1			1			
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0			
Leading Detector (ft)	50	50	50	50	50	50			
Trailing Detector (ft)	0	0	0	0	0	0			
Turning Speed (mph)	15	9	15			9			
Satd. Flow (prot)	3502	1615	1805	3505	3505	1615			
Flt Permitted	0.950		0.817						
Satd. Flow (perm)	3502	1615	412	3505	3505	1615			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)		225				778			
Link Speed (mph)	30			42	56				
Link Distance (ft)	1524			796	803				
Travel Time (s)	34.6			13.0	14.4				
Volume (vph)	205	205	185	350	820	705			
Peak Hour Factor	0.81	0.81	0.87	0.87	0.90	0.90			
Heavy Vehicles (%)	0%	0%	0%	3%	2%	0%			
Lane Group Flow (vph)	228	228	224	402	911	783			
Turn Type		custom	custom			Perm			
Protected Phases	4		5	5,2	6		2		
Permitted Phases		4	2			6			
Detector Phases	4	4	5	5,2	6	6			
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	4.0		
Minimum Split (s)	24.0	24.0	9.0		33.0	33.0	33.0		
Total Split (s)	30.0	30.0	27.0	90.0	63.0	63.0	63.0		
Total Split (%)	25%	25%	23%	75%	53%	53%	53%		
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None		Coord	Coord	Coord		
Act Effct Green (s)	13.8	13.8	94.2	86.2	64.1	64.1			
Actuated g/C Ratio	0.12	0.12	0.79	0.72	0.70	0.70			
v/c Ratio	0.56	0.66	0.51	0.14	0.37	0.57			
Uniform Delay, d1	50.2	0.0	2.4	2.2	7.3	0.0			
Delay	49.8	6.2	2.7	2.4	1.7	8.0			
LOS	D	A	A	A	A	A			
Approach Delay	28.0			2.5	1.8				
Approach LOS	C			A	A				
Queue Length 50th (ft)	86	0	28	28	82	80			
Queue Length 95th (ft)	122	71	53	43	m42	m39			
Internal Link Dist (ft)	1444			716	723				
50th Up Block Time (%)									
95th Up Block Time (%)									
Turn Bay Length (ft)	300		200			200			
50th Bay Block Time %									
95th Bay Block Time %									
Queuing Penalty (veh)									

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 67.6% ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Odendhal Road & Goshen Road



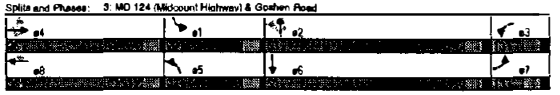
Lanes, Volumes, Timings
3: MD 124 (Midcount Highway) & Goshen Road

Timing Plan: Optimized
4/17/2003

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%	
Storage Length (ft)	200		200	300		200	500		200	500		200
Storage Lanes	1		1	2		1	1		1	2		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	5036	1568	5400	5508	1568	1735	4986	1552	3434	3540	1564
Flt Permitted	0.253			0.950			0.087			0.950		
Satd. Flow (perm)	467	5036	1568	5400	5508	1568	159	4986	1552	3434	3540	1564
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			168			62			147			113
Link Speed (mph)		30			30			42			32	
Link Distance (ft)		967			748			819			663	
Travel Time (s)		14.8			17.5			10.0			14.5	
Volume (vph)	94	1030	139	220	433	60	35	395	135	460	1180	356
Peak Hour Factor	0.82	0.82	0.82	0.96	0.96	0.96	0.83	0.83	0.83	0.97	0.97	0.97
Heavy Vehicles (%)	3%	1%	3%	2%	1%	3%	3%	2%	3%	2%	1%	3%
Lane Group Flow (vph)	116	1256	169	229	557	62	42	476	163	474	1196	367
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8	2		2			Free
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	9.0	36.0	36.0	9.0	36.0	
Total Split (s)	18.0	85.0	85.0	13.0	80.0	85.0	22.0	50.0	50.0	22.0	50.0	0.0
Total Split (%)	11%	29%	29%	11%	29%	29%	18%	42%	42%	18%	42%	0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	
Act Effct Green (s)	40.0	31.0	31.0	9.0	51.0	51.0	64.0	46.0	46.0	18.0	46.0	120.0
Actuated g/C Ratio	0.33	0.26	0.26	0.08	0.43	0.43	0.53	0.38	0.38	0.15	0.38	1.00
v/c Ratio	0.46	0.97	0.32	0.90	0.62	0.14	0.13	0.25	0.24	0.92	0.88	0.17
Uniform Delay, d1	25.6	43.9	27.0	55.0	29.2	0.0	11.0	25.2	2.5	50.5	34.4	0.0
Delay	25.3	55.3	9.9	76.5	39.6	8.9	9.9	16.5	0.7	70.0	29.8	0.0
LOS	C	E	A	E	D	A	A	B	A	E	C	A
Approach Delay		48.4			47.0			12.3			35.5	
Approach LOS		D			D			B			D	
Queue Length 50th (ft)	60	353	17	92	201	0	9	59	0	184	407	0
Queue Length 95th (ft)	95	#467	56	#167	266	31	19	70	4	#284	526	m0
Internal Link Dist (ft)		577			668			539			803	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200		200	400		200	200		200	500		200
50th Bay Block Time %		31%			2%							
95th Bay Block Time %		71%			18%						5%	
Queuing Penalty (veh)		37			21						12	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 78 (65%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 28.8 Intersection LOS: D
Intersection Capacity Utilization 80.5% ICU Level of Service D
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑↑			↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	0		300	200		0
Storage Lanes	0		0	1		0	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1699	0	1723	1703	0	1787	3470	1599	1790	3484	0
Flt Permitted		0.994		0.950	0.961		0.054		0.377			
Satd. Flow (perm)	0	1699	0	1723	1703	0	120	3470	1599	719	3484	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			7				122		1	
Link Speed (mph)		30			30			33			41	
Link Distance (ft)		304			355			385			467	
Travel Time (s)		6.9			8.1			18.2			7.8	
Volume (vph)	5	5	55	370	5	30	5	445	100	30	1470	5
Peak Hour Factor	0.72	0.72	0.72	0.76	0.76	0.76	0.82	0.82	0.82	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%
Lane Group Flow (vph)	0	63	0	276	257	0	6	543	122	34	1678	0
Turn Type	Split			Split			Perm		Perm	pmpt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2		2	6		
Detector Phases	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	17.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0	
Total Split (s)	12.0	12.0	0.0	53.0	53.0	0.0	67.0	67.0	67.0	8.0	75.0	0.0
Total Split (%)	10%	10%	0%	28%	28%	0%	56%	56%	56%	7%	63%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	Coord	
Act Effct Green (s)		7.4		23.4	23.4		74.6	74.6	74.6	79.4	79.4	
Actuated g/C Ratio		0.06		0.20	0.20		0.62	0.62	0.62	0.66	0.66	
v/c Ratio		0.44		0.82	0.76		0.08	0.25	0.12	0.07	0.73	
Uniform Delay, d1		50.9		46.3	44.4		10.0	11.0	0.0	7.3	13.7	
Delay		56.2		45.7	43.7		14.4	11.9	4.2	5.2	5.3	
LOS		C		D	D		B	B	A	A	A	
Approach Delay		56.2			44.7			10.5			5.3	
Approach LOS		C			D			B			A	
Queue Length 50th (ft)		0		216	195		2	92	0	4	131	
Queue Length 95th (ft)		m0		247	225		m6	114	0	m6	190	
Internal Link Dist (ft)		224			275			305			387	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200					300	200		
50th Bay Block Time %				7%								
95th Bay Block Time %				16%	9%							
Queuing Penalty (veh)				29	13							

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 14.0 Intersection LOS: B
Intersection Capacity Utilization 74.5% ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑↑			↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		0	200		0
Storage Lanes	1		1	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1545	1568	1752	3428	0	1752	3449	0	1752	3428	0
Flt Permitted	0.412			0.214			0.057			0.490		
Satd. Flow (perm)	760	1545	1568	395	3428	0	124	3449	0	849	3428	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204			15			15		23	
Link Speed (mph)		30			30			30			45	
Link Distance (ft)		374			432			792			367	
Travel Time (s)		8.5			9.8			12.0			5.5	
Volume (vph)	50	325	245	85	295	50	110	330	40	80	1155	185
Peak Hour Factor	0.91	0.93	0.81	0.94	0.94	0.94	0.85	0.88	0.85	0.95	0.94	0.84
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	55	357	269	90	367	0	129	429	0	84	1436	0
Turn Type	pmpt		Perm	pmpt			pmpt			pmpt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phases	7	4	4	3	8		5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0		8.0	27.0		8.0	27.0	
Total Split (s)	8.0	34.0	34.0	8.0	34.0	0.0	14.0	64.0	0.0	14.0	64.0	0.0
Total Split (%)	7%	28%	28%	7%	28%	0%	12%	53%	0%	12%	53%	0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Coord		None	Coord	
Act Effct Green (s)	31.2	27.5	27.5	31.2	27.5		72.7	69.0		72.7	69.0	
Actuated g/C Ratio	0.26	0.23	0.23	0.26	0.23		0.61	0.58		0.61	0.58	
v/c Ratio	0.36	0.85	0.52	0.47	0.46		0.65	0.24		0.31	0.73	
Uniform Delay, d1	31.9	44.4	9.1	31.2	36.3		13.8	14.6		8.2	22.3	
Delay	32.1	46.8	10.5	31.5	37.9		21.7	8.5		8.1	23.6	
LOS	C	D	B	C	D		C	A		A	C	
Approach Delay		31.0			34.8			12.8			23.0	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	49	#254	56	36	120		43	84		18	438	
Queue Length 95th (ft)	90	#392	120	74	168		85	106		36	553	
Internal Link Dist (ft)		294			352			712			287	
50th Up Block Time (%)											15%	
95th Up Block Time (%)		22%									23%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		21%									29%	
95th Bay Block Time %		39%									30%	
Queuing Penalty (veh)		35									307	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 83.7% ICU Level of Service D
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Centerway Road & Goshen Road

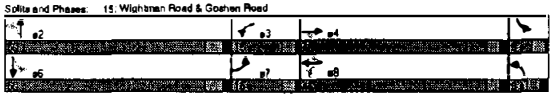


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		200	200		0
Storage Lanes	2		1	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3404	1919	1631	1796	3582	1607	1744	4770	0	1823	3420	0
Flt Permitted	0.950			0.095		0.047				0.370		
Satd. Flow (perm)	3403	1919	1631	180	3582	1607	180	4770	0	710	3420	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138			48			157			36
Link Speed (mph)		30			30			43			33	
Link Distance (ft)		877			834			415			206	
Travel Time (s)		19.4			14.4			6.6			6.3	
Volume (vph)	285	506	170	178	430	45	45	298	880	800	810	235
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	3%
Lane Group Flow (vph)	288	601	172	188	462	48	54	577	0	222	1161	0
Turn Type	Prot		Perm	pmpt		Perm	pmpt			pmpt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2			6		
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	8.0	25.0	25.0	8.0	25.0	25.0	8.0	22.0		8.0	22.0	
Total Split (s)	15.0	48.0	48.0	15.0	48.0	48.0	9.0	50.0	0.0	9.0	50.0	0.0
Total Split (%)	13%	38%	38%	13%	38%	38%	8%	42%	0%	8%	42%	0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0		1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	11.0	40.9	40.8	51.9	40.9	40.9	52.1	47.1		52.1	47.1	
Actuated g/C Ratio	0.09	0.34	0.34	0.43	0.34	0.34	0.43	0.39		0.43	0.39	
v/c Ratio	0.55	0.92	0.27	0.83	0.37	0.08	0.40	0.29		0.63	0.85	
Uniform Delay, d1	53.7	37.8	5.8	24.3	25.8	0.0	17.8	17.2		21.6	32.1	
Delay	64.0	45.5	7.3	40.3	29.8	7.4	18.5	18.1		17.5	28.0	
LOS	E	D	A	D	C	A	B	B		B	C	
Approach Delay		44.2			31.1			18.1			28.3	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	107	438	13	92	136	0	23	78		76	210	
Queue Length 95th (ft)	#179	#665	66	#218	182	20	44	99		114	276	
Internal Link Dist (ft)		797			754			335			226	
50th Up Block Time (%)											3%	
95th Up Block Time (%)		13%									11%	
Turn Bay Length (ft)	200			200		200	200			800		
50th Bay Block Time %		38%									5%	
95th Bay Block Time %		68%		18%							20%	
Queuing Penalty (veh)		114		14							104	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 68 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 30.8 Intersection LOS: C
Intersection Capacity Utilization 91.9% ICU Level of Service E
- 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Wightman Road & Goshen Road



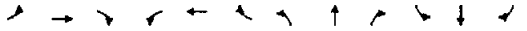
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%		0%		0%	
Storage Length (ft)	0	0		200	200	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1781	1623	3505	1568	1752	3505
Flt Permitted	0.950				0.381	
Satd. Flow (perm)	1781	1623	3505	1568	703	3505
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		124		186		
Link Speed (mph)	30		33			33
Link Distance (ft)	556		585			889
Travel Time (s)	12.7		12.1			9.2
Volume (vph)	280	115	439	173	50	943
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	280	124	457	198	55	1062
Turn Type		Perm		Perm	custom	
Protected Phases	8		2		1	1 6
Permitted Phases		8		2	6	
Detector Phases	8	8	2	2	1	1 6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	23.0	23.0	16.0	16.0	18.0	97.0 18.0
Total Split (%)	38%	38%	30%	30%	32%	82% 30%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord	Coord	None	Coord
Act Effct Green (s)	14.9	14.9	16.1	16.1	33.1	37.1
Actuated g/C Ratio	0.25	0.25	0.30	0.30	0.55	0.62
v/c Ratio	0.64	0.25	0.43	0.31	0.08	0.50
Uniform Delay, d1	20.1	0.0	15.8	0.0	4.7	6.9
Delay	19.8	3.8	9.7	0.7	5.8	5.9
LOS	B	A	A	A	A	A
Approach Delay	14.8		7.1		5.8	
Approach LOS	B		A		A	
Queue Length 50th (ft)	90	0	43	0	6	204
Queue Length 95th (ft)	146	30	43	m8	15	103
Internal Link Dist (ft)	476		505			809
Turn Bay Length (ft)				200	200	
50th Bay Block Time %						4%
95th Bay Block Time %						4%
Queuing Penalty (veh)						1

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 23 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 7.8 Intersection LOS: A
Intersection Capacity Utilization 52.1% ICU Level of Service A
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: East Village & Goshen Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1767	0	1752	1819	0	1744	3331	0	1781	3506	0
Flt Permitted	0.538			0.480			0.137			0.446		
Satd. Flow (perm)	994	1767	0	885	1819	0	251	3331	0	810	3506	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			5			83			4	
Link Speed (mph)		30			30			33			33	
Link Distance (ft)		1118			1218			395			730	
Travel Time (s)		25.4			27.7			8.2			15.1	
Volume (vph)	5	190	60	125	155	15	60	330	115	40	885	40
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.79	0.79	0.79	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	5	196	0	139	184	0	76	564	0	43	930	0
Turn Type	Perm			custom			custom			Perm		
Protected Phases		4		3	8		5	5 2			6		2	8
Permitted Phases	4			8			2			6		
Detector Phases	4	4		3	8		5	5 2		6	6	
Minimum Initial (s)	4.0	4.0		4.0			4.0			4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0		8.0			8.0			20.0	20.0		20.0	20.0
Total Split (s)	31.0	31.0	0.0	20.0	71.0	0.0	19.0	89.0	0.0	50.0	50.0	0.0	58.0	31.0
Total Split (%)	26%	26%	0%	17%	59%	0%	16%	73%	0%	42%	42%	0%	58%	43%
Yellow Time (s)	3.5	3.5		3.5			3.5			3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5		0.5			0.5			0.5	0.5		0.5	0.5
Lead/Lag	Lead	Lead		Lag			Lead			Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes			
Recall Mode	None	None		None			None			Coord	Coord		Coord	None
Act Effct Green (s)	17.2	17.2		28.4	28.4		83.6	83.6		67.8	67.8			
Actuated g/C Ratio	0.14	0.14		0.24	0.24		0.70	0.70		0.57	0.57			
v/c Ratio	0.03	0.74		0.53	0.42		0.24	0.24		0.09	0.47			
Uniform Delay, d1	44.2	46.4		41.6	37.2		5.5	5.6		16.0	15.4			
Delay	40.8	44.7		40.6	36.5		5.8	3.3		15.8	17.0			
LOS	D	D		D	D		A	A		B	B			
Approach Delay		44.8			38.3			3.9			17.0			
Approach LOS		D			D			A			B			
Queue Length 50th (ft)	3	138		90	119		9	28		14	200			
Queue Length 95th (ft)	15	208		134	169		29	0		43	335			
Internal Link Dist (ft)		1038			1139			315			650			
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)														
50th Bay Block Time %														
95th Bay Block Time %														
Queuing Penalty (veh)														

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 35 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 18.8	Intersection LOS: B
Intersection Capacity Utilization 61.8%	ICU Level of Service B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			200
Storage Lanes	2	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15			9
Satd. Flow (prot)	3502	1615	1805	3505	3505	1615
Flt Permitted	0.950		0.334			
Satd. Flow (perm)	3502	1615	633	3505	3505	1615
Right Turn on Red			Yes			Yes
Satd. Flow (RTOR)		351				710
Link Speed (mph)	30			40	35	
Link Distance (ft)	1524			797	803	
Travel Time (s)	34.8			13.6	14.4	
Volume (vph)	910	345	435	930	480	725
Peak Hour Factor	0.94	0.94	0.86	0.86	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	3%	2%	0%
Lane Group Flow (vph)	968	367	506	1081	565	853
Turn Type		Perm	custom			Perm
Protected Phases	4		8	5 2	6	2
Permitted Phases		4	2			6
Detector Phases	4	4	8	5 2	6	6
Minimum Initial (s)	4.0	4.0	4.0	7.0	7.0	7.0
Minimum Split (s)	24.0	24.0	9.0	34.0	34.0	34.0
Total Split (s)	41.0	41.0	30.0	79.0	49.0	49.0
Total Split (%)	34%	34%	25%	66%	41%	41%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	Coord	Coord	Coord
Act Effct Green (s)	36.2	36.2	71.0	75.8	48.4	48.4
Actuated g/C Ratio	0.30	0.30	0.60	0.63	0.39	0.39
v/c Ratio	0.91	0.50	0.51	0.49	0.42	0.60
Uniform Delay, d1	40.4	1.3	11.6	11.8	26.6	4.5
Delay	44.7	4.1	15.8	12.1	27.8	13.9
LOS	D	A	B	B	C	B
Approach Delay	33.8			13.2	19.1	
Approach LOS	C			B	B	
Queue Length 50th (ft)	388	0	191	228	128	183
Queue Length 95th (ft)	#484	82	261	255	149	211
Internal Link Dist (ft)	1444			717	723	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			200			200
50th Bay Block Time %			2%	7%		
95th Bay Block Time %			13%	11%		15%
Queuing Penalty (veh)			43	44		21

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 68 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 21.4	Intersection LOS: C
Intersection Capacity Utilization 87.5%	ICU Level of Service D
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

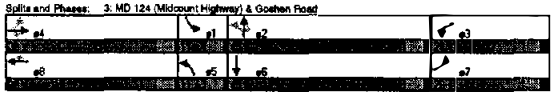
Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations									
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%	
Storage Length (ft)	200		200	200		200	200		200
Storage Lanes	1		1	2		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9
Satd. Flow (prot)	1752	3539	1583	3433	3505	1568	1735	4986	1552
Flt Permitted	0.118			0.950			0.210		
Satd. Flow (perm)	218	3539	1583	3433	3505	1568	383	4986	1552
Right Turn on Red			Yes			Yes			Yes
Satd. Flow (RTOR)			135			135		241	
Link Speed (mph)		30			30			40	
Link Distance (ft)		857			789			518	
Travel Time (s)		14.9			17.5			10.5	
Volume (vph)	275	780	120	415	620	260	95	440	810
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.95	0.95	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	309	880	135	446	882	280	100	1516	326
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2	
Permitted Phases	4		8			8	2		2
Detector Phases	7	4	8	3	8	8	5	2	2
Minimum Initial (s)	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	7.0
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	9.0	39.0	39.0
Total Split (s)	26.0	36.0	36.0	26.0	34.0	34.0	11.0	45.0	45.0
Total Split (%)	22%	32%	32%	22%	32%	32%	9%	38%	38%
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	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	None	Coord	Coord
Act Effct Green (s)	54.3	33.3	33.3	20.9	33.3	33.3	49.7	42.7	42.7
Actuated g/C Ratio	0.45	0.28	0.28	0.17	0.28	0.28	0.41	0.36	0.36
v/c Ratio	0.84	0.81	0.28	0.75	0.91	0.51	0.42	0.85	0.48
Uniform Delay, d1	30.6	37.7	0.0	47.1	41.7	15.8	19.5	33.8	8.9
Delay	36.5	37.8	5.5	47.1	46.1	15.8	13.8	26.8	3.3
LOS	D	D	A	D	D	B	B	C	A
Approach Delay		34.1			41.1			22.2	
Approach LOS		C			D			C	
Queue Length 50th (ft)	177	211	0	169	344	74	27	349	31
Queue Length 95th (ft)	#311	253	43	226	#456	158	m45	437	m47
Internal Link Dist (ft)		577			689			538	
50th Up Block Time (%)									
95th Up Block Time (%)									
Turn Bay Length (ft)	200		200	200		200	200		200
50th Bay Block Time %		2%			31%			18%	
95th Bay Block Time %	31%	14%		17%	41%			22%	
Queuing Penalty (veh)	44	21		28	160			20	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49 (41%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 88.1%	ICU Level of Service D
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road





Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		+1%			+1%			2%			1%			
Storage Length (ft)	0		0	200		0	0		600	200		0		
Storage Lanes	0		0	1		0	1		1	1		0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Leading Detector (ft)	50	50		50	50		50	50	50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9		
Satd. Flow (prot)	0	1736	0	1723	1639	0	1742	3470	1568	1736	3433	0		
Flt Permitted		0.990			0.850	0.978				0.948				
Satd. Flow (perm)	0	1735	0	1723	1639	0	1808	3470	1568	1723	3432	0		
Right Turn on Red			Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)		22			86				403					
Link Speed (mph)		30			30			29			37			
Link Distance (ft)		384			354			883			487			
Travel Time (s)		8.9			8.0			20.8			8.8			
Volume (vph)	5	5	15	200	5	70	15	1573	384	45	730	10		
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	0.96	0.96	0.96	0.77	0.77	0.77		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	3%	0%		
Lane Group Flow (vph)	0	36	0	173	175	0	16	1641	401	58	961	0		
Turn Type	Split			Split			Perm		Perm	custom				
Protected Phases	4	4		8	8			2		1	1 6	6		
Permitted Phases							2		2	6				
Detector Phases	4	4		8	8		2	2	2	1	1 6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0		7.0		
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0		11.0		
Total Split (s)	11.0	11.0	0.0	68.0	68.0	0.0	74.0	74.0	74.0	10.0	84.0	0.0	84.0	
Total Split (%)	9%	9%	0%	21%	21%	0%	62%	62%	62%	8%	78%	0%	70%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	5.0		3.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0		1.0		
Lead/Lag							Lag	Lag	Lag	Lag				
Lead-Lag Optimize?							Yes	Yes	Yes	Yes				
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	None		Coord	
Act Effct Green (s)		7.0		16.5	16.5		78.9	78.9	78.9	86.8	86.8			
Actuated g/C Ratio		0.05		0.14	0.14		0.66	0.66	0.66	0.73	0.73			
v/c Ratio		0.30		0.73	0.68		0.05	0.72	0.34	0.33	0.37			
Uniform Delay, d1		21.9		49.8	38.0		7.0	14.4	0.0	6.4	6.1			
Delay		29.8		49.0	37.7		7.4	8.0	0.6	13.0	3.5			
LOS		C		D	D		A	A	A	B	A			
Approach Delay		29.8			43.5			6.5			4.1			
Approach LOS		C			D			A			A			
Queue Length 50th (ft)		7		135	107		3	187	10	6	58			
Queue Length 95th (ft)		23		181	151		m4	m213	m13	21	91			
Internal Link Dist (ft)		224			274			803			387			
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)				200					600	200				
50th Bay Block Time %														
95th Bay Block Time %														
Queuing Penalty (veh)														

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 58.8%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 4: Emory Grove Road & Goshen Road

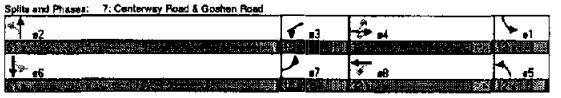




Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	200		200	200		0	200		0	200		0		
Storage Lanes	1		1	1		0	1		0	1		0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Leading Detector (ft)	50	50	50	50	50		50	50		50	50			
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9		
Satd. Flow (prot)	1752	1845	1568	1752	3456	0	1752	3473	0	1752	3400	0		
Flt Permitted	0.147			0.141			0.673			0.670				
Satd. Flow (perm)	271	1845	1568	264	3456	0	500	3473	0	129	3400	0		
Right Turn on Red			Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)			146		8			8			34			
Link Speed (mph)		30			30			37			15			
Link Distance (ft)		374			432			791			366			
Travel Time (s)		8.5			9.8			14.6			8.3			
Volume (vph)	180	375	155	80	515	55	245	1285	85	75	530	130		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.90	0.90	0.90	0.86	0.86	0.86		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%		
Lane Group Flow (vph)	186	387	160	103	653	0	272	1540	0	87	787	0		
Turn Type	pmvpt		Perm	pmvpt			pmvpt			pmvpt				
Protected Phases	7	4		3	8		5	2		1	6			
Permitted Phases	4		4	8			2			6				
Detector Phases	7	4	4	3	8		5	2		1	6			
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0			
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0		8.0	27.0		8.0	27.0			
Total Split (s)	15.0	32.0	32.0	15.0	32.0	0.0	12.0	61.0	0.0	12.0	61.0	0.0		
Total Split (%)	13%	27%	27%	13%	27%	0%	10%	51%	0%	10%	51%	0%		
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.0	4.0		3.5	4.0			
All-Red Time (s)	0.5	1.0	1.0	0.5	1.0		1.0	1.0		0.5	1.0			
Lead/Lag														
Lead-Lag Optimize?														
Recall Mode	None	None	None	None	None		None	Coord		None	Coord			
Act Effct Green (s)	35.8	27.8	27.8	39.4	27.8		65.4	57.8		65.2	57.2			
Actuated g/C Ratio	0.32	0.23	0.23	0.32	0.23		0.54	0.48		0.54	0.48			
v/c Ratio	0.88	0.90	0.34	0.46	0.81		0.77	0.93		0.48	0.47			
Uniform Delay, d1	28.2	44.5	31.1	28.5	45.0		13.7	29.3		11.5	20.1			
Delay	50.8	54.1	7.5	26.8	44.4		13.8	18.7		15.2	20.8			
LOS	D	D	A	C	D		B	B		B	C			
Approach Delay		46.4			42.0			18.4			19.8			
Approach LOS		D			D			B			B			
Queue Length 50th (ft)	109	253	6	54	250		0	833		29	187			
Queue Length 95th (ft)	#236	#472	55	92	308		#118	#570		62	224			
Internal Link Dist (ft)		294			352			711			286			
50th Up Block Time (%)		5%												
95th Up Block Time (%)		36%						2%						
Turn Bay Length (ft)	200		200	200			200			200				
50th Bay Block Time %		26%			16%			12%						
95th Bay Block Time %	20%	49%			26%			13%			8%			
Queuing Penalty (veh)		134			41			54			3			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 80.3%	ICU Level of Service E
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 7: Centerway Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		0	200		0
Storage Lanes	2		1	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3434	1919	1851	1706	3562	1907	1744	4869	0	1823	3420	0
Flt Permitted	0.950			0.121			0.282			0.103		
Satd. Flow (perm)	3434	1919	1851	229	3562	1907	518	4869	0	196	3420	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145			124					34	
Link Speed (mph)		30			30			37			31	
Link Distance (ft)		678			634			414			906	
Travel Time (s)		15.4			14.4			7.6			6.7	
Volume (vph)	334	455	148	340	580	475	170	1050	255	105	873	110
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.86	0.86	0.86	0.81	0.81	0.81
Heavy Vehicles (%)	3%	0%	10%	0%	0%	0%	3%	3%	0%	0%	3%	3%
Lane Group Flow (vph)	569	484	154	595	791	263	198	1465	0	130	1096	0
Turn Type	Prot		Perm	pm+pt		Perm	pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4	4	8		8	2			6		
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	
Minimum Split (s)	8.0	28.0	28.0	8.0	28.0	28.0	8.0	22.0		8.0	22.0	
Total Split (s)	29.0	37.0	37.0	29.0	37.0	37.0	11.0	43.0	0.0	11.0	43.0	0.0
Total Split (%)	24%	31%	31%	24%	31%	31%	9%	36%	0%	9%	36%	0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	
Act Effct Green (s)	24.1	32.2	32.2	54.3	32.2	32.2	47.6	40.7		47.6	40.7	
Actuated g/C Ratio	0.20	0.27	0.27	0.45	0.27	0.27	0.40	0.34		0.40	0.34	
v/c Ratio	0.82	0.94	0.28	0.94	0.82	0.39	0.70	0.88		0.75	0.51	
Uniform Delay, d1	45.9	42.9	1.8	33.8	41.2	19.2	22.9	36.0		21.1	23.6	
Delay	47.1	55.9	6.5	47.2	41.4	14.2	29.6	40.3		35.4	24.6	
LOS	D	E	A	D	D	B	C	D		D	C	
Approach Delay		45.5			39.1			39.1			26.6	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	217	364	4	246	300	44	97	804		58	181	
Queue Length 95th (ft)	282	#594	55	#393	354	104	#167	446		#114	355	
Internal Link Dist (ft)		598			554			334			826	
50th Up Block Time (%)								8%				
95th Up Block Time (%)								18%				
Turn Bay Length (ft)	200			200		200	200			200		
50th Bay Block Time %	9%	35%		18%	25%			32%				
95th Bay Block Time %	25%	51%		43%	32%			41%				
Queuing Penalty (veh)	81	244		118	113			250				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 78 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 36.9	Intersection LOS: D
Intersection Capacity Utilization 97.7%	ICU Level of Service E
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 15: Wightman Road & Goshen Road



Lane Group	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1761	1823	3505	1568	1752	3505
Flt Permitted	0.950				0.114	
Satd. Flow (perm)	1761	1823	3505	1568	210	3505
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		300			555	
Link Speed (mph)	30		42			31
Link Distance (ft)	590		548			3466
Travel Time (s)	12.7		9.8			8.8
Volume (vph)	205	90	1290	505	75	885
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	228	100	1418	555	94	481
Turn Type		Perm		Perm	pm+pt	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phases	8	8	2	2	1	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	8.0	9.0
Total Split (s)	17.0	17.0	36.0	36.0	8.0	44.0
Total Split (%)	28%	28%	60%	60%	13%	73%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	0.5	1.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Coord	Coord	None	Coord
Act Effct Green (s)	11.9	11.9	33.7	33.7	40.1	40.1
Actuated g/C Ratio	0.20	0.20	0.56	0.56	0.67	0.67
v/c Ratio	0.65	0.28	0.72	0.48	0.39	0.21
Uniform Delay, d1	22.1	0.0	10.8	0.0	3.5	3.8
Delay	22.3	5.4	5.4	1.8	5.9	6.6
LOS	C	A	A	A	A	A
Approach Delay	17.1		6.5			6.5
Approach LOS	B		A			A
Queue Length 50th (ft)	75	0	24	51	28	80
Queue Length 95th (ft)	137	14	282	m56	m44	99
Internal Link Dist (ft)	490		508			309
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 32 (53%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 67.0%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 17: East Village & Goshen Road



Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	1752	1811	0	1752	1811	0	1744	3418	0	1781	3477	0	0
Flt Permitted	0.503			0.302			0.464			0.068			
Satd. Flow (perm)	928	1811	0	557	1811	0	852	3418	0	128	3477	0	0
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			5			5		21			12		
Link Speed (mph)		30			30			32			41		
Link Distance (ft)		1117			1237			395			751		
Travel Time (s)		25.4			27.7			8.4			12.2		
Volume (vph)	15	185	25	10	115	15	30	1150	175	20	915	50	
Peak Hour Factor	0.77	0.77	0.77	0.76	0.76	0.76	0.90	0.90	0.90	0.79	0.79	0.79	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Lane Group Flow (vph)	19	272	0	145	171	0	44	1472	0	25	1207	0	
Turn Type	prot			prot			perm			perm			
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases							2			6			
Detector Phases	7	4		3	8		5	2		1	6		
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	8.0	20.0		8.0	8.0		8.0	8.0		8.0	20.0		
Total Split (s)	15.0	30.0	0.0	15.0	30.0	0.0	8.0	67.0	0.0	8.0	67.0	0.0	
Total Split (%)	13%	25%	0%	13%	25%	0%	7%	56%	0%	7%	56%	0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5		
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode	None	None		None	None		None	Coord		None	Min		
Act Effct Green (s)	32.2	31.8		32.2	31.6		72.8	69.5		72.8	69.5		
Actuated g/C Ratio	0.27	0.26		0.27	0.26		0.61	0.58		0.61	0.58		
v/c Ratio	0.06	0.82		0.57	0.52		0.06	0.74		0.19	0.22		
Uniform Delay, d1	29.7	46.4		32.0	43.1		8.4	18.9		8.3	12.1		
Delay	27.4	46.0		31.2	42.4		4.7	12.0		9.3	13.0		
LOS	C	D		C	D		A	B		A	B		
Approach Delay		44.8			37.2			11.8			12.8		
Approach LOS		D			D			B			B		
Queue Length 50th (ft)	10	200		84	117		9	277		7	83		
Queue Length 95th (ft)	33	237		108	140		m16	375		17	104		
Internal Link Dist (ft)		1037			1137			315			651		
50th Up Block Time (%)													
95th Up Block Time (%)								22%					
Turn Bay Length (ft)													
50th Bay Block Time %													
95th Bay Block Time %													
Queuing Penalty (veh)								160					

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 82 (77%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 74.2% ICU Level of Service C
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Warfield Road & Goshen Road



Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - 4 Lane (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:01.8	*00:01.8*
From Odendhal Road to Midcounty Hwy	00:42.7	00:40.9
Midcounty Highway	00:55.4	*00:12.7*
From Midcounty Hwy to Emory Grove Rd	01:18.7	00:23.3
Emory Grove Road	01:19.5	*00:00.8*
From Emory Grove Rd to Centerway Rd	02:15.0	00:55.5
Centerway Road	02:21.9	*00:06.9*
From Centerway Rd to Snouffer School Rd	04:16.9	01:55.0
Snouffer School Road	04:30.8	*00:13.9*
From Snouffer School Rd to East Village Ave	04:54.1	00:23.3
East Village Avenue	05:01.6	*00:07.5*
From East Village Ave to Warfield Rd	05:39.9	00:38.3
Warfield Road	05:42.4	*00:02.5*
TOTAL MOVING TIME		04:56.3
TOTAL STOPPED TIME		00:46.1
TOTAL TRAVEL TIME	**05:42.4**	**05:42.4**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:13.1	*00:13.1*
From Warfield Rd to East Village Ave	00:52.0	00:38.9
East Village Avenue	00:56.5	*00:04.5*
From East Village Ave to Snouffer School Rd	01:24.1	00:27.6
Snouffer School Road	01:45.6	*00:21.5*
From Snouffer School Rd to Centerway Rd	03:41.8	01:56.2
Centerway Road	04:00.0	*00:18.2*
From Centerway Rd to Emory Grove Rd	04:58.6	00:58.6
Emory Grove Road	05:02.7	*00:04.1*
From Emory Grove Rd to Midcounty Hwy	05:31.9	00:29.2
Midcounty Highway	05:54.7	*00:22.8*
From Midcounty Hwy to Odendhal Rd	06:32.1	00:37.4
Odendhal Road	06:33.3	*00:01.2*
TOTAL MOVING TIME		05:07.9
TOTAL STOPPED TIME		01:25.4
TOTAL TRAVEL TIME	**06:33.3**	**06:33.3**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - 4 Lane (PM) Date 01/08/03

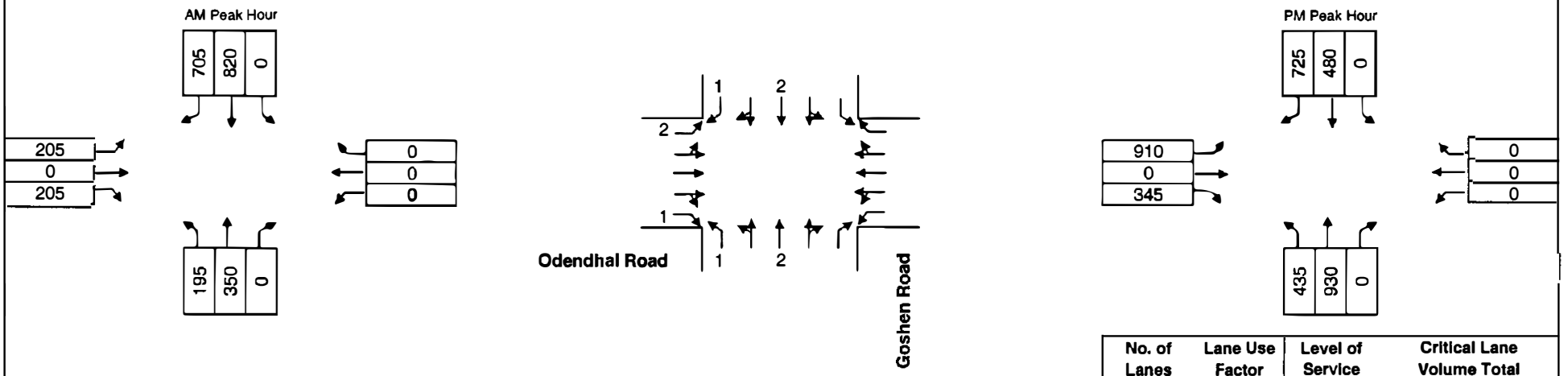
NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:09.3	*00:09.3*
From Odendhal Road to Midcounty Hwy	00:52.6	00:43.3
Midcounty Highway	01:13.2	*00:20.6*
From Midcounty Hwy to Emory Grove Rd	01:37.5	00:24.3
Emory Grove Road	01:43.8	*00:06.3*
From Emory Grove Rd to Centerway Rd	02:51.1	01:07.3
Centerway Road	03:03.8	*00:12.7*
From Centerway Rd to Snouffer School Rd	05:20.4	02:16.6
Snouffer School Road	05:51.4	*00:31.0*
From Snouffer School Rd to East Village Ave	06:12.7	00:21.3
East Village Avenue	06:19.2	*00:06.5*
From East Village Ave to Warfield Rd	06:56.4	00:37.2
Warfield Road	07:05.6	*00:09.2*
TOTAL MOVING TIME		05:30.0
TOTAL STOPPED TIME		01:35.6
TOTAL TRAVEL TIME	**07:05.6**	**07:05.6**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:10.0	*00:10.0*
From Warfield Rd to East Village Ave	00:49.0	00:39.0
East Village Avenue	00:54.1	*00:05.1*
From East Village Ave to Snouffer School Rd	01:22.4	00:28.3
Snouffer School Road	01:41.3	*00:18.9*
From Snouffer School Rd to Centerway Rd	03:41.4	02:00.1
Centerway Road	03:57.0	*00:15.6*
From Centerway Rd to Emory Grove Rd	05:01.4	01:04.4
Emory Grove Road	05:04.1	*00:02.7*
From Emory Grove Rd to Midcounty Hwy	05:29.7	00:25.6
Midcounty Highway	05:45.2	*00:15.5*
From Midcounty Hwy to Odendhal Rd	06:29.2	00:44.0
Odendhal Road	06:52.3	*00:23.1*
TOTAL MOVING TIME		05:21.4
TOTAL STOPPED TIME		01:30.9
TOTAL TRAVEL TIME	**06:52.3**	**06:52.3**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2025 - 4 Lanes

Computed by: MAM Date: 09/10/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	350	0.55	193	0	193	777
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	820	0.55	451	195	646	
	SBR	582	1	582	195	777	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	123
	EBR	10	1	10	0	10	
	EBL	205	0.6	123		123	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							900
						Level Of Service	A
						v/c ratio	0.56

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	930	0.55	512	0	512	699
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	480	0.55	264	435	699	
	SBR	179	1	179	435	614	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	546
	EBR	0	1	0	0	0	
	EBL	910	0.6	546		546	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,245
						Level Of Service	C
						v/c ratio	0.78

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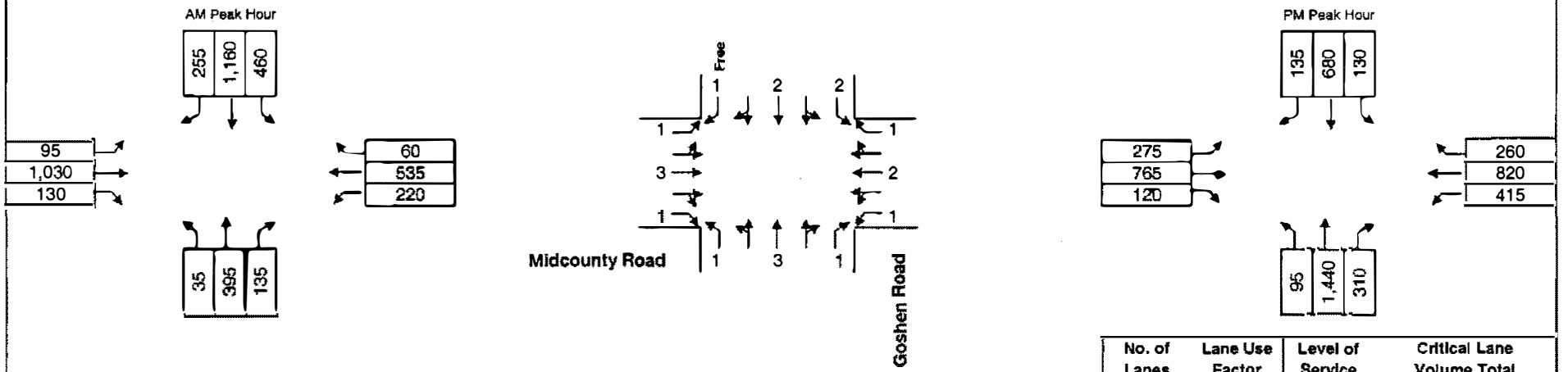
Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2025 - 4 Lanes

Computed by: MAM Date: 9/10/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	395	0.4	158	276	434	673
	NBR	135	1	135	276	411	
	NBL	0	1	0		0	
	SB	1,160	0.55	638	35	673	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0		0	
2	EB	1,030	0.4	412	220	632	632
	EBR	95	1	95	220	315	
	EBL	0	1	0		0	
	WB	535	0.55	294	95	389	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,305
						Level Of Service	D
						v/c ratio	0.82

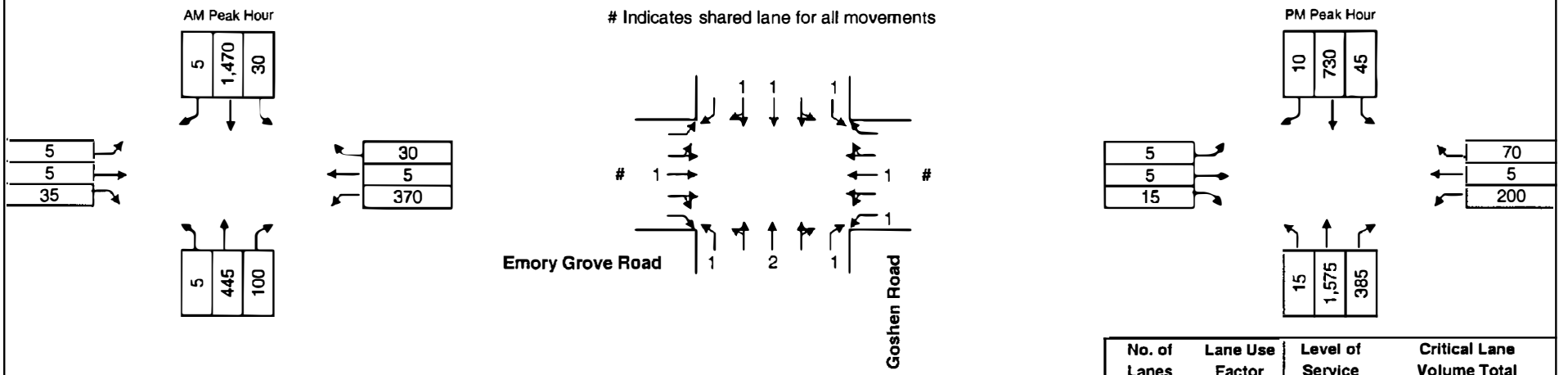
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,440	0.4	576	78	654	654
	NBR	310	1	310	78	388	
	NBL	0	1	0		0	
	SB	680	0.55	374	95	469	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0	0	0	
2	EB	765	0.4	306	415	721	726
	EBR	25	1	25	415	440	
	EBL	0	1	0		0	
	WB	820	0.55	451	275	726	
	WBR	182	1	182	275	457	
	WBL	0	1	0		0	
							1,380
						Level Of Service	D
						v/c ratio	0.86

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2025 - 4 Lanes

Computed by: MAM Date: 4/8/2003 Checked by: JCP Date:



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	445	0.55	245	30	275	816
	NBR	100	1	100	30	130	
	NBL	0	1	0		0	
	SB	1,475	0.55	811	5	816	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	45	1	45	0	45	45
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	405	0.55	223	0	223	223
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,084
						Level Of Service	B
						v/c ratio	0.68

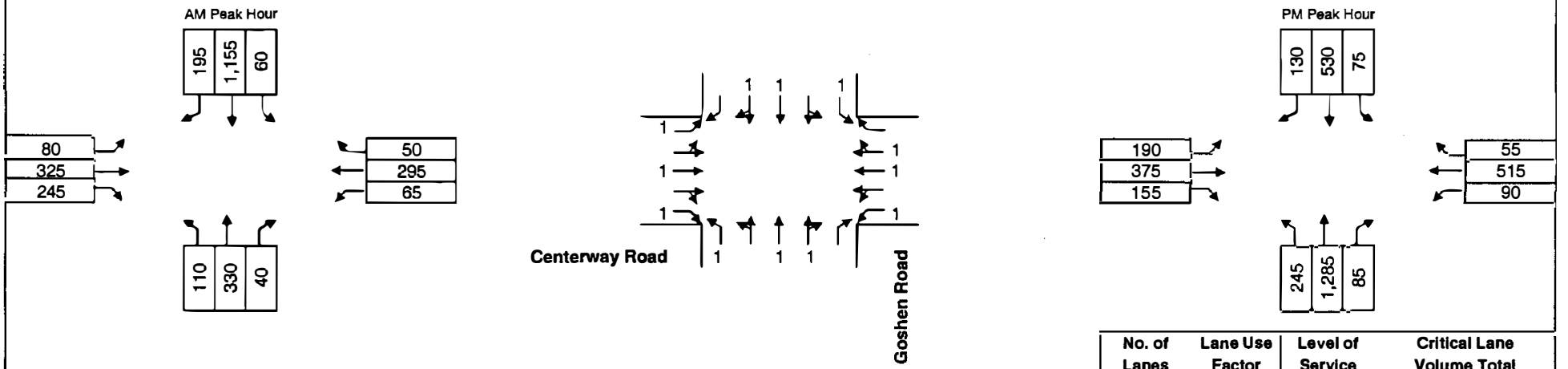
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,575	0.55	866	45	911	911
	NBR	385	1	385	45	430	
	NBL	0	1	0		0	
	SB	740	0.55	407	15	422	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	25	1	25	0	25	25
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	275	0.55	151	0	151	151
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,087
						Level Of Service	B
						v/c ratio	0.68

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2025 - 4 Lanes

Computed by: MAM Date: 09/10/02 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	370	0.55	204	60	264	853
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,350	0.55	743	110	853	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	325	1	325	65	390	390
	EBR	135	1	135	65	200	
	EBL	0	1	0		0	
	WB	345	0.55	190	80	270	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,243
						Level Of Service	C
						v/c ratio	0.78

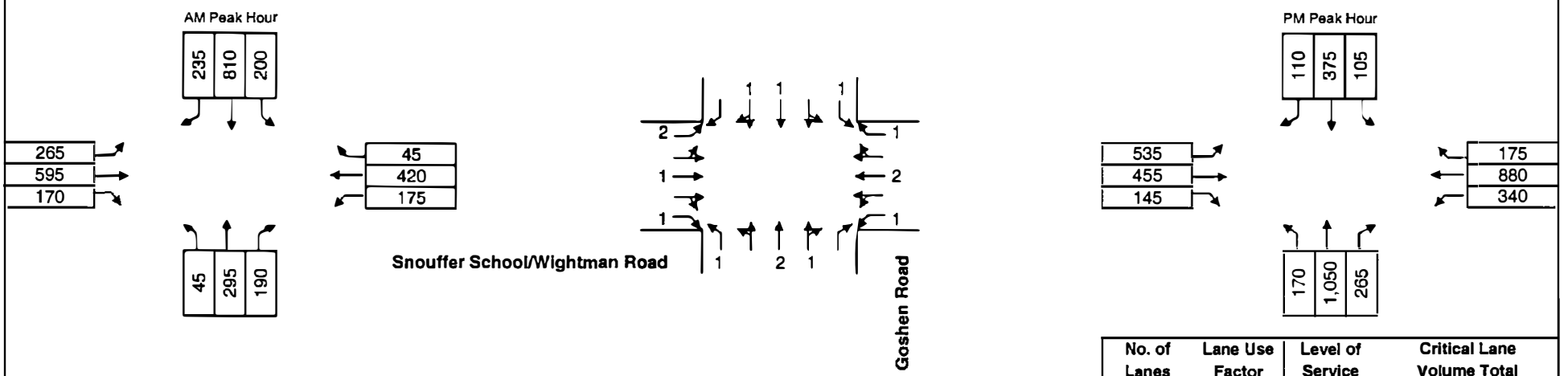
PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,370	0.55	754	75	829	829
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	660	0.55	363	245	608	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	375	1	375	90	465	504
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	570	0.55	314	190	504	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,333
						Level Of Service	D
						v/c ratio	0.83

Turning Movement Summary and Level of Service

Count Date: 2/13/02 | Location: Goshen Road/Snouffer School/Wightman Road
Conditions/
Design Year: 2025 - 4 Lanes

Computed by: MAM | Date: 9/10/2002 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	485	0.4	194	200	394	620
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,045	0.55	575	45	620	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	595	1	595	175	770	770
	EBR	125	1	125	175	300	
	EBL	0	0.6	0		0	
	WB	420	0.55	231	159	390	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,390
						Level Of Service	D
						v/c ratio	0.87

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,315	0.4	526	105	631	631
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	485	0.55	267	170	437	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	455	1	455	340	795	805
	EBR	0	1	0	0	0	
	EBL	0	0.6	0		0	
	WB	880	0.55	484	321	805	
	WBR	70	1	70	321	391	
	WBL	0	1	0		0	
							1,436
						Level Of Service	D
						v/c ratio	0.90

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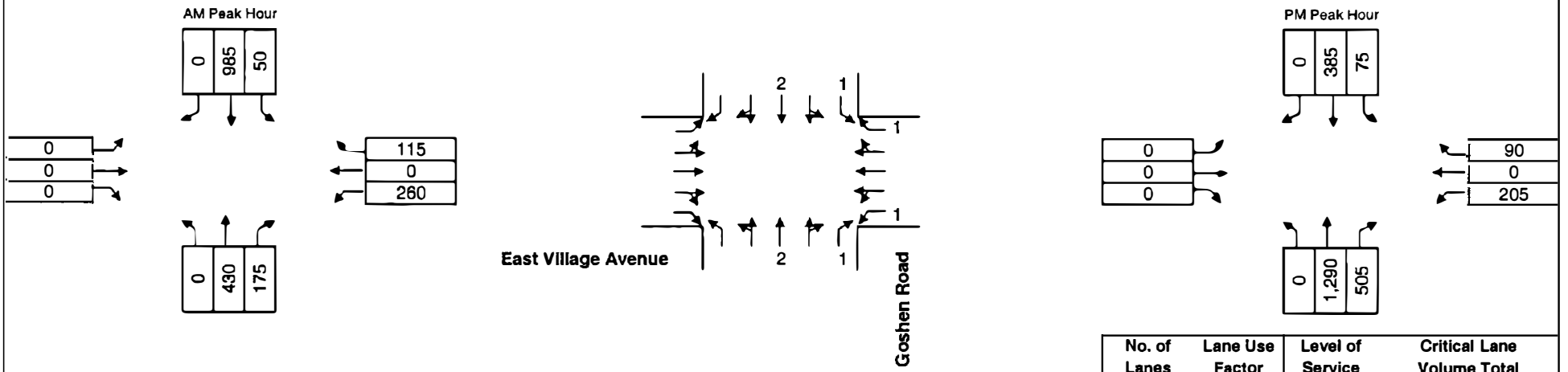
Turning Movement Summary and Level of Service

Count Date: 2/14/02 | Location: Goshen Road/East Village Avenue
Conditions/ Design Year: 2025 - 4 Lanes
Computed by: MAM | Date: 4/8/2003 | Checked by: JCP | Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	430	0.55	237	50	287	542
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	985	0.55	542	0	542	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	260
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	65	1	65	0	65	
	WBL	260	1	260		260	
							802
						Level Of Service	A
						v/c ratio	0.50

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,290	0.55	710	75	785	785
	NBR	300	1	300	75	375	
	NBL	0	1	0		0	
	SB	385	0.55	212	0	212	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	205
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	15	1	15	0	15	
	WBL	205	1	205		205	
							990
						Level Of Service	A
						v/c ratio	0.62

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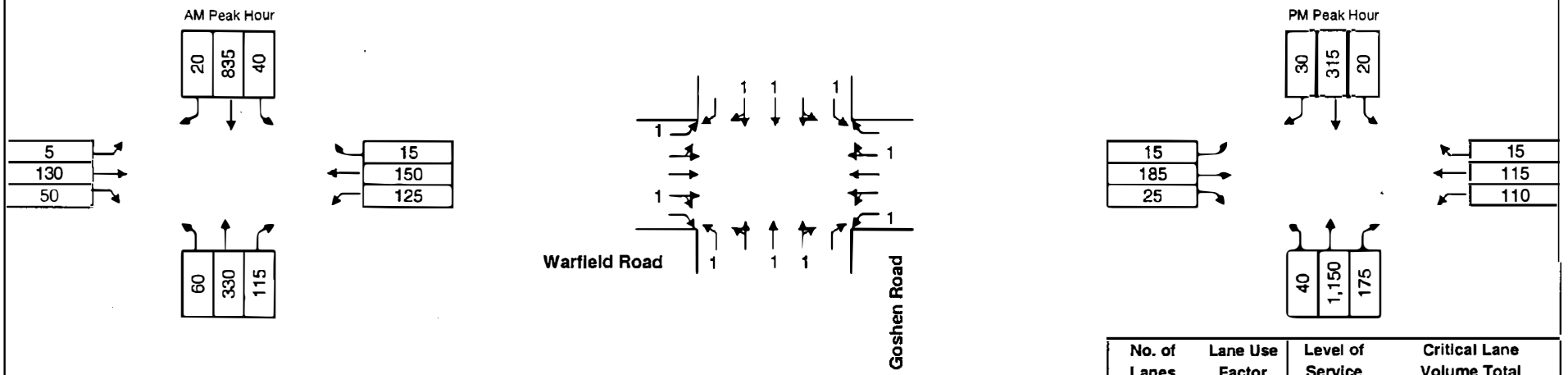
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/Warfield Road
Conditions/
Design Year: 2025 - 4 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 9/23/02



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	445	0.55	245	40	285	530
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	855	0.55	470	60	530	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	180	1	180	125	305	305
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	165	1	165	5	170	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							835
					Level Of Service		A
					v/c ratio		0.52

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,325	0.55	729	20	749	749
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	345	0.55	190	40	230	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	210	1	210	110	320	320
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	130	1	130	15	145	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,069
					Level Of Service		B
					v/c ratio		0.67

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Unsignalized Intersection CLV Eqivalent Calculations

LOS	HCS			CLV			LOS
A	0	10	10	0	1000	1000	A
B	10	15	5	1000	1150	150	B
C	15	25	10	1150	1300	150	C
D	25	35	10	1300	1450	150	D
E	35	50	15	1450	1600	150	E
F	50	190	140	1600	3000	1400	F

2025 4 Lanes

#2 Willow Creek Drive

	Delay					CLV	LOS
AM	16.5	15	1150	10	150	1,173	C
PM	25.7	25	1300	10	150	1,311	D

#5 Severn Road

	Delay					CLV	LOS
AM	30.2	25	1300	10	150	1,378	D
PM	25.6	25	1300	10	150	1,309	D

#6 Lindenhouse Road

	Delay					CLV	LOS
AM	15.1	15	1150	10	150	1,152	C
PM	27.2	25	1300	10	150	1,333	D

#8 Rock Elm Way

	Delay					CLV	LOS
AM	16.2	15	1150	10	150	1,168	C
PM	15.6	15	1150	10	150	1,159	C

#9 Framingham Drive

	Delay					CLV	LOS
AM	23.7	15	1150	10	150	1,281	C
PM	34.8	25	1300	10	150	1,447	D

#10 Turtle Dove Terrace

	Delay					CLV	LOS
AM	22.5	15	1150	10	150	1,263	C
PM	38.7	35	1450	15	150	1,487	E

#11 Stewartown Road

	Delay					CLV	LOS
AM	26.5	25	1300	10	150	1,323	D
PM	39.6	35	1450	15	150	1,496	E

#12 Bramble Bush Drive

	Delay					CLV	LOS
AM	15.5	15	1150	10	150	1,158	C
PM	26.1	25	1300	10	150	1,317	D

#13 Rothbury Drive

	Delay					CLV	LOS
AM	33.3	25	1300	10	150	1,425	D
PM	574.9	50	1600	140	1400	3,000	F

#14 Goshen Crossing

	Delay					CLV	LOS
AM	20.3	15	1150	10	150	1,230	C
PM	447.5	50	1600	140	1400	3,000	F

#17 Mother of God School

	Delay					CLV	LOS
AM	193.0	50	1600	140	1400	3,000	F
PM	21.4	15	1150	10	150	1,246	C

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - 4 Lane*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Willow Creek Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*550*	*0*	*0*	*1505*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*625*	*0*	*0*	*1584*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*15*	*0*	*20*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.61*	*1.00*	*0.61*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*24*	*0*	*32*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*56*	
C (m) (vph)	*566*						*370*	
v/c	*0.01*						*0.15*	
95% queue length	*0.03*						*0.53*	
Control Delay	*11.4*						*16.5*	
LOS	*B*						*C*	
Approach Delay	--	--				*16.5*		
Approach LOS	--	--				*C*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Willow Creek*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street:	*Willow Creek Drive*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*1835*	*0*	*0*	*1200*	*15*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*5*	*2038*	*0*	*0*	*1304*	*16*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*9*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*-1*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*27*	
C (m) (vph)	*603*						*201*	
v/c	*0.01*						*0.13*	
95% queue length	*0.03*						*0.46*	
Control Delay	*11.0*						*25.7*	
LOS	*B*						*D*	
Approach Delay	--	--					*25.7*	
Approach LOS	--	--					*D*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road / Severn Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Severn Road*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*475*	*0*	*0*	*1490*	*5*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*5*	*539*	*0*	*0*	*1693*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*10*	*0*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*27*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*5*						*45*	
C (m) (vph)	*380*						*187*	
v/c	*0.01*						*0.24*	
95% queue length	*0.04*						*0.90*	
Control Delay	*14.6*						*30.2*	
LOS	*B*						*D*	
Approach Delay	--	--					*30.2*	
Approach LOS	--	--					*D*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/20/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road / Severn Road*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 4 Lanes*

Project Description *199-73-17*

East/West Street: *Severn Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*1635*	*0*	*0*	*775*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*1.00*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*15*	*1721*	*0*	*0*	*880*	*5*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*5*	*0*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*15*						*27*	
C (m) (vph)	*773*						*202*	
v/c	*0.02*						*0.13*	
95% queue length	*0.06*						*0.45*	
Control Delay	*9.7*						*25.6*	
LOS	*A*						*D*	
Approach Delay	--	--					*25.6*	
Approach LOS	--	--					*D*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Lindenhouse Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - 4 Lane*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Lindenhouse Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*475*	*10*	*5*	*1460*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.84*	*0.84*	*0.88*
Hourly Flow Rate, HFR	*0*	*505*	*10*	*5*	*1738*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*35*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.60*	*1.00*	*0.60*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*58*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*66*				
C (m) (vph)		*1040*		*421*				
v/c		*0.00*		*0.16*				
95% queue length		*0.01*		*0.55*				
Control Delay		*8.5*		*15.1*				
LOS		*A*		*C*				
Approach Delay	--	--	*15.1*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/20/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Lindenhouse Road*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 4 Lanes*

Project Description *199-73-17*

East/West Street: *Lindenhouse Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1605*	*35*	*5*	*770*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1605*	*35*	*5*	*770*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*10*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*10*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*20*				
C (m) (vph)		*386*		*182*				
v/c		*0.01*		*0.11*				
95% queue length		*0.04*		*0.36*				
Control Delay		*14.4*		*27.2*				
LOS		*B*		*D*				
Approach Delay	--	--		*27.2*				
Approach LOS	--	--		*D*				

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*455*	*5*	*5*	*1400*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.80*	*0.80*	*0.91*	*0.91*	*0.88*
Hourly Flow Rate, HFR	*0*	*568*	*6*	*5*	*1538*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.58*	*1.00*	*0.58*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*17*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*25*				
C (m) (vph)		*988*		*345*				
v/c		*0.01*		*0.07*				
95% queue length		*0.02*		*0.23*				
Control Delay		*8.7*		*16.2*				
LOS		*A*		*C*				
Approach Delay	--	--	*16.2*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rock Elm Way*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/20/2002*	Analysis Year	*2025 - 4 Lane*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rock Elm Way* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1525*	*5*	*5*	*730*	*4*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1525*	*5*	*5*	*730*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*1*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*5*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*5*		*10*				
C (m) (vph)		*585*		*351*				
v/c		*0.01*		*0.03*				
95% queue length		*0.03*		*0.09*				
Control Delay		*11.2*		*15.6*				
LOS		*B*		*C*				
Approach Delay	--	--	*15.6*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*

East/West Street: *Framingham Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*450*	*10*	*5*	*1295*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.82*	*0.82*	*0.87*	*0.87*	*0.88*
Hourly Flow Rate, HFR	*0*	*548*	*12*	*5*	*1488*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*1*	*1*	*2*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*110*	*0*	*45*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.76*	*1.00*	*0.76*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*144*	*0*	*59*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*5*	*144*		*59*			
C (m) (vph)		*1000*	*289*		*730*			
v/c		*0.00*	*0.50*		*0.08*			
95% queue length		*0.02*	*2.60*		*0.26*			
Control Delay		*8.6*	*29.2*		*10.4*			
LOS		*A*	*D*		*B*			
Approach Delay	--	--	*23.7*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Framingham Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description	*199-73-17*
East/West Street: *Framingham Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*3*	*1435*	*95*	*35*	*690*	*4*
Peak-Hour Factor, PHF	*0.88*	*0.94*	*0.94*	*0.82*	*0.82*	*0.88*
Hourly Flow Rate, HFR	*0*	*1526*	*101*	*42*	*841*	*0*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*1*	*1*	*2*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*45*	*0*	*30*	*6*	*0*	*7*
Peak-Hour Factor, PHF	*0.94*	*1.00*	*0.90*	*0.54*	*1.00*	*0.54*
Hourly Flow Rate, HFR	*48*	*0*	*33*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*42*	*48*		*33*			
C (m) (vph)		*391*	*131*		*351*			
v/c		*0.11*	*0.37*		*0.09*			
95% queue length		*0.36*	*1.51*		*0.31*			
Control Delay		*15.3*	*47.6*		*16.3*			
LOS		*C*	*E*		*C*			
Approach Delay	--	--	*34.8*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Turtle Dove Ter/Sandy Lake*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*465*	*20*	*10*	*1235*	*10*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*12*	*567*	*24*	*10*	*1357*	*10*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*5*	*15*	*10*	*0*	*35*
Peak-Hour Factor, PHF	*0.73*	*0.73*	*0.73*	*0.54*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*41*	*6*	*20*	*18*	*0*	*38*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*12*	*10*	*41*		*26*	*18*		*38*
C (m) (vph)	*509*	*995*	*226*		*379*	*126*		*396*
v/c	*0.02*	*0.01*	*0.18*		*0.07*	*0.14*		*0.10*
95% queue length	*0.07*	*0.03*	*0.65*		*0.22*	*0.48*		*0.32*
Control Delay	*12.2*	*8.7*	*24.4*		*15.2*	*38.3*		*15.1*
LOS	*B*	*A*	*C*		*C*	*E*		*C*
Approach Delay	--	--	*20.8*			*22.5*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Turtle Dove Ter/Sa*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Turtle Dove Ter/Sandy Lake* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*40*	*1385*	*40*	*20*	*685*	*15*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.84*	*0.84*	*0.84*
Hourly Flow Rate, HFR	*43*	*1489*	*43*	*23*	*815*	*17*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*20*	*0*	*20*	*20*	*0*	*20*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.83*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*24*	*0*	*24*	*24*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*43*	*23*	*24*		*24*	*24*		*23*
C (m) (vph)	*809*	*440*	*87*		*350*	*154*		*591*
v/c	*0.05*	*0.05*	*0.28*		*0.07*	*0.16*		*0.04*
95% queue length	*0.17*	*0.16*	*1.01*		*0.22*	*0.54*		*0.12*
Control Delay	*9.7*	*13.6*	*61.4*		*16.0*	*32.6*		*11.3*
LOS	*A*	*B*	*F*		*C*	*D*		*B*
Approach Delay	--	--	*38.7*			*22.2*		
Approach LOS	--	--	*E*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Sterwartown Road*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *19973-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*35*	*455*	*0*	*0*	*1190*	*20*
Peak-Hour Factor, PHF	*0.77*	*0.77*	*0.77*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*45*	*590*	*0*	*0*	*1307*	*21*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*5*	*5*	*20*	*0*	*55*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*15*	*7*	*7*	*26*	*0*	*73*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*45*	*0*		*29*			*99*	
C (m) (vph)	*527*	*995*		*208*			*265*	
v/c	*0.09*	*0.00*		*0.14*			*0.37*	
95% queue length	*0.28*	*0.00*		*0.48*			*1.66*	
Control Delay	*12.5*	*8.6*		*25.1*			*26.5*	
LOS	*B*	*A*		*D*			*D*	
Approach Delay	--	--	*25.1*			*26.5*		
Approach LOS	--	--	*D*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/23/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Sterwartown Road*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 4 Lanes*

Project Description *199-73-17*

East/West Street: *Sterwartown Road* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*65*	*1350*	*10*	*0*	*650*	*40*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*65*	*1350*	*10*	*0*	*650*	*40*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*0*	*30*	*0*	*65*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*5*	*0*	*34*	*0*	*65*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*65*	*0*		*10*			*99*	
C (m) (vph)	*914*	*512*		*114*			*367*	
v/c	*0.07*	*0.00*		*0.09*			*0.27*	
95% queue length	*0.23*	*0.00*		*0.28*			*1.07*	
Control Delay	*9.2*	*12.0*		*39.6*			*18.4*	
LOS	*A*	*B*		*E*			*C*	
Approach Delay	--	--	*39.6*			*18.4*		
Approach LOS	--	--	*E*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description	*199-73-17*
East/West Street:	*Bramble Bush Drive*
North/South Street:	*Goshen Road*
Intersection Orientation:	*North-South*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*465*	*15*	*10*	*1180*	*10*
Peak-Hour Factor, PHF	*0.77*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR	*0*	*547*	*17*	*10*	*1296*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*10*	*10*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.63*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*32*	*0*	*15*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*10*	*32*		*15*			
C (m) (vph)		*997*	*309*		*721*			
v/c		*0.01*	*0.10*		*0.02*			
95% queue length		*0.03*	*0.34*		*0.06*			
Control Delay		*8.6*	*18.0*		*10.1*			
LOS		*A*	*C*		*B*			
Approach Delay	--	--	*15.5*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Bramble Bush Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Bramble Bush Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*235*	*1335*	*45*	*25*	*650*	*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*1335*	*45*	*25*	*650*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*1*	*2*	*0*
Configuration		*T*	*TR*	*L*	*T*	
Upstream Signal		*0*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*40*	*25*	*25*	*10*	*0*	*38*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*40*	*0*	*25*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*25*	*40*		*25*			
C (m) (vph)		*487*	*167*		*392*			
v/c		*0.05*	*0.24*		*0.06*			
95% queue length		*0.16*	*0.89*		*0.20*			
Control Delay		*12.8*	*33.2*		*14.8*			
LOS		*B*	*D*		*B*			
Approach Delay	--	--	*26.1*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Rothbury Drive*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*110*	*350*	*15*	*5*	*985*	*105*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*110*	*350*	*15*	*5*	*985*	*105*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*1*
Configuration	*L*	*T*	*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*10*	*25*	*130*	*5*	*195*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*10*	*25*	*130*	*5*	*195*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration		*LTR*		*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*L*		*TR*
v (vph)	*110*	*5*		*45*		*130*		*200*
C (m) (vph)	*630*	*1183*		*280*		*188*		*508*
v/c	*0.17*	*0.00*		*0.16*		*0.69*		*0.39*
95% queue length	*0.63*	*0.01*		*0.56*		*4.24*		*1.86*
Control Delay	*11.9*	*8.1*		*20.3*		*58.5*		*16.6*
LOS	*B*	*A*		*C*		*F*		*C*
Approach Delay	--	--	*20.3*			*33.1*		
Approach LOS	--	--	*C*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Rothbury Drive*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Rothbury Drive* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*255*	*1080*	*25*	*20*	*465*	*230*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.97*	*0.97*	*0.97*
Hourly Flow Rate, HFR	*274*	*1161*	*26*	*20*	*479*	*237*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*1*
Configuration	*L*	*T*	*TR*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*5*	*10*	*250*	*10*	*205*
Peak-Hour Factor, PHF	*0.65*	*0.65*	*0.65*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR	*7*	*7*	*15*	*304*	*12*	*250*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration		*LTR*		*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*L*		*TR*
v (vph)	*274*	*20*		*29*		*304*		*262*
C (m) (vph)	*874*	*578*		*100*		*97*		*519*
v/c	*0.31*	*0.03*		*0.29*		*3.13*		*0.50*
95% queue length	*1.35*	*0.11*		*1.09*		*29.71*		*2.81*
Control Delay	*11.0*	*11.5*		*55.1*				*18.8*
LOS	*B*	*B*		*F*		*F*		*C*
Approach Delay	--	--	*55.1*			*574.9*		
Approach LOS	--	--	*F*			*F*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/23/2002*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Goshen Road/Goshen Crossing*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 4 Lanes*

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*55*	*450*	*6*	*3*	*965*	*190*
Peak-Hour Factor, PHF	*0.80*	*0.86*	*0.84*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*68*	*523*	*0*	*0*	*1096*	*215*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*80*	*1*	*130*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.80*	*0.82*	*0.80*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*99*	*0*	*162*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*68*					*99*		*162*
C (m) (vph)	*586*					*227*		*625*
v/c	*0.12*					*0.44*		*0.26*
95% queue length	*0.39*					*2.06*		*1.03*
Control Delay	*11.9*					*32.6*		*12.8*
LOS	*B*					*D*		*B*
Approach Delay	--	--				*20.3*		
Approach LOS	--	--				*C*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MAM*
Agency/Co.	*RK&K*
Date Performed	*9/23/2002*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Goshen Road/Goshen Crossing*
Jurisdiction	*Montgomery County*
Analysis Year	*2025 - 4 Lanes*

Project Description *199-73-17*

East/West Street: *Goshen Crossing* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*115*	*1225*	*6*	*3*	*600*	*260*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.84*	*0.88*	*0.73*	*0.73*
Hourly Flow Rate, HFR	*140*	*1493*	*0*	*0*	*821*	*356*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*1*			*1*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*	*5*	*15*	*260*	*1*	*115*
Peak-Hour Factor, PHF	*0.61*	*0.61*	*0.61*	*0.83*	*0.82*	*0.83*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*313*	*0*	*138*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*140*					*313*		*138*
C (m) (vph)	*584*					*139*		*450*
v/c	*0.24*					*2.25*		*0.31*
95% queue length	*0.93*					*26.23*		*1.28*
Control Delay	*13.1*					*637.5*		*16.5*
LOS	*B*					*F*		*C*
Approach Delay	--	--				*447.5*		
Approach LOS	--	--				*F*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*AM Peak*		

Project Description *199-73-17*	
East/West Street: *Mother of God School*	North/South Street: *Goshen Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*410*	*120*	*120*	*890*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*20*	*546*	*160*	*129*	*956*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	*7*	8	9	10	11	12
	L	T	R	L	T	R
Volume	*140*	*5*	*95*	*0*	*0*	*5*
Peak-Hour Factor, PHF	*0.46*	*0.45*	*0.45*	*0.25*	*0.25*	*0.25*
Hourly Flow Rate, HFR	*304*	*11*	*211*	*0*	*0*	*20*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*20*	*129*	*304*		*222*	*0*		*20*
C (m) (vph)	*727*	*902*	*194*		*556*	*117*		*539*
v/c	*0.03*	*0.14*	*1.57*		*0.40*	*0.00*		*0.04*
95% queue length	*0.08*	*0.50*	*19.57*		*1.91*	*0.00*		*0.12*
Control Delay	*10.1*	*9.7*	*322.5*		*15.7*	*35.8*		*11.9*
LOS	*B*	*A*	*F*		*C*	*E*		*B*
Approach Delay	--	--	*193.0*			*11.9*		
Approach LOS	--	--	*F*			*B*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MAM*	Intersection	*Goshen Road/Mother of God Scho*
Agency/Co.	*RK&K*	Jurisdiction	*Montgomery County*
Date Performed	*9/23/2002*	Analysis Year	*2025 - 4 Lanes*
Analysis Time Period	*PM Peak*		

Project Description *199-73-17*

East/West Street: *Mother of God School* | North/South Street: *Goshen Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*1345*	*25*	*15*	*435*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*1345*	*25*	*15*	*435*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*1*	*2*	*0*
Configuration	*L*	*T*	*TR*	*L*	*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*	*0*	*20*	*0*	*5*	*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*10*	*0*	*20*	*0*	*5*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*10*	*15*	*10*		*20*	*0*		*20*
C (m) (vph)	*1135*	*508*	*130*		*395*	*260*		*389*
v/c	*0.01*	*0.03*	*0.08*		*0.05*	*0.00*		*0.05*
95% queue length	*0.03*	*0.09*	*0.25*		*0.16*	*0.00*		*0.16*
Control Delay	*8.2*	*12.3*	*35.0-*		*14.6*	*18.8*		*14.8*
LOS	*A*	*B*	*D*		*B*	*C*		*B*
Approach Delay	--	--	*21.4*			*14.8*		
Approach LOS	--	--	*C*			*B*		

>

199-73-17
WKH /RJA/FILE
PCM
[redacted]
MAM

facsimile
TRANSMITTAL

To: Jeri Cauthorn, *DPWT*

Fax No.: 240.777.7178

Re: ***Goshen Road South Facility Planning Phase I (2025 "No Build" Traffic Forecasts)***

Date: June 9, 2003

Pages: 3, including this cover sheet

Jeri:

Per your request, please find attached the following plots which depict traffic forecast information reflecting a year 2025 land use/transportation network scenario which assumes Goshen Road improved to 4 lanes within the project limits with **no additional roadway improvements** in the Montgomery Village/Airpark policy area:

(1) Plot showing **p.m. peak hour traffic volumes** for the Montgomery Village/Airpark policy area and vicinity and

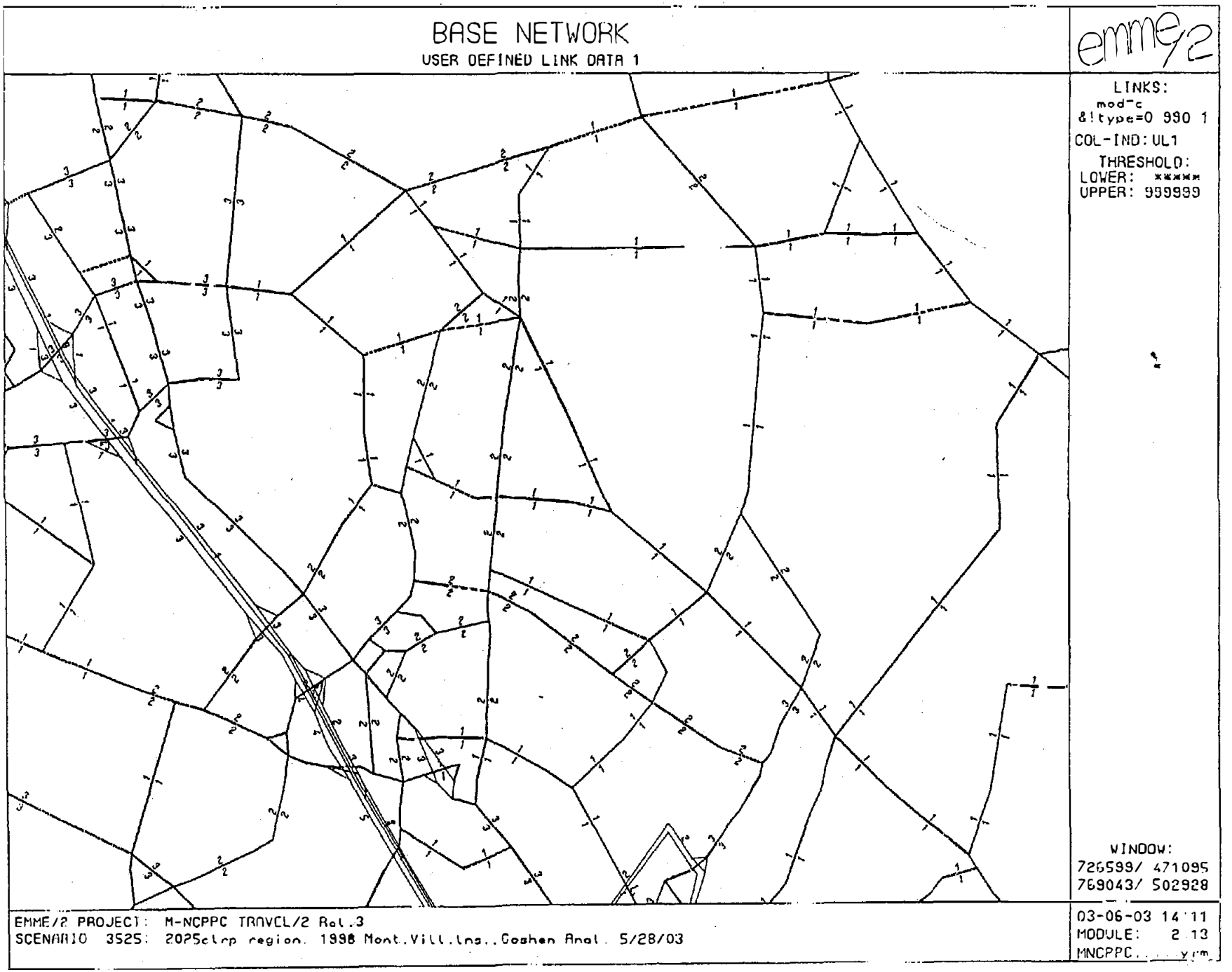
(2) Plot showing **number of lanes** assumed in this scenario.

I hope you find this information helpful. The attached plots will also be transmitted to your office by mail tomorrow. Should you have any questions concerning this matter, please contact me as indicated below. -- Eric

cc: Dan Hardy
Ki Kim

From the desk of...

Eric Graye
Transportation Planning, M-NCPPC
8787 Georgia Avenue
Silver Spring, MD 20910
301.495.4632 (phone)
301.495.1302 (fax)
eric.graye@mncppc-mc.org (e-mail)



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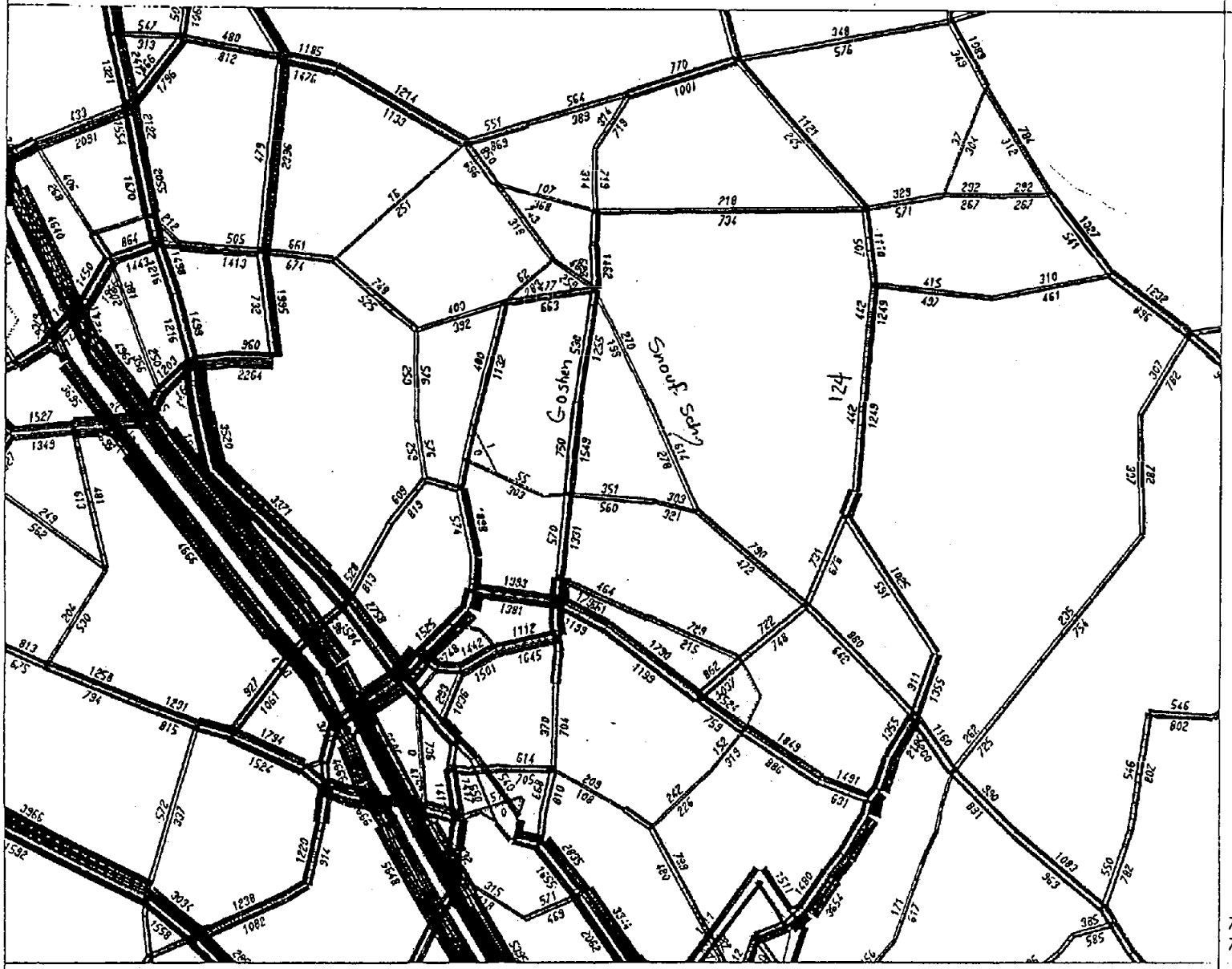
AUTO VOLUMES



emme/2

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THRESHOLD:
LOWER: -*****
UPPER: ******

SCALE: 300
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2000
3000
4000
5000

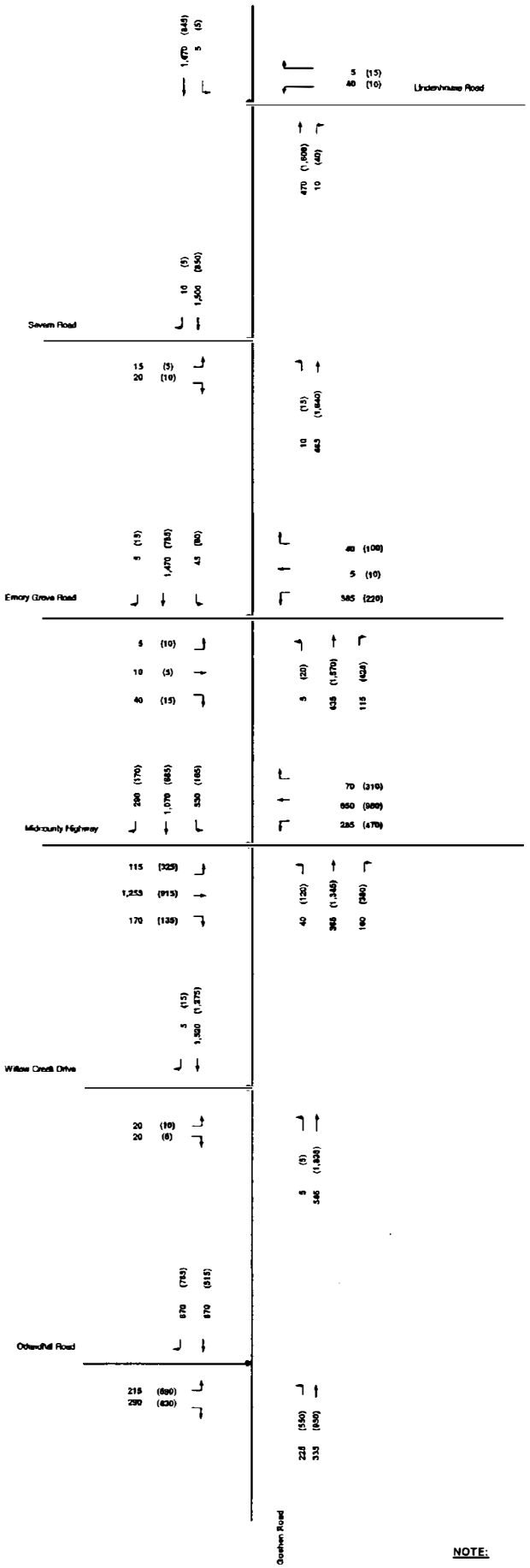
WINDOW:
726599/ 471095
769043/ 502928

03-06-03 14:10
MODULE: G.12

EMME/2 PROJECT: M-NCPPC TRAVEL/2 Rel.3
SCENARIO 3525: 2025clrp region, 1998 Mont.Vill.Los..Goshen Anal. 5/28/03

APPENDIX K: 2025 – 6 Lane Capacity Analyses w/ TSM Improvements

Turning Movement Volumes
Synchro
Critical Lane Volume



NOTE:
AM (PM)

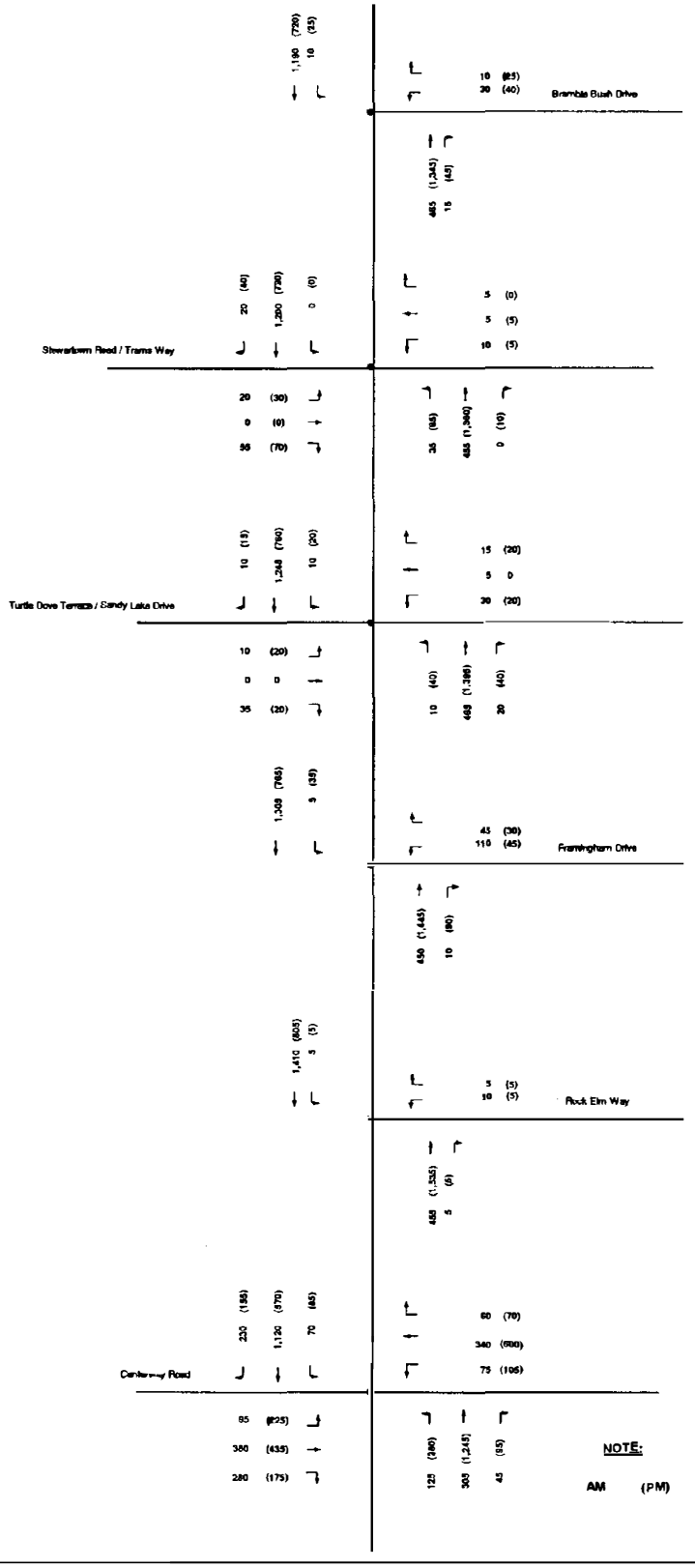
GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 6-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2003

Sheet 1 of 3





GOSHEN ROAD
Traffic Study
Montgomery County, MD

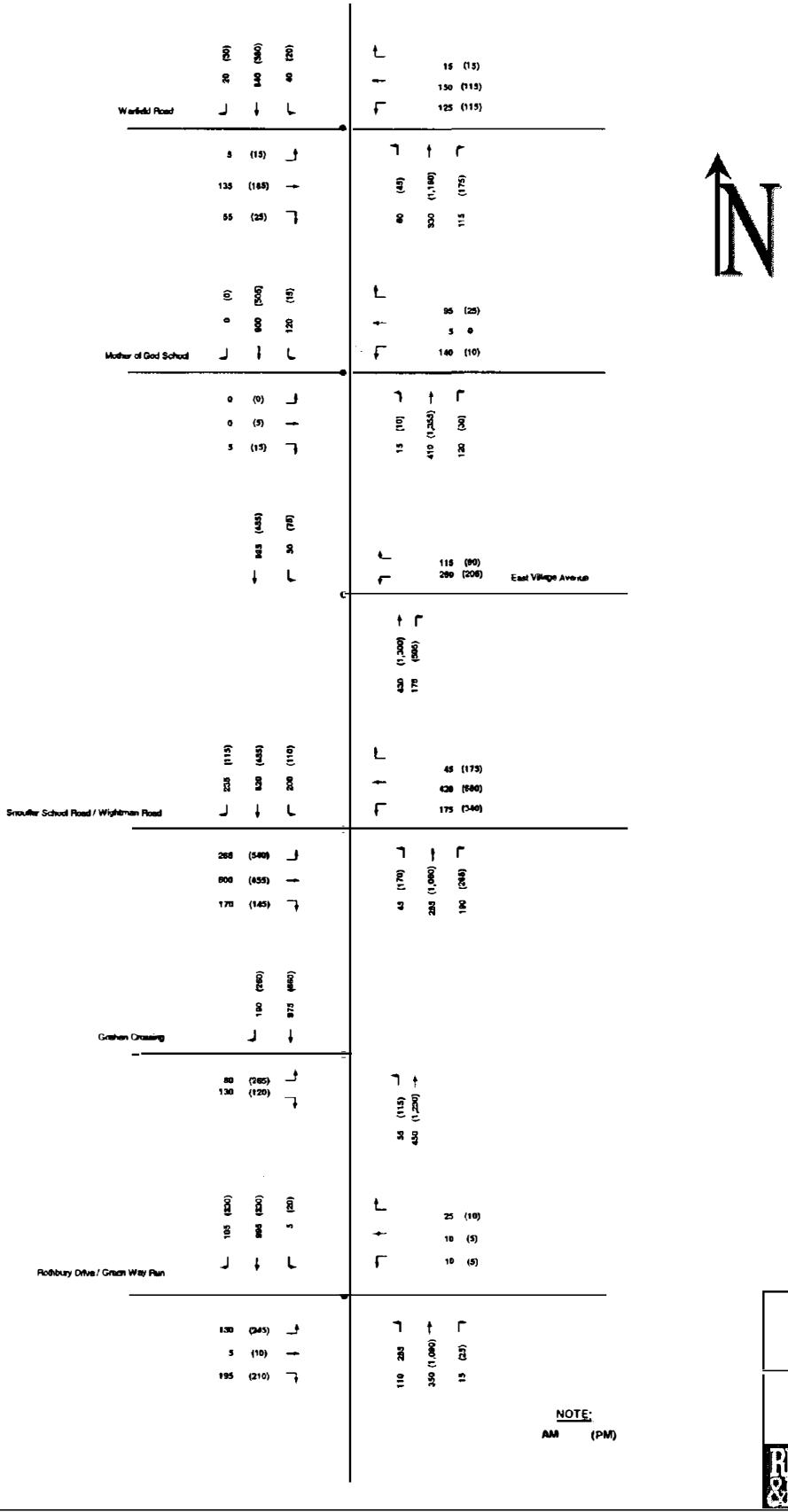
Year 2025 6-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: September 19, 2002
Rev. January 18, 2002

Sheet 2 of 3

North End of Corridor



GOSHEN ROAD
Traffic Study
Montgomery County, MD

Year 2025 6-Lanes Balanced Traffic Volumes

Rummel, Klepper & Kahl Consulting Engineers

Date: September 19, 2002
Rev. January 16, 2003

Sheet 3 of 3



Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900								
Storage Length (ft)	500		0	200		200								
Storage Lanes	1		1											
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0								
Leading Detector (ft)	50	50	50	50	50	50								
Trailing Detector (ft)	0	0	0	0	0	0								
Turning Speed (mph)	15	9	15			9								
Satd. Flow (prot)	3502	1615	1805	5036	5036	1615								
Flt Permitted	0.950		0.217											
Satd. Flow (perm)	3502	1615	412	5036	5036	1615								
Right Turn on Red		Yes				Yes								
Satd. Flow (RTOR)		319				744								
Link Speed (mph)	30			47	43									
Link Distance (ft)	1524			798	803									
Travel Time (s)	34.6			11.6	12.7									
Volume (vph)	215	290	225	335	670	670								
Peak-Hour Factor	0.91	0.91	0.87	0.87	0.90	0.90								
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%								
Lane Group Flow (vph)	236	319	259	385	967	744								
Turn Type		Perm	custom			Perm								
Protected Phases	4		6	5 2	6		2							
Permitted Phases		4	2			6								
Detector Phases	4	4	6	5 2	6	6								
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0								
Minimum Split (s)	28.0	28.0	8.0		38.0	38.0	38.0							
Total Split (s)	34.0	34.0	29.0	86.0	57.0	57.0	57.0							
Total Split (%)	28%	28%	24%	72%	48%	48%	48%							
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0							
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0							
Lead/Lag														
Lead-Lag Optimize?														
Recall Mode	None	None	None		Coord	Coord	Coord							
Act Effct Green (s)	14.2	14.2	93.8	97.8	83.0	83.0								
Actuated g/C Ratio	0.12	0.12	0.78	0.82	0.69	0.69								
v/c Ratio	0.57	0.67	0.58	0.09	0.28	0.65								
Uniform Delay, d1	50.8	0.0	2.8	2.2	7.0	0.0								
Delay	49.5	5.2	3.0	2.8	1.2	4.1								
LOS	D	A	A	A	A	A								
Approach Delay	24.1			2.7	2.4									
Approach LOS	C			A	A									
Queue Length 50th (ft)	90	0	33	19	13	140								
Queue Length 95th (ft)	127	84	62	28	m20	m193								
Internal Link Dist (ft)	1444			718	723									
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)	500		200			200								
50th Bay Block Time %						0%								
95th Bay Block Time %						4%								
Queuing Penalty (veh)						0								

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 48 (40%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 6.6	Intersection LOS: A
Intersection Capacity Utilization 67.1%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1: Odendhal Road & Goshen Road

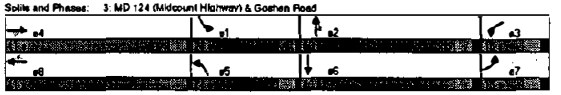




Lane Group														
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%			
Storage Length (ft)	500		200	200		200	200		200	500		200		
Storage Lanes	2		1	2		1	1		1	2		1		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50		
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9		
Satd. Flow (prot)	3400	5036	1559	3400	3505	1468	1735	4986	1552	3434	5085	1554		
Flt Permitted	0.950			0.950			0.950			0.950				
Satd. Flow (perm)	3400	5036	1564	3400	3505	1468	1735	4986	1552	3434	5085	1554		
Right Turn on Red			Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)			144			78			158			200		
Link Speed (mph)		30			30			47			37			
Link Distance (ft)		657			798			819			553			
Travel Time (s)		14.9			17.5			9.0			10.3			
Volume (vph)	515	1250	174	285	450	70	40	385	160	490	1070	200		
Peak Hour Factor	0.82	0.82	0.82	0.95	0.95	0.95	0.83	0.83	0.83	0.97	0.97	0.97		
Heavy Vehicles (%)	3%	3%	3%	5%	5%	3%	5%	5%	3%	3%	3%	3%		
Lane Group Flow (vph)	140	1530	267	297	677	73	48	440	193	546	1103	206		
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free		
Protected Phases	7	4		3	8		5	2		1	6			
Permitted Phases			4			8			2			Free		
Detector Phases	7	4	4	3	8	8	5	2	2	1	6			
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0			
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	9.0	38.0	38.0	9.0	39.0			
Total Split (s)	15.0	41.0	41.0	15.0	41.0	41.0	24.0	46.0	46.0	24.0	46.0	0.0		
Total Split (%)	13%	34%	34%	13%	34%	34%	20%	38%	38%	20%	38%	0%		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0			
Lead/Lag														
Lead-Lag Optimize?														
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord			
Act Effct Green (s)	11.0	37.0	37.0	11.0	37.0	37.0	20.0	38.0	38.0	20.0	38.0	120.0		
Actuated g/C Ratio	0.09	0.31	0.31	0.09	0.31	0.31	0.17	0.32	0.32	0.17	0.32	1.00		
v/c Ratio	0.45	0.99	0.38	0.95	0.63	0.14	0.17	0.29	0.34	0.95	0.72	0.19		
Uniform Delay, d1	51.6	41.2	0.1	54.2	35.6	0.0	42.5	32.2	5.9	49.5	37.5	0.0		
Delay	52.0	54.9	10.7	81.8	35.9	0.8	88.4	20.6	1.1	75.9	29.7	0.0		
LOS	D	D	B	F	D	A	F	C	A	E	C	A		
Approach Delay		49.8			46.9			47.3			38.1			
Approach LOS		D			D			D			D			
Queue Length 50th (ft)	53	430	35	120	236	0	35	80	0	215	191	0		
Queue Length 95th (ft)	78	#553	76	#206	361	34	67	73	0	#409	273	0		
Internal Link Dist (ft)		577			698			539			803			
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)	200			200	200		200	200		500	500			
50th Bay Block Time %		36%			12%									
95th Bay Block Time %		87%		6%	24%									
Queuing Penalty (veh)		51		10	53									

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 4 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 41.2	Intersection LOS: D
Intersection Capacity Utilization 76.0%	ICU Level of Service C
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↰	↑↑↑		↰	↑↑↑	↱	↰	↑↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	100		0	200		0
Storage Lanes	0		0	1		0	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	5114	0	1723	5084	0	1787	4966	1599	1787	5006	0
Flt Permitted		0.995		0.950	0.962		0.089			0.346		
Satd. Flow (perm)	0	5114	0	1723	5084	0	167	4966	1599	650	5006	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			10				149		1	
Link Speed (mph)		30			30			35			40	
Link Distance (ft)		394			353			883			467	
Travel Time (s)		8.9			8.1			15.8			8.9	
Volume (vph)	5	1110	40	585	1165	40	5	430	115	15	1470	5
Peak Hour Factor	0.72	0.72	0.72	0.76	0.76	0.76	0.82	0.82	0.82	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
Lane Group Flow (vph)	0	1617	0	770	1585	0	6	524	140	0	1676	0
Turn Type	Split			Split			Perm		Perm	pm+pt	pm+pt	
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0	7.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0	11.0	
Total Split (s)	18.0	18.0	0.0	40.0	40.0	0.0	48.0	48.0	48.0	13.0	61.0	0.0
Total Split (%)	15%	15%	0%	33%	33%	0%	41%	41%	41%	11%	52%	0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	None	Coord
Act Effct Green (s)		8.3		25.0	25.0		88.7	88.7	88.7	76.9	76.9	
Actuated g/C Ratio		0.07		0.21	0.21		0.57	0.57	0.57	0.64	0.64	
v/c Ratio		0.46		0.82	0.76		0.06	0.18	0.14	0.14	0.52	
Uniform Delay, d1		17.6		45.3	42.8		12.0	13.7	9.8	6.3	12.9	
Delay		22.1		44.8	42.0		4.0	2.7	0.0	4.8	3.3	
LOS		C		D	D		A	A	A	A	A	
Approach Delay		22.1			43.3			2.1			3.3	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		18		231	204		0	9	0	7	82	
Queue Length 95th (ft)		44		246	224		m2	17	0	m14	113	
Internal Link Dist (ft)		224			275			803			387	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200			100			200		
50th Bay Block Time %				12%	3%							
95th Bay Block Time %				15%	6%						2%	
Queuing Penalty (veh)				36	17							

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 70.7% ICU Level of Service C
m : Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road

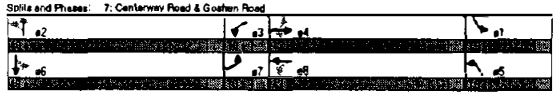


Lane Group	NEL	NET	NER	NWL	NWT	NWR	WNL	WNT	WNR	SEL	SET	SER
Lane Configurations	↰	↑	↱	↰	↑↑		↰	↑↑		↰	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	200		0	200		0
Storage Lanes	1		1	1		1	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3424	0	1752	4940	0	1752	4905	0
Flt Permitted	0.406			0.240			0.095			0.468		
Satd. Flow (perm)	749	1845	1568	454	3424	0	168	4940	0	863	4905	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			255			18			26			41
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		374			432			782			367	
Travel Time (s)		8.5			9.8			13.3			5.2	
Volume (vph)	85	380	280	75	340	60	125	305	45	70	1120	230
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.88	0.88	0.88	0.93	0.96	0.96
Heavy Vehicles (%)	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	104	418	308	89	405	0	142	412	0	73	1406	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	8.0	22.0	22.0	8.0	22.0		8.0	28.0		8.0	28.0	
Total Split (s)	10.0	43.0	43.0	10.0	43.0	0.0	18.0	48.0	0.0	19.0	48.0	0.0
Total Split (%)	8%	36%	36%	8%	36%	0%	15%	40%	0%	16%	40%	0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Coord		None	Coord	
Act Effct Green (s)	37.5	31.6	31.5	37.3	31.2		86.5	86.3		46.5	36.3	
Actuated g/C Ratio	0.31	0.26	0.26	0.31	0.26		0.55	0.47		0.55	0.47	
v/c Ratio	0.37	0.86	0.49	0.30	0.47		0.84	0.18		0.13	0.62	
Uniform Delay, d1	27.4	42.2	1.4	27.0	35.5		11.7	17.2		10.7	23.0	
Delay	28.4	41.6	9.2	25.2	34.8		36.8	6.0		12.5	25.0	
LOS	C	D	A	C	C		C	A		B	C	
Approach Delay		24.2			33.8			12.9			24.3	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	55	308	6	42	139		83	18		24	290	
Queue Length 95th (ft)	88	400	71	71	175		73	5		53	410	
Internal Link Dist (ft)		294			352			712			287	
50th Up Block Time (%)		8%									1%	
95th Up Block Time (%)		22%									18%	
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		20%									12%	
95th Bay Block Time %		36%									32%	
Queuing Penalty (veh)		34									145	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 78 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 24.1 Intersection LOS: C
Intersection Capacity Utilization 76.4% ICU Level of Service C

Splits and Phases: 7: Centerway Road & Goshen Road

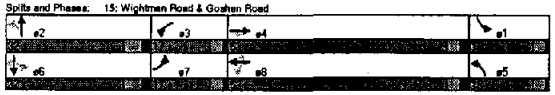


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		200	200		200
Storage Lanes	2		1	1		1	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3434	1919	1531	1766	3592	1607	1743	4770	0	1623	5036	1554
Flt Permitted	0.950			0.151			0.143			0.299		
Satd. Flow (perm)	3434	1919	1531	280	3592	1607	262	4770	0	514	5036	1554
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			48			129			241
Link Speed (mph)		30			30			45			35	
Link Distance (ft)		972			834			415			506	
Travel Time (s)		15.4			14.4			5.8			5.5	
Volume (vph)	265	890	170	175	420	45	45	299	100	200	820	415
Peak Hour Factor	0.90	0.90	0.90	0.90	0.93	0.93	0.84	0.84	0.84	0.90	0.90	0.90
Heavy Vehicles (%)	3%	9%	0%	0%	9%	0%	3%	3%	0%	0%	3%	3%
Lane Group Flow (vph)	268	606	172	188	452	48	54	577	0	222	911	461
Turn Type	Prot		Perm	pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2			6		6
Detector Phases	7	4	4	3	8	8	5	2		1	6	6
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	8.0	32.0	32.0	8.0	32.0	32.0	8.0	27.0		8.0	27.0	27.0
Total Split (s)	17.0	53.0	53.0	17.0	53.0	53.0	19.0	82.0	0.0	19.0	82.0	82.0
Total Split (%)	14%	44%	44%	14%	44%	44%	15%	27%	0%	15%	27%	27%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	None	None
Act Effct Green (s)	12.9	44.1	44.1	57.1	44.1	44.1	46.9	33.2		46.9	33.2	33.2
Actuated g/C Ratio	0.11	0.37	0.37	0.48	0.37	0.37	0.39	0.28		0.39	0.28	0.28
v/c Ratio	0.72	0.86	0.25	0.83	0.34	0.08	0.20	0.41		0.60	0.65	0.42
Uniform Delay, d1	51.8	39.1	32.0	18.4	27.5	30.0	29.6	37.2		32.7	39.2	30.0
Delay	53.4	54.5	4.5	16.7	26.8	6.2	23.1	28.5		24.4	29.8	2.8
LOS	D	D	A	B	C	A	C	C		C	D	A
Approach Delay		34.6			22.6			28.0			23.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	105	413	8	73	127	0	25	108		82	196	1
Queue Length 95th (ft)	#152	350	49	118	184	23	54	181		171	173	24
Internal Link Dist (ft)		597			554			335			228	
50th Up Block Time (%)											3%	
95th Up Block Time (%)											1%	
Turn Bay Length (ft)	200			200		200	200			200		200
50th Bay Block Time %		34%									4%	
95th Bay Block Time %		36%									2%	
Queuing Penalty (veh)		98									17	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 27.2 Intersection LOS: C
Intersection Capacity Utilization 79.8% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Wightman Road & Goshen Road

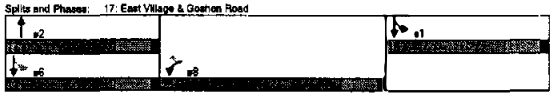


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%			0%
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		0	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9	9	15		9
Satd. Flow (prot)	1781	1623	4819	0	1762	5038
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1781	1623	4819	0	1762	5038
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		124	157			
Link Speed (mph)	30		35			35
Link Distance (ft)	550		585			359
Travel Time (s)	12.7		10.5			7.0
Volume (vph)	240	115	830	120	50	890
Peak Hour Factor	0.93	0.93	0.94	0.94	0.91	0.91
Heavy Vehicles (%)	3%	6%	3%	3%	3%	3%
Lane Group Flow (vph)	280	124	843	0	55	1093
Turn Type	Perm			custom		
Protected Phases		8	2		1	1 6 6
Permitted Phases	8			6		
Detector Phases	8	8	2		1	1 6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	9.0		9.0	9.0
Total Split (s)	25.0	25.0	17.0	0.0	18.0	35.0 17.0
Total Split (%)	42%	42%	28%	0%	30%	58% 28%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord		None	Coord
Act Effct Green (s)	15.2	15.2	19.8		32.8	38.8
Actuated g/C Ratio	0.25	0.25	0.33		0.55	0.81
v/c Ratio	0.63	0.25	0.38		0.10	0.35
Uniform Delay, d1	19.8	0.0	11.9		4.8	5.7
Delay	19.1	3.8	11.7		3.9	5.1
LOS	B	A	B		A	A
Approach Delay	14.3		11.7		5.0	
Approach LOS	B		B		A	
Queue Length 50th (ft)	90	0	83		4	141
Queue Length 95th (ft)	136	27	142		14	90
Internal Link Dist (ft)	470		505			309
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)					200	
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 10 (17%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 8.7 Intersection LOS: A
Intersection Capacity Utilization 49.3% ICU Level of Service A

Splits and Phases: 17: East Village & Goshen Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			-1%	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1786	0	1752	1818	1570	1244	4813	0	1781	5041	0
Flt Permitted	0.537			0.500			0.165			0.348		
Satd. Flow (perm)	991	1786	0	922	1818	1570	308	4813	0	649	5041	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			4			78			2	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		3116			1219			988			730	
Travel Time (s)		25.4			27.7			7.1			13.1	
Volume (vph)	5	135	55	125	150	15	90	830	115	40	840	20
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.79	0.79	0.79	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	4%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	5	208	0	139	184	0	76	964	0	43	935	0
Turn Type	pmpt			pmpt			pmpt			pmpt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	32.0		8.0	32.0		8.0	23.0		8.0	23.0	
Total Split (s)	21.0	99.0	0.0	21.0	39.0	0.0	20.0	40.0	0.0	20.0	40.0	0.0
Total Split (%)	18%	33%	0%	18%	33%	0%	17%	33%	0%	17%	33%	0%
Yellow Time (s)	3.3	4.0		3.3	4.0		3.8	4.0		3.8	4.0	
All-Red Time (s)	0.5	1.0		0.5	1.0		0.5	1.0		0.5	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Coord		None	Coord	
Act Effct Green (s)	31.2	18.5		31.2	18.5		73.8	67.2		73.8	67.2	
Actuated g/C Ratio	0.26	0.15		0.26	0.15		0.61	0.56		0.61	0.56	
v/c Ratio	0.01	0.73		0.42	0.65		0.28	0.21		0.09	0.33	
Uniform Delay, d1	30.0	44.2		32.8	44.8		8.2	11.8		8.0	14.8	
Delay	23.4	43.5		30.9	45.6		8.4	10.7		10.3	16.1	
LOS	C	D		C	D		A	B		B	B	
Approach Delay		43.1			39.4			10.4			15.9	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	3	143		83	133		19	56		11	142	
Queue Length 95th (ft)	13	213		120	187		39	76		32	215	
Internal Link Dist (ft)		1036			1139			315			650	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 20.5 Intersection LOS: C
Intersection Capacity Utilization 54.8% ICU Level of Service A

Splits and Phases: 19: Warfield Road & Goshen Road



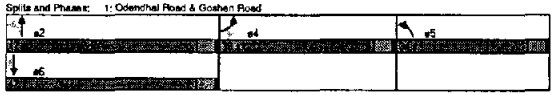
Lane Configurations																
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	200			200									
Storage Lanes	1		1	1			1									
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0										
Leading Detector (ft)	50	50	50	50	50	50										
Trailing Detector (ft)	0	0	0	0	0	0										
Turning Speed (mph)	15	9	15		15	9										
Satd. Flow (prot)	3502	1615	1805	5036	5036	1615										
Flt Permitted	0.950		0.348													
Satd. Flow (perm)	3502	1615	657	5036	5036	1615										
Right Turn on Red		Yes				Yes										
Satd. Flow (RTOR)		436				643										
Link Speed (mph)	30			45	45											
Link Distance (ft)	1524			797	803											
Travel Time (s)	34.9			12.1	12.2											
Volume (vph)	890	450	550	950	515	765										
Peak Hour Factor	0.94	0.94	0.95	0.95	0.95	0.95										
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%										
Lane Group Flow (vph)	947	487	640	1105	606	900										
Turn Type		Perm	pmpt			Perm										
Protected Phases	4		5	2												
Permitted Phases		4	2			8										
Detector Phases	4	4	5	2	6	8										
Minimum Initial (s)	4.0	4.0	4.0	7.0	7.0	7.0										
Minimum Split (s)	25.0	25.0	9.0	35.0	35.0	35.0										
Total Split (s)	39.0	39.0	34.0	47.0	47.0	47.0										
Total Split (%)	33%	33%	28%	39%	39%	39%										
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0										
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0										
Lead/Lag																
Lead-Lag Optimize?																
Recall Mode	None	None	None	Coord	Coord	Coord										
Act Effct Green (s)	35.0	35.0	72.0	49.7	49.7	49.7										
Actuated g/C Ratio	0.29	0.29	0.61	0.36	0.36	0.36										
v/c Ratio	0.93	0.58	0.94	0.60	0.53	0.80										
Uniform Delay, d1	41.3	1.4	14.8	31.0	27.5	9.4										
Delay	48.1	4.1	26.8	31.4	11.0	16.4										
LOS	D	A	C	C	B	B										
Approach Delay	34.5			30.8	14.6											
Approach LOS	C			C	B											
Queue Length 50th (ft)	367	12	272	255	81	838										
Queue Length 95th (ft)	#491	100	#454	286	m90	m706										
Internal Link Dist (ft)	1444			717	723											
50th Up Block Time (%)																
95th Up Block Time (%)																
Turn Bay Length (ft)	500		200			200										
50th Bay Block Time %			33%	13%		11%										
95th Bay Block Time %			33%	19%		19%										
Queuing Penalty (veh)			84	103		21										

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 26.4 Intersection LOS: C
Intersection Capacity Utilization 87.8% ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Odendhal Road & Goshen Road



Lane Configurations																
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			-2%					
Storage Length (ft)	200		200	200		200	200		200	200		200				
Storage Lanes	2		1	2		1	1		1	2		1				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50				
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0				
Turning Speed (mph)	15		9	15		9	15		9	15		9				
Satd. Flow (prot)	3400	5036	1668	3400	3505	1568	1736	4836	1562	3434	5036	1564				
Flt Permitted	0.950			0.950			0.950			0.950						
Satd. Flow (perm)	3400	5036	1668	3400	3505	1568	1736	4836	1562	3434	5036	1564				
Right Turn on Red			Yes			Yes			Yes			Yes				
Satd. Flow (RTOR)			152			176			301			183				
Link Speed (mph)		30			30			45			40					
Link Distance (ft)		857			788			818			580					
Travel Time (s)		14.9			17.3			9.4			15.1					
Volume (vph)	125	815	135	670	985	810	120	345	360	165	805	170				
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.95	0.95	0.95	0.92	0.92	0.92				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%				
Lane Group Flow (vph)	365	1028	152	505	1054	333	126	1416	400	179	745	185				
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free				
Protected Phases	7	4		3	8		5	2		1	6					
Permitted Phases			4			8			2			Free				
Detector Phases	7	4	4	3	8	8	5	2	2	1	6					
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0					
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	29.0	9.0	35.0	35.0	9.0	38.0					
Total Split (s)	23.0	42.0	42.0	23.0	48.0	48.0	14.0	41.0	41.0	14.0	41.0	0.0				
Total Split (%)	19%	35%	35%	19%	35%	35%	12%	34%	34%	12%	34%	0%				
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0					
Lead/Lag																
Lead-Lag Optimize?																
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord					
Act Effct Green (s)	19.0	38.0	38.0	19.0	38.0	38.0	10.0	37.0	37.0	10.0	37.0	120.0				
Actuated g/C Ratio	0.19	0.32	0.32	0.16	0.32	0.32	0.08	0.31	0.31	0.08	0.31	1.00				
v/c Ratio	0.66	0.64	0.25	0.94	0.95	0.54	0.87	0.92	0.58	0.83	0.48	0.12				
Uniform Delay, d1	47.4	35.2	0.0	49.8	34.0	34.9	54.4	40.1	32.7	53.2	33.5	0.0				
Delay	48.0	35.4	4.7	66.2	50.2	15.5	65.6	27.8	10.8	62.1	23.1	0.0				
LOS	D	D	A	E	D	B	E	C	B	E	C	A				
Approach Delay		35.4			48.4			34.8			28.5					
Approach LOS		D			D			C			C					
Queue Length 50th (ft)	139	248	0	202	418	96	101	331	107	85	111	0				
Queue Length 95th (ft)	189	295	45	#504	#597	190	m#146	m#419	m#142	108	142	0				
Internal Link Dist (ft)		577			688			538			503					
50th Up Block Time (%)																
95th Up Block Time (%)																
Turn Bay Length (ft)	200		200	200		200	200		200	200		200				
50th Bay Block Time %		13%		3%	37%			21%								
95th Bay Block Time %		21%		33%	48%	4%		38%								
Queuing Penalty (veh)		61		95	206	8		32								

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 34.8 Intersection LOS: C
Intersection Capacity Utilization 85.4% ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: MD 124 (Midcount Highway) & Goshen Road



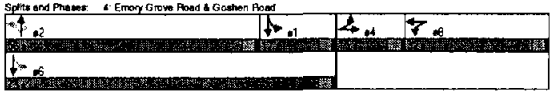


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			2%			1%	
Storage Length (ft)	0		0	200		0	100		200	200		0
Storage Lanes	0		0	1		0	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1749	0	1723	1823	0	1787	4966	1599	1786	4966	0
Flt Permitted		0.964			0.950	0.983	0.215			0.071		
Satd. Flow (perm)	0	1749	0	1723	1823	0	404	4966	1599	134	4966	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			89				443			
Link Speed (mph)		30			30			34			42	
Link Distance (ft)		364			354			883			447	
Travel Time (s)		8.9			8.0			17.7			7.3	
Volume (vph)	10	5	15	220	10	100	20	1545	425	60	735	15
Peak Hour Factor	0.69	0.69	0.69	0.79	0.79	0.79	1.00	0.96	0.96	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	5%	0%
Lane Group Flow (vph)	0	43	0	207	211	0	20	1609	443	78	1036	0
Turn Type	Split			Split			Perm		Perm	custom		
Protected Phases	4	4		8	8			2		1	1 6	6
Permitted Phases							2		2	6		
Detector Phases	4	4		8	8		2	2	2	1 6		6
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	4.0		7.0
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	8.0		11.0
Total Split (s)	15.0	15.0	0.0	32.0	32.0	0.0	58.0	58.0	58.0	17.0	90.0	0.0 73.0
Total Split (%)	13%	13%	0%	27%	27%	0%	47%	47%	47%	14%	75%	0% 61%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0		1.0
Lead/Lag							Lead	Lead	Lead	Lag		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Coord	Coord	Coord	None	None	Coord
Act Effct Green (s)		7.8		19.3	19.3		66.1	66.1	66.1	63.1	63.1	
Actuated g/C Ratio		0.07		0.16	0.16		0.55	0.55	0.55	0.53	0.53	
v/c Ratio		0.32		0.75	0.68		0.09	0.59	0.41	0.29	0.39	
Uniform Delay, d1		26.8		45.0	43.7		13.1	18.4	9.0	14.2	7.4	
Delay		31.8		47.2	52.9		12.0	11.8	1.0	18.1	9.9	
LOS		C		D	D		B	B	A	B	A	
Approach Delay		31.8			49.0			9.5			5.0	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		15		163	117		5	140	15	10	21	
Queue Length 95th (ft)		35		200	157		m7	m164	m17	21	154	
Internal Link Dist (ft)		224			274			803			367	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200			100		200	200		
50th Bay Block Time %								26%				
95th Bay Block Time %				1%				36%				
Queuing Penalty (veh)								8				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 64.0% ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Emory Grove Road & Goshen Road



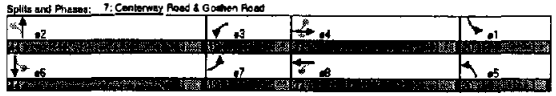


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1752	1845	1568	1752	3449	0	1752	4961	0	1752	4878	0
Flt Permitted	0.126			0.126			0.950			0.950		
Satd. Flow (perm)	236	1845	1568	231	3449	0	404	4961	0	184	4875	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		150			10			11			61	
Link Speed (mph)		30			30			42			42	
Link Distance (ft)		374			432			791			368	
Travel Time (s)		8.5			9.8			12.6			5.9	
Volume (vph)	225	405	175	105	600	70	280	1245	95	85	370	155
Peak Hour Factor	0.97	0.92	0.92	0.47	0.83	0.83	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	232	440	190	223	870	0	301	1338	0	91	845	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phases	7	4	4	3	8		5	2		1	6	
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	8.0	23.0	23.0	8.0	23.0		7.0	27.0		8.0	27.0	
Total Split (s)	19.0	37.0	37.0	19.0	37.0	0.0	20.0	44.0	0.0	20.0	44.0	0.0
Total Split (%)	16%	31%	31%	16%	31%	0%	17%	37%	0%	17%	37%	0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.0	4.0		3.5	4.0	
All-Red Time (s)	0.5	1.0	1.0	0.5	1.0		1.0	1.0		0.5	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Coord		None	Coord	
Act Effct Green (s)	46.8	32.5	32.5	46.8	32.5		97.1	42.0		97.1	42.0	
Actuated g/C Ratio	0.39	0.27	0.27	0.39	0.27		0.48	0.35		0.48	0.35	
v/c Ratio	0.84	0.90	0.34	0.44	0.92		0.87	0.86		0.58	0.48	
Uniform Delay, d1	26.3	42.1	5.4	21.5	40.4		17.9	35.9		15.5	28.0	
Delay	38.8	51.6	5.4	21.5	41.1		34.8	40.0		16.4	28.7	
LOS	D	D	A	C	D		C	D		B	C	
Approach Delay		36.6			36.8			39.8			27.4	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	121	355	47	56	288		144	726		38	176	
Queue Length 95th (ft)	#254	451	75	92	348		#258	357		67	206	
Internal Link Dist (ft)		294			352			711			288	
50th Up Block Time (%)		13%										
95th Up Block Time (%)		37%				1%						
Turn Bay Length (ft)	200		200	200			200			200		
50th Bay Block Time %		32%			53%							
95th Bay Block Time %	24%	48%			32%		31%	10%			1%	
Queuing Penalty (veh)	78	93			33		79	16			1	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 54 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 29.2 Intersection LOS: C
Intersection Capacity Utilization 82.7% ICU Level of Service D
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

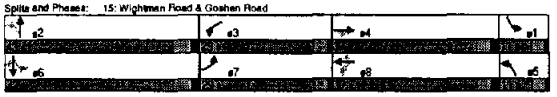
Splits and Phases: 7: Centerway Road & Goshen Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			1%			-2%	
Storage Length (ft)	200		0	200		200	200		200	200		200
Storage Lanes	2		1	1		1	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	3434	1919	1631	1786	3522	1507	1744	4639	0	1823	5085	1564
Flt Permitted	0.950			0.121			0.375			0.103		
Satd. Flow (perm)	3434	1919	1631	228	3522	1507	688	4639	0	198	5085	1564
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185			124			53			142
Link Speed (mph)		30			30			42			36	
Link Distance (ft)		878			834			416			906	
Travel Time (s)		15.4			14.4			6.7			5.8	
Volume (vph)	540	455	145	840	660	175	170	1090	285	110	435	110
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.88	0.88	0.88	0.81	0.81	0.81
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Lane Group Flow (vph)	574	484	154	395	791	203	193	1506	0	136	537	142
Turn Type	Prot		Perm	pmsplt		Perm	pmsplt			pmsplt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8				6		6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Minimum Split (s)	9.0	32.0	32.0	9.0	32.0	32.0	9.0	27.0		9.0	27.0	27.0
Total Split (s)	29.0	37.0	37.0	29.0	37.0	37.0	11.0	43.0	0.0	11.0	43.0	43.0
Total Split (%)	24%	31%	31%	24%	31%	31%	9%	36%	0%	9%	36%	36%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0		5.0	6.0	6.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Coord		None	Coord	Coord
Act Effct Green (s)	24.1	32.2	32.2	56.3	32.2	32.2	47.6	40.7		47.6	40.7	40.7
Actuated g/C Ratio	0.20	0.27	0.27	0.47	0.27	0.27	0.40	0.34		0.40	0.34	0.34
v/c Ratio	0.83	0.94	0.28	0.94	0.82	0.39	0.58	0.89		0.76	0.31	0.23
Uniform Delay, d1	46.0	42.9	1.9	33.5	41.2	13.2	22.7	36.1		21.2	29.4	0.0
Delay	47.5	55.8	6.5	47.2	41.4	14.2	25.1	41.1		43.1	27.0	6.5
LOS	D	E	A	D	D	B	C	D		D	C	A
Approach Delay		43.7			38.1			39.5			26.1	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	218	364	5	246	300	47	97	338		62	113	0
Queue Length 95th (ft)	266	#564	66	#383	334	104	146	#388		#124	143	0
Internal Link Dist (ft)		598			554			334			226	
50th Up Block Time (%)								1%				
95th Up Block Time (%)								8%				
Turn Bay Length (ft)	200			200			200	200		200		200
50th Bay Block Time %	10%	35%		18%	25%			23%				
95th Bay Block Time %	26%	51%		43%	32%			28%				
Queuing Penalty (veh)	85	247		118	113			105				

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 9 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 38.6 Intersection LOS: D
Intersection Capacity Utilization 98.2% ICU Level of Service E
- 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

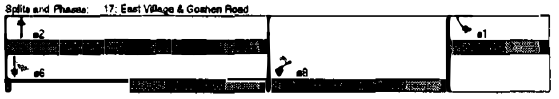
Splits and Phases: 15: Wightman Road & Goshen Road



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		0%		0%	
Storage Length (ft)	0	0		100	200	
Storage Lanes	1	1		0	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9		9	15	
Satd. Flow (prot)	1781	1823	1624	0	1734	5036
Flt Permitted	0.950				0.180	
Satd. Flow (perm)	1781	1823	1624	0	329	5036
Right Turn on Red		Yes			Yes	
Satd. Flow (RTOR)		100	200			
Link Speed (mph)	30		39		36	
Link Distance (ft)	560		945		388	
Travel Time (s)	12.7		10.2		7.4	
Volume (vph)	205	90	1900	905	178	488
Peak Hour Factor	0.90	0.90	0.91	0.91	0.80	0.80
Heavy Vehicles (%)	3%	0%	3%	3%	3%	3%
Lane Group Flow (vph)	228	100	1964	0	94	569
Turn Type		Perm			pmsplt	
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	9.0		9.0	9.0
Total Split (s)	20.0	20.0	20.0	0.0	13.0	29.0
Total Split (%)	33%	33%	46%	0%	18%	48%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Coord		None	Coord
Act Effct Green (s)	13.2	13.2	30.0		35.8	30.0
Actuated g/C Ratio	0.22	0.22	0.50		0.59	0.50
v/c Ratio	0.59	0.23	0.79		0.27	0.23
Uniform Delay, d1	20.6	0.0	11.7		4.1	0.4
Delay	20.6	4.8	13.2		9.3	9.4
LOS	C	A	B		A	A
Approach Delay	15.1		13.2		9.4	
Approach LOS	B		B		A	
Queue Length 50th (ft)	74	0	257		11	42
Queue Length 95th (ft)	142	22	#519		44	50
Internal Link Dist (ft)	480		505			309
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)					200	
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 23 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 67.8% ICU Level of Service B
- 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

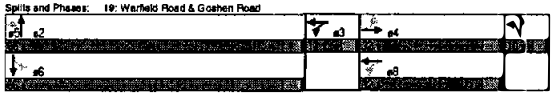
Splits and Phases: 17: East Village & Goshen Road



Lane Group													
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			-1%		
Storage Length (ft)	0		0	0		0	100		0	0		0	
Storage Lanes	1		0	1		0	1		0	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Satd. Flow (prot)	1752	1811	0	1752	1811	0	1744	4911	0	1781	5085	0	0
Flt Permitted	0.649			0.330			0.428			0.085			
Satd. Flow (perm)	1187	1811	0	609	1811	0	787	4911	0	159	5085	0	0
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		9			19			12			19		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		1175			1207			365			731		
Travel Time (s)		25.4			27.7			8.3			16.6		
Volume (vph)	15	155	25	118	115	15	48	1180	175	20	1360	155	
Peak Hour Factor	0.77	0.77	0.77	0.76	0.76	0.76	0.90	0.90	0.90	0.79	0.79	0.79	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Lane Group Flow (vph)	19	272	0	151	171	0	50	1483	0	25	519	0	
Turn Type	Perm			custom			custom			Perm			
Protected Phases		4		3	3 8		5	5 2			6	2	6
Permitted Phases	4			8			2			6			
Detector Phases	4	4		3	3 8		5	5 2		6	6		
Minimum Initial (s)	4.0	4.0		4.0			4.0			4.0	4.0	4.0	4.0
Minimum Split (s)	32.0	32.0		8.0			8.0			23.0	23.0	23.0	32.0
Total Split (s)	32.0	32.0	0.0	12.0	44.0	0.0	10.0	76.0	0.0	66.0	66.0	0.0	66.0	32.0
Total Split (%)	27%	27%	0%	10%	37%	0%	8%	63%	0%	55%	55%	0%	55%	27%
Yellow Time (s)	4.0	4.0		3.0			3.0			4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0		1.0			1.0			1.0	1.0		1.0	1.0
Lead-Lag Optimize?													
Recall Mode	None	None		None			None			Coord	Coord		Coord	None
Act Effct Green (s)	22.8	22.8		30.8	34.8		73.2	77.2		67.2	67.2			
Actuated g/C Ratio	0.19	0.19		0.26	0.29		0.61	0.64		0.56	0.56			
v/c Ratio	0.08	0.78		0.85	0.32		0.09	0.47		0.37	0.18			
Uniform Delay, d1	38.6	48.2		53.2	32.1		7.9	10.5		14.5	12.5			
Delay	37.7	44.8		73.8	31.3		8.7	8.8		21.8	13.2			
LOS	D	D		E	C		A	A		C	B			
Approach Delay		44.4			32.4			8.9			13.6			
Approach LOS		D			C			A			B			
Queue Length 50th (ft)	12	197		90	99		0	24		10	67			
Queue Length 95th (ft)	28	232		119	125		m16	225		34	82			
Internal Link Dist (ft)		1037			1137			315			651			
50th Up Block Time (%)														
95th Up Block Time (%)														
Turn Bay Length (ft)							100							
50th Bay Block Time %														
95th Bay Block Time %								16%						
Queuing Penalty (veh)								4						

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 72 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 62.2%	ICU Level of Service B
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 19: Warfield Road & Goshen Road



Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - 6 Lane (AM) Date 01/08/03

NORTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Odendhal Road	00:01.8	*00:01.8*
From Odendhal Road to Midcounty Hwy	00:42.9	00:41.1
Midcounty Highway	00:58.7	*00:15.8*
From Midcounty Hwy to Emory Grove Rd	01:18.5	00:19.8
Emory Grove Road	01:20.6	*00:02.1*
From Emory Grove Rd to Centerway Rd	02:10.3	00:49.7
Centerway Road	02:16.5	*00:06.2*
From Centerway Rd to Snouffer School Rd	04:02.3	01:45.8
Snouffer School Road	04:24.2	*00:21.9*
From Snouffer School Rd to East Village Ave	04:47.1	00:22.9
East Village Avenue	04:58.6	*00:11.5*
From East Village Ave to Warfield Rd	05:35.5	00:36.9
Warfield Road	05:43.7	*00:08.2*
TOTAL MOVING TIME		04:36.2
TOTAL STOPPED TIME		01:07.5
TOTAL TRAVEL TIME	**05:43.7**	**05:43.7**

SOUTHBOUND GOSHEN ROAD		
Intersection	**Cumulative Time**	**Time Moving or *Stopped***
Warfield Road	00:12.4	*00:12.4*
From Warfield Rd to East Village Ave	00:48.0	00:35.6
East Village Avenue	00:51.9	*00:03.9*
From East Village Ave to Snouffer School Rd	01:18.2	00:26.3
Snouffer School Road	01:41.1	*00:22.9*
From Snouffer School Rd to Centerway Rd	03:26.1	01:45.0
Centerway Road	03:45.3	*00:19.2*
From Centerway Rd to Emory Grove Rd	04:37.6	00:52.3
Emory Grove Road	04:41.7	*00:04.1*
From Emory Grove Rd to Midcounty Hwy	05:09.5	00:27.8
Midcounty Highway	05:32.3	*00:22.8*
From Midcounty Hwy to Odendhal Rd	06:08.9	00:36.6
Odendhal Road	06:09.8	*00:00.9*
TOTAL MOVING TIME		04:43.6
TOTAL STOPPED TIME		01:26.2
TOTAL TRAVEL TIME	**06:09.8**	**06:09.8**

Goshen Road Travel Time Study Sheet

Travel Time Run # _____ Start Time 2025 - 6 Lane (PM) Date 01/08/03

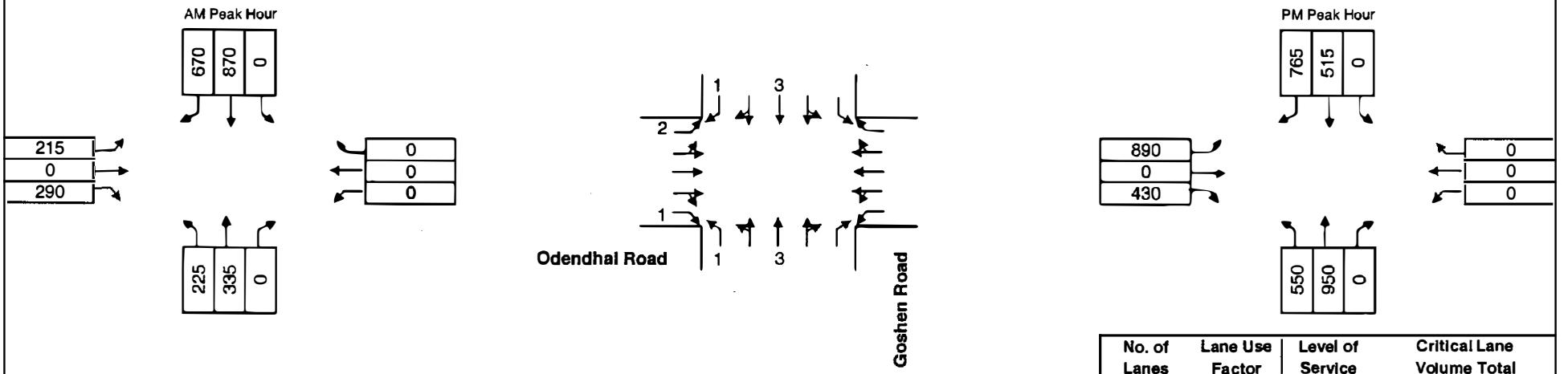
NORTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Odendhal Road	00:24.2	*00:24.2*
From Odendhal Road to Midcounty Hwy	01:06.9	00:42.7
Midcounty Highway	01:28.3	*00:21.4*
From Midcounty Hwy to Emory Grove Rd	01:51.9	00:23.6
Emory Grove Road	02:01.0	*00:09.1*
From Emory Grove Rd to Centerway Rd	03:01.2	01:00.2
Centerway Road	03:15.0	*00:13.8*
From Centerway Rd to Snouffer School Rd	05:18.0	02:03.0
Snouffer School Road	05:49.6	*00:31.6*
From Snouffer School Rd to East Village Ave	06:12.0	00:22.4
East Village Avenue	06:22.2	*00:10.2*
From East Village Ave to Warfield Rd	06:58.6	00:36.4
Warfield Road	07:05.2	*00:06.6*
TOTAL MOVING TIME		05:08.3
TOTAL STOPPED TIME		01:56.9
TOTAL TRAVEL TIME	**07:05.2**	**07:05.2**

SOUTHBOUND GOSHEN ROAD		
Intersection	Cumulative Time	Time Moving or *Stopped*
Warfield Road	00:10.2	*00:10.2*
From Warfield Rd to East Village Ave	00:49.9	00:39.7
East Village Avenue	00:57.1	*00:07.2*
From East Village Ave to Snouffer School Rd	01:24.4	00:27.3
Snouffer School Road	01:45.2	*00:20.8*
From Snouffer School Rd to Centerway Rd	03:35.4	01:50.2
Centerway Road	04:57.5	*01:22.1*
From Centerway Rd to Emory Grove Rd	05:54.4	00:56.9
Emory Grove Road	05:57.4	*00:03.0*
From Emory Grove Rd to Midcounty Hwy	06:21.9	00:24.5
Midcounty Highway	06:39.7	*00:17.8*
From Midcounty Hwy to Odendhal Rd	07:18.5	00:38.8
Odendhal Road	07:27.0	*00:08.5*
TOTAL MOVING TIME		04:57.4
TOTAL STOPPED TIME		02:29.6
TOTAL TRAVEL TIME	**07:27.0**	**07:27.0**

Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Odendhal Road
Conditions/
Design Year: 2025 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 9/23/02



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	335	0.4	134	0	134	766
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	870	0.4	348	225	573	
	SBR	541	1	541	225	766	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	129
	EBR	65	1	65	0	65	
	EBL	215	0.6	129		129	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							895
						Level Of Service	A
						v/c ratio	0.56

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	950	0.4	380	0	380	781
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	515	0.4	206	550	756	
	SBR	231	1	231	550	781	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	534
	EBR	0	1	0	0	0	
	EBL	890	0.6	534		534	
	WB	0	1	0	0	0	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,315
						Level Of Service	D
						v/c ratio	0.82

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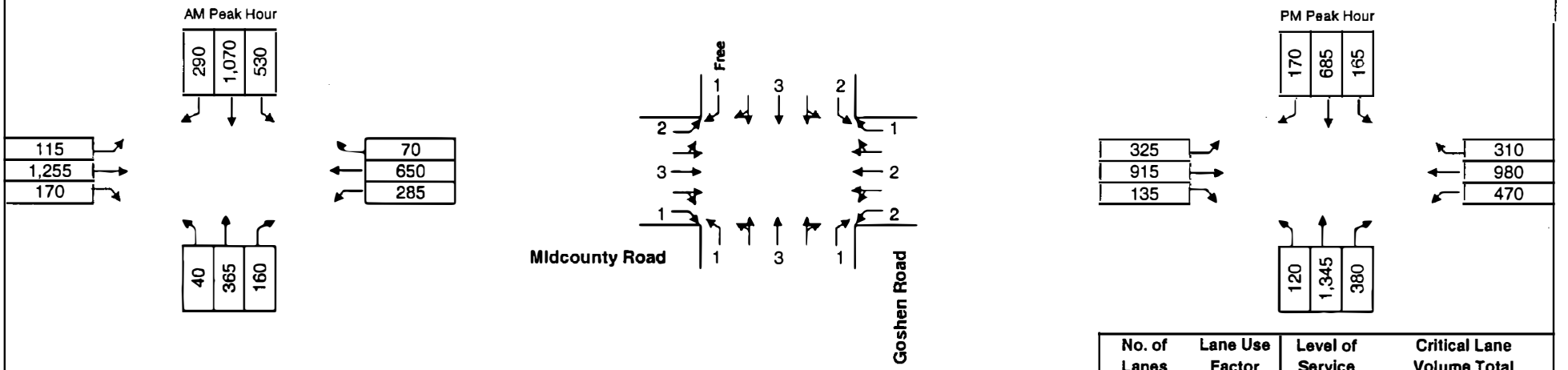
Turning Movement Summary and Level of Service

Count Date: 2/5/02 Location: Goshen Road/Midcounty Road
Conditions/
Design Year: 2025 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 9/23/02



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	365	0.4	146	318	464	468
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,070	0.4	428	40	468	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0		0	
2	EB	1,255	0.4	502	171	673	673
	EBR	130	1	130	171	301	
	EBL	0	0.6	0		0	
	WB	650	0.55	358	69	427	
	WBR	0	1	0	0	0	
	WBL	0	0.6	0		0	
							1,141
						Level Of Service	B
						v/c ratio	0.71

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,345	0.4	538	99	637	637
	NBR	98	1	98	99	197	
	NBL	0	1	0		0	
	SB	685	0.4	274	120	394	
	SBR	0	1	0	0	0	
	SBL	0	0.6	0	0	0	
2	EB	915	0.4	366	282	648	734
	EBR	15	1	15	282	297	
	EBL	0	0.6	0		0	
	WB	980	0.55	539	195	734	
	WBR	211	1	211	195	406	
	WBL	0	0.6	0		0	
							1,371
						Level Of Service	D
						v/c ratio	0.86

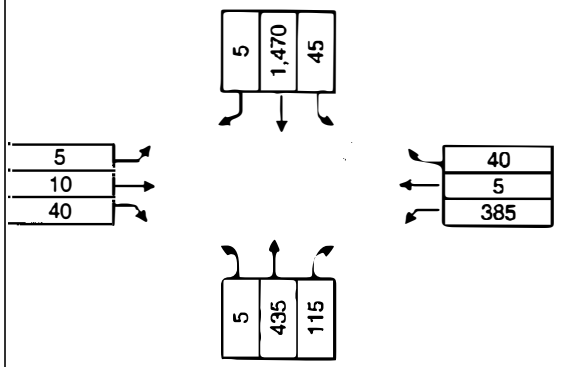
K:\projects\199-73-17\Admeng\Traffic\Analysis\2025\Build\6 Lane\Critical Lanes\[03 Midcounty.xls]Report

Turning Movement Summary and Level of Service

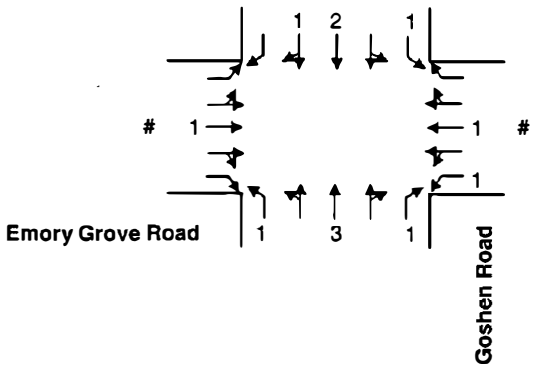
Count Date: 2/6/02 Location: Goshen Road/Emory Grove Road
Conditions/
Design Year: 2025 - 6 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 9/23/02

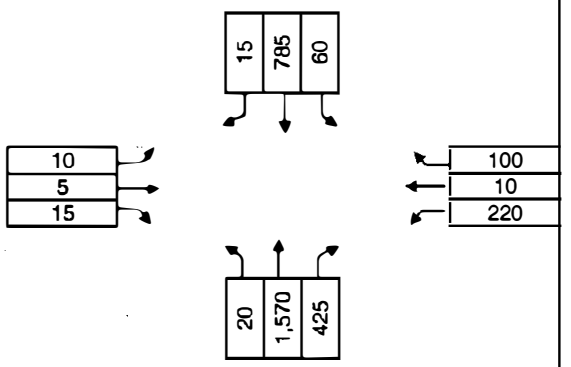
AM Peak Hour



# Indicates shared lane for all movements



PM Peak Hour



East/West movements are split-phased

No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	435	0.4	174	45	219	595
	NBR	115	1	115	45	160	
	NBL	0	1	0		0	
	SB	1,475	0.4	590	5	595	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	55	1	55	0	55	55
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	430	0.55	237	0	237	237
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							887
						Level Of Service	A
						v/c ratio	0.55

PM Peak Hour

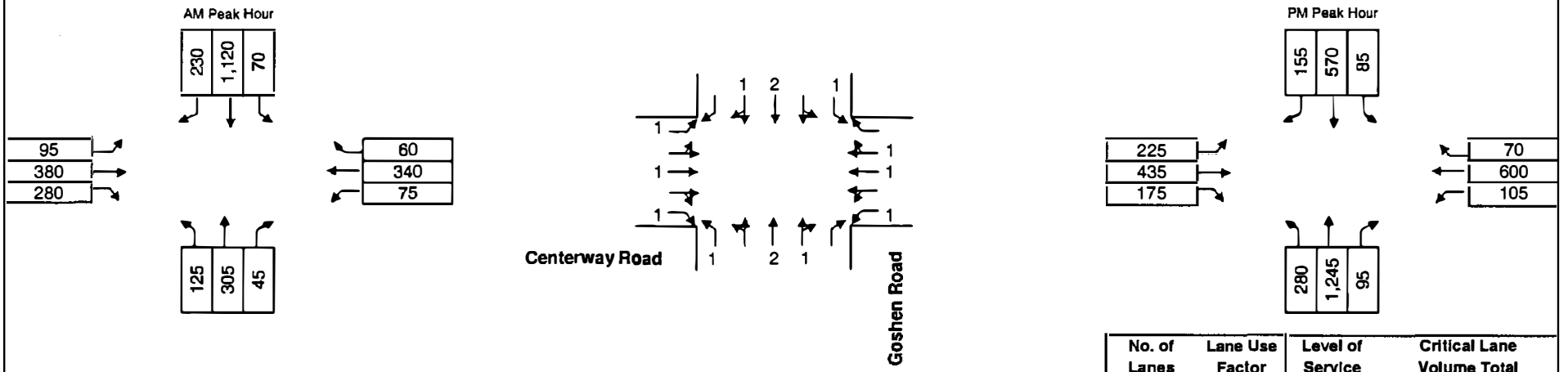
Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,570	0.4	628	60	688	688
	NBR	425	1	425	60	485	
	NBL	0	1	0		0	
	SB	800	0.4	320	20	340	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	30	1	30	0	30	30
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
3	WB	330	0.55	182	0	182	182
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							900
						Level Of Service	A
						v/c ratio	0.56

K:\projects\199-73-17\Admeng\Traffic\Analysis\2025\Build\6 Lane\Critical Lanes\[04 Emory Grove.xls]Report

Turning Movement Summary and Level of Service

Count Date: 2/6/02 Location: Goshen Road/Centerway Road
Conditions/
Design Year: 2025 - 6 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 9/23/02



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	350	0.4	140	70	210	665
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	1,350	0.4	540	125	665	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	380	1	380	75	455	455
	EBR	155	1	155	75	230	
	EBL	0	1	0		0	
	WB	400	0.55	220	95	315	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,120
						Level Of Service	B
						v/c ratio	0.70

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,340	0.4	536	85	621	621
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	725	0.4	290	280	570	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	435	1	435	105	540	594
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	670	0.55	369	225	594	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,215
						Level Of Service	C
						v/c ratio	0.76

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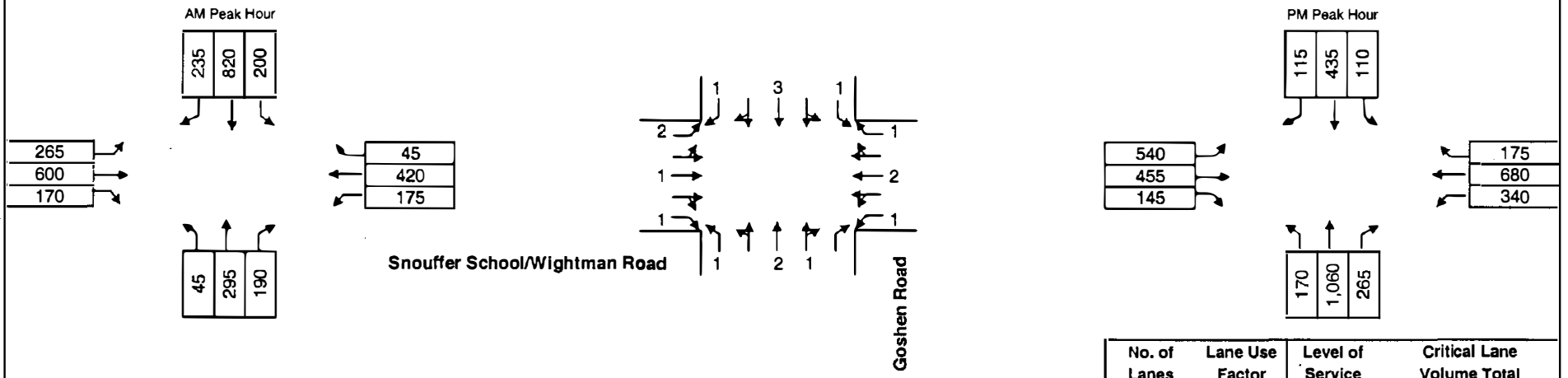
Turning Movement Summary and Level of Service

Count Date: 2/13/02 Location: Goshen Road/Snouffer School/Wightman Road
Conditions/ Design Year: 2025 - 6 Lanes
Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 37522



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	485	0.4	194	200	394	394
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	820	0.4	328	45	373	
	SBR	76	1	76	45	121	
	SBL	0	1	0		0	
2	EB	600	1	600	175	775	775
	EBR	125	1	125	175	300	
	EBL	0	0.6	0		0	
	WB	420	0.55	231	159	390	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							1,169
						Level Of Service	C
						v/c ratio	0.73

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,325	0.4	530	110	640	640
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	435	0.4	174	170	344	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	455	1	455	340	795	795
	EBR	0	1	0	0	0	
	EBL	0	0.6	0		0	
	WB	680	0.55	374	324	698	
	WBR	65	1	65	324	389	
	WBL	0	1	0		0	
							1,435
						Level Of Service	D
						v/c ratio	0.90

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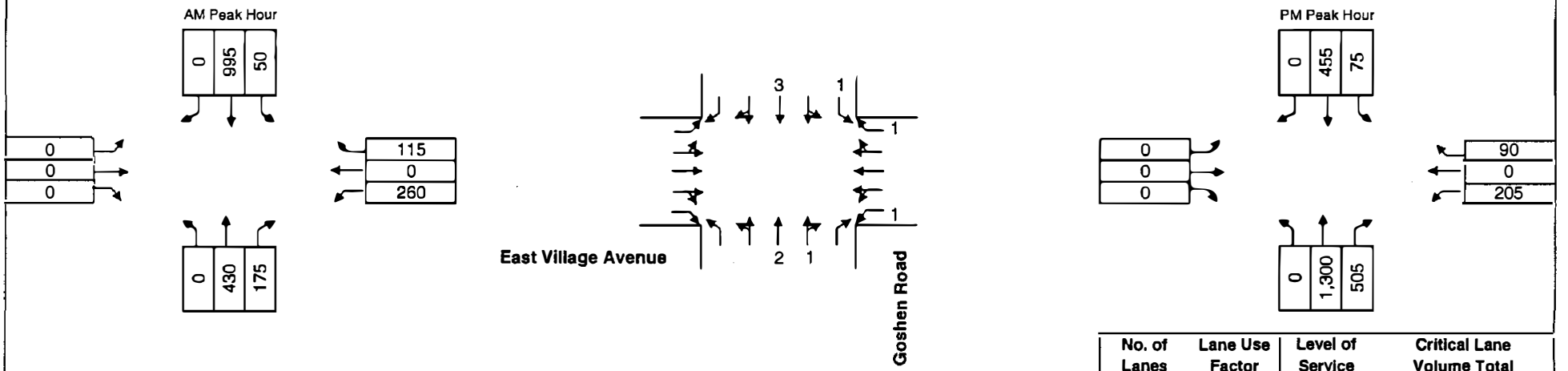
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/East Village Avenue
Conditions/
Design Year: 2025 - 6 Lanes

Computed by: MAM Date: 9/12/2002 Checked by: JCP Date: 9/23/02



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	605	0.4	242	50	292	398
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	995	0.4	398	0	398	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	0	1	0	0	0	260
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	65	1	65	0	65	
	WBL	260	1	260		260	
							658
						Level Of Service	A
						v/c ratio	0.41

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,805	0.4	722	75	797	797
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	455	0.4	182	0	182	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	0	1	0	0	0	205
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	0	1	0	0	0	
	WBR	15	1	15	0	15	
	WBL	205	1	205		205	
							1,002
						Level Of Service	B
						v/c ratio	0.63

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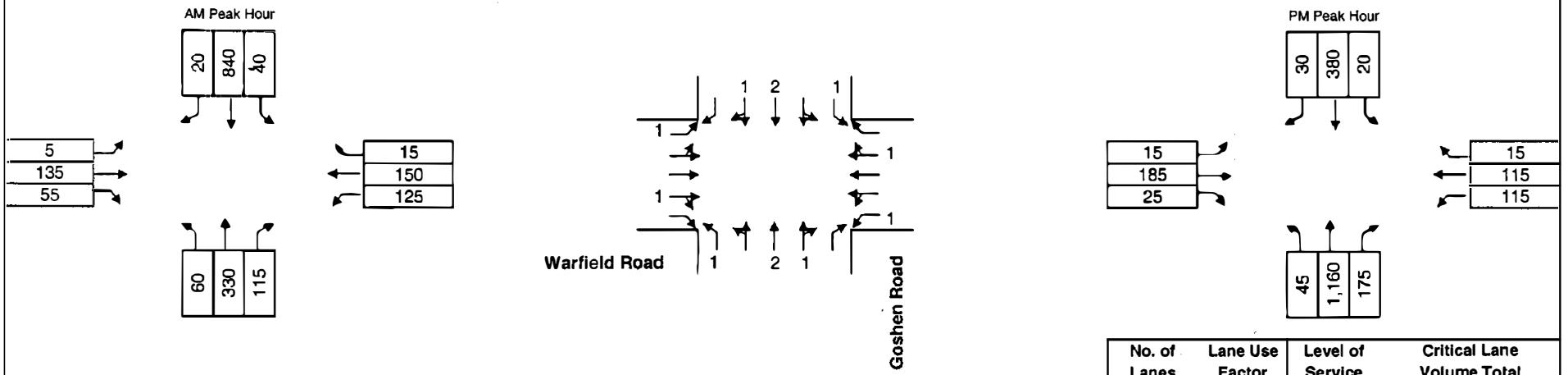
Turning Movement Summary and Level of Service

Count Date: 2/14/02 Location: Goshen Road/Warfield Road
Conditions/
Design Year: 2025 - 6 Lanes

Computed by: MAM Date: 11/20/2002 Checked by: JCP Date: 9/23/02



No. of Lanes	Lane Use Factor	Level of Service	Critical Lane Volume Total
1	1.00	A	1,000 or LESS
2	0.55	B	1,000 to 1,150
3	0.40	C	1,150 to 1,300
4	0.30	D	1,300 to 1,450
5	0.25	E	1,450 to 1,600
Double turn	0.60	F	1,600 or MORE
Triple turn	0.45		

AM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	445	0.4	178	40	218	404
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	860	0.4	344	60	404	
	SBR	0	1	0	0	0	
	SBL	0	1	0		0	
2	EB	190	1	190	125	315	315
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	165	1	165	5	170	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							719
						Level Of Service	A
						v/c ratio	0.45

PM Peak Hour

Phase	Movement	Volume	Lane Use Factor	Lane Volume	Opposing Volume	Sum	Critical Lane Volume
1	NB	1,335	0.4	534	20	554	554
	NBR	0	1	0	0	0	
	NBL	0	1	0		0	
	SB	410	0.4	164	45	209	
	SBR	0	1	0	0	0	
	SBL	0	1	0	0	0	
2	EB	210	1	210	115	325	325
	EBR	0	1	0	0	0	
	EBL	0	1	0		0	
	WB	130	1	130	15	145	
	WBR	0	1	0	0	0	
	WBL	0	1	0		0	
							879
						Level Of Service	A
						v/c ratio	0.55

199-73-17
WKH/File
RJA
JCP
MAM

M-NCPPC

MONTGOMERY COUNTY DEPARTMENT OF PARK & PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760

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O: FILE VIA HOS
MCPWT ENGINEERING SERVICES DIVISION

May 28, 2003

Ms. Jeri Cauthorne
Montgomery County Department of Public Works and Transportation
Executive Office Building, 9th Floor
101 Monroe Street
Rockville, Maryland 20850

Re: Goshen Road South Facility Planning Phase I

Dear Ms. Cauthorn: Jeri

As a follow up to my fax transmittal to you yesterday concerning the item referenced above, the following plots are enclosed:

(1) Plot showing **year 2050 p.m. peak hour traffic volumes** for the Montgomery Village/Airpark policy area and vicinity;

(2) Plot similar to item (1) above, showing a window focused on the area in the immediate vicinity of Goshen Road and;

(3) Plot showing **number of lanes** assumed in the master plan build-out roadway network tested.

I hope you find this information helpful. Should you have any questions concerning this matter, please contact me at 301.495.4632.

Regards,

Eric Graye

Eric Graye, Planning Supervisor
Transportation Planning

Enclosures (3)

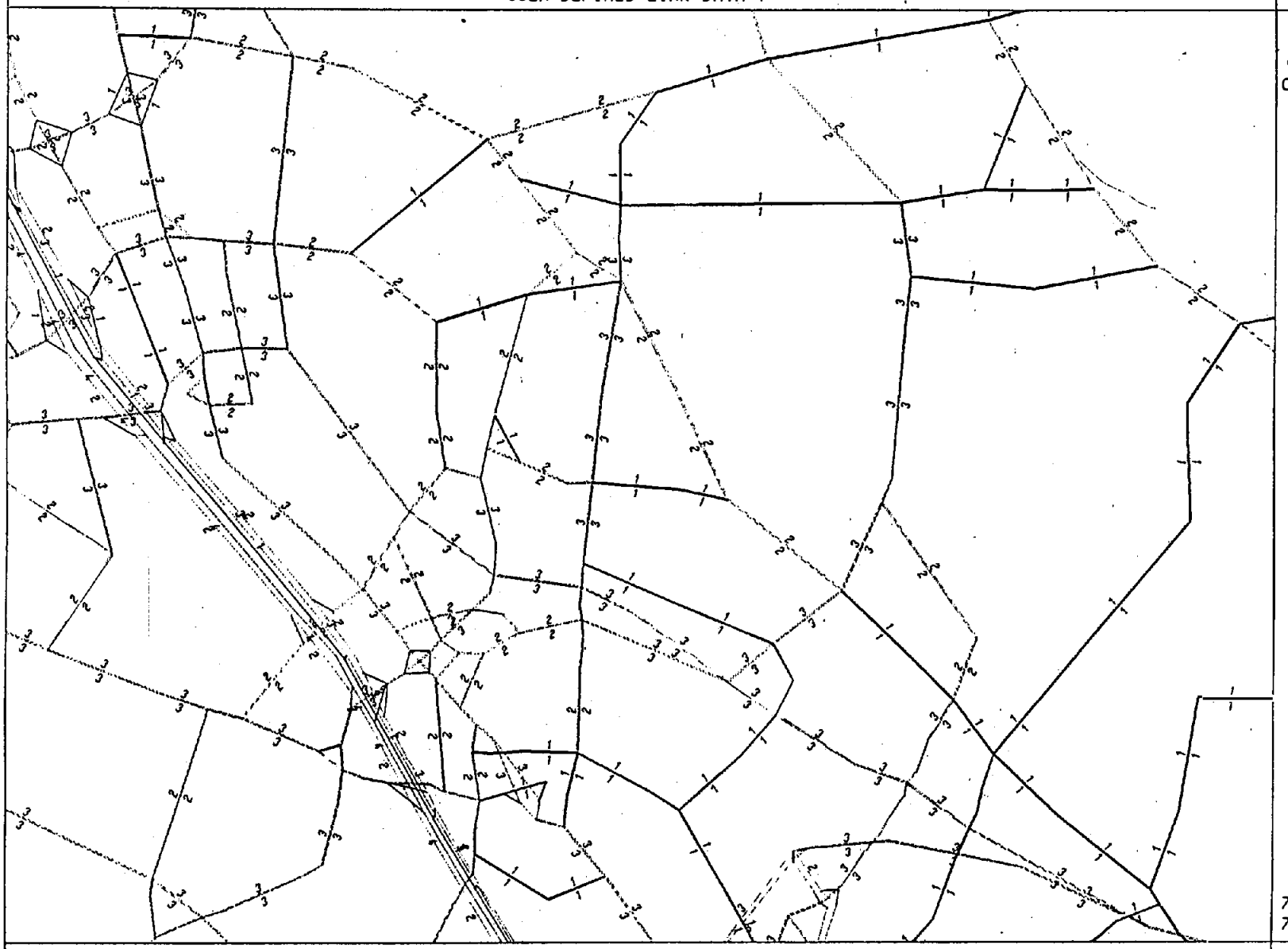
cc: Dan Hardy
Ki Kim

a:\ltr to jcauthorn re goshen rd fp 052803

BASE NETWORK

USER DEFINED LINK DATA 1

emme/2



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EMME/2 PROJECT: M-NCPPC TRAVEL/2 Rel.3
SCENARIO 4000: 2050 Net + LU. Goshen Facility Study. 5/22/03

03-05-27 09:45
MODULE: 2.13
MNCPPC.....yrm

AUTO VOLUMES

emme/2



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4000
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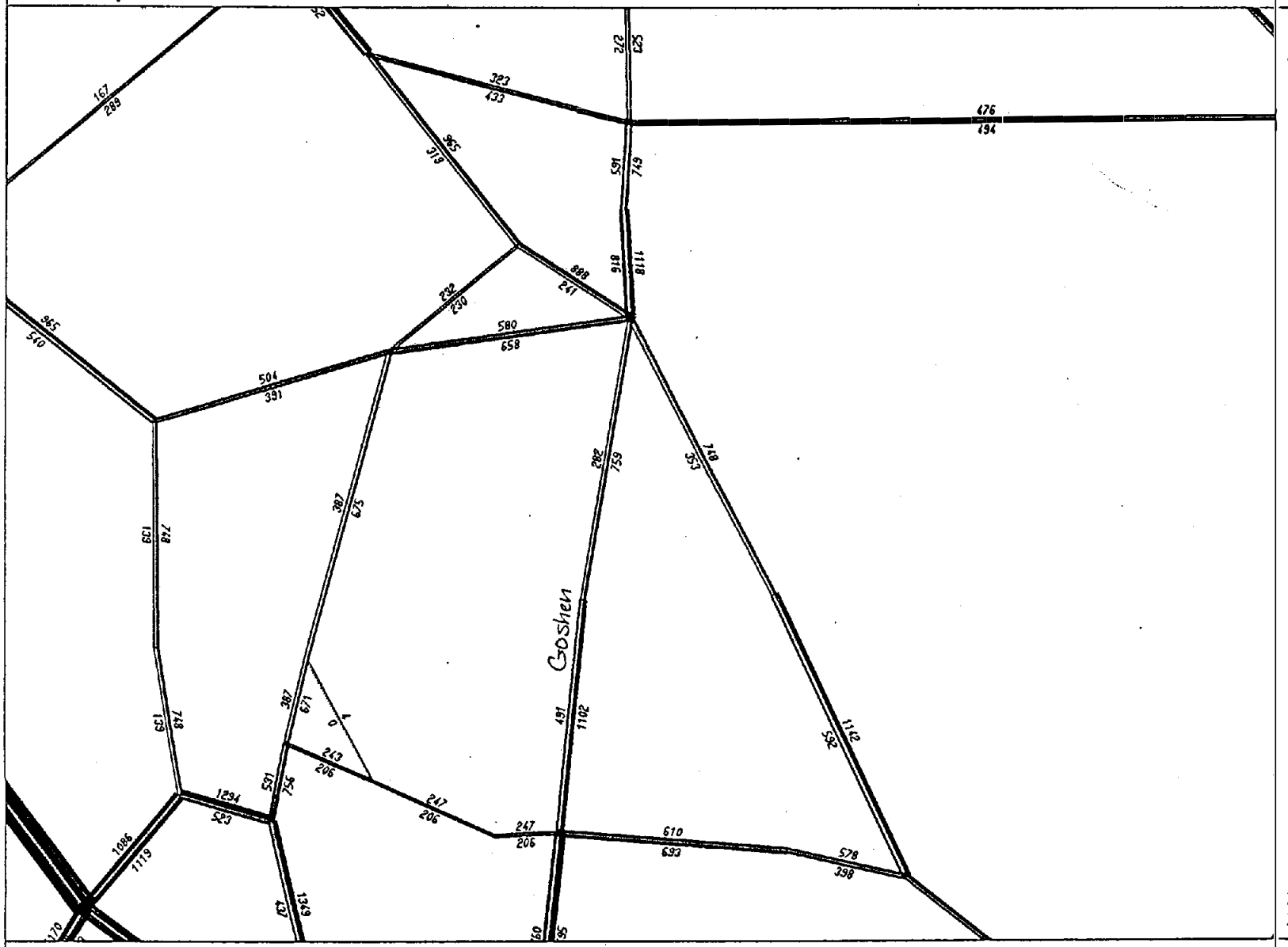
WINDOW
726599/ 471095
769043/ 502928

EMME/2 PROJECT: M-NCPPC TRAVEL/2 Rel.3
SCENARIO 4000: 2050 Net + LU. Goshen Facility Study. 5/22/03

03-05-27 09:41
MODULE: 6.12
MNCPPC..... rm

AUTO VOLUMES



emme/2

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WINDOW:
739073/ 485337
755673/ 497788

EMME/2 PROJECT: M-NCPPC TRAVEL/2 Rel.3
SCENARIO 4000: 2050 Net + LU. Goshen Facility Study. 5/22/03

03-05-27 15:35
MODULE: 6.12
MNCPPC.....yrm