

GENERAL NOTES 10073

NO IMPROVEMENTS OF THE INSTALLATION ARE NECESSARY PRIOR TO APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAINTWORK WORKS INDICATED ON THIS DRAWING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 101.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET ABOVE THE FACE OF CURB OR 4 FEET ABOVE THE FACE OF ROADWAY. SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 18 FEET ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FEET ABOVE THE ROADWAY AND COMBINED WITH SLOPPED PLATE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MOUNTED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF INTERSECTIONS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PERMITTEE.

CURBS TO BE INSTALLED BY MUNICIPALITY AND WHERE NOT, PERMITTEE SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF CURBS IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FROM 100.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITIES TO BE LOCATED AND THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLETES WITH THE PROVISIONS OF THE PERMITTEE SPECIFICATIONS AND THE DEPARTMENT SPECIFICATIONS EFFECTIVE DATE DECEMBER 15, 1961.

WHICH LEGAL PUBLIC HIGHWAY IS USED, SIGNAL INSTALLATION MUST CONFORM TO PART 100 AND A COPY OF THE PERMITTED SPECIFICATIONS SHALL BE MADE TO BE MAINTAINED AT THE PROJECT OFFICE.

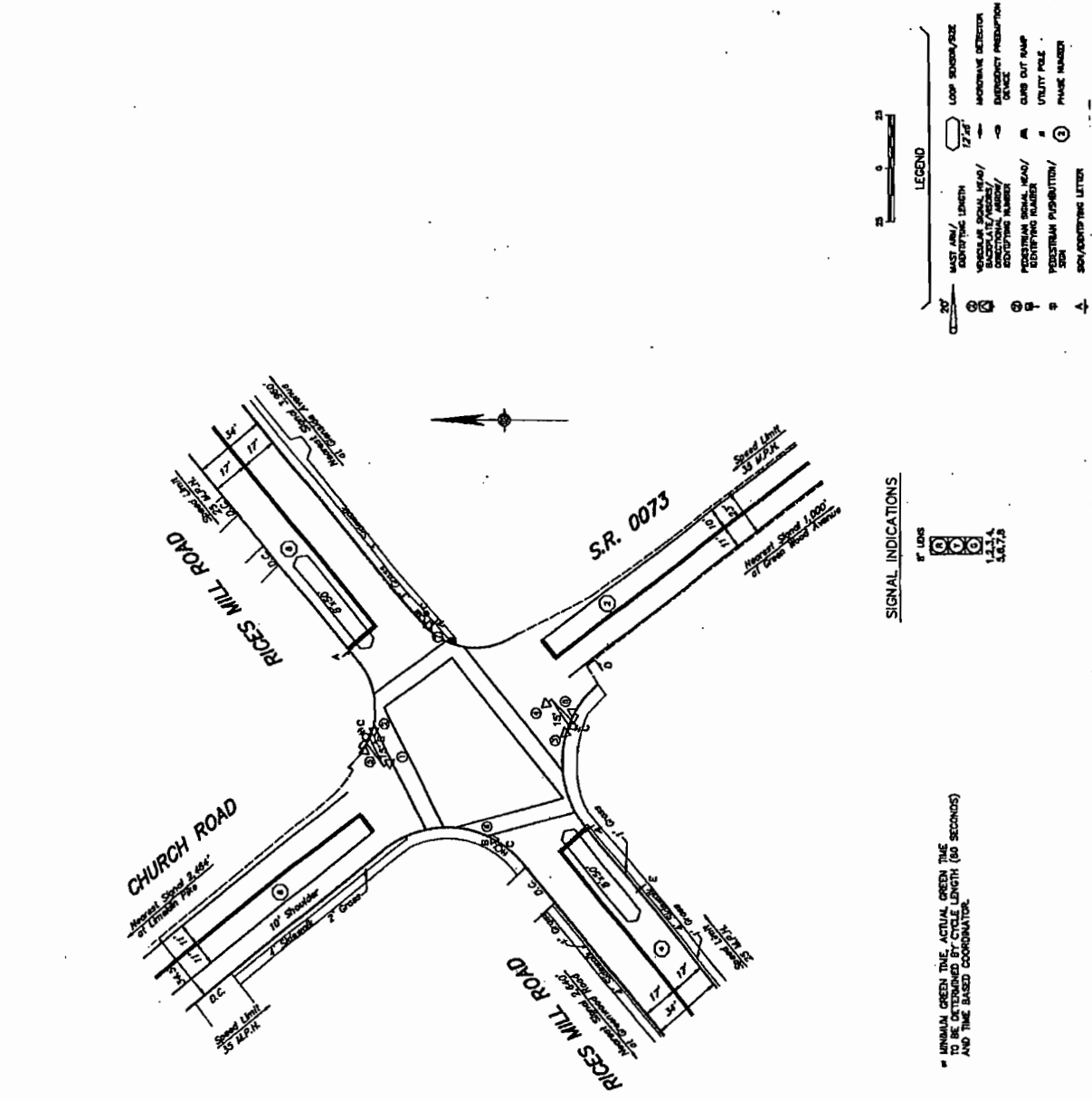
PERMITTEE SHALL OBTAIN A HOISTING OCCUPANCY PERMIT FOR CONDUIT INSTALLED IN STANDBY ROADWAY LESS THAN 6 YEARS OLD, OR CONCRETE ROADWAY RECONSTRUCTED OF AGE, MUST BE SAID PERMIT TO BE OBTAINED FROM THE LOCAL OFFICIALS AND MAINTAINED AT THE PROJECT OFFICE.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: CHELTENHAM TOWNSHIP
INTERSECTION: RICES MILL ROAD AND CHURCH ROAD (S.R. 0073)

NO.	REVISION	DATE	BY	CHK.
1	NEW DRAWING	01-15-62	W. J. H. / J. H. H.	W. J. H.
2				
3				
4				
5				
6				
7				
8				

DESIGNER: W. J. H.
CHECKED: J. H. H.
DATE: 01-15-62
SCALE: AS SHOWN
SHEET NO. 2 OF 2
PROJECT NO. 5073
FILE NO. 10073



PLAN SYMBOL	SIGN NUMBER	SIZE	REMARKS
A	R10-11	24" x 30"	NO TURN ON RED
B	R10-11	24" x 30"	NO TURN ON RED
C	R10-3	9" x 12"	FLASH BUTTON FOR GREEN LIGHT
D	W1E-2-R	18" x 36"	RIGHT CLEARANCE MARKER
E	W1E-2	30" x 30"	DIP

PHASE	2+4	3	2	4+8	3	2
MINIMUM PASSAGE	1	2	3	4	5	6
MAX 1	G	Y	R	R	R	R
MAX 2	R	R	R	G	Y	R
MEMORY						

FINED	3	2	3	2
MINIMUM PASSAGE	1	2	3	2
MAX 1	G	Y	R	R
MAX 2	R	R	G	Y
MEMORY				

* UPON PEDESTRIAN ACTUATOR ONLY

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2C, P.O. Box 301, Hollcong, PA 18928-0301
 105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB:Rice's Mill Rd.
 EB/WB:Church Rd. (Rt. 73)
 Cheltenham Twp/ Montgomery Co/PA
 Tue/Rain/E- 14/BCG

File Name : 12-071-002
 Site Code : 12071002
 Start Date : 11/27/2012
 Page No : 1

Groups Printed- All Vehicles

Start Time	Rice's Mill Rd. Southbound			Church Rd. (Rt. 73) Westbound			Rice's Mill Rd. Northbound			Church Rd. (Rt. 73) Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	10	54	5	7	90	7	7	27	13	9	70	3	302
07:15 AM	14	103	13	11	110	6	11	40	25	13	84	11	441
07:30 AM	12	37	21	4	88	5	13	44	19	13	101	5	362
07:45 AM	11	39	18	5	94	1	4	32	3	14	106	5	332
Total	47	233	57	27	382	19	35	143	60	49	361	24	1437
08:00 AM	15	35	21	3	76	4	10	22	2	9	85	1	283
08:15 AM	21	30	14	3	115	6	6	35	9	9	77	2	327
08:30 AM	10	31	10	1	73	5	3	50	3	11	89	2	288
08:45 AM	15	39	10	2	101	18	4	50	2	20	98	0	359
Total	61	135	55	9	365	33	23	157	16	49	349	5	1257
Break													
02:00 PM	11	34	5	5	69	15	4	18	2	7	76	3	249
02:15 PM	13	31	7	5	80	14	2	23	4	11	71	3	264
02:30 PM	19	28	12	7	77	11	6	35	15	4	65	3	282
02:45 PM	12	36	10	4	79	10	5	46	33	9	69	1	314
Total	55	129	34	21	305	50	17	122	54	31	281	10	1109
03:00 PM	11	40	6	3	65	13	4	25	5	11	85	6	274
03:15 PM	13	28	12	0	72	15	8	37	1	6	74	2	268
03:30 PM	9	24	16	1	86	14	4	36	3	16	100	3	312
03:45 PM	23	34	16	5	87	9	4	39	7	12	128	5	369
Total	56	126	50	9	310	51	20	137	16	45	387	16	1223
Grand Total	219	623	196	66	1362	153	95	559	146	174	1378	55	5026
Apprch %	21.1	60	18.9	4.2	86.1	9.7	11.9	69.9	18.2	10.8	85.7	3.4	
Total %	4.4	12.4	3.9	1.3	27.1	3	1.9	11.1	2.9	3.5	27.4	1.1	

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 EB/WB:Church Rd. (Rt. 73)
 Cheltenham Twp/ Montgomery Co/PA
 Tue/Rain/E- 14/BCG

File Name : 12-071-002
 Site Code : 12071002
 Start Date : 11/27/2012
 Page No : 2

Start Time	Rice's Mill Rd. Southbound				Church Rd. (Rt. 73) Westbound				Rice's Mill Rd. Northbound				Church Rd. (Rt. 73) Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	10	54	5	69	7	90	7	104	7	27	13	47	9	70	3	82	302
07:15 AM	14	103	13	130	11	110	6	127	11	40	25	76	13	84	11	108	441
07:30 AM	12	37	21	70	4	88	5	97	13	44	19	76	13	101	5	119	362
07:45 AM	11	39	18	68	5	94	1	100	4	32	3	39	14	106	5	125	332
Total Volume	47	233	57	337	27	382	19	428	35	143	60	238	49	361	24	434	1437
% App. Total	13.9	69.1	16.9		6.3	89.3	4.4		14.7	60.1	25.2		11.3	83.2	5.5		
PHF	.839	.566	.679	.648	.614	.868	.679	.843	.673	.813	.600	.783	.875	.851	.545	.868	.815
Peak Hour Analysis From 12:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	11	40	6	57	3	65	13	81	4	25	5	34	11	85	6	102	274
03:15 PM	13	28	12	53	0	72	15	87	8	37	1	46	6	74	2	82	268
03:30 PM	9	24	16	49	1	86	14	101	4	36	3	43	16	100	3	119	312
03:45 PM	23	34	16	73	5	87	9	101	4	39	7	50	12	128	5	145	369
Total Volume	56	126	50	232	9	310	51	370	20	137	16	173	45	387	16	448	1223
% App. Total	24.1	54.3	21.6		2.4	83.8	13.8		11.6	79.2	9.2		10	86.4	3.6		
PHF	.609	.788	.781	.795	.450	.891	.850	.916	.625	.878	.571	.865	.703	.756	.667	.772	.829

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 105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB:Rice's Mill Rd.
 WB:Barker Rd.
 Cheltenham Twp/Montgomery Co/PA
 Tue/Rain/E-11/REB

File Name : 12-071-003
 Site Code : 12071003
 Start Date : 11/27/2012
 Page No : 1

Groups Printed- All Vehicles

Start Time	Rice's Mill Rd. Southbound		Barker Rd. Westbound		Rice's Mill Rd. Northbound		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	4	77	12	2	44	4	143
07:15 AM	5	78	31	7	48	11	180
07:30 AM	4	58	9	3	57	8	139
07:45 AM	5	54	14	0	40	3	116
Total	18	267	66	12	189	26	578
08:00 AM	12	63	11	8	44	11	149
08:15 AM	10	57	6	2	35	11	121
08:30 AM	8	47	8	1	50	13	127
08:45 AM	5	40	14	1	72	17	149
Total	35	207	39	12	201	52	546
Break							
02:00 PM	0	48	3	1	39	1	92
02:15 PM	5	49	1	2	42	2	101
02:30 PM	3	56	5	2	49	3	118
02:45 PM	4	54	4	0	55	9	126
Total	12	207	13	5	185	15	437
03:00 PM	4	54	1	3	41	3	106
03:15 PM	4	53	5	2	44	5	113
03:30 PM	4	45	8	3	43	15	118
03:45 PM	4	37	13	9	57	17	137
Total	16	189	27	17	185	40	474
Grand Total	81	870	145	46	760	133	2035
Apprch %	8.5	91.5	75.9	24.1	85.1	14.9	
Total %	4	42.8	7.1	2.3	37.3	6.5	

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File Name : 12-071-003
 Site Code : 12071003
 Start Date : 11/27/2012
 Page No : 2

Start Time	Rice's Mill Rd. Southbound			Barker Rd. Westbound			Rice's Mill Rd. Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	6	78	83	31	7	38	48	11	59	180
07:30 AM	4	58	62	9	3	12	57	8	65	139
07:45 AM	5	54	59	14	0	14	40	3	43	116
08:00 AM	12	63	75	11	8	19	44	11	55	149
Total Volume	26	253	279	65	18	83	189	33	222	584
% App. Total	9.3	90.7		78.3	21.7		85.1	14.9		
PHF	.542	.811	.840	.524	.563	.546	.829	.750	.854	.811
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	4	54	58	1	3	4	41	3	44	106
03:15 PM	4	53	57	5	2	7	44	5	49	113
03:30 PM	4	45	49	8	3	11	43	15	58	118
03:45 PM	4	37	41	13	9	22	57	17	74	137
Total Volume	16	189	205	27	17	44	185	40	225	474
% App. Total	7.8	92.2		61.4	38.6		82.2	17.8		
PHF	1.00	.875	.884	.519	.472	.500	.811	.588	.760	.865

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4950 York Rd, Suite 2C, P.O. Box 301, Hollcong, PA 18928-0301
 105 Atslon Rd, Suite F, Medford, NJ 08055

NB/SB:Greenwood Ave.
 EB:Barker Road
 CheltenhamTwp/Montgomery Co/PA
 Tue/Clear/E- 13/JWK

File Name : 12-071-004
 Site Code : 12071004
 Start Date : 11/27/2012
 Page No : 1

Groups Printed- All Vehicles

Start Time	Greenwood Ave. Southbound		Greenwood Ave. Northbound		Barker Rd. Eastbound		Int. Total
	Thru	Right	Left	Thru	Left	Right	
07:00 AM	31	13	1	15	4	1	65
07:15 AM	51	36	0	17	8	1	113
07:30 AM	26	15	3	22	14	0	80
07:45 AM	42	21	0	11	9	2	85
Total	150	85	4	65	35	4	343
08:00 AM	33	11	4	29	10	3	90
08:15 AM	32	12	0	19	6	1	70
08:30 AM	30	10	2	21	5	2	70
08:45 AM	32	13	1	15	6	12	79
Total	127	46	7	84	27	18	309
Break							
02:00 PM	8	3	0	11	0	2	24
02:15 PM	12	3	0	17	2	3	37
02:30 PM	7	2	2	14	5	0	30
02:45 PM	12	2	0	14	7	2	37
Total	39	10	2	56	14	7	128
03:00 PM	19	2	1	19	1	2	44
03:15 PM	18	1	1	10	3	2	35
03:30 PM	18	8	2	9	6	1	44
03:45 PM	17	4	0	7	15	18	61
Total	72	15	4	45	25	23	184
Grand Total	388	156	17	250	101	52	964
Apprch %	71.3	28.7	6.4	93.6	66	34	
Total %	40.2	16.2	1.8	25.9	10.5	5.4	

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 EB:Barker Road
 CheltenhamTwp/Montgomery Co/PA
 Tue/Clear/E- 13/JWK

File Name : 12-071-004
 Site Code : 12071004
 Start Date : 11/27/2012
 Page No : 2

Start Time	Greenwood Ave. Southbound			Greenwood Ave. Northbound			Barker Rd. Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	51	36	87	0	17	17	8	1	9	113
07:30 AM	26	15	41	3	22	25	14	0	14	80
07:45 AM	42	21	63	0	11	11	9	2	11	85
08:00 AM	33	11	44	4	29	33	10	3	13	90
Total Volume	152	83	235	7	79	86	41	6	47	368
% App. Total	64.7	35.3		8.1	91.9		87.2	12.8		
PHF	.745	.576	.675	.438	.681	.652	.732	.500	.839	.814
Peak Hour Analysis From 12:00 PM to 03:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	19	2	21	1	19	20	1	2	3	44
03:15 PM	18	1	19	1	10	11	3	2	5	35
03:30 PM	18	8	26	2	9	11	6	1	7	44
03:45 PM	17	4	21	0	7	7	15	18	33	61
Total Volume	72	15	87	4	45	49	25	23	48	184
% App. Total	82.8	17.2		8.2	91.8		52.1	47.9		
PHF	.947	.469	.837	.500	.592	.613	.417	.319	.364	.754

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 105 Atsion Rd, Suite F, Medford, NJ 08055

NB:School Driveway
 EB/WB:Barker Rd.
 Cheltenham Twp/Montgomery Co/PA
 Tue/Rainr/E-06 /WCP

File Name : 12-071-001
 Site Code : 12071001
 Start Date : 11/27/2012
 Page No : 1

Groups Printed- All Vehicles

Start Time	Barker Rd. Westbound		School Driveway Northbound		Barker Rd. Eastbound		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	1	6	1	0	4	1	13
07:15 AM	1	36	3	0	10	4	54
07:30 AM	6	9	3	3	10	5	36
07:45 AM	12	9	7	2	6	3	39
Total	20	60	14	5	30	13	142
08:00 AM	7	9	8	2	10	11	47
08:15 AM	7	5	2	1	7	12	34
08:30 AM	5	4	3	0	10	11	33
08:45 AM	1	13	3	1	21	2	41
Total	20	31	16	4	48	36	155
Break							
02:00 PM	1	3	1	0	2	0	7
02:15 PM	0	4	0	0	6	1	11
02:30 PM	0	5	0	0	4	0	9
02:45 PM	0	2	2	0	10	2	16
Total	1	14	3	0	22	3	43
03:00 PM	0	2	1	0	4	2	9
03:15 PM	0	3	1	0	4	0	8
03:30 PM	3	6	3	1	9	0	22
03:45 PM	1	3	15	6	23	2	50
Total	4	14	20	7	40	4	89
Grand Total	45	119	53	16	140	56	429
Apprch %	27.4	72.6	76.8	23.2	71.4	28.6	
Total %	10.5	27.7	12.4	3.7	32.6	13.1	

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File Name : 12-071-001
 Site Code : 12071001
 Start Date : 11/27/2012
 Page No : 2

Start Time	Barker Rd. Westbound			School Driveway Northbound			Barker Rd. Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	1	36	37	3	0	3	10	4	14	54
07:30 AM	6	9	15	3	3	6	10	5	15	36
07:45 AM	12	9	21	7	2	9	6	3	9	39
08:00 AM	7	9	16	8	2	10	10	11	21	47
Total Volume	26	63	89	21	7	28	36	23	59	176
% App. Total	29.2	70.8		75	25		61	39		
PHF	.542	.438	.601	.656	.583	.700	.900	.523	.702	.815
Peak Hour Analysis From 12:00 PM to 03:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	2	2	1	0	1	4	2	6	9
03:15 PM	0	3	3	1	0	1	4	0	4	8
03:30 PM	3	6	9	3	1	4	9	0	9	22
03:45 PM	1	3	4	15	6	21	23	2	25	60
Total Volume	4	14	18	20	7	27	40	4	44	89
% App. Total	22.2	77.8		74.1	25.9		90.9	9.1		
PHF	.333	.583	.500	.333	.292	.321	.435	.500	.440	.445

Level of Service Criteria

Level of Service at intersections is defined in terms of DELAY. Delay is a measure of driver discomfort, frustration, and lost travel time, thus the rating of delay from highly acceptable LOS A to unacceptable LOS F.

At traffic signals, delay is a complex measure and is dependent on a number of variables including signal progression, the cycle length, the green-time ratio, clearance times, trucks, pedestrians, parking, and signal phasing.

At unsignalized intersections, delay is dependent on the available gaps in the two-way flow of the uninterrupted traffic movement, intersection width, and queuing.

Intersection LOS

	<u>Signalized</u>	<u>Unsignalized</u>
LOS A	Less than 10.0 sec/veh	Less than 10.0 sec/veh
B	10.0 to 20.0 sec/veh	10.0 to 15.0 sec/veh
C	20.0 to 35.0 sec/veh	15.0 to 25.0 sec/veh
D	35.0 to 55.0 sec/veh	25.0 to 35.0 sec/veh
E	55.0 to 80.0 sec/veh	35.0 to 50.0 sec/veh
F	Greater than 80.0 sec/veh	Greater than 50.0 sec/veh

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

- **LEVEL-OF-SERVICE A** describes operations with very low delay, i.e., less than 10.0 sec per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

- **LEVEL-OF-SERVICE B** describes operations with delay in the range of 10.0 to 20.0 sec per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

- **LEVEL-OF-SERVICE C** describes operations with delay in the range of 20.0 to 35.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

- **LEVEL-OF-SERVICE D** describes operations with delay in the range of 35.0 to 55.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

- **LEVEL-OF-SERVICE E** describes operations with delay in the range of 55.0 to 80.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

- **LEVEL-OF-SERVICE F** describes operations with delay in excess of 80.0 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

SHORT REPORT

General Information	Site Information
Analyst <i>HAK</i>	Intersection <i>Church Rd. & Rices's Mill Rd</i>
Agency or Co. <i>Homer & Canter Associates</i>	Area Type <i>All other areas</i>
Date Performed <i>12/17/2012</i>	Jurisdiction <i>Cheltenham TWP</i>
Time Period <i>Weekday AM Peak Hour</i>	Analysis Year <i>Existing</i>

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume (vph)	49	349	5	9	365	33	23	157	16	61	135	55
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.85	0.85	0.85	0.81	0.81	0.81	0.88	0.88	0.88	0.88	0.88	0.88
Pretimed/Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective Green		2.0			2.0			2.0			2.0	
Arrival Type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0			10.0			16.0			16.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 30.0	G =	G =	G =	G = 20.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25							Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate		475			503			222			285		
Lane Group Capacity		808			850			655			598		
v/c Ratio		0.59			0.59			0.34			0.48		
Green Ratio		0.50			0.50			0.33			0.33		
Uniform Delay d ₁		10.6			10.7			15.0			15.9		
Delay Factor k		0.50			0.50			0.11			0.11		
Incremental Delay d ₂		3.1			3.0			0.3			0.6		
PF Factor		1.000			1.000			1.000			1.000		
Control Delay		13.7			13.7			15.3			16.5		
Lane Group LOS		B			B			B			B		
Approach Delay		13.7			13.7			15.3			16.5		
Approach LOS		B			B			B			B		
Intersection Delay		14.5			Intersection LOS						B		

SHORT REPORT

General Information	Site Information
Analyst <i>HAK</i>	Intersection <i>Church Rd. & Rices's Mill Rd</i>
Agency or Co. <i>Horner & Canter Associates</i>	Area Type <i>All other areas</i>
Date Performed <i>12/17/2012</i>	Jurisdiction <i>Cheltenham TWP</i>
Time Period <i>Weekday PM Peak Hour</i>	Analysis Year <i>Existing</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		<i>LTR</i>			<i>LTR</i>			<i>LTR</i>			<i>LTR</i>	
Volume (vph)	45	387	16	9	310	51	20	137	16	56	126	50
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.77	0.77	0.77	0.92	0.92	0.92	0.87	0.87	0.87	0.80	0.80	0.80
Pretimed/Actuated (P/A)	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>A</i>	<i>A</i>	<i>A</i>	<i>A</i>	<i>A</i>	<i>A</i>
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective Green		2.0			2.0			2.0			2.0	
Arrival Type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0			10.0			16.0			16.0	
Parking/Grade/Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	02		03		04	NS Perm	06		07		08
Timing	G = 30.0	G =		G =		G =	G = 20.0	G =		G =		G =
	Y = 5	Y =		Y =		Y =	Y = 5	Y =		Y =		Y =
Duration of Analysis (hrs) = 0.25							Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		582			402			198			289	
Lane Group Capacity		832			841			656			600		
v/c Ratio		0.70			0.48			0.30			0.48		
Green Ratio		0.50			0.50			0.33			0.33		
Uniform Delay d ₁		11.5			9.9			14.8			15.9		
Delay Factor k		0.50			0.50			0.11			0.11		
Incremental Delay d ₂		4.9			1.9			0.3			0.6		
PF Factor		1.000			1.000			1.000			1.000		
Control Delay		16.4			11.8			15.1			16.5		
Lane Group LOS		<i>B</i>			<i>B</i>			<i>B</i>			<i>B</i>		
Approach Delay		16.4			11.8			15.1			16.5		
Approach LOS		<i>B</i>			<i>B</i>			<i>B</i>			<i>B</i>		
Intersection Delay		15.0			Intersection LOS						<i>B</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	HAK			Intersection	Greenwood Ave. & Barker Rd.			
Agency/Co.	Horner & Canter Associates			Jurisdiction	Cheltenham TWP			
Date Performed	12/17/2012			Analysis Year	Existing			
Analysis Time Period	Weekday AM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.				North/South Street: Greenwood Ave.				
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 (veh/h)	7	84			127	46		
Peak-Hour Factor, PHF	0.69	0.69	1.00	1.00	0.96	0.96		
Hourly Flow Rate, HFR (veh/h)	10	121	0	0	132	47		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT			TR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	27		18					
Peak-Hour Factor, PHF	0.63	1.00	0.63	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	42	0	28	0	0	0		
Percent Heavy Vehicles	2	0	2	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	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	10						70	
C (m) (veh/h)	1397						757	
v/c	0.01						0.09	
95% queue length	0.02						0.30	
Control Delay (s/veh)	7.6						10.2	
LOS	A						B	
Approach Delay (s/veh)	--	--					10.2	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	HAK		Intersection	Greenwood Ave. & Barker Rd.				
Agency/Co.	Horner & Canter Associates		Jurisdiction	Cheltenham TWP				
Date Performed	12/17/2012		Analysis Year	Existing				
Analysis Time Period	Weekday PM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.			North/South Street: Greenwood Ave.					
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 (veh/h)	4	45			72	15		
Peak-Hour Factor, PHF	0.61	0.61	1.00	1.00	0.84	0.84		
Hourly Flow Rate, HFR (veh/h)	6	73	0	0	85	17		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	25		23					
Peak-Hour Factor, PHF	0.36	1.00	0.36	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	69	0	63	0	0	0		
Percent Heavy Vehicles	2	0	2	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	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	6						132	
C (m) (veh/h)	1490						875	
v/c	0.00						0.15	
95% queue length	0.01						0.53	
Control Delay (s/veh)	7.4						9.8	
LOS	A						A	
Approach Delay (s/veh)	--	--					9.8	
Approach LOS	--	--					A	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	HAK	Intersection	Barker Rd. & PV Driveway
Agency/Co.	Horner & Canter Associates	Jurisdiction	Cheltenham TWP
Date Performed	12/17/2012	Analysis Year	Existing
Analysis Time Period	Weekday AM Peak Hour		

Project Description 12-071 Wyncote Elementary School	
East/West Street: Barker Rd.	North/South Street: PV Driveway
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
	Movement	1	2	3	4	5
	L	T	R	L	T	R
Volume (veh/h)		48	36	20	31	
Peak-Hour Factor, PHF	1.00	0.91	0.91	0.80	0.80	1.00
Hourly Flow Rate, HFR (veh/h)	0	52	39	24	38	0
Percent Heavy Vehicles	0	-	-	0	-	-
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
	Movement	7	8	9	10	11
	L	T	R	L	T	R
Volume (veh/h)	16		4			
Peak-Hour Factor, PHF	0.50	1.00	0.50	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	32	0	8	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	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Movement								
Lane Configuration		LT		LR				
v (veh/h)		24		40				
C (m) (veh/h)		1517		854				
v/c		0.02		0.05				
95% queue length		0.05		0.15				
Control Delay (s/veh)		7.4		9.4				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.4					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	HAK		Intersection	Barker Rd. & PV Driveway				
Agency/Co.	Horner & Canter Associates		Jurisdiction	Cheltenham TWP				
Date Performed	12/17/2012		Analysis Year	Existing				
Analysis Time Period	Weekday PM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.			North/South Street: PV Driveway					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		40	4	4	14			
Peak-Hour Factor, PHF	1.00	0.44	0.44	0.50	0.50	1.00		
Hourly Flow Rate, HFR (veh/h)	0	90	9	8	28	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	20		7					
Peak-Hour Factor, PHF	0.32	1.00	0.32	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	62	0	21	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	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		8		83				
C (m) (veh/h)		1507		881				
v/c		0.01		0.09				
95% queue length		0.02		0.31				
Control Delay (s/veh)		7.4		9.5				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.5					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	HAK			Intersection	Rices's Mill Rd & Barker Rd.		
Agency/Co.	Horner & Canter Associates			Jurisdiction	Cheltenham TWP		
Date Performed	12/17/2012			Analysis Year	Existing		
Analysis Time Period	Weekday AM Peak Hour						
Project Description 12-071 Wyncote Elementary School							
East/West Street: Barker Rd.				North/South Street: Rices's Mill Rd			
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 (veh/h)		201	52	35	207		
Peak-Hour Factor, PHF	1.00	0.71	0.71	0.81	0.81	1.00	
Hourly Flow Rate, HFR (veh/h)	0	283	73	43	255	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				39		12	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.67	1.00	0.67	
Hourly Flow Rate, HFR (veh/h)	0	0	0	58	0	17	
Percent Heavy Vehicles	0	0	0	2	0	2	
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	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		43		75			
C (m) (veh/h)		1203		456			
v/c		0.04		0.16			
95% queue length		0.11		0.58			
Control Delay (s/veh)		8.1		14.4			
LOS		A		B			
Approach Delay (s/veh)	--	--	14.4				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	HAK			Intersection	Rices's Mill Rd & Barker Rd.		
Agency/Co.	Horner & Canter Associates			Jurisdiction	Cheltenham TWP		
Date Performed	12/17/2012			Analysis Year	Existing		
Analysis Time Period	Weekday PM Peak Hour						
Project Description 12-071 Wyncote Elementary School							
East/West Street: Barker Rd.				North/South Street: Rices's Mill Rd			
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 (veh/h)		185	40	16	189		
Peak-Hour Factor, PHF	1.00	0.76	0.76	0.88	0.88	1.00	
Hourly Flow Rate, HFR (veh/h)	0	243	52	18	214	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				27		17	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.50	1.00	0.50	
Hourly Flow Rate, HFR (veh/h)	0	0	0	54	0	34	
Percent Heavy Vehicles	0	0	0	2	0	2	
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	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		18		88			
C (m) (veh/h)		1266		587			
v/c		0.01		0.15			
95% queue length		0.04		0.52			
Control Delay (s/veh)		7.9		12.2			
LOS		A		B			
Approach Delay (s/veh)	--	--		12.2			
Approach LOS	--	--		B			

SHORT REPORT

General Information	Site Information
Analyst <i>HAK</i>	Intersection <i>Church Rd. & Rices's Mill Rd</i>
Agency or Co. <i>Homer & Canter Associates</i>	Area Type <i>All other areas</i>
Date Performed <i>12/17/2012</i>	Jurisdiction <i>Cheltenham TWP</i>
Time Period <i>Weekday AM Peak Hour</i>	Analysis Year <i>Build</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0	
Lane Group		LTR			LTR			LTR			LTR		
Volume (vph)	51	354	5	9	371	35	23	162	16	62	139	56	
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2	
PHF	0.85	0.85	0.85	0.81	0.81	0.81	0.88	0.88	0.88	0.88	0.88	0.88	
Pretimed/Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A	
Startup Lost Time		2.0			2.0			2.0			2.0		
Extension of Effective Green		2.0			2.0			2.0			2.0		
Arrival Type		3			3			3			3		
Unit Extension		3.0			3.0			3.0			3.0		
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Width		11.0			10.0			16.0			16.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking/Hour													
Bus Stops/Hour		0			0			0			0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02		03		04		NS Perm	06		07		08
Timing	G = 30.0	G =	G =	G =	G =	G = 20.0	G =	G =	G =	G =	G =	G =	
	Y = 5	Y =	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =	Y =	Y =	Y =	
Duration of Analysis (hrs) = 0.25							Cycle Length C = 60.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate		482			512			228			292
Lane Group Capacity		804			850			656			599	
v/c Ratio		0.60			0.60			0.35			0.49	
Green Ratio		0.50			0.50			0.33			0.33	
Uniform Delay d ₁		10.7			10.7			15.1			15.9	
Delay Factor k		0.50			0.50			0.11			0.11	
Incremental Delay d ₂		3.3			3.2			0.3			0.6	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		14.0			13.9			15.4			16.5	
Lane Group LOS		B			B			B			B	
Approach Delay		14.0			13.9			15.4			16.5	
Approach LOS		B			B			B			B	
Intersection Delay		14.7			Intersection LOS				B			

SHORT REPORT

General Information	Site Information
Analyst <i>HAK</i>	Intersection <i>Church Rd. & Rices's Mill Rd</i>
Agency or Co. <i>Homer & Canter Associates</i>	Area Type <i>All other areas</i>
Date Performed <i>12/17/2012</i>	Jurisdiction <i>Cheltenham TWP</i>
Time Period <i>Weekday PM Peak Hour</i>	Analysis Year <i>Build</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		<i>LTR</i>			<i>LTR</i>			<i>LTR</i>			<i>LTR</i>	
Volume (vph)	46	393	16	9	315	52	20	139	16	58	130	52
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.77	0.77	0.77	0.92	0.92	0.92	0.87	0.87	0.87	0.80	0.80	0.80
Pretimed/Actuated (P/A)	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>A</i>	<i>A</i>	<i>A</i>	<i>A</i>	<i>A</i>	<i>A</i>
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective Green		2.0			2.0			2.0			2.0	
Arrival Type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0			10.0			16.0			16.0	
Parking/Grade/Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0 Y = 5	G = Y =	G = Y =	G = Y =	G = 20.0 Y = 5	G = Y =	G = Y =	G = Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate		591			409			201			299
Lane Group Capacity		829			841			655			600	
v/c Ratio		0.71			0.49			0.31			0.50	
Green Ratio		0.50			0.50			0.33			0.33	
Uniform Delay d ₁		11.7			9.9			14.9			16.0	
Delay Factor k		0.50			0.50			0.11			0.11	
Incremental Delay d ₂		5.2			2.0			0.3			0.7	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		16.8			11.9			15.1			16.6	
Lane Group LOS		<i>B</i>			<i>B</i>			<i>B</i>			<i>B</i>	
Approach Delay		16.8			11.9			15.1			16.6	
Approach LOS		<i>B</i>			<i>B</i>			<i>B</i>			<i>B</i>	
Intersection Delay		15.2			Intersection LOS				<i>B</i>			

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	HAK	Intersection	Greenwood Ave. & Barker Rd.
Agency/Co.	Horner & Canter Associates	Jurisdiction	Cheltenham TWP
Date Performed	12/17/2012	Analysis Year	Build
Analysis Time Period	Weekday AM Peak Hour		

Project Description <i>12-071 Wyncote Elementary School</i>	
East/West Street: <i>Barker Rd.</i>	North/South Street: <i>Greenwood Ave.</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound			
	Movement	1	2	3	4	5	6
	L	T	R	L	T	R	
Volume (veh/h)	7	85			129	51	
Peak-Hour Factor, PHF	0.69	0.69	1.00	1.00	0.96	0.96	
Hourly Flow Rate, HFR (veh/h)	10	123	0	0	134	53	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	<i>Undivided</i>						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LT					TR	
Upstream Signal		0			0		

Minor Street	Eastbound			Westbound			
	Movement	7	8	9	10	11	12
	L	T	R	L	T	R	
Volume (veh/h)	28		18				
Peak-Hour Factor, PHF	0.63	1.00	0.63	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	44	0	28	0	0	0	
Percent Heavy Vehicles	2	0	2	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	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	10						72	
C (m) (veh/h)	1387						750	
v/c	0.01						0.10	
95% queue length	0.02						0.32	
Control Delay (s/veh)	7.6						10.3	
LOS	A						B	
Approach Delay (s/veh)	--	--					10.3	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	HAK			Intersection	Greenwood Ave. & Barker Rd.			
Agency/Co.	Horner & Canter Associates			Jurisdiction	Cheltenham TWP			
Date Performed	12/17/2012			Analysis Year	Build			
Analysis Time Period	Weekday PM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.				North/South Street: Greenwood Ave.				
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 (veh/h)	4	46			73	16		
Peak-Hour Factor, PHF	0.61	0.61	1.00	1.00	0.84	0.84		
Hourly Flow Rate, HFR (veh/h)	6	75	0	0	86	19		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	26		24					
Peak-Hour Factor, PHF	0.36	1.00	0.36	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	72	0	66	0	0	0		
Percent Heavy Vehicles	2	0	2	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	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	6						138	
C (m) (veh/h)	1486						871	
v/c	0.00						0.16	
95% queue length	0.01						0.56	
Control Delay (s/veh)	7.4						9.9	
LOS	A						A	
Approach Delay (s/veh)	--	--					9.9	
Approach LOS	--	--					A	

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	HAK		Intersection	Barker Rd. & PV Driveway				
Agency/Co.	Horner & Canter Associates		Jurisdiction	Cheltenham TWP				
Date Performed	12/17/2012		Analysis Year	Build				
Analysis Time Period	Weekday AM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.			North/South Street: PV Driveway					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		52	41	21	34			
Peak-Hour Factor, PHF	1.00	0.91	0.91	0.80	0.80	1.00		
Hourly Flow Rate, HFR (veh/h)	0	57	45	26	42	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	16		2					
Peak-Hour Factor, PHF	0.50	1.00	0.50	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	32	0	4	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	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		26		36				
C (m) (veh/h)		1503		824				
v/c		0.02		0.04				
95% queue length		0.05		0.14				
Control Delay (s/veh)		7.4		9.6				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.6					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	HAK		Intersection	Barker Rd. & PV Driveway				
Agency/Co.	Horner & Canter Associates		Jurisdiction	Cheltenham TWP				
Date Performed	12/17/2012		Analysis Year	Build				
Analysis Time Period	Weekday PM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.			North/South Street: PV Driveway					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		44	16	2	17			
Peak-Hour Factor, PHF	1.00	0.44	0.44	0.50	0.50	1.00		
Hourly Flow Rate, HFR (veh/h)	0	100	36	4	34	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	35		6					
Peak-Hour Factor, PHF	0.32	1.00	0.32	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	109	0	18	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	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		4		127				
C (m) (veh/h)		1461		847				
v/c		0.00		0.15				
95% queue length		0.01		0.53				
Control Delay (s/veh)		7.5		10.0				
LOS		A		A				
Approach Delay (s/veh)	--	--	10.0					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	HAK		Intersection	Barker Rd. & Bus Driveway				
Agency/Co.	Homer & Canter Associates		Jurisdiction	Cheltenham TWP				
Date Performed	12/17/2012		Analysis Year	Build				
Analysis Time Period	Weekday AM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.			North/South Street: Bus Driveway					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		90	3	3	47			
Peak-Hour Factor, PHF	1.00	0.91	0.91	0.80	0.80	1.00		
Hourly Flow Rate, HFR (veh/h)	0	98	3	3	58	0		
Percent Heavy Vehicles	0	--	--	100	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	3		3					
Peak-Hour Factor, PHF	0.50	1.00	0.50	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	6	0	6	0	0	0		
Percent Heavy Vehicles	100	0	100	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	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		3		12				
C (m) (veh/h)		1051		690				
v/c		0.00		0.02				
95% queue length		0.01		0.05				
Control Delay (s/veh)		8.4		10.3				
LOS		A		B				
Approach Delay (s/veh)	--	--		10.3				
Approach LOS	--	--		B				

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	HAK		Intersection	Barker Rd. & Bus Driveway				
Agency/Co.	Horner & Canter Associates		Jurisdiction	Cheltenham TWP				
Date Performed	12/17/2012		Analysis Year	Build				
Analysis Time Period	Weekday PM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.			North/South Street: Bus Driveway					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		57	3	3	49			
Peak-Hour Factor, PHF	1.00	0.44	0.44	0.50	0.50	1.00		
Hourly Flow Rate, HFR (veh/h)	0	129	6	6	98	0		
Percent Heavy Vehicles	0	—	—	100	—	—		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	3		3					
Peak-Hour Factor, PHF	0.32	1.00	0.32	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	9	0	9	0	0	0		
Percent Heavy Vehicles	100	0	100	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	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		6		18				
C (m) (veh/h)		1016		634				
v/c		0.01		0.03				
95% queue length		0.02		0.09				
Control Delay (s/veh)		8.6		10.8				
LOS		A		B				
Approach Delay (s/veh)	--	--	10.8					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	HAK			Intersection	Rices's Mill Rd & Barker Rd.			
Agency/Co.	Horner & Canter Associates			Jurisdiction	Cheltenham TWP			
Date Performed	12/17/2012			Analysis Year	Build			
Analysis Time Period	Weekday AM Peak Hour							
Project Description 12-071 Wyncote Elementary School								
East/West Street: Barker Rd.				North/South Street: Rices's Mill Rd				
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 (veh/h)		204	58	39	210			
Peak-Hour Factor, PHF	1.00	0.71	0.71	0.81	0.81	1.00		
Hourly Flow Rate, HFR (veh/h)	0	287	81	48	259	0		
Percent Heavy Vehicles	0	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				42		13		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.67	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	62	0	19		
Percent Heavy Vehicles	0	0	0	2	0	2		
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	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		48		81				
C (m) (veh/h)		1191		444				
v/c		0.04		0.18				
95% queue length		0.13		0.66				
Control Delay (s/veh)		8.1		14.9				
LOS		A		B				
Approach Delay (s/veh)	--	--	14.9					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	HAK			Intersection	Rices's Mill Rd & Barker Rd.		
Agency/Co.	Horner & Canter Associates			Jurisdiction	Cheltenham TWP		
Date Performed	12/17/2012			Analysis Year	Build		
Analysis Time Period	Weekday PM Peak Hour						
Project Description 12-071 Wyncote Elementary School							
East/West Street: Barker Rd.				North/South Street: Rices's Mill Rd			
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 (veh/h)		181	55	17	192		
Peak-Hour Factor, PHF	1.00	0.76	0.76	0.88	0.88	1.00	
Hourly Flow Rate, HFR (veh/h)	0	238	72	19	218	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				38		24	
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.50	1.00	0.50	
Hourly Flow Rate, HFR (veh/h)	0	0	0	76	0	48	
Percent Heavy Vehicles	0	0	0	2	0	2	
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	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		19		124			
C (m) (veh/h)		1250		579			
v/c		0.02		0.21			
95% queue length		0.05		0.81			
Control Delay (s/veh)		7.9		12.9			
LOS		A		B			
Approach Delay (s/veh)	--	--		12.9			
Approach LOS	--	--		B			

