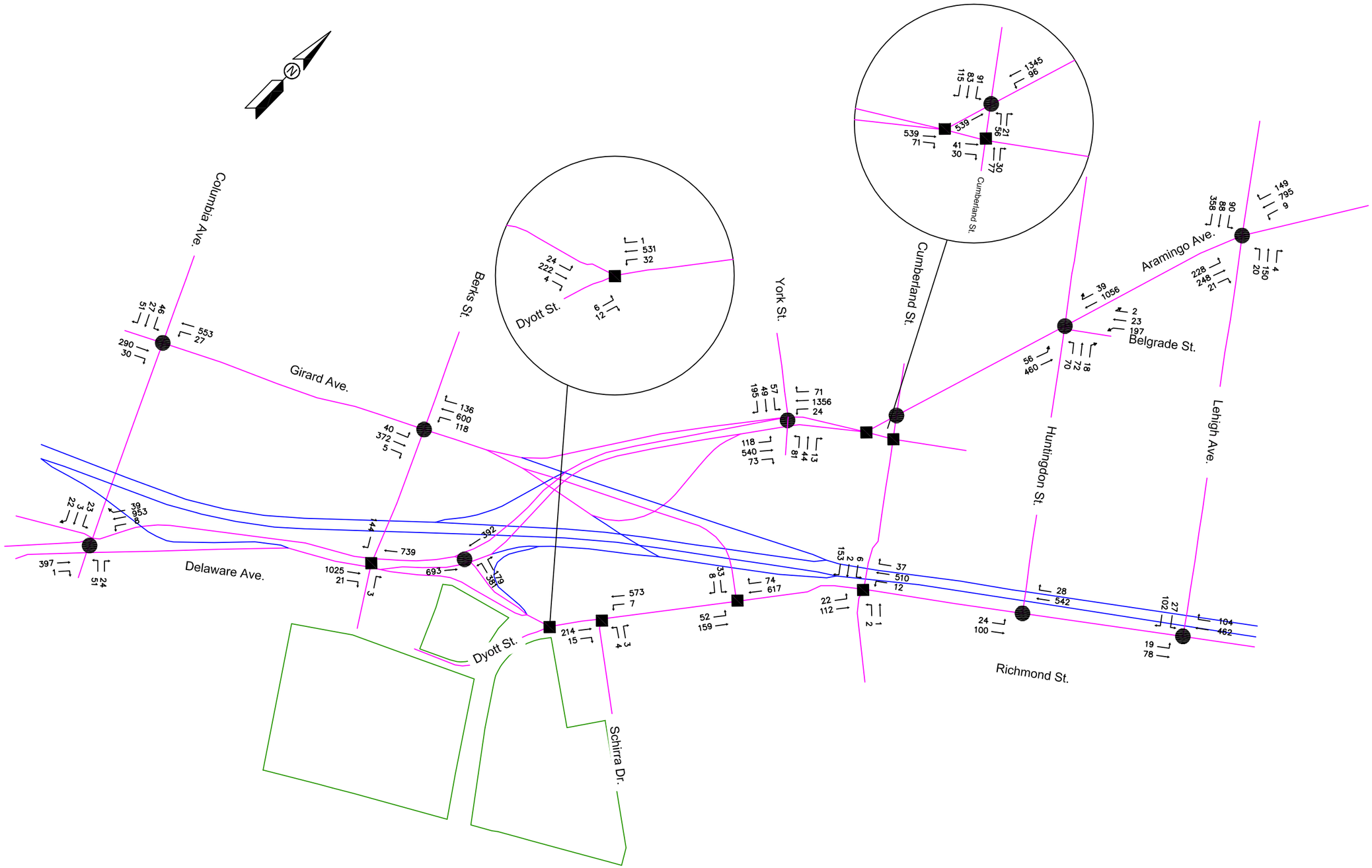
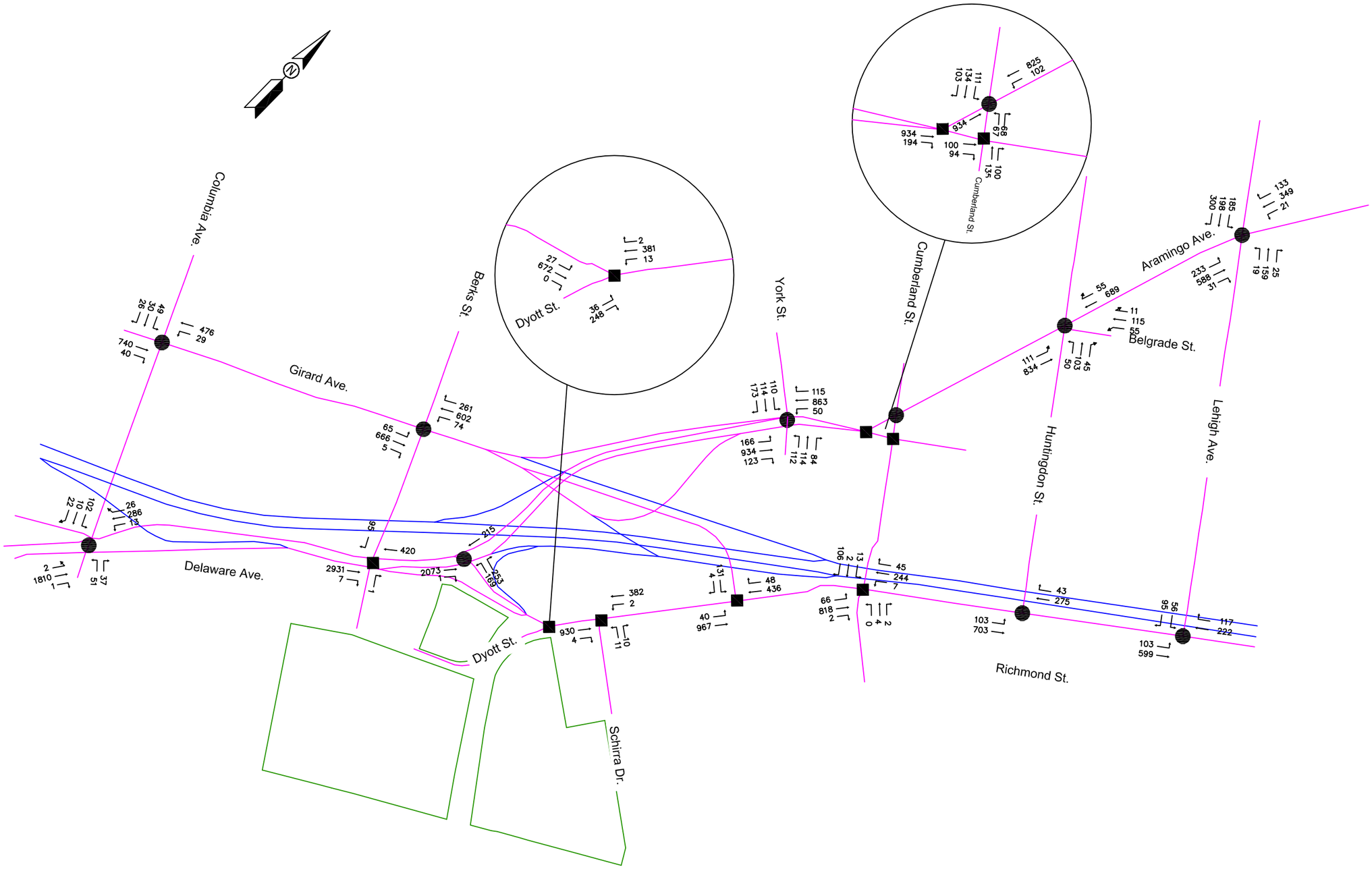


1965-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future	PINNACLE CASINO PHILADELPHIA PINNACLE ENTERTAINMENT	**LEGEND:** SIGNALIZED INTERSECTION UNSIGNALIZED INTERSECTION VOLUMES	Figure 2A EXISTING VOLUME WEEKDAY MORNING PEAK HOUR Page __ of __



1955-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future

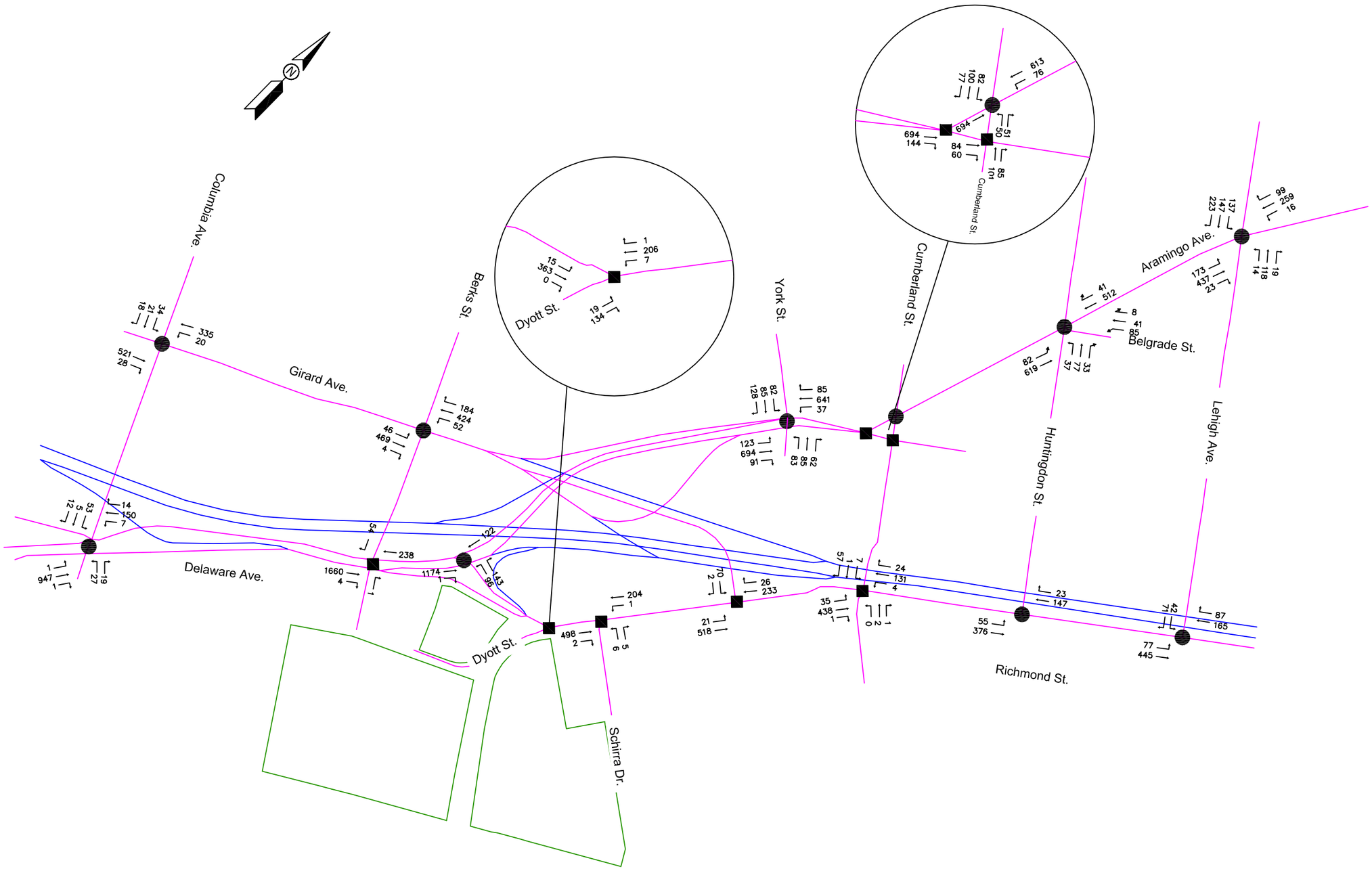
PINNACLE CASINO
PHILADELPHIA

PINNACLE SM ENTERTAINMENT

LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 2B
EXISTING VOLUME
WEEKDAY EVENING PEAK HOUR



1956-2006 40 years of Designing the Future — Pennoni Consulting Engineers

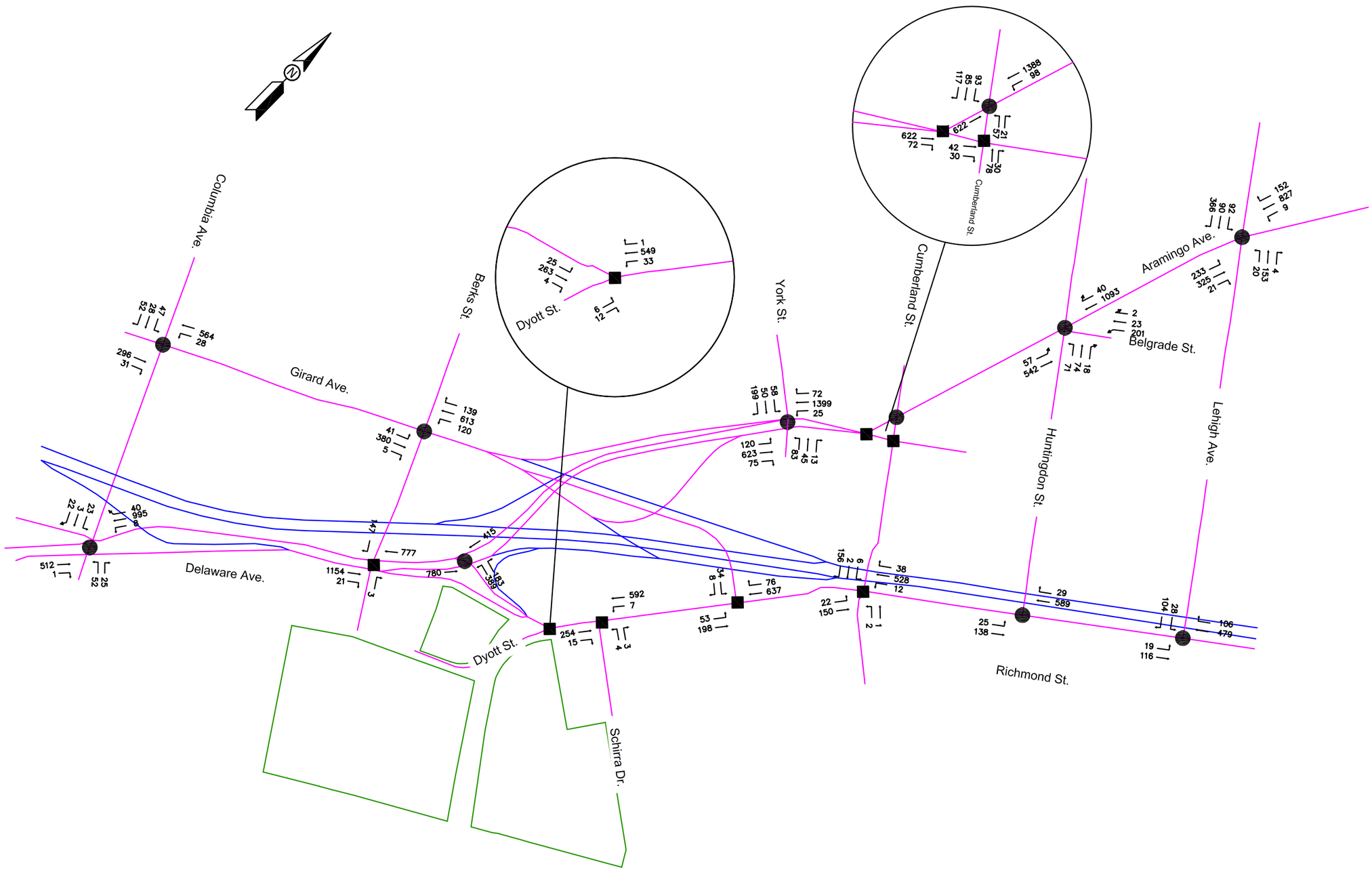
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 2C
EXISTING VOLUME
SATURDAY EVENING PEAK HOUR



1965-2005 40 years Pennoni Consulting Engineers of Designing the Future

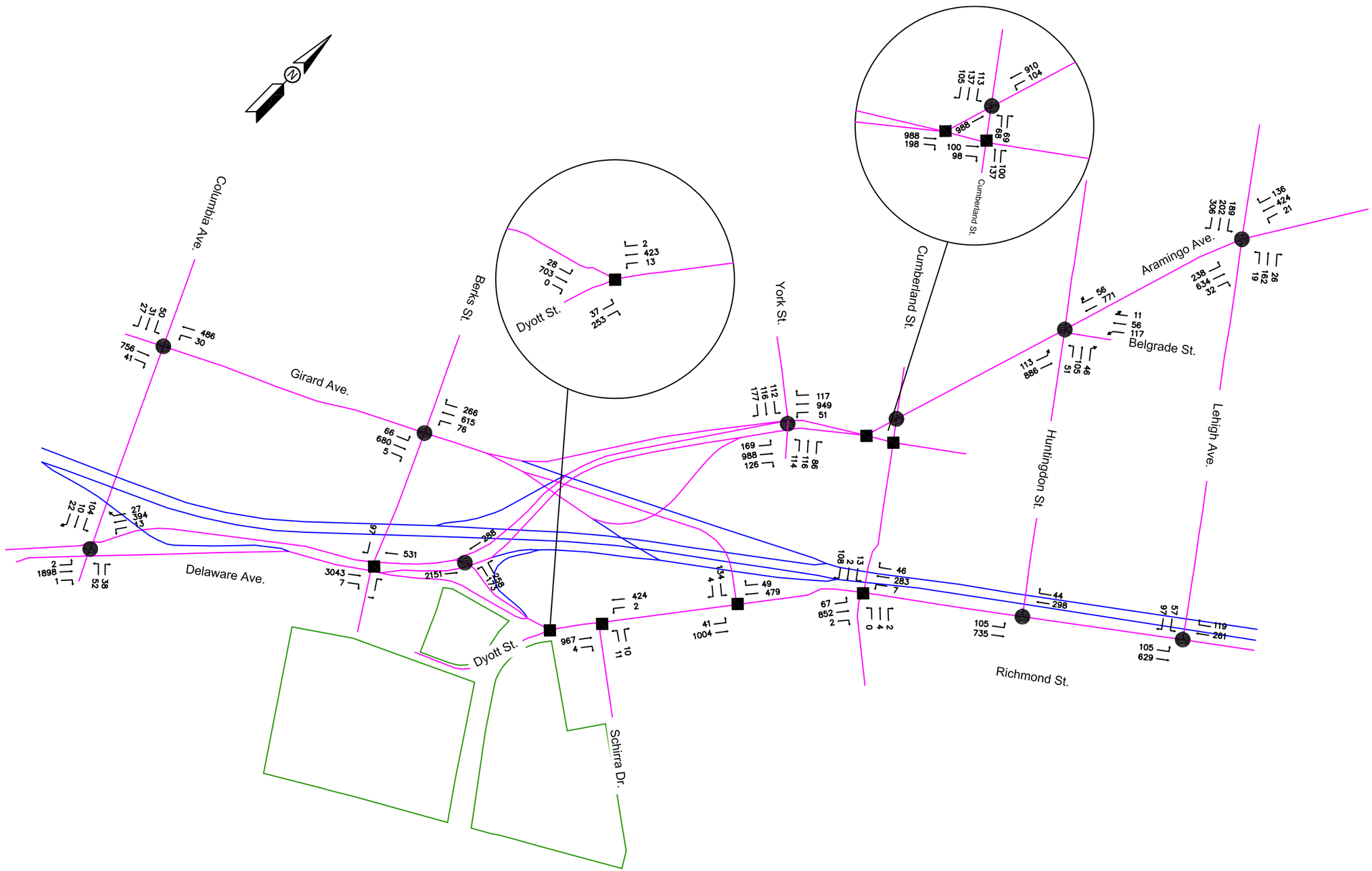
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

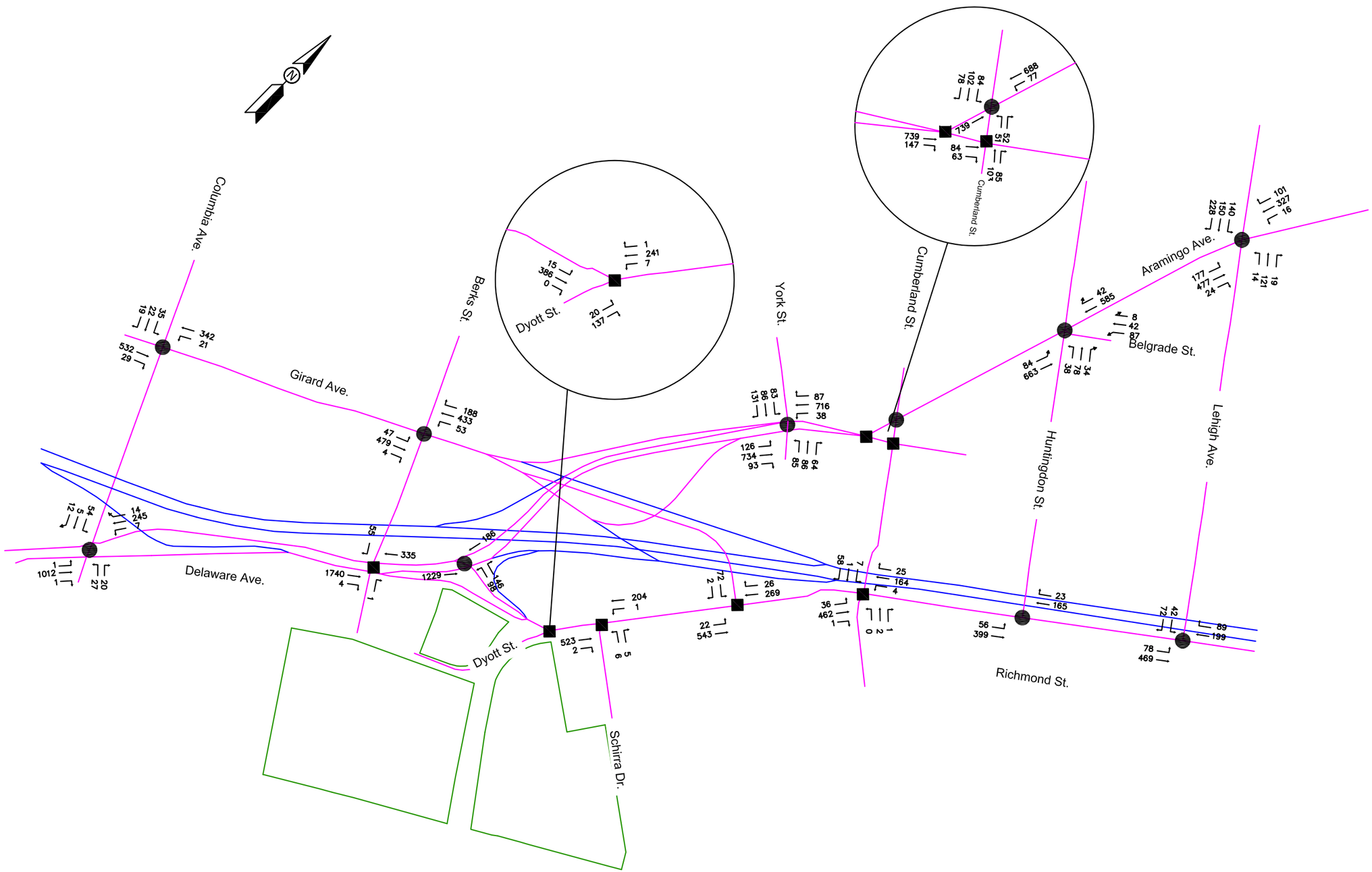
LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

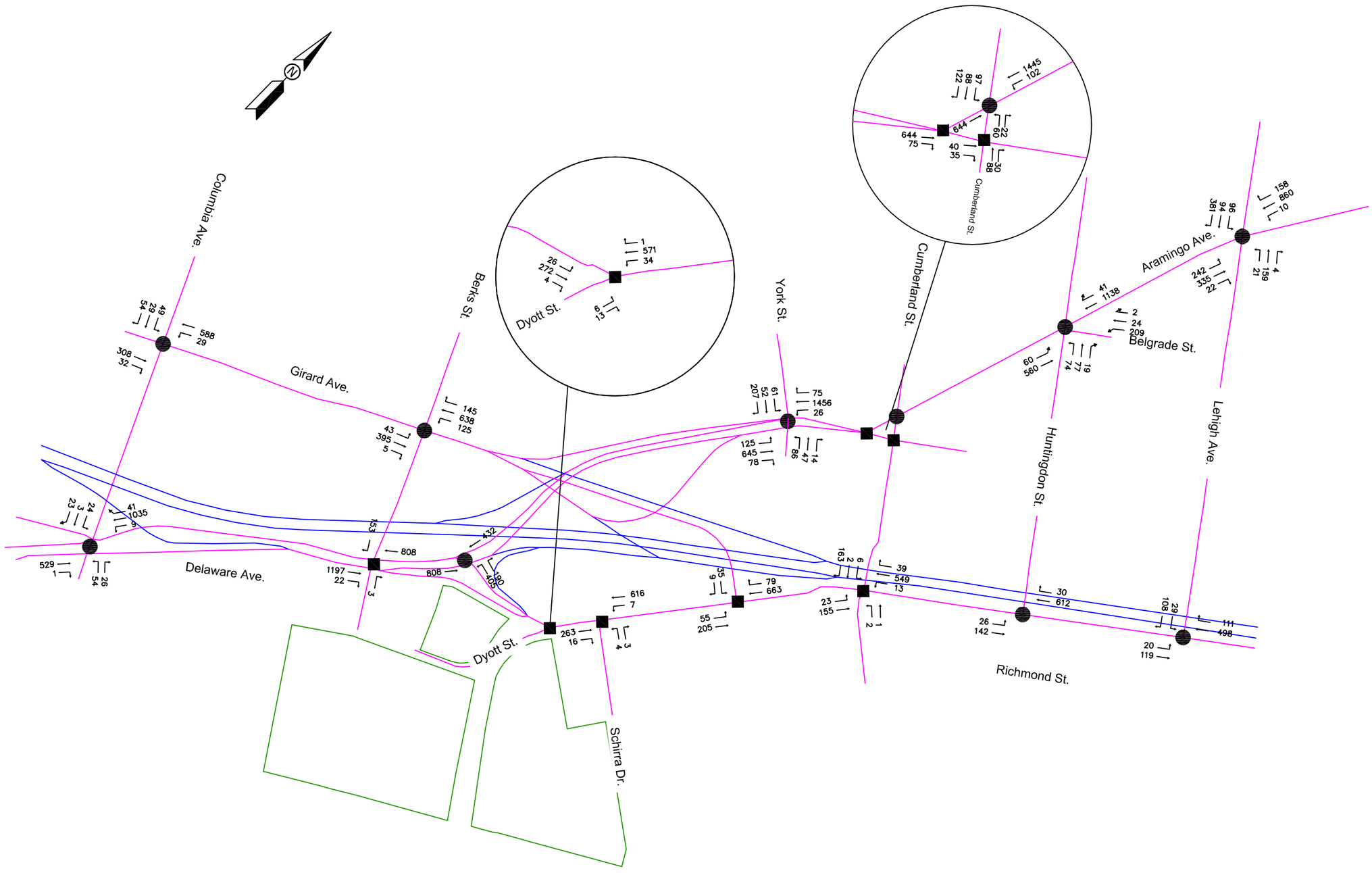
Figure 3A
PRE-DEV 2007 VOLUME
WEEKDAY AM PEAK HOUR



40 years Pennoni of Designing the Future	PINNACLE CASINO PHILADELPHIA PINNACLE ENTERTAINMENT	**LEGEND:** SIGNALIZED INTERSECTION UNSIGNALIZED INTERSECTION VOLUMES	Figure 3B PRE-DEV 2007 VOLUME WEEKDAY PM PEAK HOUR Page __ of __



40 years Pennoni of Designing the Future	PINNACLE CASINO PHILADELPHIA PINNACLE ENTERTAINMENT	**LEGEND:** SIGNALIZED INTERSECTION UNSIGNALIZED INTERSECTION VOLUMES	Figure 3C PRE-DEV 2007 VOLUME STURDAY PM PEAK HOUR Page __ of __



1956-2006 40 years of Designing the Future — Pennoni Consulting Engineers

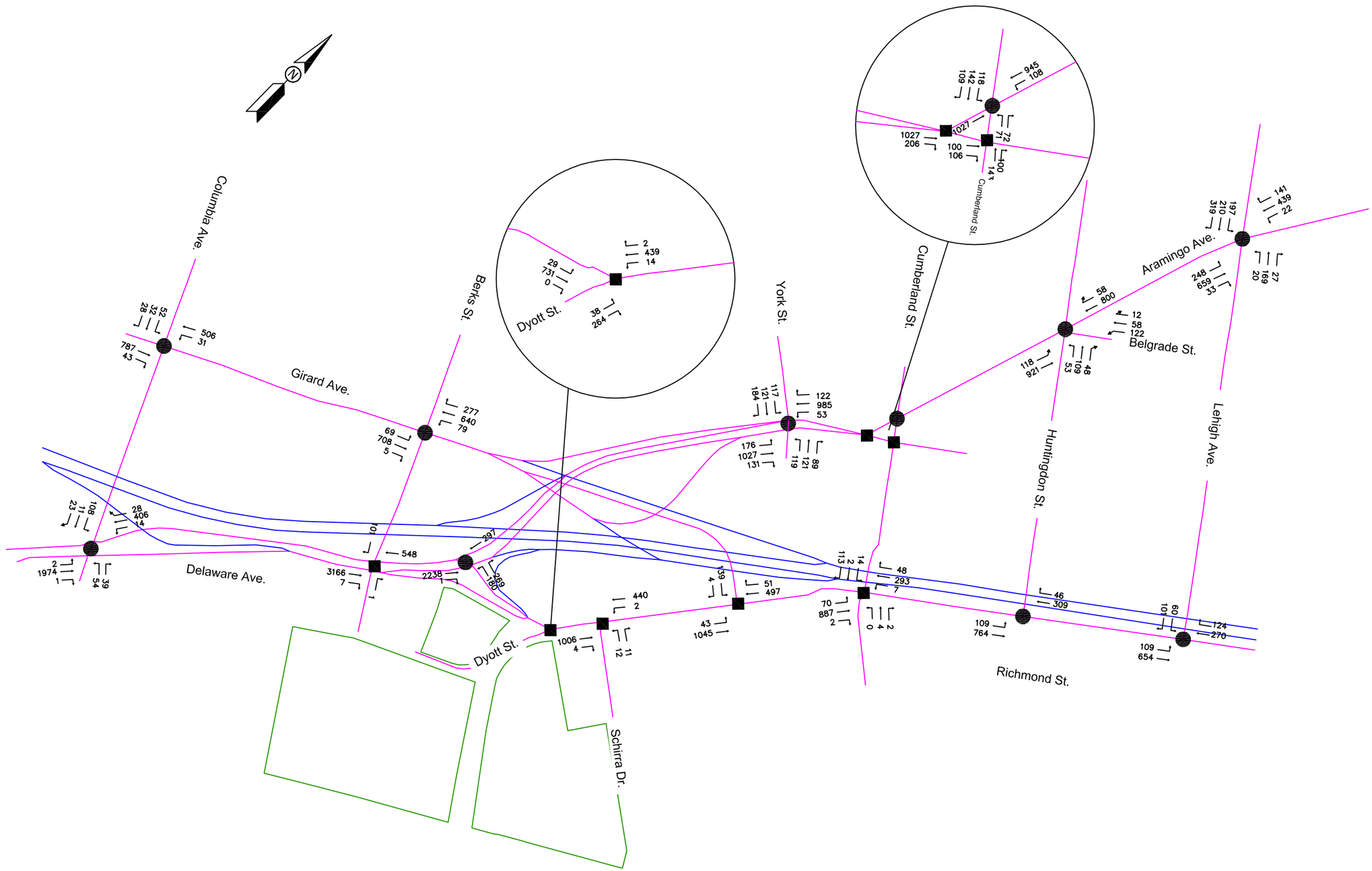
PINNACLE CASINO
PHILADELPHIA

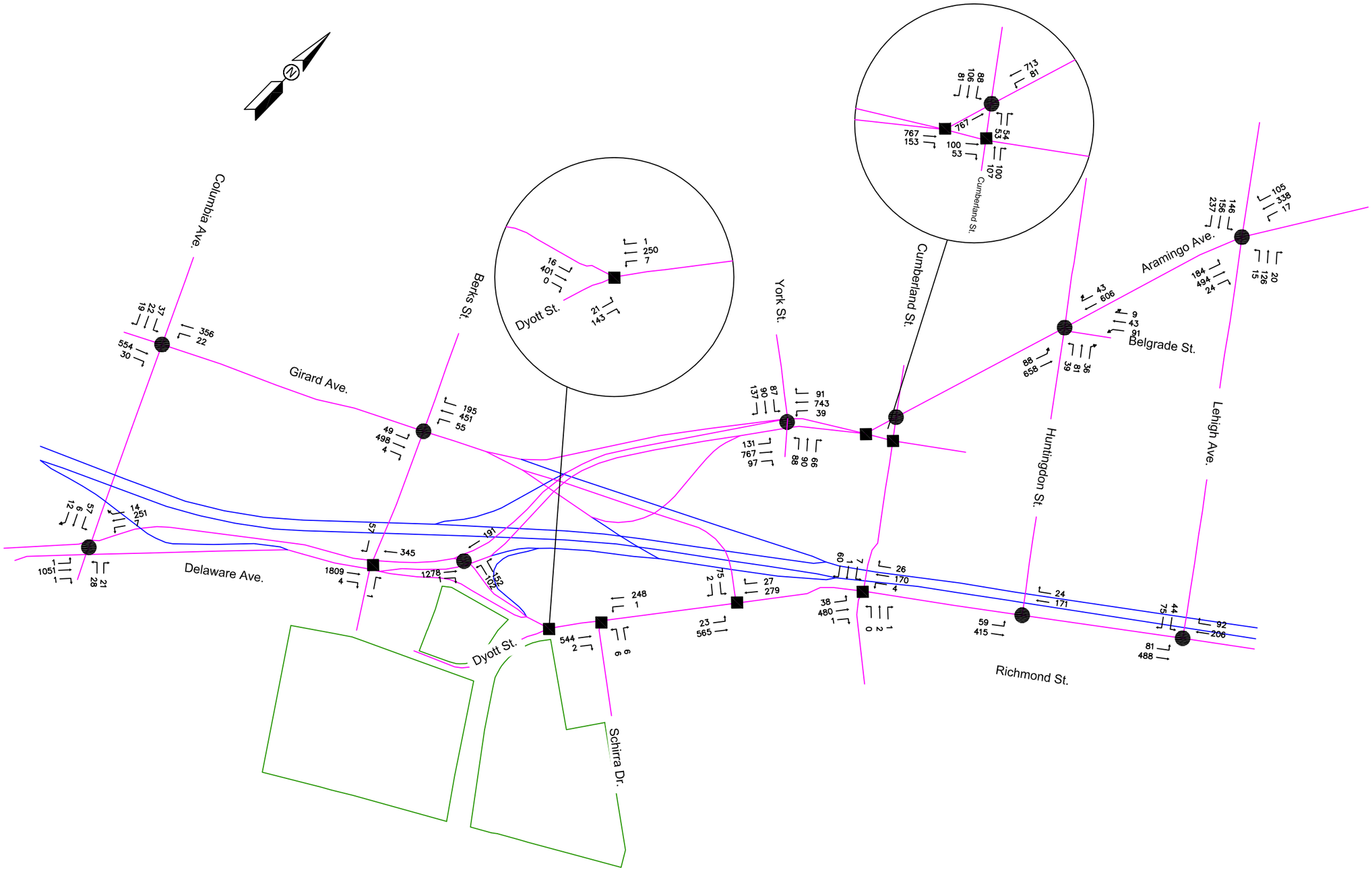
PINNACLE ENTERTAINMENT

LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 4A
PRE-DEV 2009 VOLUME
WEEKDAY AM PEAK HOUR


Columbia Ave.
Girard Ave.
Berks St.
Dyott St.
York St.
Cumberland St.
Aramingo Ave.
Belgrade St.
Huntingdon St.
Lehigh Ave.
Delaware Ave.
Dyott St.
Schirra Dr.
Richmond St.
Cumberland St.



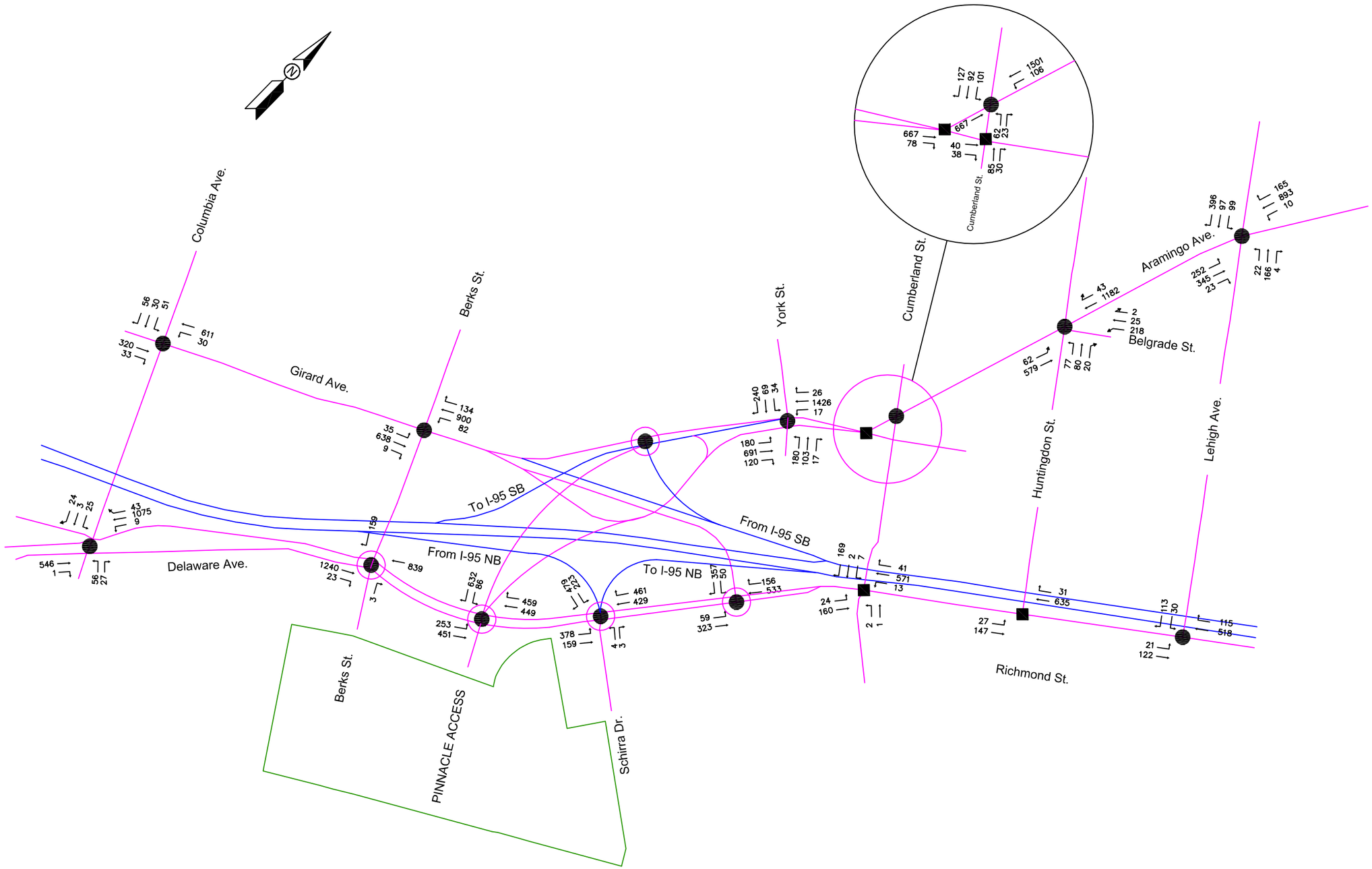
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 4C
PRE-DEV 2009 VOLUME
SATURDAY PM PEAK HOUR



SCHEMATIC - NOT TO SCALE

1956-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future

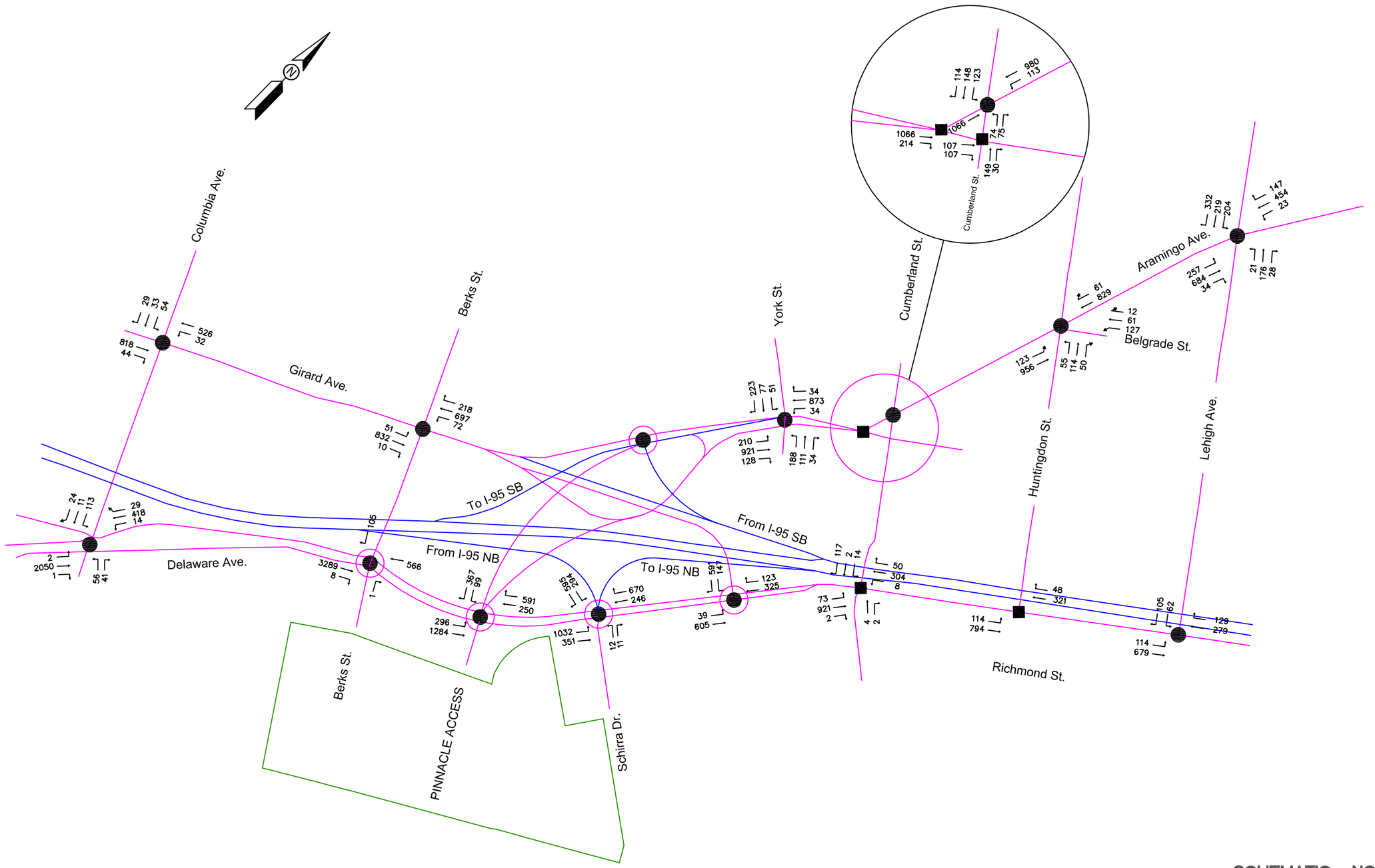
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- PROPOSED SIGNAL
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 5A
PRE-DEV WITH GIR 2011
WEEKDAY AM PEAK HOUR



SCHEMATIC - NOT TO SCALE

1956-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future

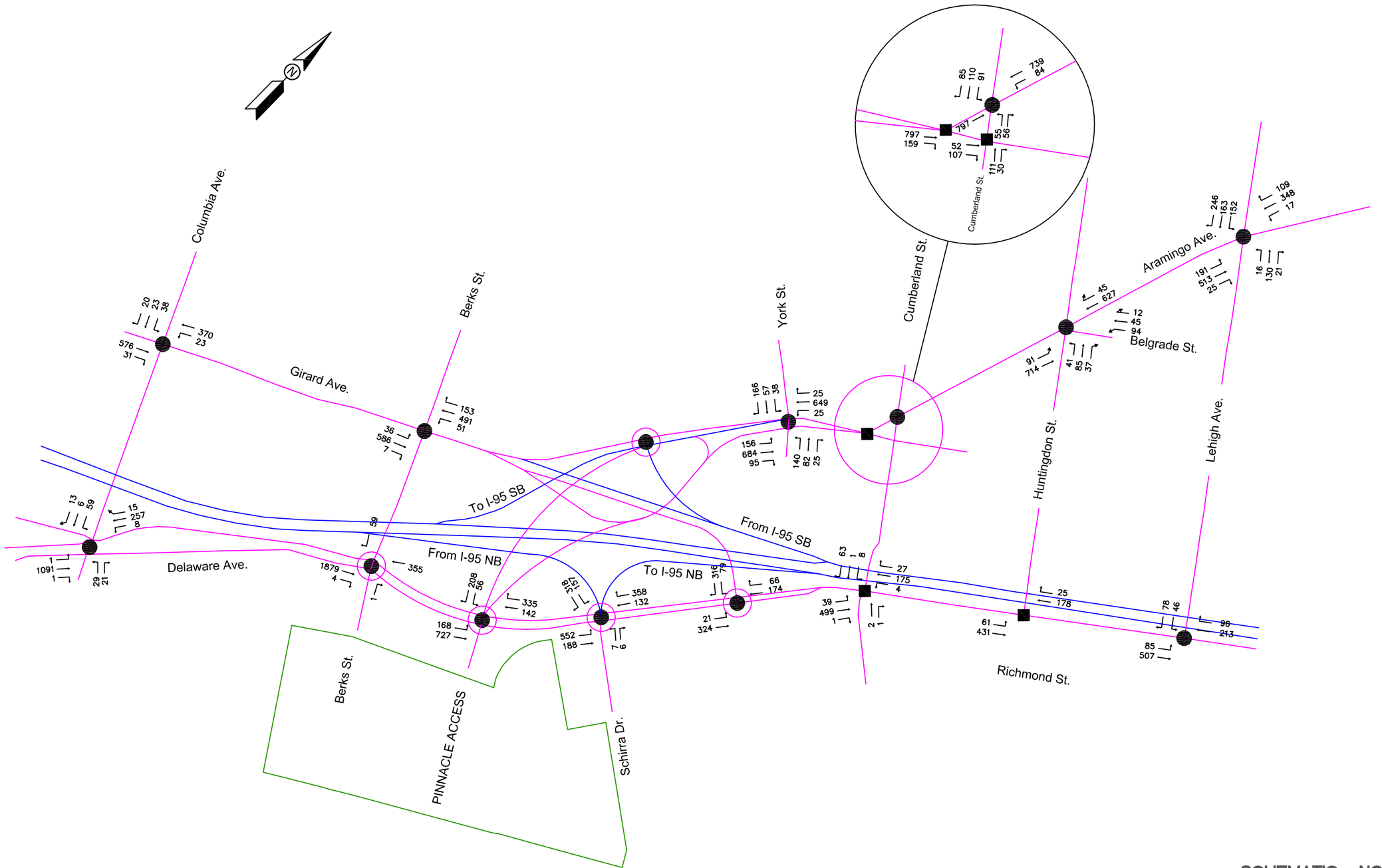
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- PROPOSED SIGNAL
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 5B
PRE-DEV WITH GIR 2011
WEEKDAY PM PEAK HOUR



SCHEMATIC - NOT TO SCALE

1955-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future

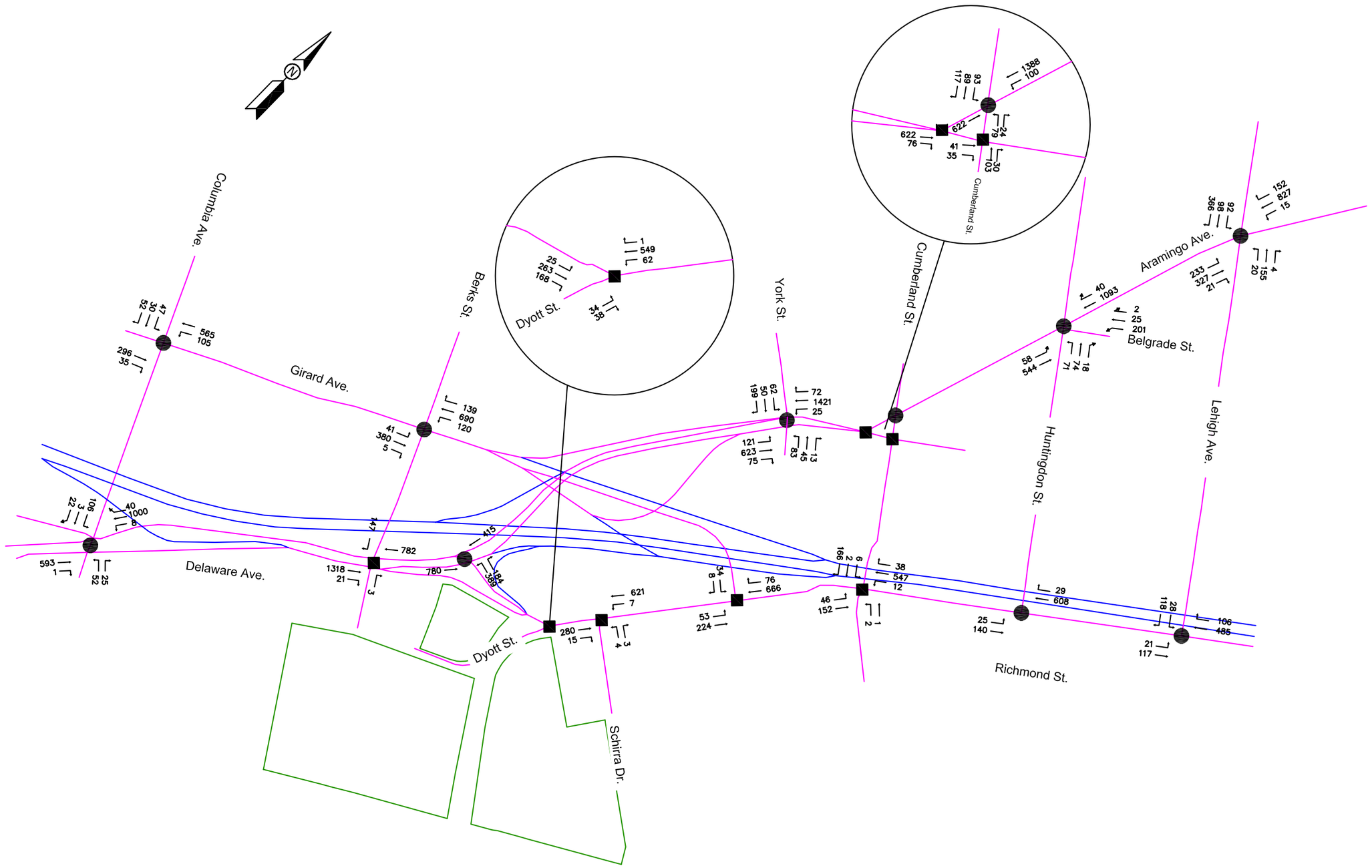
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- PROPOSED SIGNAL
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 5C
PRE-DEV WITH GIR 2011
SATURDAY PM PEAK HOUR



40 years Pennoni Civil and Analytics
of Designing the Future

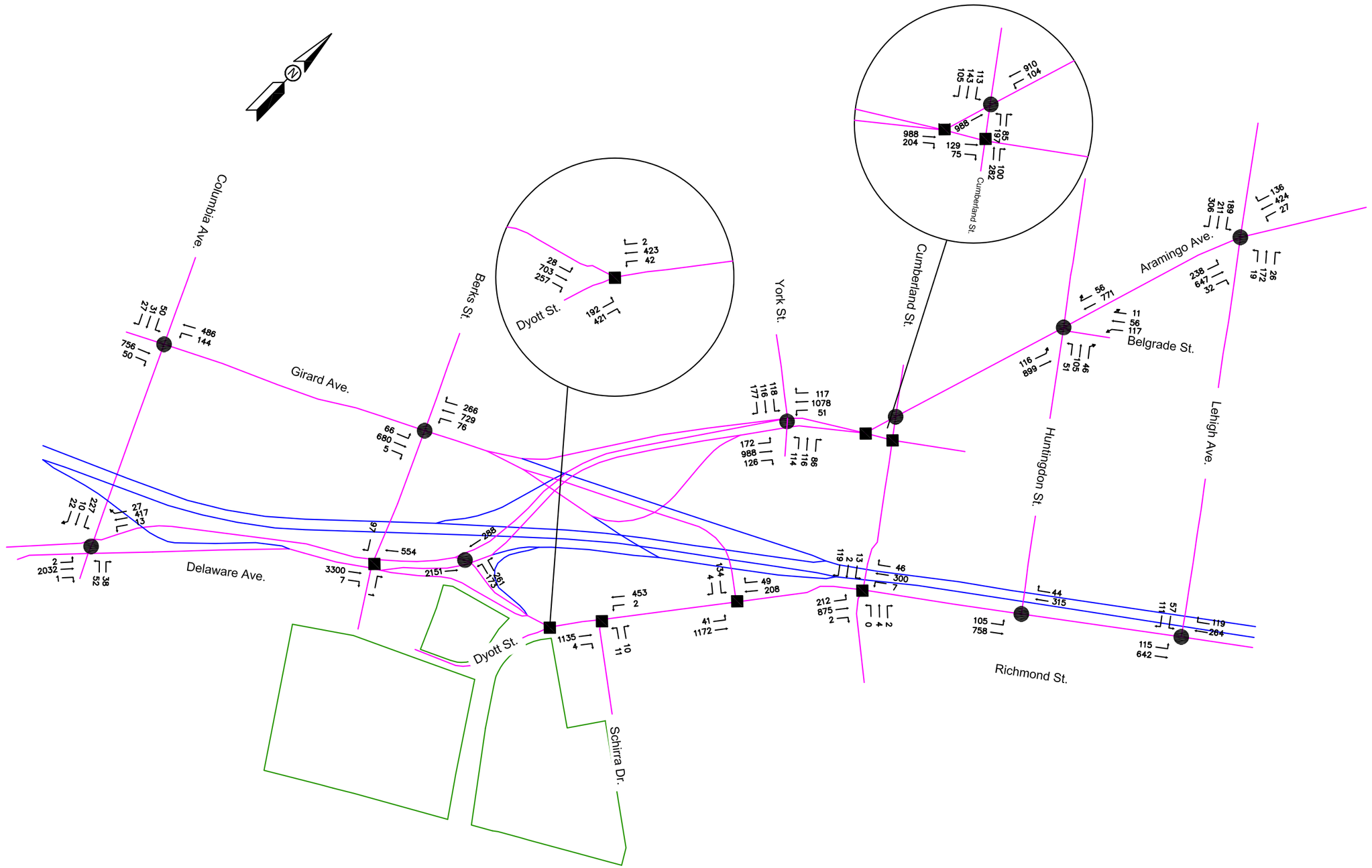
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 6A
POST-DEV (TEMP) VOLUME
WEEKDAY AM PEAK HOUR



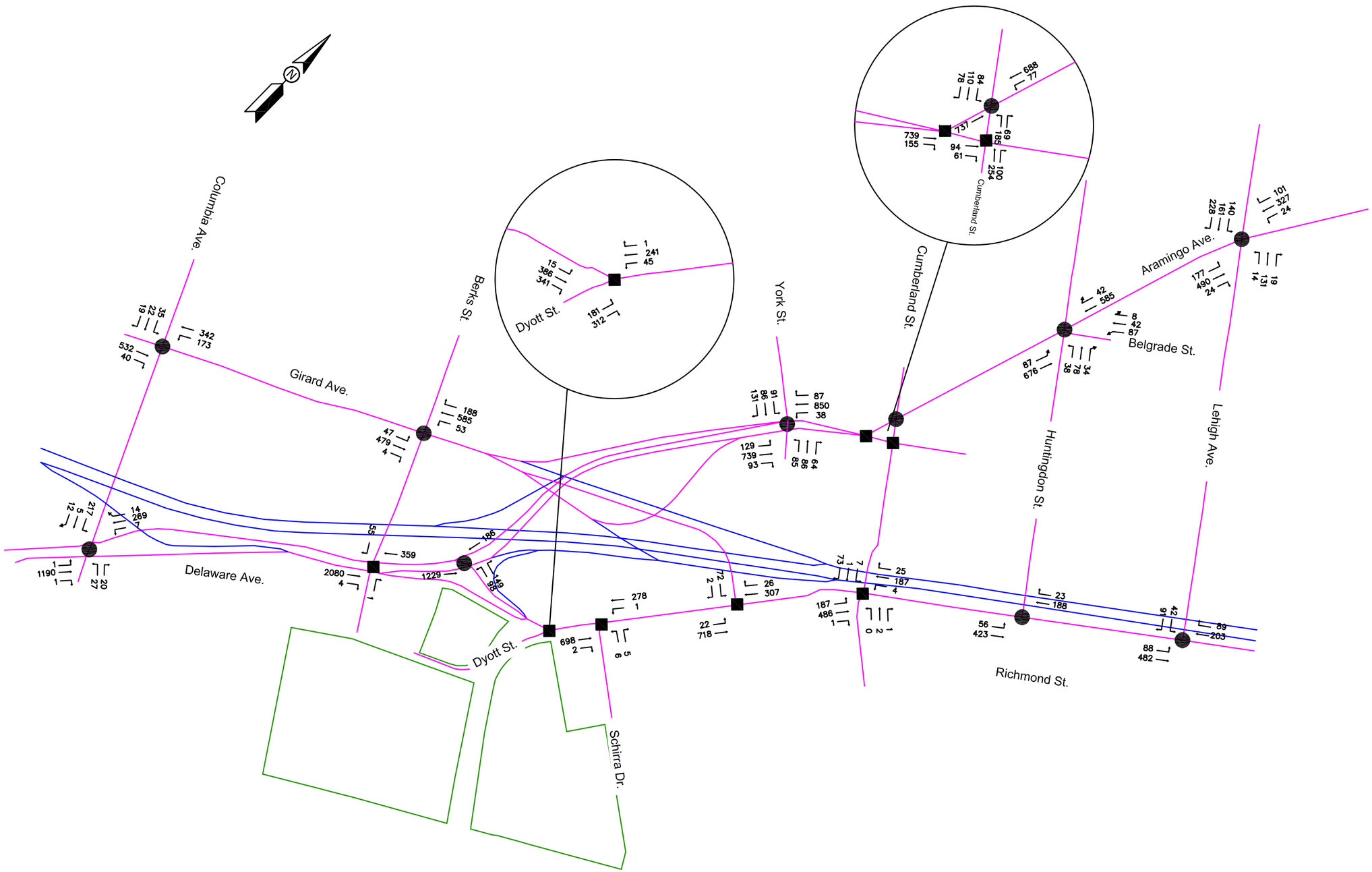
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

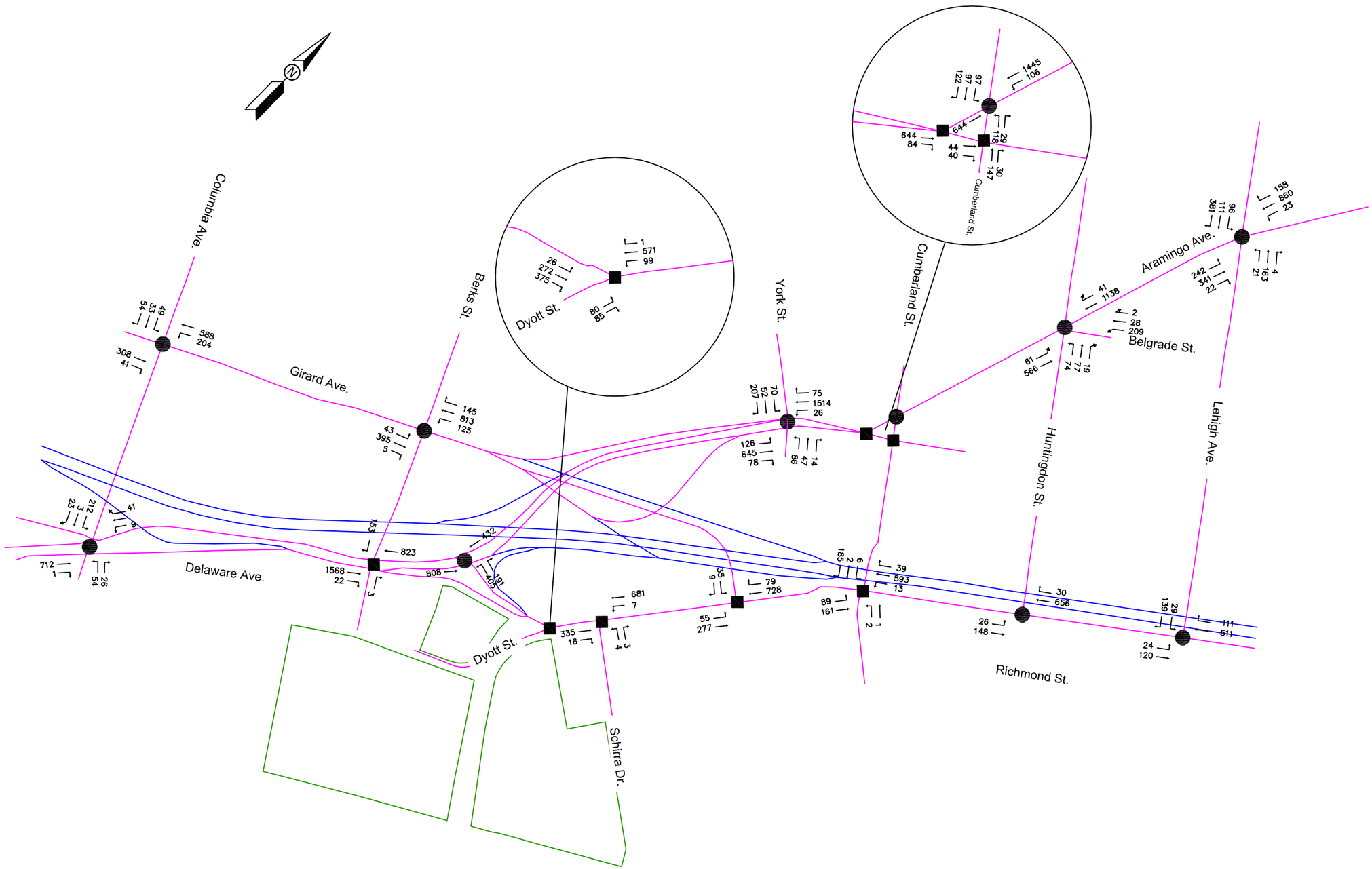
LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 6B
POST-DEV (TEMP) VOLUME
WEEKDAY PM PEAK HOUR



40 years Pennoni — of Designing the Future	PINNACLE CASINO PHILADELPHIA PINNACLE ENTERTAINMENT	**LEGEND:** SIGNALIZED INTERSECTION UNSIGNALIZED INTERSECTION VOLUMES	Figure 6C POST-DEV (TEMP) VOLUME SATURDAY PM PEAK HOUR Page __ of __



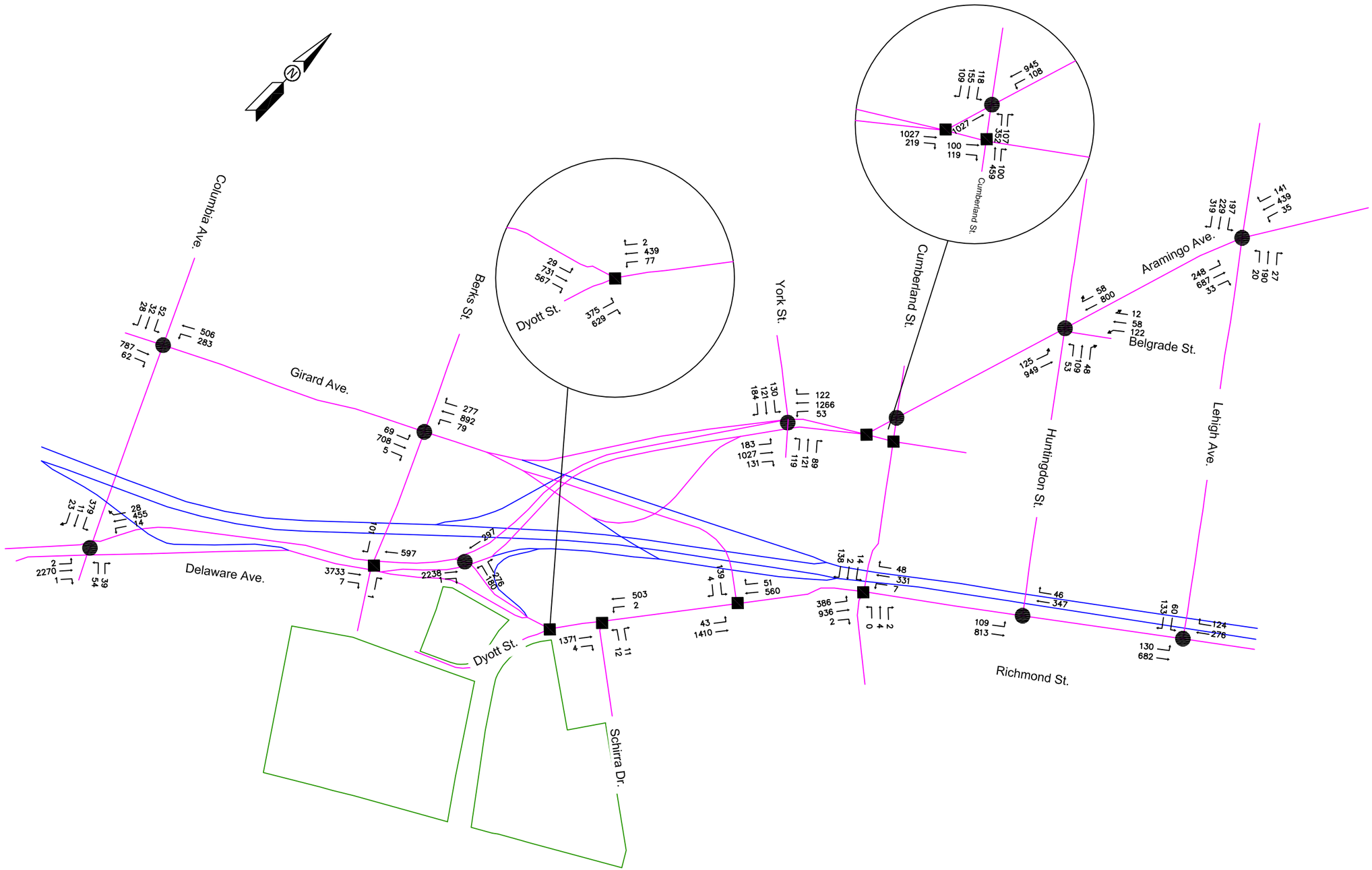
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

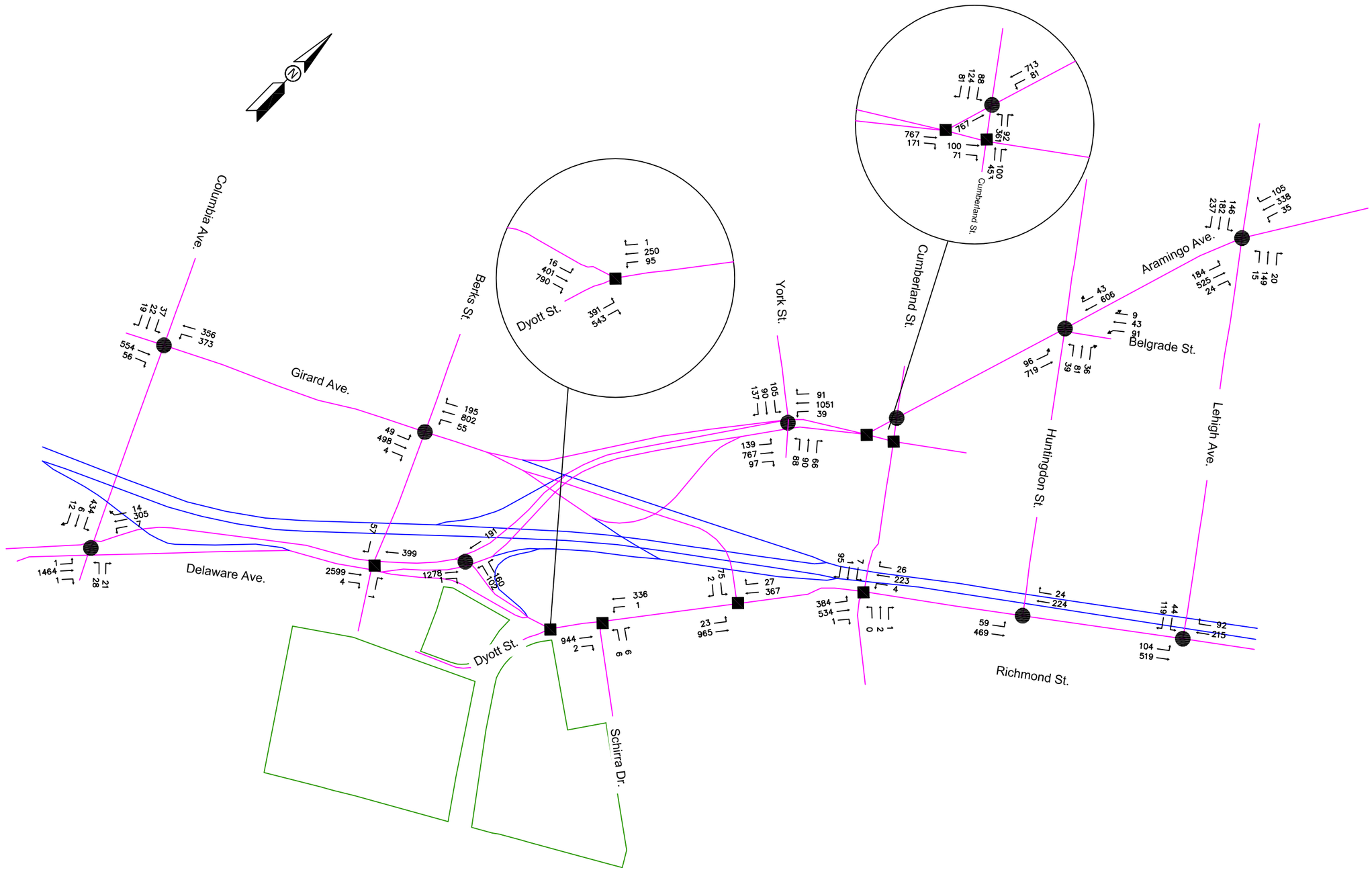
LEGEND:

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

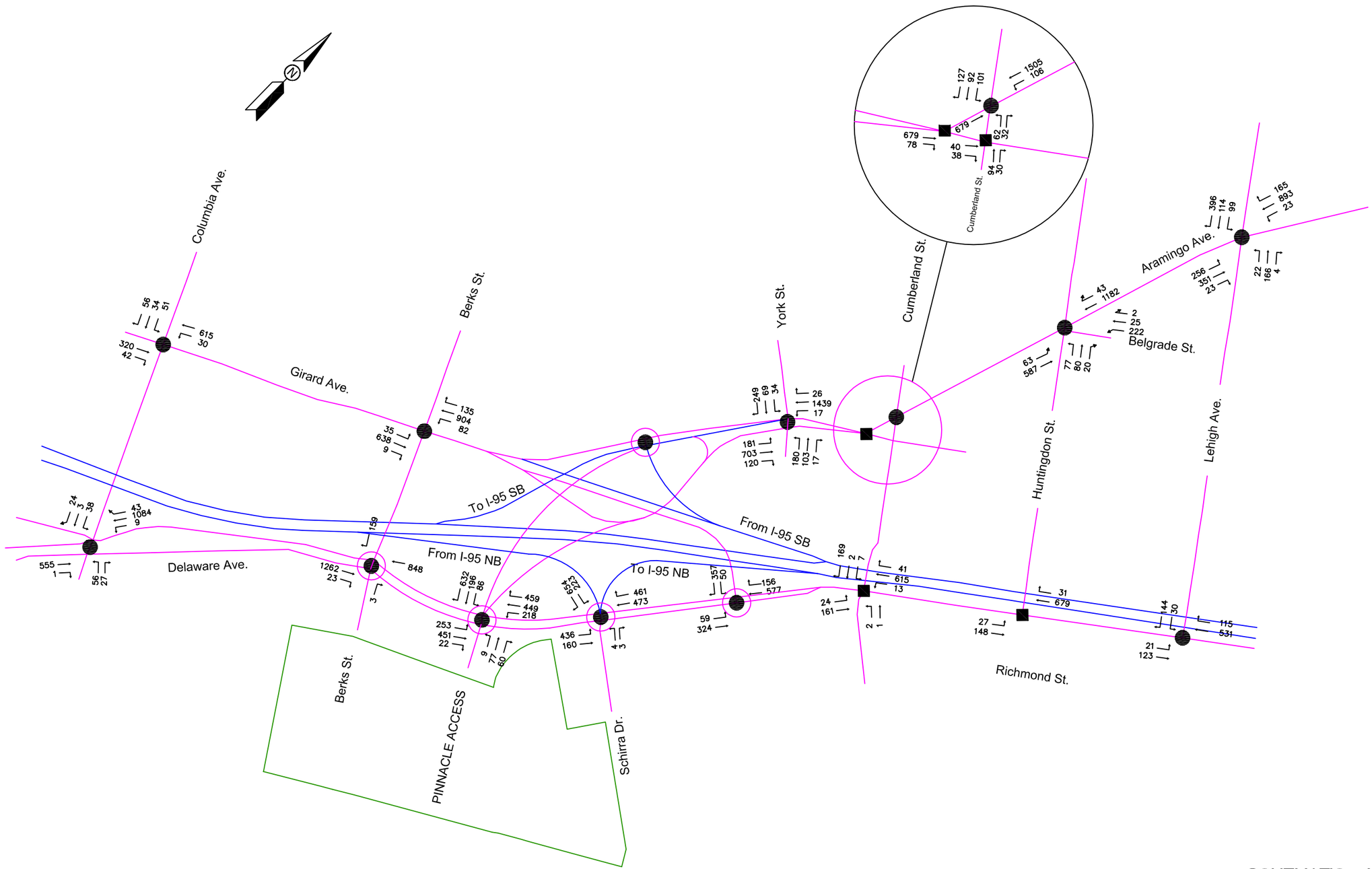
Figure 7A
POST-DEV (PERM) 2009
WEEKDAY AM PEAK HOUR



1956-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future	PINNACLE CASINO PHILADELPHIA PINNACLE ENTERTAINMENT	**LEGEND:** SIGNALIZED INTERSECTION UNSIGNALIZED INTERSECTION VOLUMES	Figure 7B POST-DEV (PERM) 2009 WEEKDAY PM PEAK HOUR



1965-2005 40 years Pennoni CONSULTING ENGINEERS of Designing the Future	PINNACLE CASINO PHILADELPHIA PINNACLE ENTERTAINMENT	**LEGEND:** SIGNALIZED INTERSECTION UNSIGNALIZED INTERSECTION VOLUMES	Figure 7C POST-DEV (PERM) 2009 SATURDAY PM PEAK HOUR



SCHEMATIC - NOT TO SCALE

1985-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future

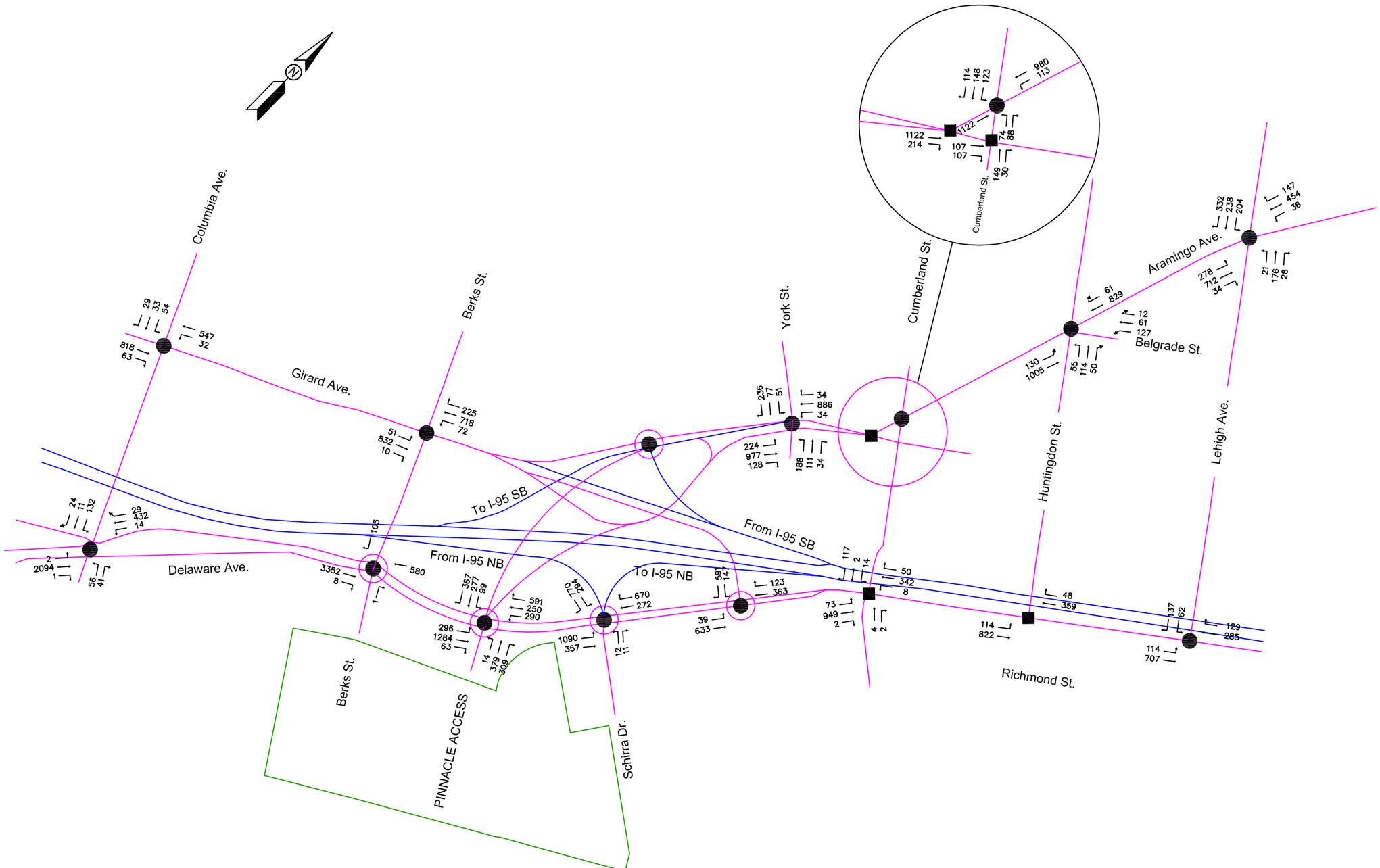
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- PROPOSED SIGNAL
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 8A
POST-DEV WITH GIR 2011
WEEKDAY AM PEAK HOUR



SCHEMATIC - NOT TO SCALE

40 years of Designing the Future — 1966-2006 — Pennoni Consulting Engineers

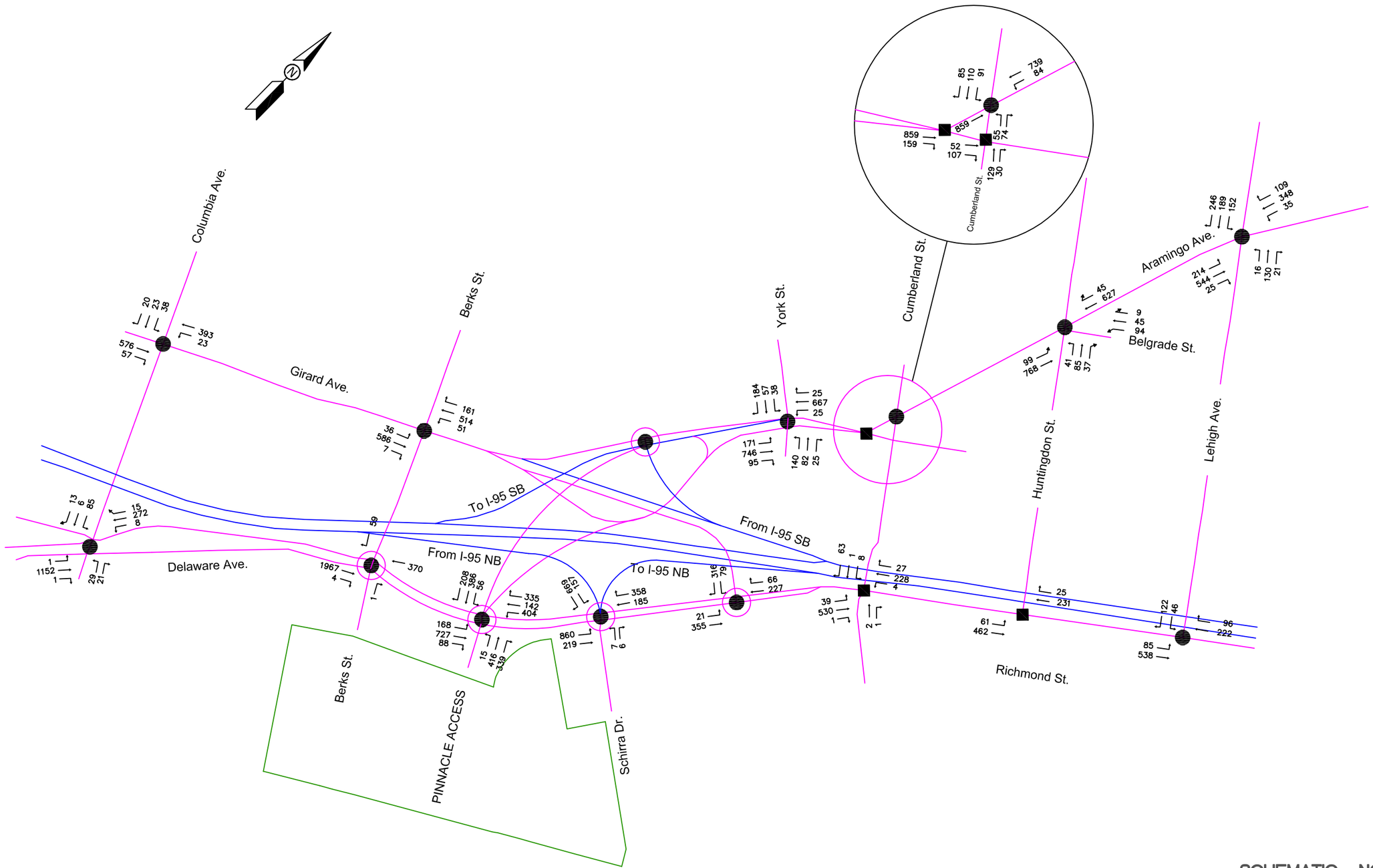
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- PROPOSED SIGNAL
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 8B
POST-DEV WITH GIR 2011
WEEKDAY PM PEAK HOUR



SCHEMATIC - NOT TO SCALE

1955-2006 40 years Pennoni CONSULTING ENGINEERS of Designing the Future

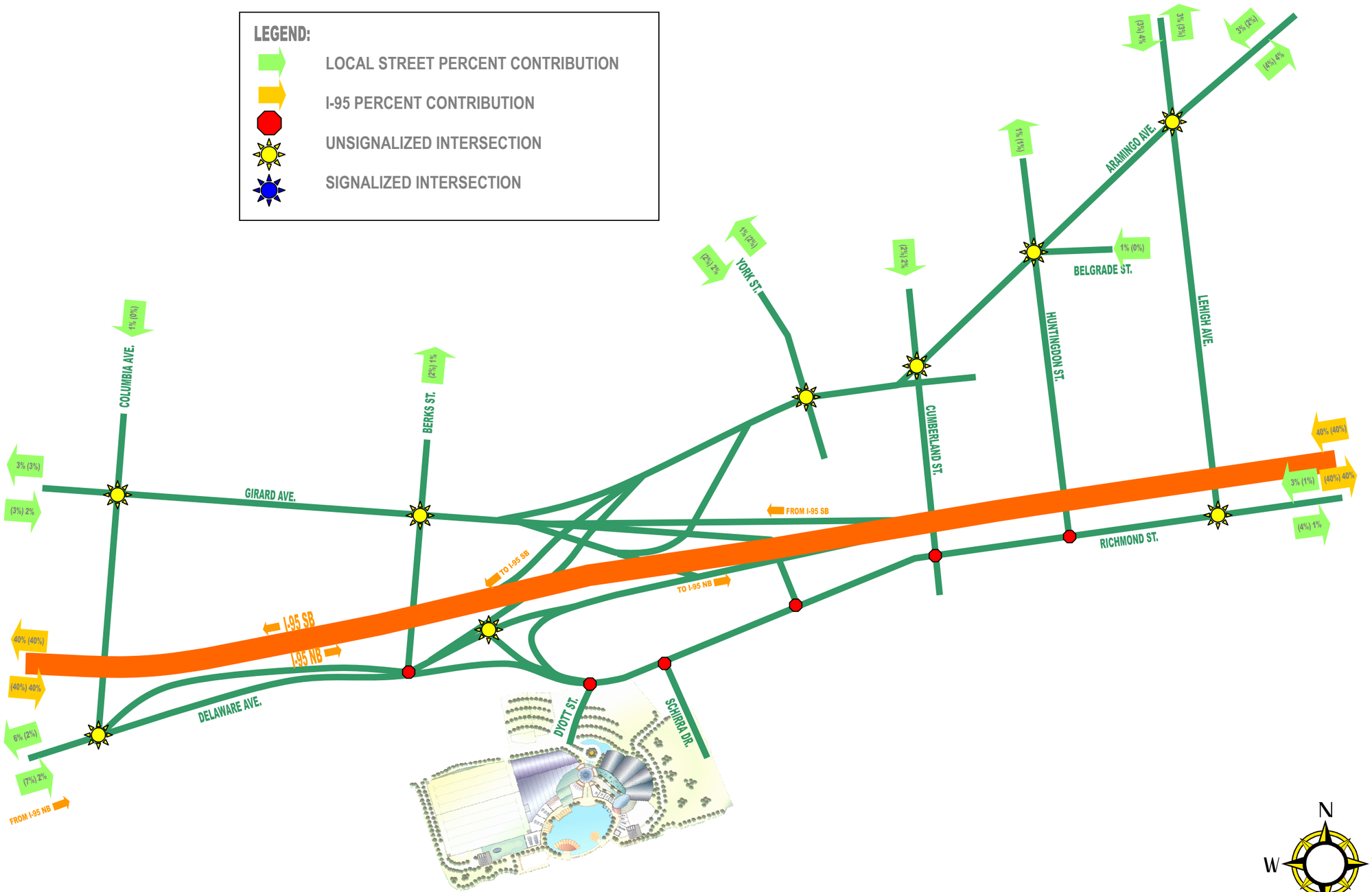
PINNACLE CASINO
PHILADELPHIA

PINNACLE ENTERTAINMENT

LEGEND:

- PROPOSED SIGNAL
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- VOLUMES

Figure 8C
PRE-DEV WITH GIR 2011
SATURDAY PM PEAK HOUR



Pennoni

Pennoni Associates Inc.
3001 Market Street
Philadelphia, PA 19104

FIGURE 9A
DISTRIBUTION & ASSIGNMENT OF PROJECT TRAFFIC WITH EXISTING INFRASTRUCTURE

LEGEND:

- LOCAL STREET PERCENT CONTRIBUTION
- I-95 PERCENT CONTRIBUTION
- UNSIGNALIZED INTERSECTION
- SIGNALIZED INTERSECTION

N
W E
S

Pennoni

Pennoni Associates Inc.
3001 Market Street
Philadelphia, PA 19104

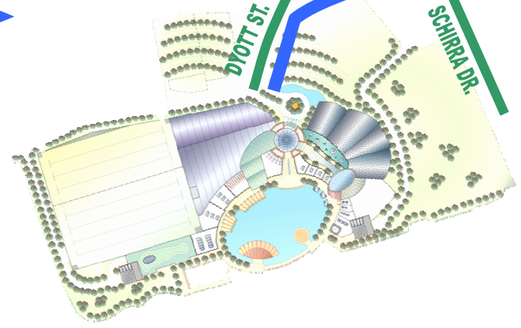
FIGURE 9B
DISTRIBUTION & ASSIGNMENT OF PROJECT TRAFFIC WITH NEW GIRARD AVENUE INTERCHANGE

LEGEND:

- LOCAL STREET PERCENT CONTRIBUTION
- I-95 PERCENT CONTRIBUTION
- UNSIGNALIZED INTERSECTION
- SIGNALIZED INTERSECTION
- PROPOSED SIGNALIZED INTERSECTION
- PROPOSED TRUCK ROUTES

N
W E
S

COLUMBIA AVE.
BERKS ST.
YORK ST.
CUMBERLAND ST.
ARAMINGO AVE.
BELGRADE ST.
HUNTINGDON ST.
LEHIGH AVE.
GIRARD AVE.
FROM I-95 SB
RICHMOND ST.
TO I-95 SB
TO I-95 NB
I-95 SB
I-95 NB
DELAWARE AVE.
FROM I-95 NB
DIOTT ST.
SCHIRRA DR.



Pennoni

Pennoni Associates Inc.
3001 Market Street
Philadelphia, PA 19104

FIGURE 10
PROPOSED HEAVY VEHICLE ROUTE

I-95 Corridor Improvements
Schematic Alignments
Relocated Richmond Street and
Delaware Avenue Extension

INTERSTATE 95

200 0 200

SCALE IN FEET

NOVEMBER 2003

PENNDOT

APPENDIX B

TRAFFIC COUNTS

PENNONI ASSOCIATES, INC.
Consulting Engineers

Default Titles
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Then Click the Titles Tab

File Name : DELAWA~2
Site Code : 00000000
Start Date : 08/09/2006
Page No : 1

Groups Printed- Cars - Heavy Vehicles - UTurns

	Delaware Ave./Allen St. Southbound				Columbia Ave Westbound				Delaware Ave. Northbound				Columbia Ave Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	8	146	4	4	4	0	11	2	0	51	1	0	0	0	3	2	236
07:15 AM	3	153	10	1	1	0	11	3	0	72	0	2	6	0	2	1	265
07:30 AM	8	178	8	1	2	0	9	3	0	74	0	2	4	0	7	0	296
07:45 AM	9	239	7	2	7	0	17	3	0	67	0	0	4	0	3	1	359
Total	28	716	29	8	14	0	48	11	0	264	1	4	14	0	15	4	1156
08:00 AM	10	255	12	2	2	0	12	0	0	78	0	0	3	0	6	6	386
08:15 AM	6	246	10	8	7	0	15	4	0	109	0	1	3	0	1	2	412
08:30 AM	11	261	8	5	8	0	17	4	1	95	0	1	6	1	4	1	423
08:45 AM	12	191	13	9	7	0	16	1	0	115	1	2	14	2	12	1	396
Total	39	953	43	24	24	0	60	9	1	397	1	4	26	3	23	10	1617
09:00 AM	6	169	12	5	6	0	23	0	0	124	0	2	10	1	7	0	365
09:15 AM	12	126	11	6	6	0	14	3	0	82	0	4	7	0	6	0	277
*** BREAK ***																	
Total	18	295	23	11	12	0	37	3	0	206	0	6	17	1	13	0	642
*** BREAK ***																	
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
*** BREAK ***																	
Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
04:00 PM	8	50	14	2	3	0	13	1	1	426	0	5	11	0	19	0	553
04:15 PM	13	64	8	13	7	0	21	3	0	404	1	0	10	1	11	0	556
04:30 PM	7	74	6	6	5	0	14	2	0	404	2	11	8	1	15	6	561
04:45 PM	3	68	8	5	10	0	18	1	0	431	1	2	8	3	30	1	589
Total	31	256	36	26	25	0	66	7	1	1665	4	18	37	5	75	7	2259
05:00 PM	12	73	6	4	15	0	20	3	1	463	0	10	6	4	36	3	656
05:15 PM	4	71	10	4	8	0	18	2	0	512	1	7	7	2	21	3	670
05:30 PM	8	93	4	2	4	0	12	7	1	379	1	8	3	1	20	4	547
05:45 PM	8	79	3	1	1	0	24	1	0	352	0	5	8	0	16	4	502
Total	32	316	23	11	28	0	74	13	2	1706	2	30	24	7	93	14	2375
Grand Total	148	2536	154	80	103	0	285	43	4	4238	8	62	120	16	219	35	8051
Apprch %	5.1	86.9	5.3	2.7	23.9	0.0	66.1	10.0	0.1	98.3	0.2	1.4	30.8	4.1	56.2	9.0	
Total %	1.8	31.5	1.9	1.0	1.3	0.0	3.5	0.5	0.0	52.6	0.1	0.8	1.5	0.2	2.7	0.4	

Default Titles
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Titles Tab

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Site Code : 00000000
Start Date : 08/09/2006

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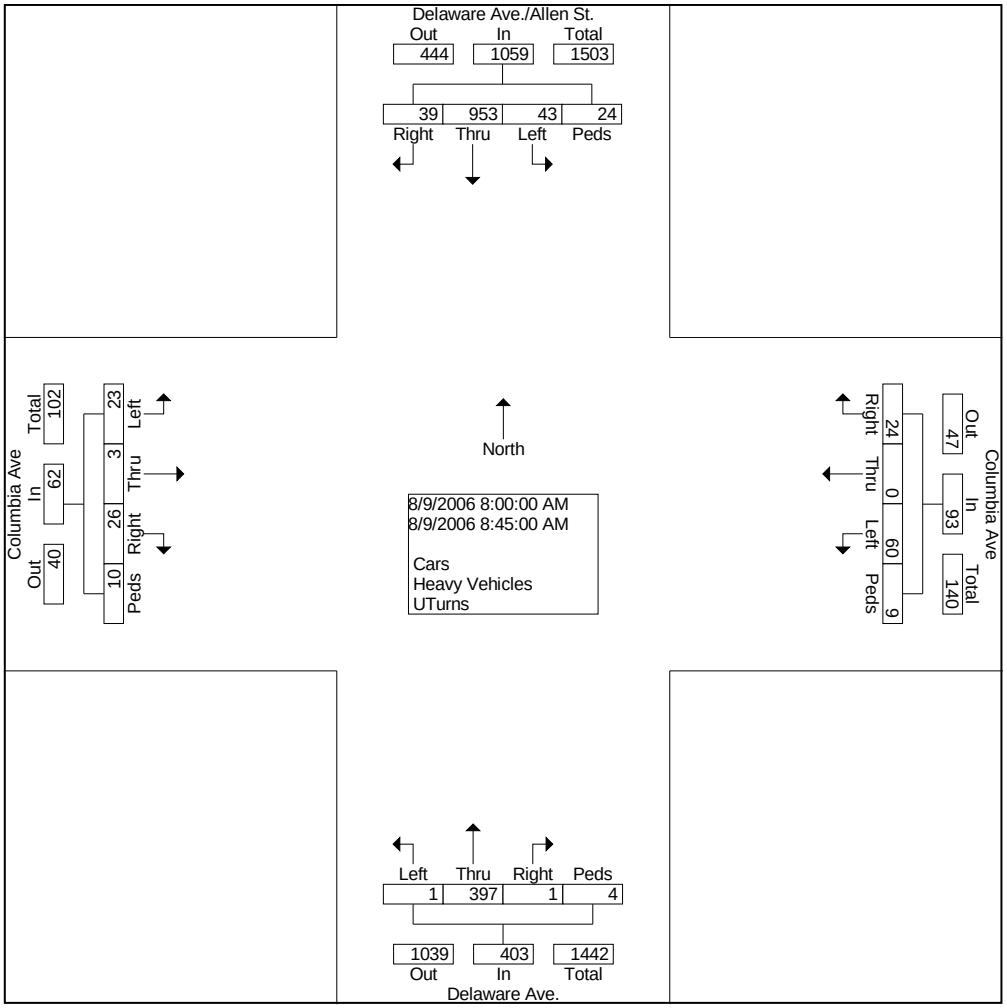
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	39	953	43	24	1059	24	0	60	9	93	1	397	1	4	403	26	3	23	10	62	1617
Percent	3.7	90.0	4.1	2.3		25.8	0.0	64.5	9.7		0.2	98.5	0.2	1.0		41.9	4.8	37.1	16.1		
08:30 Volume	11	261	8	5	285	8	0	17	4	29	1	95	0	1	97	6	1	4	1	12	423
Peak Factor																					0.956
High Int.	08:30 AM					08:30 AM					08:45 AM					08:45 AM					
Volume	11	261	8	5	285	8	0	17	4	29	0	115	1	2	118	14	2	12	1	29	
Peak Factor					0.929					0.802					0.854					0.534	



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Site Code : 00000000
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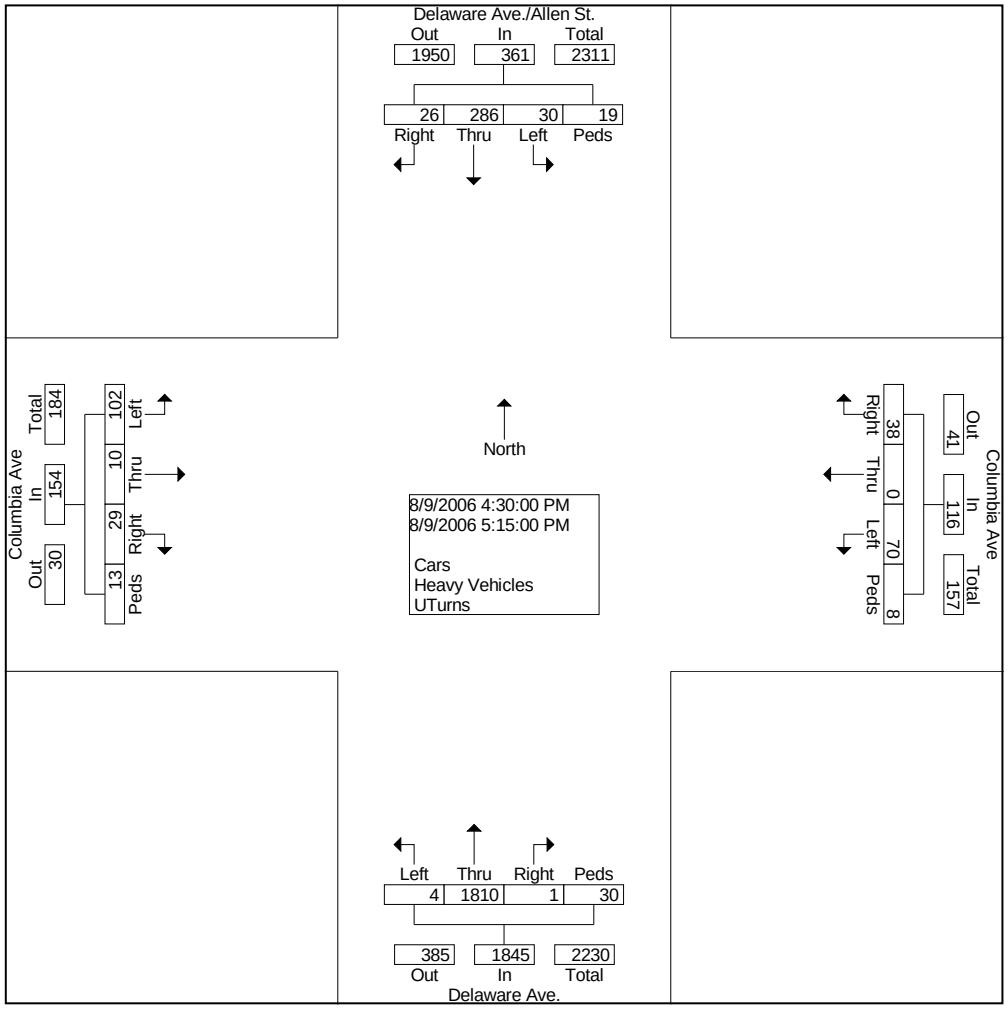
	Delaware Ave./Allen St. Southbound					Columbia Ave Westbound					Delaware Ave. Northbound					Columbia Ave Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	26	286	30	19	361	38	0	70	8	116	1	1810	4	30	1845	29	10	102	13	154	2476
Percent	7.2	79.2	8.3	5.3		32.8	0.0	60.3	6.9		0.1	98.1	0.2	1.6		18.8	6.5	66.2	8.4		
05:15 Volume	4	71	10	4	89	8	0	18	2	28	0	512	1	7	520	7	2	21	3	33	670
Peak Factor																					0.924
High Int.	05:00 PM					05:00 PM					05:15 PM					05:00 PM					
Volume	12	73	6	4	95	15	0	20	3	38	0	512	1	7	520	6	4	36	3	49	
Peak Factor					0.950					0.763					0.887					0.786	



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File Name : DELAWA~1
Site Code : 00000000
Start Date : 08/10/2006

Groups Printed- Cars - Heavy Vehicles - Bank 2

	DELAWARE AVE. Southbound				BERKS ST. Westbound				DELAWARE AVE. Northbound				BERKS ST. Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	0	119	0	1	0	0	0	2	0	206	0	0	20	0	0	0	348
07:15 AM	0	132	0	0	1	0	0	1	2	226	0	0	24	0	0	2	388
07:30 AM	0	168	0	1	0	0	0	1	3	236	0	0	32	0	0	0	441
07:45 AM	0	195	0	0	0	0	0	1	7	236	0	1	33	0	0	1	474
Total	0	614	0	2	1	0	0	5	12	904	0	1	109	0	0	3	1651
08:00 AM	0	189	0	1	0	0	0	0	5	233	0	1	36	0	0	0	465
08:15 AM	0	191	0	0	0	0	0	4	3	240	0	0	38	0	0	2	478
08:30 AM	0	195	0	0	0	0	0	2	4	269	0	0	30	0	0	2	502
08:45 AM	0	164	0	0	3	0	0	2	9	283	0	0	40	0	0	1	502
Total	0	739	0	1	3	0	0	8	21	1025	0	1	144	0	0	5	1947
09:00 AM	0	118	0	1	1	0	0	1	6	288	0	0	26	0	0	0	441
09:15 AM	0	96	0	0	0	0	0	0	4	220	1	0	30	0	0	3	354
*** BREAK ***																	
Total	0	214	0	1	1	0	0	1	10	508	1	0	56	0	0	3	795
*** BREAK ***																	
04:00 PM	0	109	0	0	0	0	0	0	0	709	0	0	19	0	0	2	839
04:15 PM	0	103	0	0	0	0	0	2	5	759	0	0	12	0	0	1	882
04:30 PM	0	87	0	0	0	0	0	0	2	691	0	0	16	0	0	0	796
04:45 PM	0	92	0	0	0	0	0	0	0	709	0	0	25	0	0	0	826
Total	0	391	0	0	0	0	0	2	7	2868	0	0	72	0	0	3	3343
05:00 PM	0	105	0	0	0	0	0	1	1	663	0	1	23	0	0	0	794
05:15 PM	0	97	0	0	1	0	0	0	3	799	0	0	23	0	0	2	925
05:30 PM	0	126	0	0	0	0	0	1	3	760	0	0	24	0	0	3	917
05:45 PM	0	119	0	1	1	0	0	1	3	606	0	0	14	0	0	0	745
Total	0	447	0	1	2	0	0	3	10	2828	0	1	84	0	0	5	3381
Grand Total	0	2405	0	5	7	0	0	19	60	8133	1	3	465	0	0	19	11117
Apprch %	0.0	99.8	0.0	0.2	26.9	0.0	0.0	73.1	0.7	99.2	0.0	0.0	96.1	0.0	0.0	3.9	
Total %	0.0	21.6	0.0	0.0	0.1	0.0	0.0	0.2	0.5	73.2	0.0	0.0	4.2	0.0	0.0	0.2	

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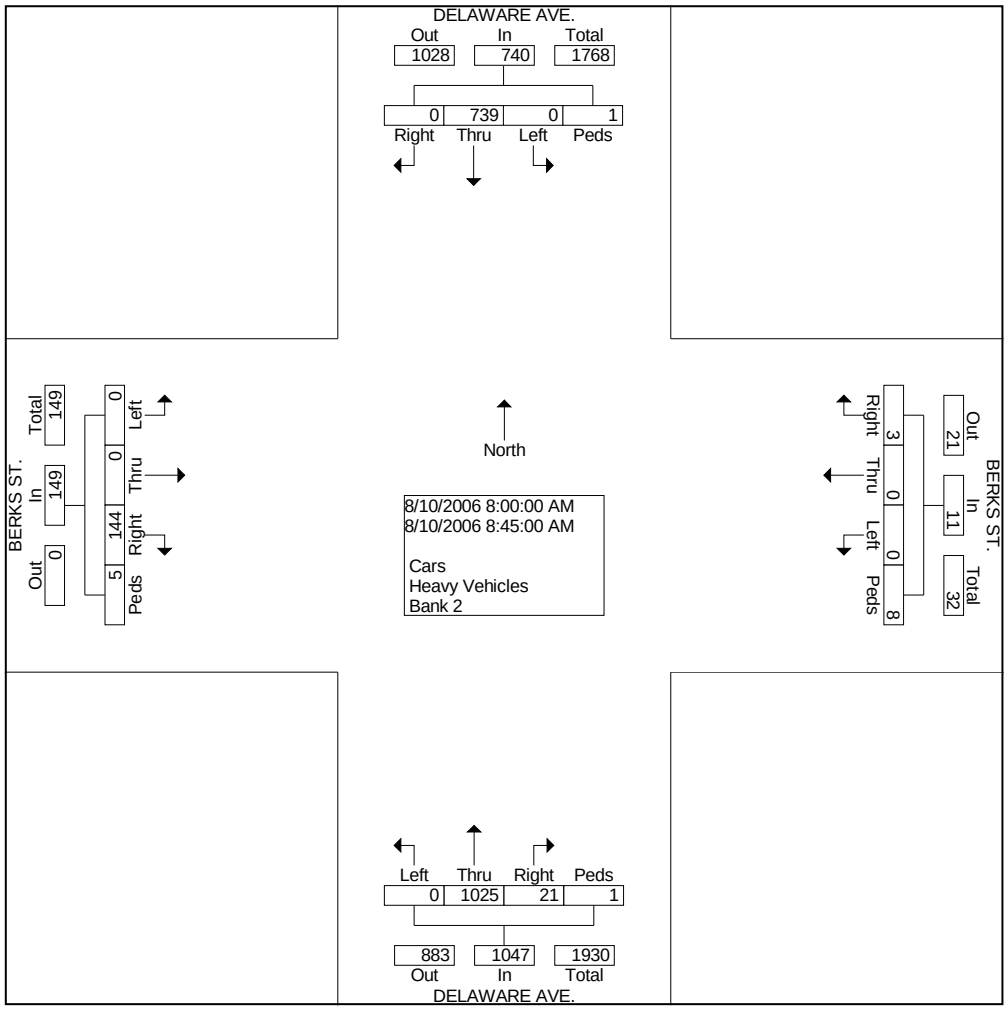
File Name : DELAWA~1
Site Code : 00000000
Start Date : 08/10/2006

	DELAWARE AVE. Southbound					BERKS ST. Westbound					DELAWARE AVE. Northbound					BERKS ST. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	0	739	0	1	740	3	0	0	8	11	21	1025	0	1	1047	144	0	0	5	149	1947
Percent	0.0	99.9	0.0	0.1		27.3	0.0	0.0	72.7		2.0	97.9	0.0	0.1		96.6	0.0	0.0	3.4		
08:45 Volume	0	164	0	0	164	3	0	0	2	5	9	283	0	0	292	40	0	0	1	41	502
Peak Factor																					0.970
High Int.	08:30 AM					08:45 AM					08:45 AM					08:45 AM					
Volume	0	195	0	0	195	3	0	0	2	5	9	283	0	0	292	40	0	0	1	41	
Peak Factor					0.949					0.550					0.896					0.909	



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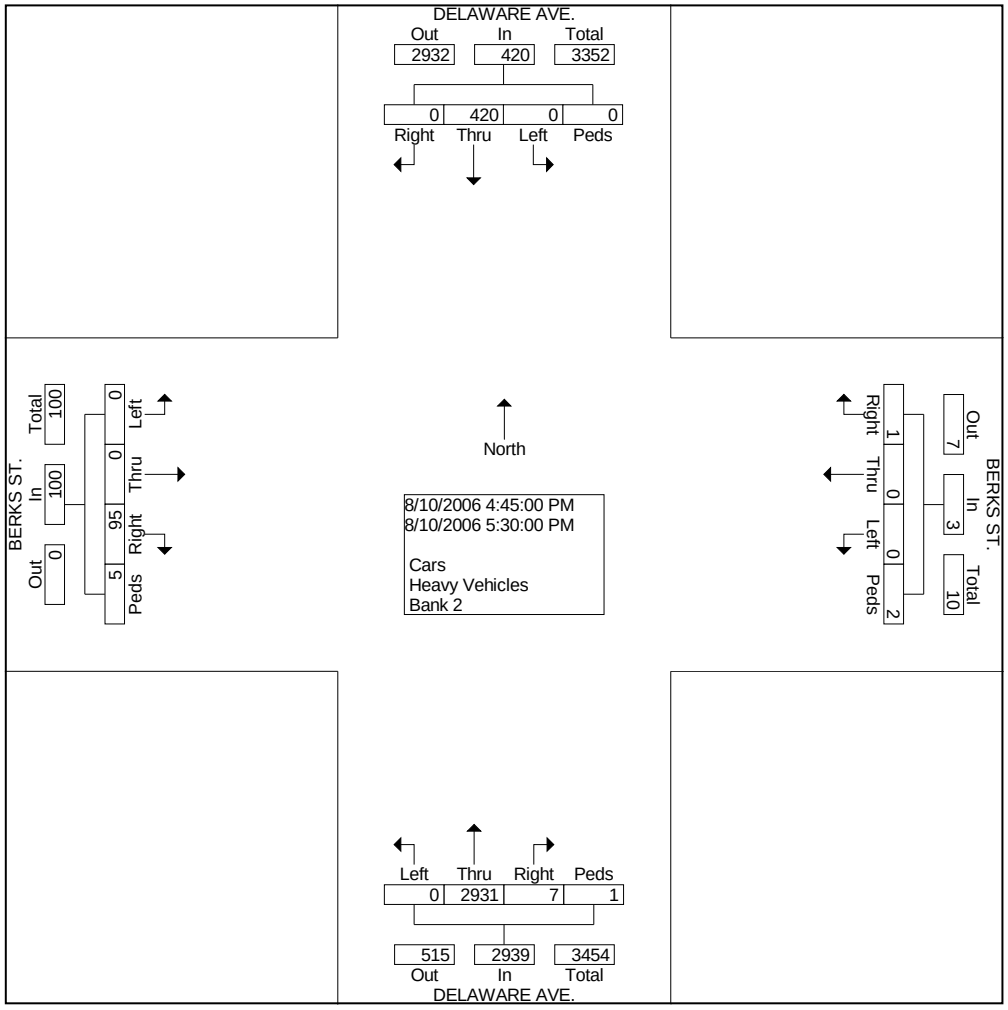
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Titles Tab

File Name : DELAWA~1
Site Code : 00000000
Start Date : 08/10/2006

	DELAWARE AVE. Southbound					BERKS ST. Westbound					DELAWARE AVE. Northbound					BERKS ST. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	0	420	0	0	420	1	0	0	2	3	7	2931	0	1	2939	95	0	0	5	100	3462
Percent	0.0	100.0	0.0	0.0		33.3	0.0	0.0	66.7		0.2	99.7	0.0	0.0		95.0	0.0	0.0	5.0		
05:15 Volume	0	97	0	0	97	1	0	0	0	1	3	799	0	0	802	23	0	0	2	25	925
Peak Factor																					0.936
High Int.	05:30 PM					05:00 PM					05:15 PM					05:30 PM					
Volume	0	126	0	0	126	0	0	0	1	1	3	799	0	0	802	24	0	0	3	27	
Peak Factor					0.833					0.750					0.916					0.926	



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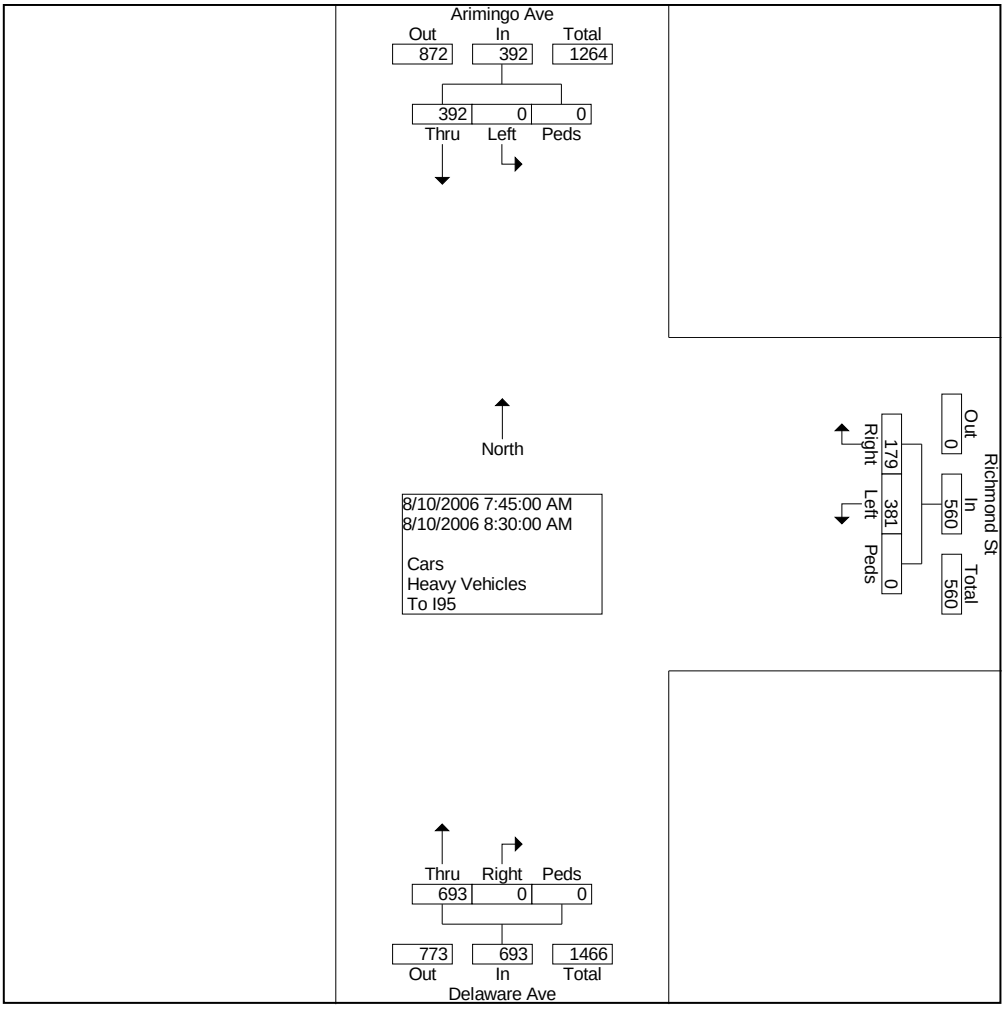
File Name : Richmond & Aramingo & Delaware
Site Code : 00000000
Start Date : 08/10/2006

Groups Printed- Cars - Heavy Vehicles - To I95

	Arimingo Ave Southbound				Richmond St Westbound				Delaware Ave Northbound				RICHMOND ST Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	0	67	0	0	45	0	52	0	2	133	0	0	0	0	0	0	299
07:15 AM	0	73	0	0	50	0	59	0	0	158	0	0	0	0	0	0	340
07:30 AM	0	93	0	0	62	0	79	0	0	190	0	0	0	0	0	0	424
07:45 AM	0	105	0	0	61	0	79	0	0	161	0	0	0	0	0	0	406
Total	0	338	0	0	218	0	269	0	2	642	0	0	0	0	0	0	1469
08:00 AM	0	94	0	0	41	0	95	0	0	169	0	0	0	0	0	0	399
08:15 AM	0	97	0	0	38	0	96	0	0	159	0	0	0	0	0	0	390
08:30 AM	0	96	0	0	39	0	111	0	0	204	0	0	0	0	0	0	450
08:45 AM	0	84	0	0	37	0	79	1	0	205	0	0	0	0	0	0	406
Total	0	371	0	0	155	0	381	1	0	737	0	0	0	0	0	0	1645
09:00 AM	0	63	0	0	29	0	45	0	1	216	0	0	0	0	0	0	354
09:15 AM	0	56	0	0	37	1	34	0	0	166	0	0	0	0	0	0	294
*** BREAK ***																	
Total	0	119	0	0	66	1	79	0	1	382	0	0	0	0	0	0	648
*** BREAK ***																	
04:00 PM	0	45	0	0	53	0	47	0	0	520	1	0	0	0	0	0	666
04:15 PM	0	42	0	0	52	0	47	0	0	507	0	0	0	0	0	0	648
04:30 PM	0	48	0	0	53	1	34	0	0	487	0	0	0	0	0	0	623
04:45 PM	0	49	0	0	51	0	40	0	0	536	0	0	0	0	0	0	676
Total	0	184	0	0	209	1	168	0	0	2050	1	0	0	0	0	0	2613
05:00 PM	0	45	0	0	68	0	48	0	0	450	0	0	0	0	0	0	611
05:15 PM	0	47	0	0	70	0	42	0	1	549	0	0	0	0	0	0	709
05:30 PM	0	74	0	0	64	0	39	0	0	538	0	0	0	0	0	0	715
05:45 PM	0	56	0	0	49	0	34	0	1	453	0	0	0	0	0	0	593
Total	0	222	0	0	251	0	163	0	2	1990	0	0	0	0	0	0	2628
Grand Total	0	1234	0	0	899	2	1060	1	5	5801	1	0	0	0	0	0	9003
Apprch %	0.0	100.0	0.0	0.0	45.8	0.1	54.0	0.1	0.1	99.9	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	13.7	0.0	0.0	10.0	0.0	11.8	0.0	0.1	64.4	0.0	0.0	0.0	0.0	0.0	0.0	

	Arimingo Ave Southbound					Richmond St Westbound					Delaware Ave Northbound					RICHMOND ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:45 AM																				
Volume	0	392	0	0	392	179	0	381	0	560	0	693	0	0	693	0	0	0	0	0	1645
Percent	0.0	100.0	0.0	0.0		32.0	0.0	68.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
08:30 Volume	0	96	0	0	96	39	0	111	0	150	0	204	0	0	204	0	0	0	0	0	450
Peak Factor																					0.914
High Int.	07:45 AM					08:30 AM					08:30 AM					6:45:00 AM					
Volume	0	105	0	0	105	39	0	111	0	150	0	204	0	0	204						
Peak Factor					0.933					0.933					0.849						



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File Name : Richmond & Aramingo & Delaware
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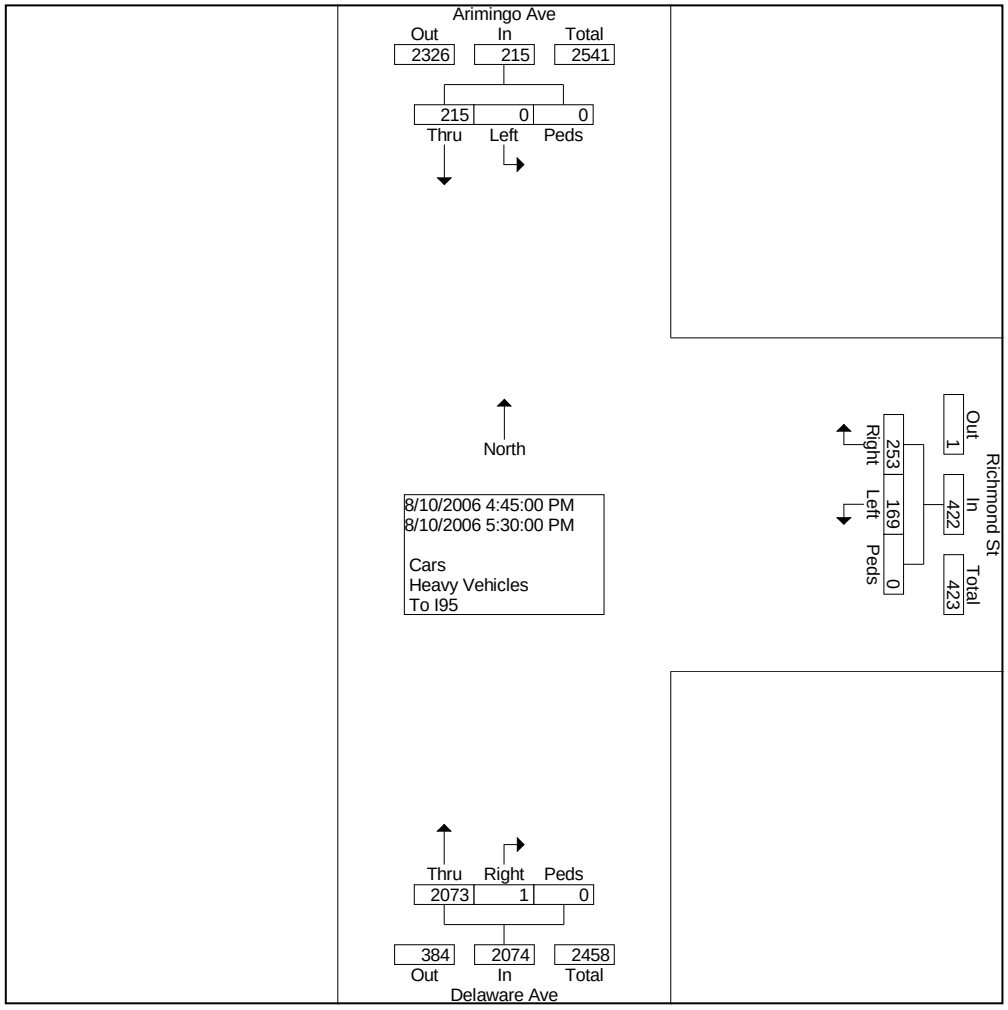
Start Date : 08/10/2006
Page No : 3

	Arimingo Ave Southbound					Richmond St Westbound					Delaware Ave Northbound					RICHMOND ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	0	215	0	0	215	253	0	169	0	422	1	2073	0	0	2074	0	0	0	0	0	2711
Percent	0.0	100.0	0.0	0.0		60.0	0.0	40.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
05:30 Volume	0	74	0	0	74	64	0	39	0	103	0	538	0	0	538	0	0	0	0	0	715
Peak Factor																					0.948
High Int.	05:30 PM					05:00 PM					05:15 PM										
Volume	0	74	0	0	74	68	0	48	0	116	1	549	0	0	550						
Peak Factor					0.726					0.909					0.943						



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Change These in The Preferences Window
Select File/Preference in the Main Scree File Name : Richmond & Dyott
Then Click the Titles Tab Site Code : 00000000
Start Date : 08/10/2006

Groups Printed- Cars - Heavy Vehicles - Bank 2

	RICHMOND STREET Southbound				DYOTT STREET Westbound				RICHMOND STREET Northbound				ICE CREAM COMPANY ENTRANCE Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	2	87	5	3	3	0	1	0	1	45	5	0	0	0	1	0	153
07:15 AM	0	93	6	1	1	0	0	0	0	46	10	1	0	0	1	0	159
07:30 AM	0	140	5	2	1	0	0	0	1	45	1	0	1	0	0	0	196
07:45 AM	0	134	6	0	2	0	0	0	1	54	3	0	0	0	0	0	200
Total	2	454	22	6	7	0	1	0	3	190	19	1	1	0	2	0	708
08:00 AM	0	143	10	0	4	0	3	0	1	50	6	0	0	0	1	0	218
08:15 AM	0	134	3	3	3	0	2	0	0	53	4	1	0	0	0	0	203
08:30 AM	0	142	10	3	1	0	0	0	1	58	6	2	1	0	0	0	224
08:45 AM	1	112	9	3	4	0	1	0	2	61	8	1	0	0	0	0	202
Total	1	531	32	9	12	0	6	0	4	222	24	4	1	0	1	0	847
09:00 AM	3	68	12	2	11	0	2	0	2	52	4	0	0	0	3	0	159
09:15 AM	1	75	1	0	2	0	1	2	2	46	1	1	0	0	1	0	133
*** BREAK ***																	
Total	4	143	13	2	13	0	3	2	4	98	5	1	0	0	4	0	292
*** BREAK ***																	
04:00 PM	1	97	6	0	43	0	9	0	0	146	3	0	0	0	1	0	306
04:15 PM	0	88	3	0	55	0	6	0	1	166	2	0	1	0	0	0	322
04:30 PM	1	86	5	0	46	0	6	0	1	151	3	0	0	0	0	0	299
04:45 PM	0	80	4	0	57	0	10	0	0	181	5	1	0	0	0	0	338
Total	2	351	18	0	201	0	31	0	2	644	13	1	1	0	1	0	1265
05:00 PM	1	95	2	1	95	0	11	0	0	140	7	1	2	0	0	1	356
05:15 PM	0	102	4	0	63	0	12	0	0	187	8	1	1	0	0	0	378
05:30 PM	1	104	3	0	33	0	3	1	0	164	7	2	2	0	1	0	321
05:45 PM	0	82	8	0	23	0	0	0	0	135	4	0	0	0	0	1	253
Total	2	383	17	1	214	0	26	1	0	626	26	4	5	0	1	2	1308
Grand Total	11	1862	102	18	447	0	67	3	13	1780	87	11	8	0	9	2	4420
Apprch %	0.6	93.4	5.1	0.9	86.5	0.0	13.0	0.6	0.7	94.1	4.6	0.6	42.1	0.0	47.4	10.5	
Total %	0.2	42.1	2.3	0.4	10.1	0.0	1.5	0.1	0.3	40.3	2.0	0.2	0.2	0.0	0.2	0.0	

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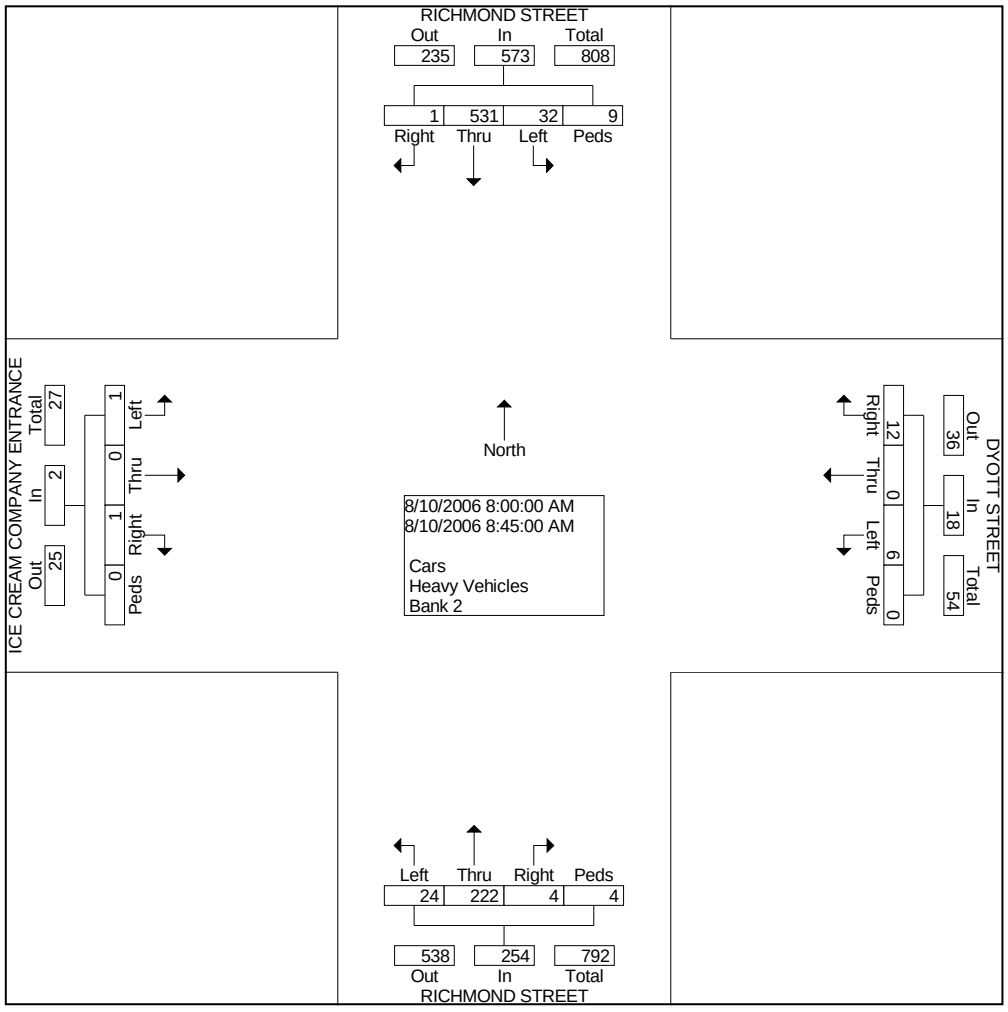
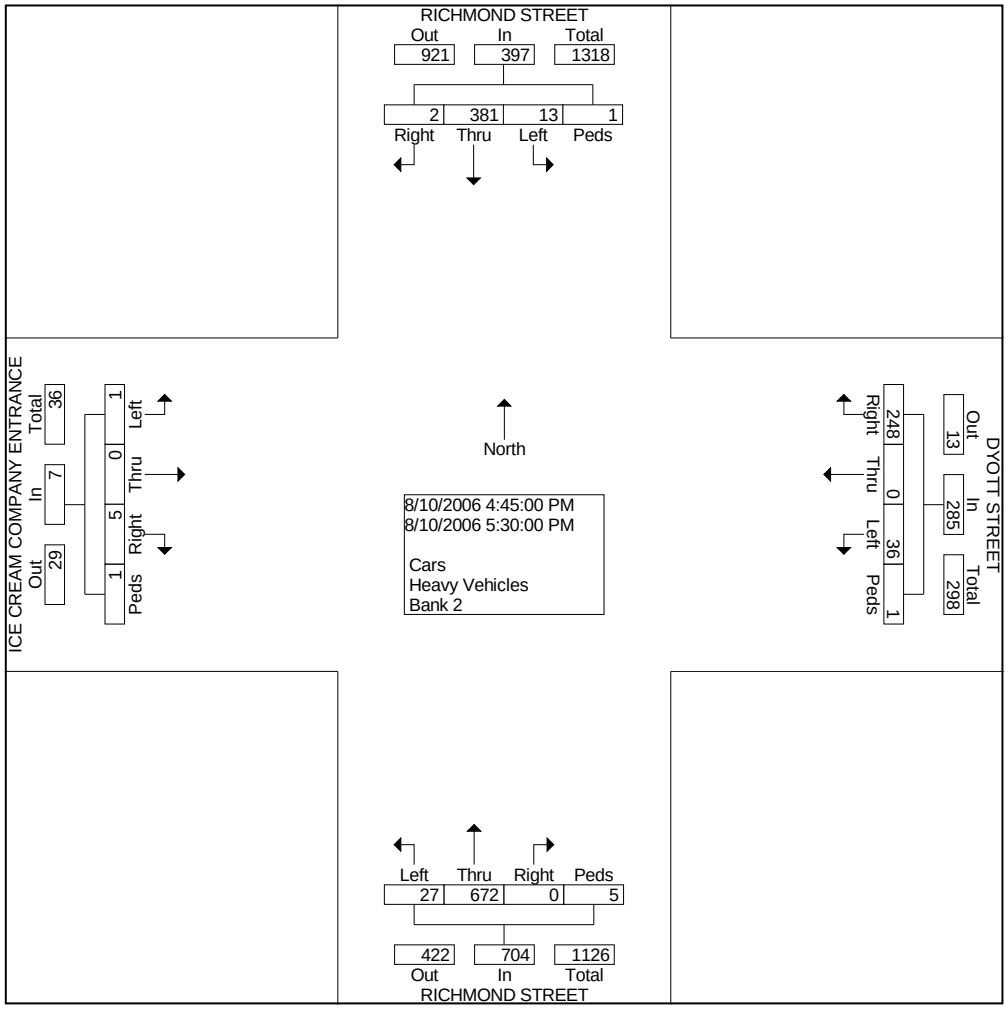
Site Code : 00000000
Start Date : 08/10/2006

	RICHMOND STREET Southbound					DYOTT STREET Westbound					RICHMOND STREET Northbound					ICE CREAM COMPANY ENTRANCE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	1	531	32	9	573	12	0	6	0	18	4	222	24	4	254	1	0	1	0	2	847
Percent	0.2	92.7	5.6	1.6		66.7	0.0	33.3	0.0		1.6	87.4	9.4	1.6		50.0	0.0	50.0	0.0		
08:30 Volume	0	142	10	3	155	1	0	0	0	1	1	58	6	2	67	1	0	0	0	1	224
Peak Factor																					0.945
High Int.	08:30 AM					08:00 AM					08:45 AM					08:00 AM					
Volume	0	142	10	3	155	4	0	3	0	7	2	61	8	1	72	0	0	1	0	1	
Peak Factor					0.924					0.643					0.882					0.500	



Default Titles
Change These in The Preferences Window
Select File/Preference in the Main Scree File Name : Richmond & Dyott
Then Click the Titles Tab Site Code : 00000000
Start Date : 08/10/2006

	RICHMOND STREET Southbound					DYOTT STREET Westbound					RICHMOND STREET Northbound					ICE CREAM COMPANY ENTRANCE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	2	381	13	1	397	248	0	36	1	285	0	672	27	5	704	5	0	1	1	7	1393
Percent	0.5	96.0	3.3	0.3		87.0	0.0	12.6	0.4		0.0	95.5	3.8	0.7		71.4	0.0	14.3	14.3		
05:15 Volume	0	102	4	0	106	63	0	12	0	75	0	187	8	1	196	1	0	0	0	1	378
Peak Factor																					0.921
High Int.	05:30 PM					05:00 PM					05:15 PM					05:00 PM					
Volume	1	104	3	0	108	95	0	11	0	106	0	187	8	1	196	2	0	0	1	3	
Peak Factor					0.919					0.672					0.898					0.583	



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File Name : Richmond & Schirra
Site Code : 00000000
Start Date : 08/10/2006

Groups Printed- Cars - Heavy Trucks - Bank 2

	Richmond St. Southbound				Schirra Dr. Westbound				Richmond St. Northbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	0	95	2	0	3	0	1	0	2	49	0	0	152
07:15 AM	0	105	3	0	0	0	2	0	1	47	0	0	158
07:30 AM	0	148	2	0	1	0	0	0	0	48	0	0	199
07:45 AM	0	144	3	0	2	0	0	1	2	52	0	0	204
Total	0	492	10	0	6	0	3	1	5	196	0	0	713
08:00 AM	0	143	1	0	0	0	3	0	0	56	0	0	203
08:15 AM	0	136	1	0	1	0	1	3	6	52	0	0	200
08:30 AM	0	150	2	1	0	0	0	2	7	54	0	0	216
08:45 AM	0	119	5	0	1	0	2	3	1	60	0	0	191
Total	0	548	9	1	2	0	6	8	14	222	0	0	810
09:00 AM	0	81	0	0	1	0	1	0	0	67	0	0	150
09:15 AM	0	76	2	2	3	0	3	2	5	44	0	0	137
*** BREAK ***													
Total	0	157	2	2	4	0	4	2	5	111	0	0	287
*** BREAK ***													
04:00 PM	0	103	3	0	2	0	1	0	3	185	0	0	297
04:15 PM	0	94	1	0	4	0	3	0	2	222	0	0	326
04:30 PM	0	89	1	0	2	0	1	0	1	195	0	0	289
04:45 PM	0	82	1	0	3	0	2	0	2	239	0	0	329
Total	0	368	6	0	11	0	7	0	8	841	0	0	1241
05:00 PM	0	100	1	0	3	0	4	0	2	243	0	0	353
05:15 PM	0	98	0	0	4	0	2	1	0	251	0	0	356
05:30 PM	0	102	0	0	0	0	3	1	0	197	0	0	303
05:45 PM	0	90	0	0	0	0	2	1	0	156	0	0	249
Total	0	390	1	0	7	0	11	3	2	847	0	0	1261
Grand Total	0	1955	28	3	30	0	31	14	34	2217	0	0	4312
Apprch %	0.0	98.4	1.4	0.2	40.0	0.0	41.3	18.7	1.5	98.5	0.0	0.0	
Total %	0.0	45.3	0.6	0.1	0.7	0.0	0.7	0.3	0.8	51.4	0.0	0.0	

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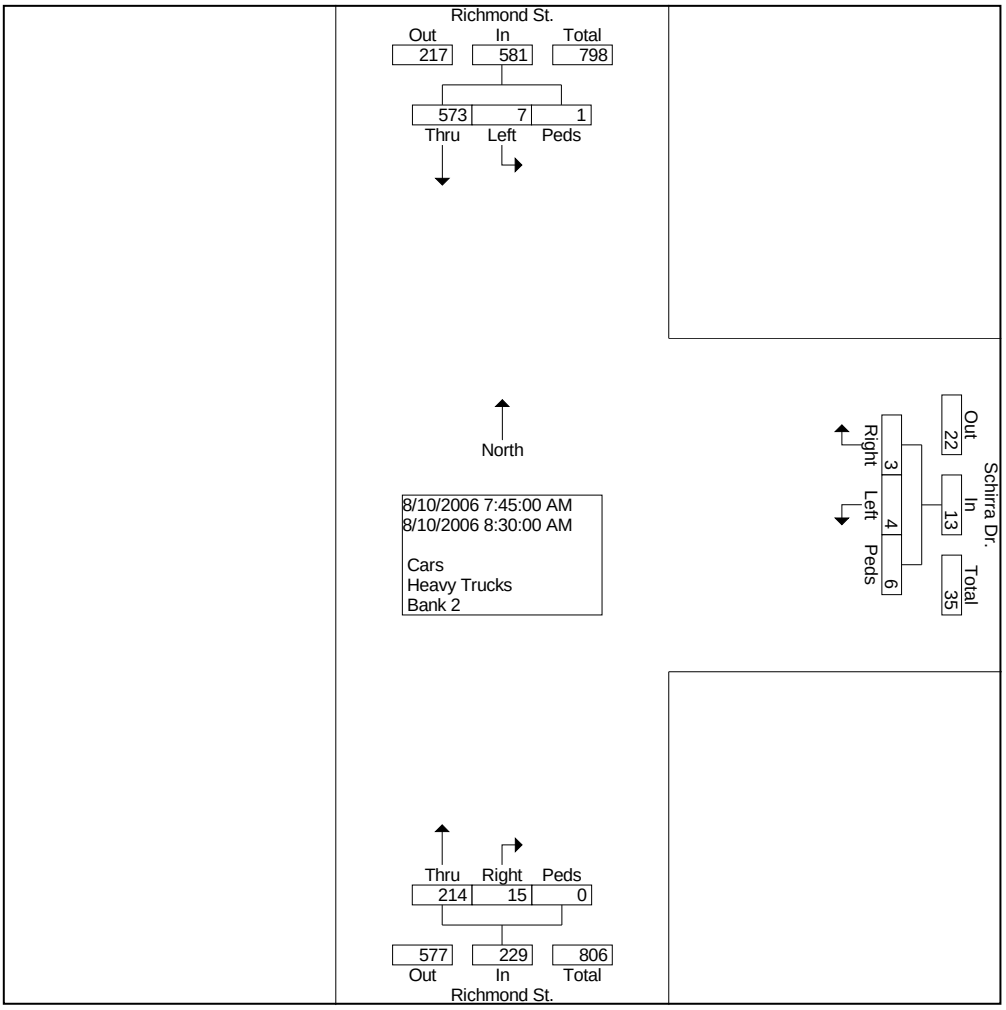
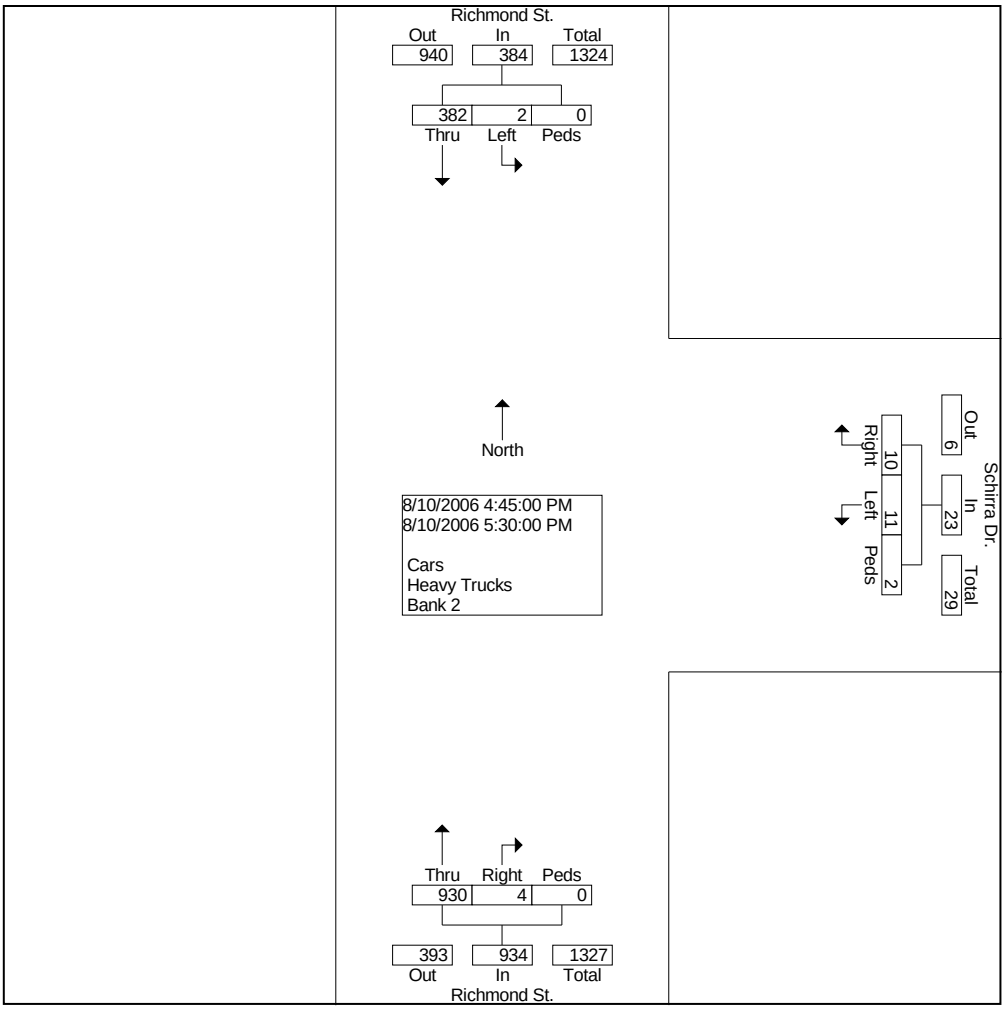
File Name : Richmond & Schirra
Site Code : 00000000
Start Date : 08/10/2006

	Richmond St. Southbound					Schirra Dr. Westbound					Richmond St. Northbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																
Intersection	07:45 AM															
Volume	0	573	7	1	581	3	0	4	6	13	15	214	0	0	229	823
Percent	0.0	98.6	1.2	0.2		23.1	0.0	30.8	46.2		6.6	93.4	0.0	0.0		
08:30 Volume	0	150	2	1	153	0	0	0	2	2	7	54	0	0	61	216
Peak Factor																0.953
High Int.	08:30 AM					08:15 AM					08:30 AM					
Volume	0	150	2	1	153	1	0	1	3	5	7	54	0	0	61	
Peak Factor					0.949					0.650					0.939	



	Richmond St. Southbound					Schirra Dr. Westbound					Richmond St. Northbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																
Intersection	04:45 PM															
Volume	0	382	2	0	384	10	0	11	2	23	4	930	0	0	934	1341
Percent	0.0	99.5	0.5	0.0		43.5	0.0	47.8	8.7		0.4	99.6	0.0	0.0		
05:15 Volume	0	98	0	0	98	4	0	2	1	7	0	251	0	0	251	356
Peak Factor																0.942
High Int.	05:30 PM					05:00 PM					05:15 PM					
Volume	0	102	0	0	102	3	0	4	0	7	0	251	0	0	251	
Peak Factor					0.941					0.821					0.930	



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File Name : Richmond & Girard
Site Code : 00000000
Start Date : 08/10/2006

Groups Printed- Cars - Heavy Vehicles - Not Used

	Richmond Ave Southbound				Richmond Ave Northbound				Girard Ave Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	7	97	0	0	0	33	14	0	3	0	4	0	158
07:15 AM	9	104	0	0	0	46	11	0	0	0	10	0	180
07:30 AM	16	149	0	0	0	37	12	0	2	0	8	0	224
07:45 AM	14	146	0	0	0	38	12	0	1	0	12	0	223
Total	46	496	0	0	0	154	49	0	6	0	34	0	785
08:00 AM	23	170	0	0	0	41	18	0	2	0	8	0	262
08:15 AM	22	146	0	0	0	40	11	0	1	0	4	0	224
08:30 AM	15	155	0	0	0	40	11	0	4	0	9	0	234
08:45 AM	8	129	1	0	0	49	13	0	1	0	15	0	216
Total	68	600	1	0	0	170	53	0	8	0	36	0	936
09:00 AM	14	74	0	0	0	56	11	0	2	0	14	0	171
09:15 AM	14	76	0	0	0	33	8	0	2	0	14	0	147
*** BREAK ***													
Total	28	150	0	0	0	89	19	0	4	0	28	0	318
*** BREAK ***													
04:00 PM	15	101	0	0	0	210	5	0	3	0	32	0	366
04:15 PM	10	81	0	0	0	230	9	0	2	0	23	0	355
04:30 PM	8	88	0	0	0	216	7	0	2	0	22	0	343
04:45 PM	9	74	0	0	0	206	11	0	1	0	20	0	321
Total	42	344	0	0	0	862	32	0	8	0	97	0	1385
05:00 PM	8	73	0	0	0	225	9	0	1	0	22	0	338
05:15 PM	11	101	0	0	0	248	9	0	0	0	32	0	401
05:30 PM	14	93	0	0	0	193	9	0	0	0	26	0	335
05:45 PM	15	169	0	0	0	301	13	0	3	0	51	0	552
Total	48	436	0	0	0	967	40	0	4	0	131	0	1626
Grand Total	232	2026	1	0	0	2242	193	0	30	0	326	0	5050
Apprch %	10.3	89.7	0.0	0.0	0.0	92.1	7.9	0.0	8.4	0.0	91.6	0.0	
Total %	4.6	40.1	0.0	0.0	0.0	44.4	3.8	0.0	0.6	0.0	6.5	0.0	

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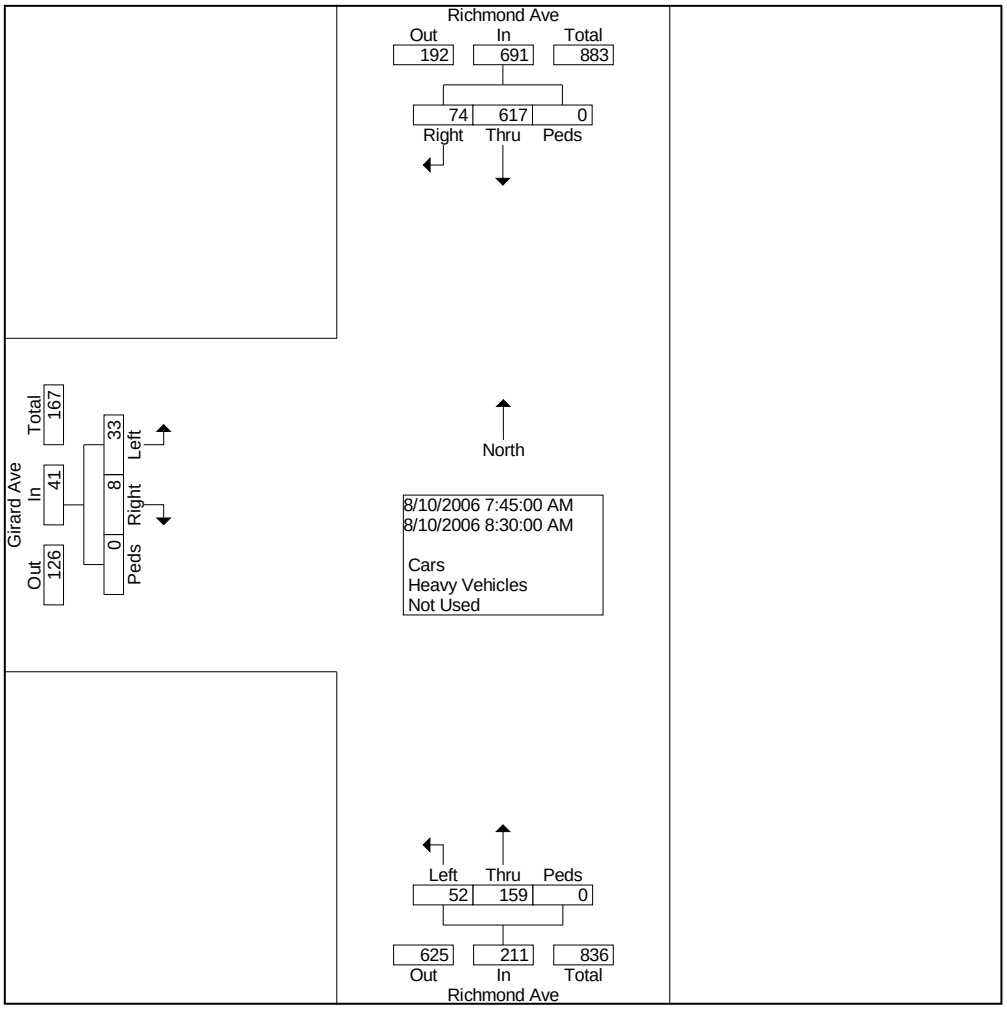
File Name : Richmond & Girard
Site Code : 00000000
Start Date : 08/10/2006

	Richmond Ave Southbound					Richmond Ave Northbound					Girard Ave Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																
Intersection	07:45 AM															
Volume	74	617	0	0	691	0	159	52	0	211	8	0	33	0	41	943
Percent	10.7	89.3	0.0	0.0		0.0	75.4	24.6	0.0		19.5	0.0	80.5	0.0		
08:00 Volume	23	170	0	0	193	0	41	18	0	59	2	0	8	0	10	262
Peak Factor																0.900
High Int.	08:00 AM					08:00 AM					07:45 AM					
Volume	23	170	0	0	193	0	41	18	0	59	1	0	12	0	13	
Peak Factor					0.895					0.894					0.788	



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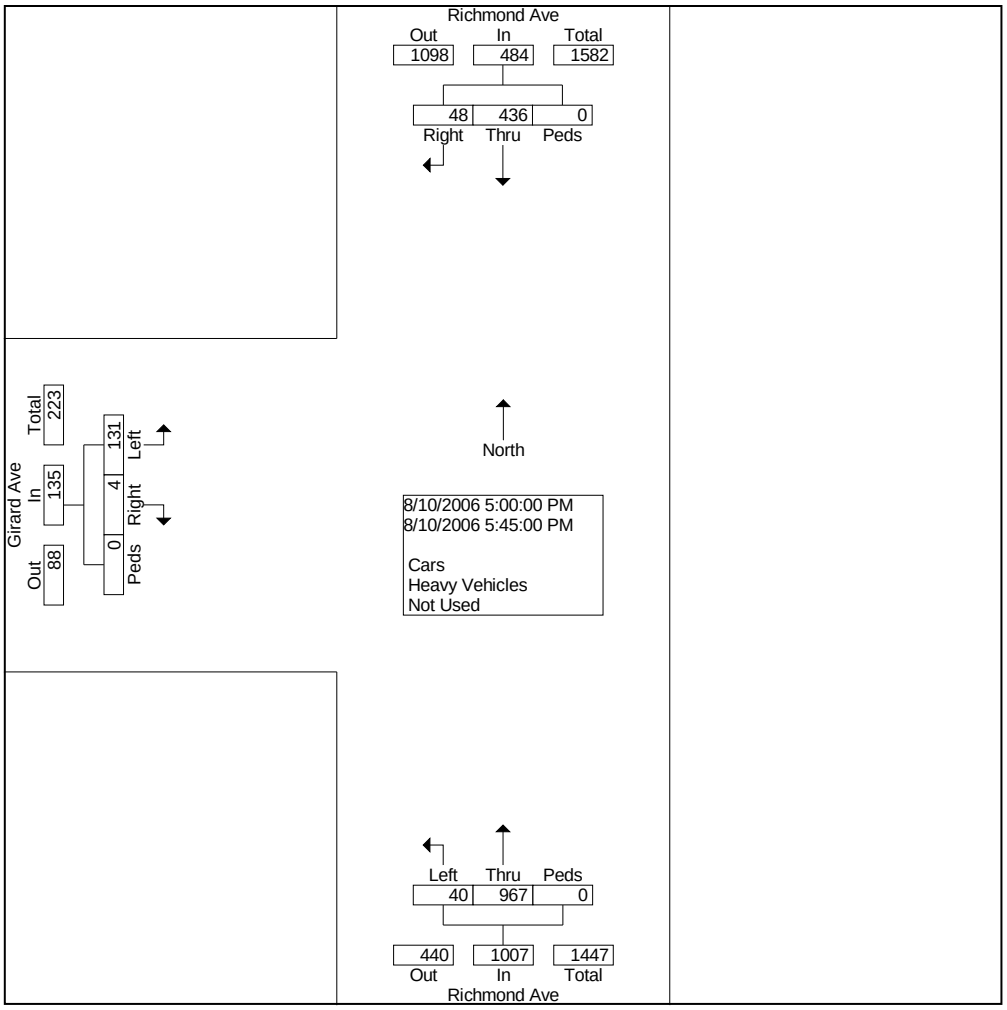
File Name : Richmond & Girard
Site Code : 00000000
Start Date : 08/10/2006

	Richmond Ave Southbound					Richmond Ave Northbound					Girard Ave Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																
Intersection	05:00 PM															
Volume	48	436	0	0	484	0	967	40	0	1007	4	0	131	0	135	1626
Percent	9.9	90.1	0.0	0.0		0.0	96.0	4.0	0.0		3.0	0.0	97.0	0.0		
05:45 Volume	15	169	0	0	184	0	301	13	0	314	3	0	51	0	54	552
Peak Factor																0.736
High Int.	05:45 PM					05:45 PM					05:45 PM					
Volume	15	169	0	0	184	0	301	13	0	314	3	0	51	0	54	
Peak Factor					0.658					0.802					0.625	



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File Name : Richmond & Cumberland
Site Code : 00000000
Start Date : 08/15/2006

Groups Printed- Cars - Heavy Vehicles - Bank 2

	RICHMOND ST. Southbound				CUMBERLAND ST. Westbound				RICHMOND ST. Northbound				CUMBERLAND ST. Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	3	92	3	2	0	0	1	1	0	29	6	6	19	2	1	1	166
07:15 AM	10	87	1	1	1	0	0	5	1	25	5	3	31	1	4	3	178
07:30 AM	12	120	5	1	0	0	1	0	0	23	6	1	38	0	2	1	210
07:45 AM	11	145	2	1	0	0	0	3	0	26	2	2	33	1	1	0	227
Total	36	444	11	5	1	0	2	9	1	103	19	12	121	4	8	5	781
08:00 AM	5	119	3	0	0	0	0	4	0	25	7	1	38	1	1	4	208
08:15 AM	9	126	2	0	0	1	1	4	0	38	7	2	44	0	2	4	240
08:30 AM	7	108	0	0	0	0	0	1	0	27	4	0	25	0	1	1	174
08:45 AM	11	111	1	1	1	0	0	2	0	29	10	0	23	0	2	0	191
Total	32	464	6	1	1	1	1	11	0	119	28	3	130	1	6	9	813
09:00 AM	4	64	0	0	2	0	2	3	0	45	15	0	25	0	3	0	163
09:15 AM	6	60	0	0	2	1	0	3	0	40	5	0	25	0	4	2	148
*** BREAK ***																	
Total	10	124	0	0	4	1	2	6	0	85	20	0	50	0	7	2	311
*** BREAK ***																	
04:00 PM	10	57	0	0	0	3	1	0	0	169	11	1	31	1	4	0	288
04:15 PM	6	42	1	1	0	0	0	1	1	191	12	1	22	0	3	1	282
04:30 PM	10	53	2	1	0	0	0	1	0	142	15	4	31	1	5	1	266
04:45 PM	8	53	6	1	0	3	0	0	1	184	21	0	23	2	4	4	310
Total	34	205	9	3	0	6	1	2	2	686	59	6	107	4	16	6	1146
05:00 PM	11	55	1	1	2	0	0	5	1	197	19	4	20	0	5	1	322
05:15 PM	16	67	0	1	0	0	0	2	0	230	12	8	30	0	2	8	376
05:30 PM	10	69	0	0	0	1	0	0	0	207	14	3	33	0	2	3	342
05:45 PM	10	74	5	0	1	9	0	1	1	140	13	1	22	8	6	5	296
Total	47	265	6	2	3	10	0	8	2	774	58	16	105	8	15	17	1336
Grand Total	159	1502	32	11	9	18	6	36	5	1767	184	37	513	17	52	39	4387
Apprch %	9.3	88.1	1.9	0.6	13.0	26.1	8.7	52.2	0.3	88.7	9.2	1.9	82.6	2.7	8.4	6.3	
Total %	3.6	34.2	0.7	0.3	0.2	0.4	0.1	0.8	0.1	40.3	4.2	0.8	11.7	0.4	1.2	0.9	

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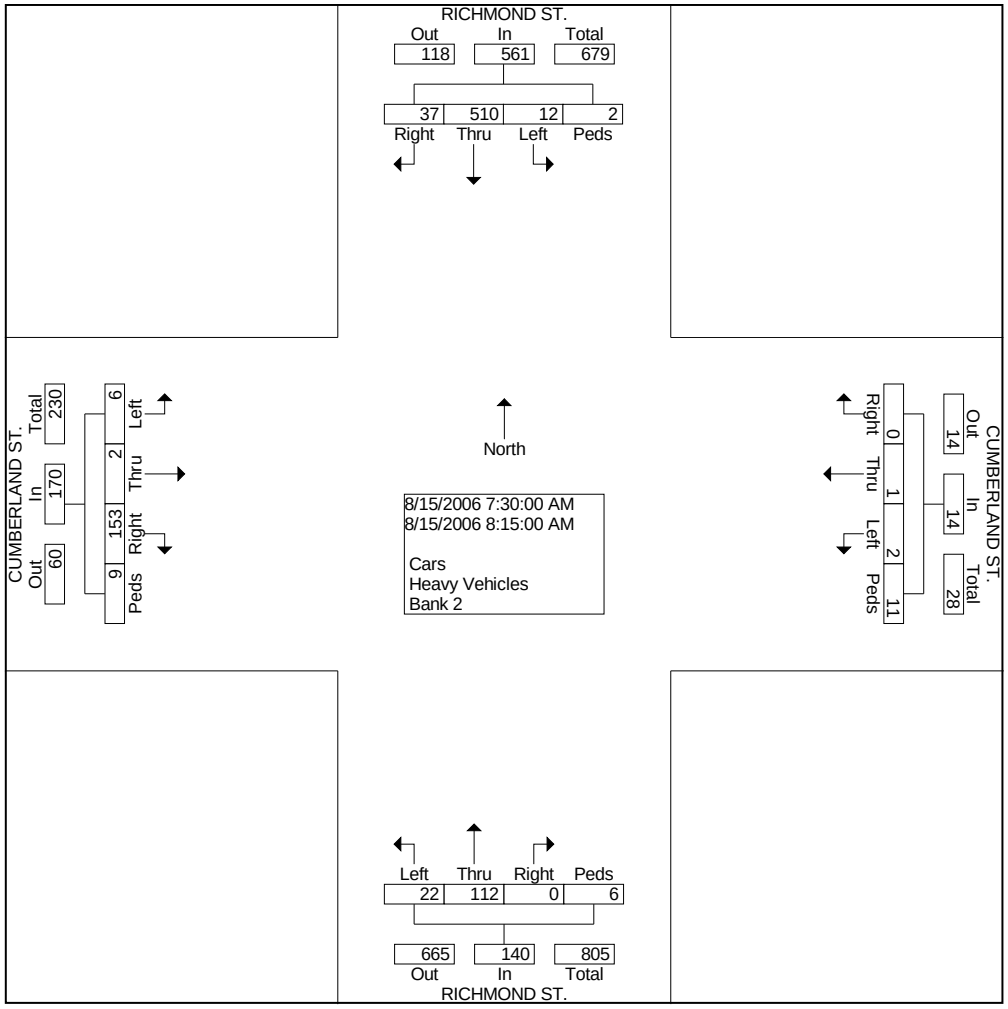
File Name : Richmond & Cumberland
Site Code : 00000000
Start Date : 08/15/2006

	RICHMOND ST. Southbound					CUMBERLAND ST. Westbound					RICHMOND ST. Northbound					CUMBERLAND ST. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	37	510	12	2	561	0	1	2	11	14	0	112	22	6	140	153	2	6	9	170	885
Percent	6.6	90.9	2.1	0.4		0.0	7.1	14.3	78.6		0.0	80.0	15.7	4.3		90.0	1.2	3.5	5.3		
08:15 Volume	9	126	2	0	137	0	1	1	4	6	0	38	7	2	47	44	0	2	4	50	240
Peak Factor																					0.922
High Int.	07:45 AM					08:15 AM					08:15 AM					08:15 AM					
Volume	11	145	2	1	159	0	1	1	4	6	0	38	7	2	47	44	0	2	4	50	
Peak Factor					0.882					0.583					0.745					0.850	



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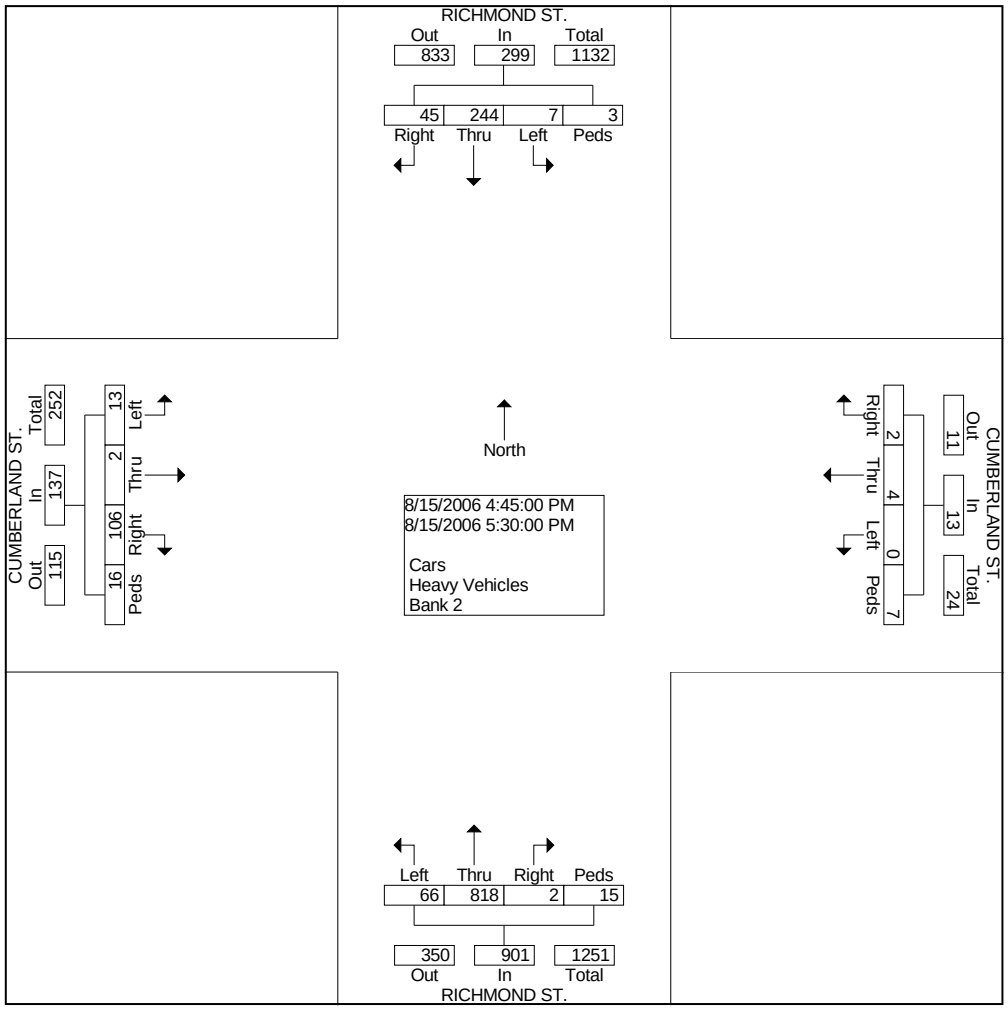
File Name : Richmond & Cumberland
Site Code : 00000000
Start Date : 08/15/2006

	RICHMOND ST. Southbound					CUMBERLAND ST. Westbound					RICHMOND ST. Northbound					CUMBERLAND ST. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	45	244	7	3	299	2	4	0	7	13	2	818	66	15	901	106	2	13	16	137	1350
Percent	15.1	81.6	2.3	1.0		15.4	30.8	0.0	53.8		0.2	90.8	7.3	1.7		77.4	1.5	9.5	11.7		
05:15 Volume	16	67	0	1	84	0	0	0	2	2	0	230	12	8	250	30	0	2	8	40	376
Peak Factor																					0.898
High Int.	05:15 PM					05:00 PM					05:15 PM					05:15 PM					
Volume	16	67	0	1	84	2	0	0	5	7	0	230	12	8	250	30	0	2	8	40	
Peak Factor					0.890					0.464					0.901					0.856	



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File Name : Richmond & Huntingdon
Site Code : 00000000
Start Date : 08/15/2006

Groups Printed- Cars - Heavy Trucks - Bank 2

	Richmond St Southbound				Richmond St Northbound				Huntingdon St. Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	10	97	0	0	0	25	2	0	0	0	0	2	136
07:15 AM	15	88	0	0	0	27	4	0	0	0	0	0	134
07:30 AM	6	145	0	0	0	17	8	0	0	0	0	0	176
07:45 AM	7	139	0	0	0	23	1	1	0	0	0	1	172
Total	38	469	0	0	0	92	15	1	0	0	0	3	618
08:00 AM	7	118	0	0	0	22	7	0	0	0	0	5	159
08:15 AM	8	140	0	0	0	38	8	0	0	0	0	3	197
08:30 AM	13	108	0	0	0	22	6	1	0	0	1	3	154
08:45 AM	2	109	0	0	0	33	6	1	0	0	0	1	152
Total	30	475	0	0	0	115	27	2	0	0	1	12	662
09:00 AM	5	68	0	0	0	36	10	0	0	0	0	0	119
09:15 AM	6	53	0	0	0	35	8	0	2	0	0	2	106
*** BREAK ***													
Total	11	121	0	0	0	71	18	0	2	0	0	2	225
*** BREAK ***													
04:00 PM	8	60	0	0	0	141	26	2	0	0	0	0	237
04:15 PM	9	50	0	0	0	171	17	2	0	0	0	1	250
04:30 PM	8	57	0	1	0	142	18	0	1	0	0	1	228
04:45 PM	12	63	0	0	0	154	25	0	0	0	0	0	254
Total	37	230	0	1	0	608	86	4	1	0	0	2	969
05:00 PM	14	67	0	0	0	178	25	1	0	0	0	3	288
05:15 PM	10	73	0	0	0	188	27	0	0	0	0	0	298
05:30 PM	7	72	0	0	0	183	26	2	0	0	0	2	292
05:45 PM	5	77	0	0	0	137	14	9	0	0	0	1	243
Total	36	289	0	0	0	686	92	12	0	0	0	6	1121
Grand Total	152	1584	0	1	0	1572	238	19	3	0	1	25	3595
Apprch %	8.8	91.2	0.0	0.1	0.0	85.9	13.0	1.0	10.3	0.0	3.4	86.2	
Total %	4.2	44.1	0.0	0.0	0.0	43.7	6.6	0.5	0.1	0.0	0.0	0.7	

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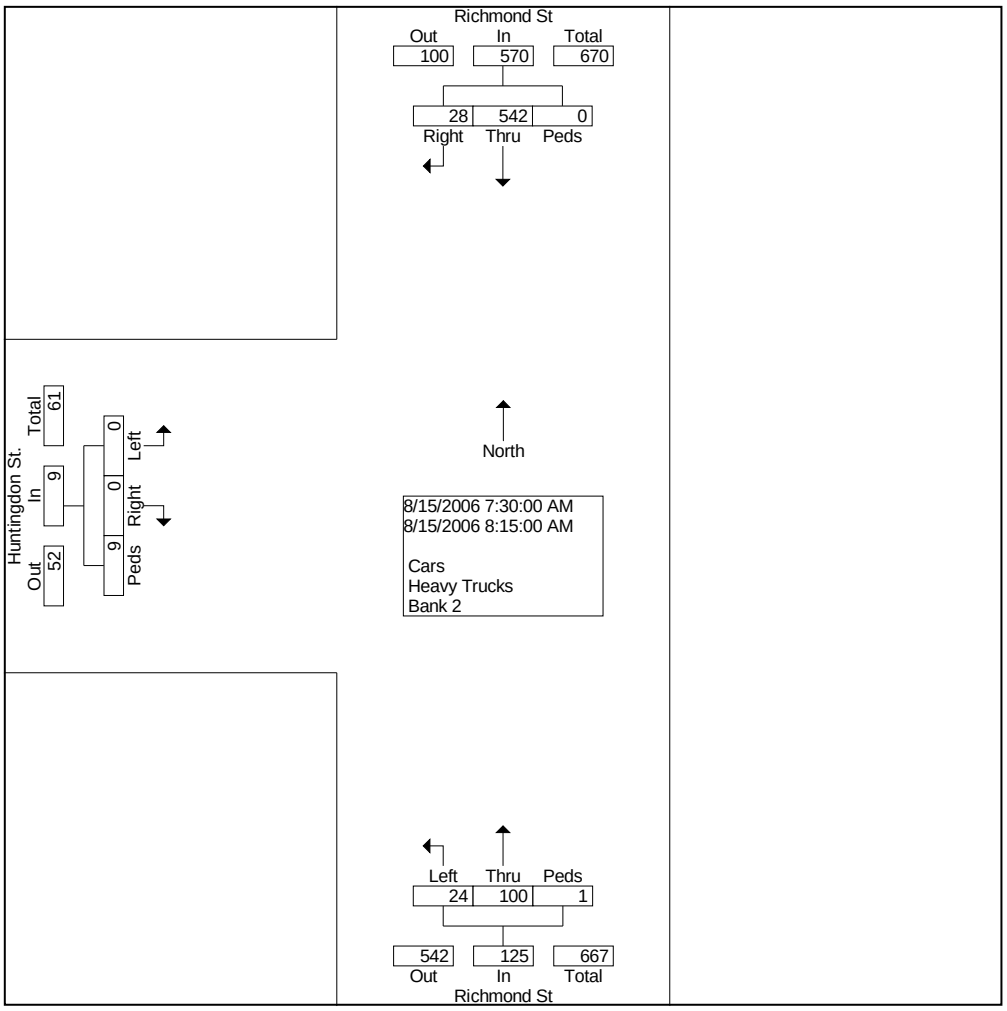
File Name : Richmond & Huntingdon
Site Code : 00000000
Start Date : 08/15/2006

	Richmond St Southbound					Richmond St Northbound					Huntingdon St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																
Intersection	07:30 AM															
Volume	28	542	0	0	570	0	100	24	1	125	0	0	0	9	9	704
Percent	4.9	95.1	0.0	0.0		0.0	80.0	19.2	0.8		0.0	0.0	0.0	100.0		
08:15 Volume	8	140	0	0	148	0	38	8	0	46	0	0	0	3	3	197
Peak Factor																0.893
High Int.	07:30 AM					08:15 AM					08:00 AM					
Volume	6	145	0	0	151	0	38	8	0	46	0	0	0	5	5	
Peak Factor					0.944					0.679					0.450	



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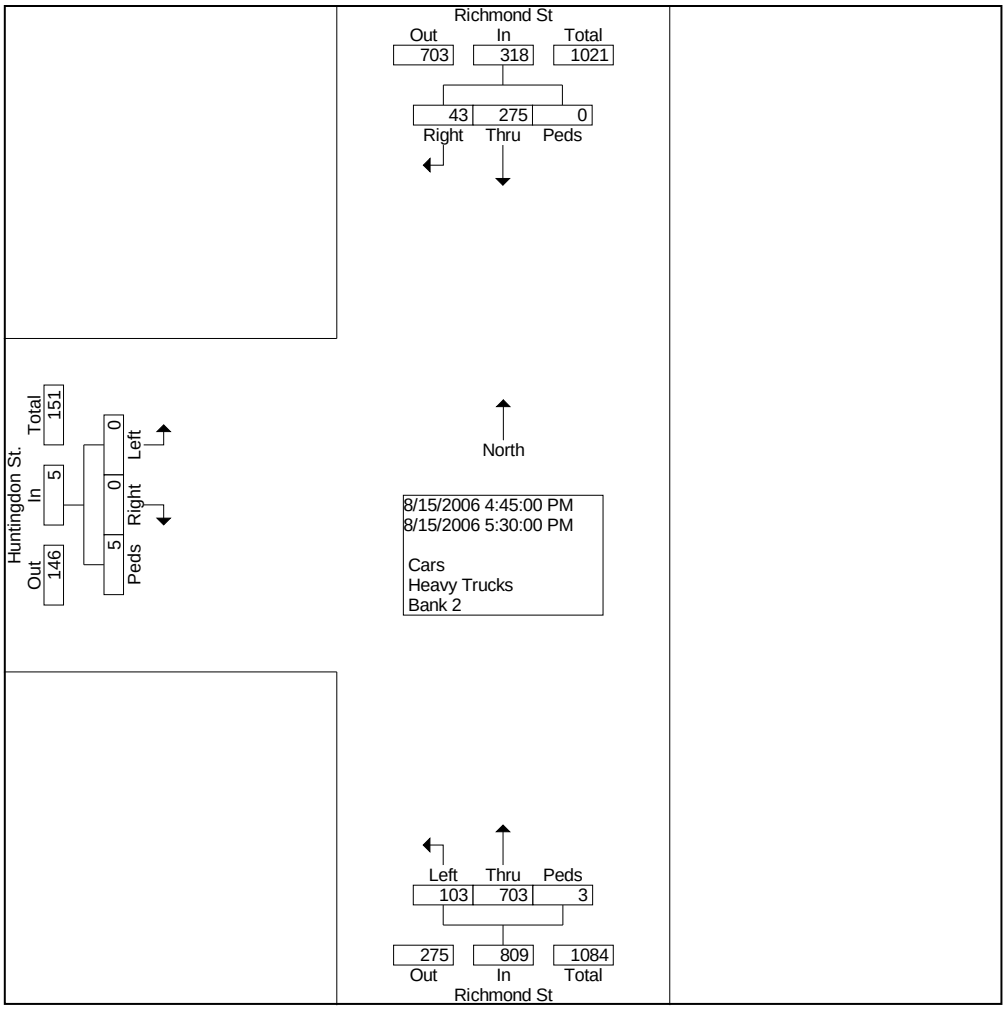
Then Click the Titles Tab

File Name : Richmond & Huntingdon
Site Code : 00000000
Start Date : 08/15/2006

	Richmond St Southbound					Richmond St Northbound					Huntingdon St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																
Intersection	04:45 PM															
Volume	43	275	0	0	318	0	703	103	3	809	0	0	0	5	5	1132
Percent	13.5	86.5	0.0	0.0		0.0	86.9	12.7	0.4		0.0	0.0	0.0	100.0		
05:15 Volume	10	73	0	0	83	0	188	27	0	215	0	0	0	0	0	298
Peak Factor																0.950
High Int.	05:15 PM					05:15 PM					05:00 PM					
Volume	10	73	0	0	83	0	188	27	0	215	0	0	0	3	3	
Peak Factor					0.958					0.941					0.417	



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File Name : Richmond & Lehigh
Site Code : 00000000
Start Date : 08/15/2006

Groups Printed- Cars - Heavy Vehicles - Trolley

	Richmond St Southbound				Richmond St Northbound				Lehigh Ave. Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	22	90	0	0	0	23	2	0	19	0	3	2	161
07:15 AM	21	81	0	0	0	19	7	0	18	0	7	1	154
07:30 AM	26	120	0	0	0	15	4	0	25	0	5	0	195
07:45 AM	24	131	0	2	0	17	6	0	26	0	5	0	211
Total	93	422	0	2	0	74	19	0	88	0	20	3	721
08:00 AM	30	103	0	2	0	17	5	0	22	0	8	0	187
08:15 AM	24	108	0	3	0	29	4	1	29	0	9	0	207
08:30 AM	17	101	0	4	0	24	1	1	23	0	9	0	180
08:45 AM	35	98	0	2	0	21	5	0	23	0	7	0	191
Total	106	410	0	11	0	91	15	2	97	0	33	0	765
*** BREAK ***													
04:00 PM	36	39	0	2	0	124	19	1	28	0	13	0	262
04:15 PM	33	37	0	2	0	146	22	2	25	0	15	1	283
04:30 PM	25	46	0	0	0	119	15	1	15	0	19	0	240
04:45 PM	26	57	0	0	0	142	15	0	25	0	13	0	278
Total	120	179	0	4	0	531	71	4	93	0	60	1	1063
05:00 PM	34	56	0	0	0	142	38	4	25	0	10	0	309
05:15 PM	29	49	0	2	0	165	25	5	26	0	13	0	314
05:30 PM	28	60	0	2	0	150	25	3	19	0	20	1	308
05:45 PM	32	56	0	0	0	119	14	1	26	0	10	0	258
Total	123	221	0	4	0	576	102	13	96	0	53	1	1189
Grand Total	442	1232	0	21	0	1272	207	19	374	0	166	5	3738
Apprch %	26.1	72.7	0.0	1.2	0.0	84.9	13.8	1.3	68.6	0.0	30.5	0.9	
Total %	11.8	33.0	0.0	0.6	0.0	34.0	5.5	0.5	10.0	0.0	4.4	0.1	

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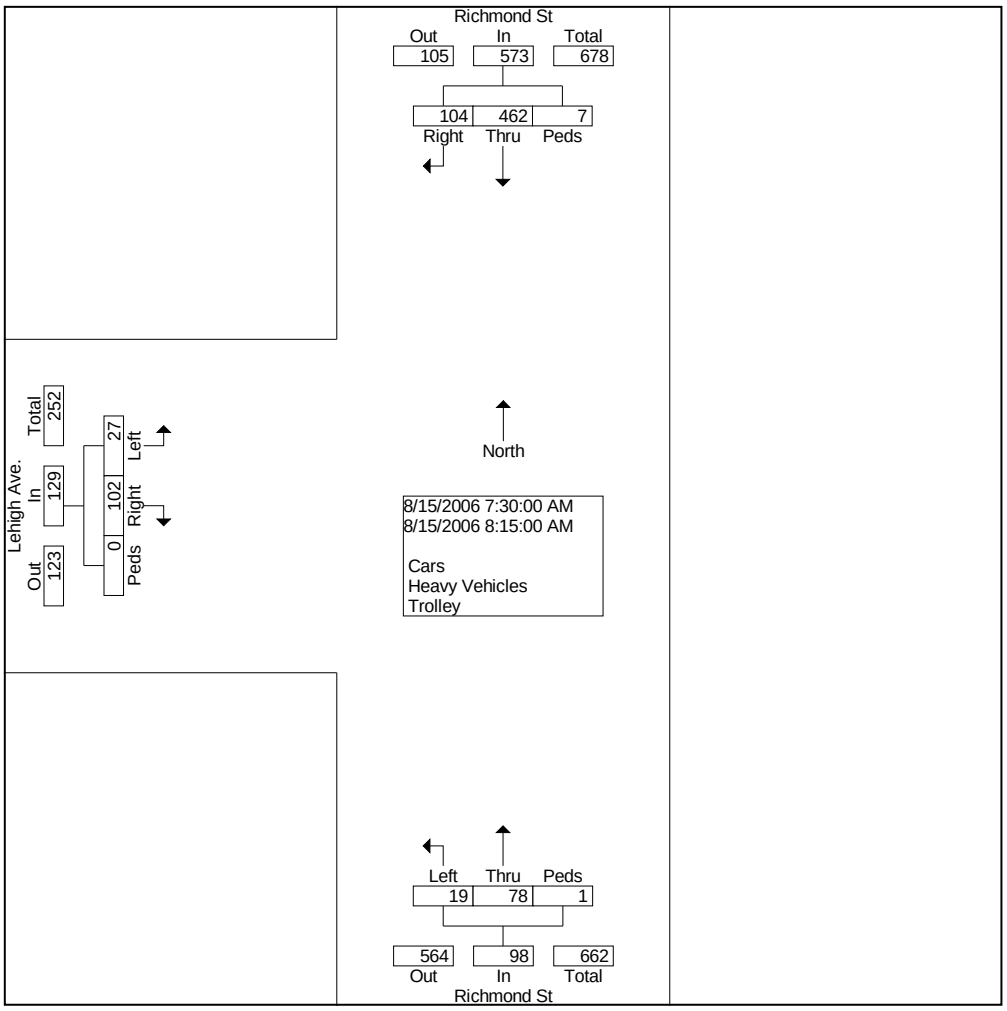
File Name : Richmond & Lehigh
Site Code : 00000000
Start Date : 08/15/2006

	Richmond St Southbound					Richmond St Northbound					Lehigh Ave. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																
Intersection	07:30 AM															
Volume	104	462	0	7	573	0	78	19	1	98	102	0	27	0	129	800
Percent	18.2	80.6	0.0	1.2		0.0	79.6	19.4	1.0		79.1	0.0	20.9	0.0		
07:45 Volume	24	131	0	2	157	0	17	6	0	23	26	0	5	0	31	211
Peak Factor																0.948
High Int.	07:45 AM					08:15 AM					08:15 AM					
Volume	24	131	0	2	157	0	29	4	1	34	29	0	9	0	38	
Peak Factor					0.912					0.721					0.849	



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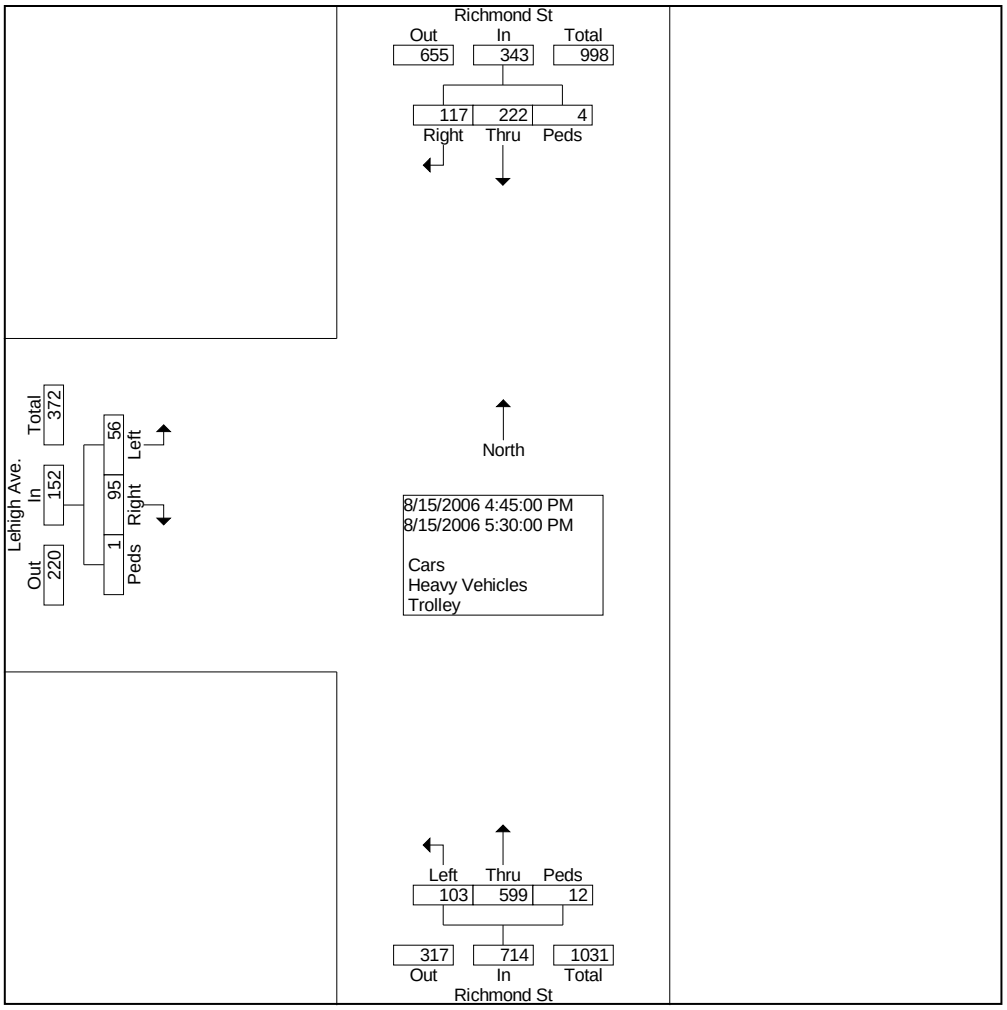
File Name : Richmond & Lehigh
Site Code : 00000000
Start Date : 08/15/2006

	Richmond St Southbound					Richmond St Northbound					Lehigh Ave. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																
Intersection	04:45 PM															
Volume	117	222	0	4	343	0	599	103	12	714	95	0	56	1	152	1209
Percent	34.1	64.7	0.0	1.2		0.0	83.9	14.4	1.7		62.5	0.0	36.8	0.7		
05:15 Volume	29	49	0	2	80	0	165	25	5	195	26	0	13	0	39	314
Peak Factor																0.963
High Int.	05:00 PM					05:15 PM					05:30 PM					
Volume	34	56	0	0	90	0	165	25	5	195	19	0	20	1	40	
Peak Factor					0.953					0.915					0.950	



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File Name : Aramingo & Lehigh
Site Code : 00000000
Start Date : 08/15/2006

Groups Printed- Cars - Heavy Vehicles - Not Used

	Aramingo Ave Southbound				Lehigh Ave Westbound				Aramingo Ave Northbound				Lehigh Ave Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	31	168	3	0	0	20	5	0	1	31	44	0	71	19	20	0	413
07:15 AM	41	193	2	0	1	35	4	0	8	47	39	0	94	13	11	0	488
07:30 AM	28	187	1	0	1	32	5	0	2	62	51	0	96	24	26	0	515
07:45 AM	32	188	3	0	0	45	6	0	4	88	48	0	99	24	26	0	563
Total	132	736	9	0	2	132	20	0	15	228	182	0	360	80	83	0	1979
08:00 AM	34	208	2	0	1	33	6	0	10	41	59	0	68	18	18	0	498
08:15 AM	55	212	3	0	2	40	3	0	5	57	70	0	95	22	20	0	584
08:30 AM	39	150	1	0	4	24	8	0	4	60	61	0	91	30	26	0	498
08:45 AM	28	142	3	0	3	40	4	0	10	77	61	0	89	27	32	0	516
Total	156	712	9	0	10	137	21	0	29	235	251	0	343	97	96	0	2096
09:00 AM	41	119	2	0	1	35	2	0	1	65	57	0	78	26	36	0	463
09:15 AM	13	98	4	0	3	12	2	0	5	91	63	0	72	16	27	0	406
*** BREAK ***																	
Total	54	217	6	0	4	47	4	0	6	156	120	0	150	42	63	0	869
*** BREAK ***																	
04:00 PM	32	80	13	0	9	38	1	0	8	137	55	0	76	49	45	0	543
04:15 PM	34	114	2	0	4	49	3	0	7	145	65	0	80	59	50	0	612
04:30 PM	36	72	2	0	4	43	10	0	7	130	58	0	71	50	41	0	524
04:45 PM	31	83	4	0	8	29	5	0	9	176	55	0	73	40	49	0	562
Total	133	349	21	0	25	159	19	0	31	588	233	0	300	198	185	0	2241
05:00 PM	28	89	4	0	9	39	1	0	5	122	63	0	78	39	41	0	518
05:15 PM	29	60	7	0	11	47	5	0	10	140	71	0	79	48	48	0	555
05:30 PM	33	67	5	0	4	30	6	0	9	189	67	0	61	45	39	0	555
05:45 PM	30	108	5	0	9	37	2	0	9	144	57	0	97	49	63	0	610
Total	120	324	21	0	33	153	14	0	33	595	258	0	315	181	191	0	2238
Grand Total	595	2338	66	0	74	628	78	0	114	1802	1044	0	1468	598	618	0	9423
Apprch %	19.8	78.0	2.2	0.0	9.5	80.5	10.0	0.0	3.9	60.9	35.3	0.0	54.7	22.3	23.0	0.0	
Total %	6.3	24.8	0.7	0.0	0.8	6.7	0.8	0.0	1.2	19.1	11.1	0.0	15.6	6.3	6.6	0.0	

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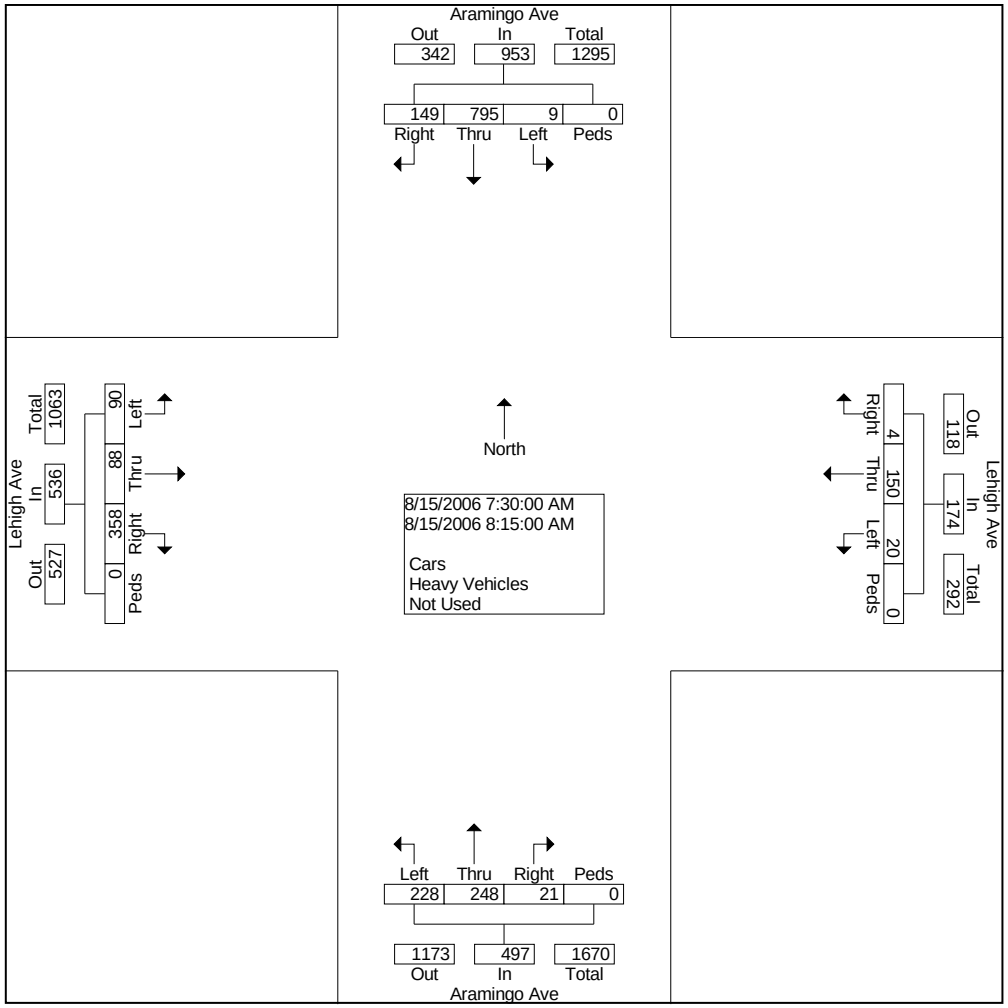
File Name : Aramingo & Lehigh
Site Code : 00000000
Start Date : 08/15/2006

	Aramingo Ave Southbound					Lehigh Ave Westbound					Aramingo Ave Northbound					Lehigh Ave Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	149	795	9	0	953	4	150	20	0	174	21	248	228	0	497	358	88	90	0	536	2160
Percent	15.6	83.4	0.9	0.0		2.3	86.2	11.5	0.0		4.2	49.9	45.9	0.0		66.8	16.4	16.8	0.0		
08:15 Volume	55	212	3	0	270	2	40	3	0	45	5	57	70	0	132	95	22	20	0	137	584
Peak Factor																					0.925
High Int.	08:15 AM					07:45 AM					07:45 AM					07:45 AM					
Volume	55	212	3	0	270	0	45	6	0	51	4	88	48	0	140	99	24	26	0	149	
Peak Factor					0.882					0.853					0.888					0.899	



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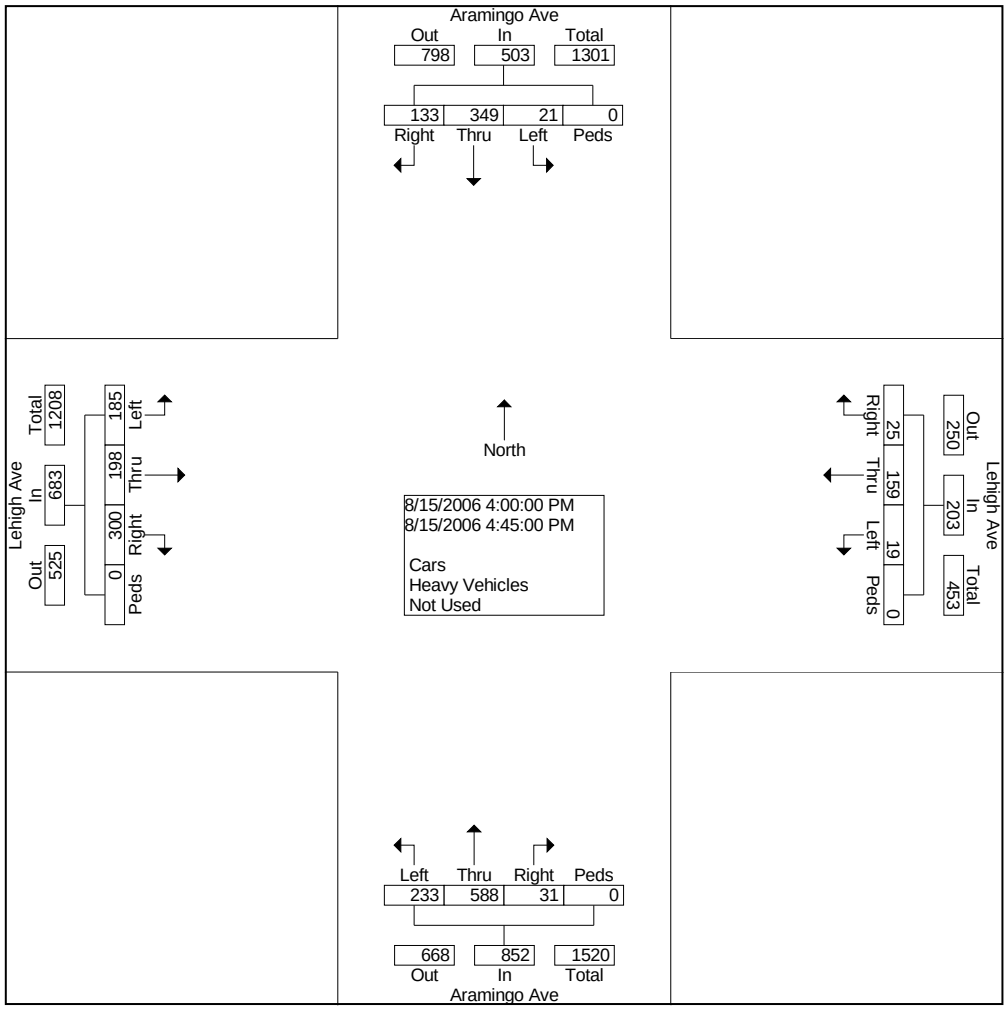
File Name : Aramingo & Lehigh
Site Code : 00000000
Start Date : 08/15/2006

	Aramingo Ave Southbound					Lehigh Ave Westbound					Aramingo Ave Northbound					Lehigh Ave Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	133	349	21	0	503	25	159	19	0	203	31	588	233	0	852	300	198	185	0	683	2241
Percent	26.4	69.4	4.2	0.0		12.3	78.3	9.4	0.0		3.6	69.0	27.3	0.0		43.9	29.0	27.1	0.0		
04:15 Volume	34	114	2	0	150	4	49	3	0	56	7	145	65	0	217	80	59	50	0	189	612
Peak Factor																					0.915
High Int.	04:15 PM					04:30 PM					04:45 PM					04:15 PM					
Volume	34	114	2	0	150	4	43	10	0	57	9	176	55	0	240	80	59	50	0	189	
Peak Factor					0.838					0.890					0.888					0.903	



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File Name : Aramingo & Huntingdon & Belgrade
Title Code : 00000000
Start Date : 08/09/2006

Groups Printed- Cars - Heavy Vehicles - Bank 2

	Belgrade Street To: Southbound				Aramingo Avenue Westbound				Huntingdon Street Northbound				Aramingo Avenue Eastbound				
Start Time	Aramingo WB	Aramingo EB	Huntingdon SB	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	0	41	2	0	11	224	0	4	2	6	13	1	0	75	7	0	386
07:15 AM	2	55	5	1	6	216	0	2	1	11	7	1	0	71	10	2	390
07:30 AM	3	24	5	0	7	257	0	4	5	16	20	4	0	115	14	4	478
07:45 AM	0	45	3	0	6	276	0	3	2	13	18	5	0	105	13	2	491
Total	5	165	15	1	30	973	0	13	10	46	58	11	0	366	44	8	1745
08:00 AM	0	48	8	0	10	290	0	4	4	18	22	2	0	92	16	0	514
08:15 AM	2	54	4	0	11	278	0	1	5	20	18	2	0	110	12	2	519
08:30 AM	0	52	5	0	7	251	0	1	7	16	16	1	0	115	9	1	481
08:45 AM	0	43	6	0	11	237	0	6	2	18	14	3	0	143	19	1	503
Total	2	197	23	0	39	1056	0	12	18	72	70	8	0	460	56	4	2017
09:00 AM	0	39	7	0	9	212	0	2	4	10	12	3	0	132	15	2	447
09:15 AM	1	26	9	0	9	194	0	2	6	13	11	2	0	111	12	6	402
*** BREAK ***																	
Total	1	65	16	0	18	406	0	4	10	23	23	5	0	243	27	8	849
*** BREAK ***																	
04:00 PM	1	27	17	0	15	173	0	3	7	34	10	9	0	229	23	2	550
04:15 PM	1	31	15	0	11	178	0	3	8	26	11	5	0	218	22	1	530
04:30 PM	2	20	13	0	23	166	0	8	14	31	7	8	0	211	25	0	528
04:45 PM	7	30	15	6	9	153	0	17	10	20	12	3	0	211	29	5	527
Total	11	108	60	6	58	670	0	31	39	111	40	25	0	869	99	8	2135
05:00 PM	0	21	17	0	16	187	0	8	8	31	10	4	0	197	29	5	533
05:15 PM	1	30	11	5	17	183	0	7	16	21	18	7	0	211	31	10	568
05:30 PM	3	34	12	0	13	166	0	5	11	31	10	9	0	215	22	8	539
05:45 PM	0	21	11	2	9	162	0	14	7	21	5	6	0	190	25	9	482
Total	4	106	51	7	55	698	0	34	42	104	43	26	0	813	107	32	2122
Grand Total	23	641	165	14	200	3803	0	94	119	356	234	75	0	2751	333	60	8868
Apprch %	2.7	76.0	19.6	1.7	4.9	92.8	0.0	2.3	15.2	45.4	29.8	9.6	0.0	87.5	10.6	1.9	
Total %	0.3	7.2	1.9	0.2	2.3	42.9	0.0	1.1	1.3	4.0	2.6	0.8	0.0	31.0	3.8	0.7	

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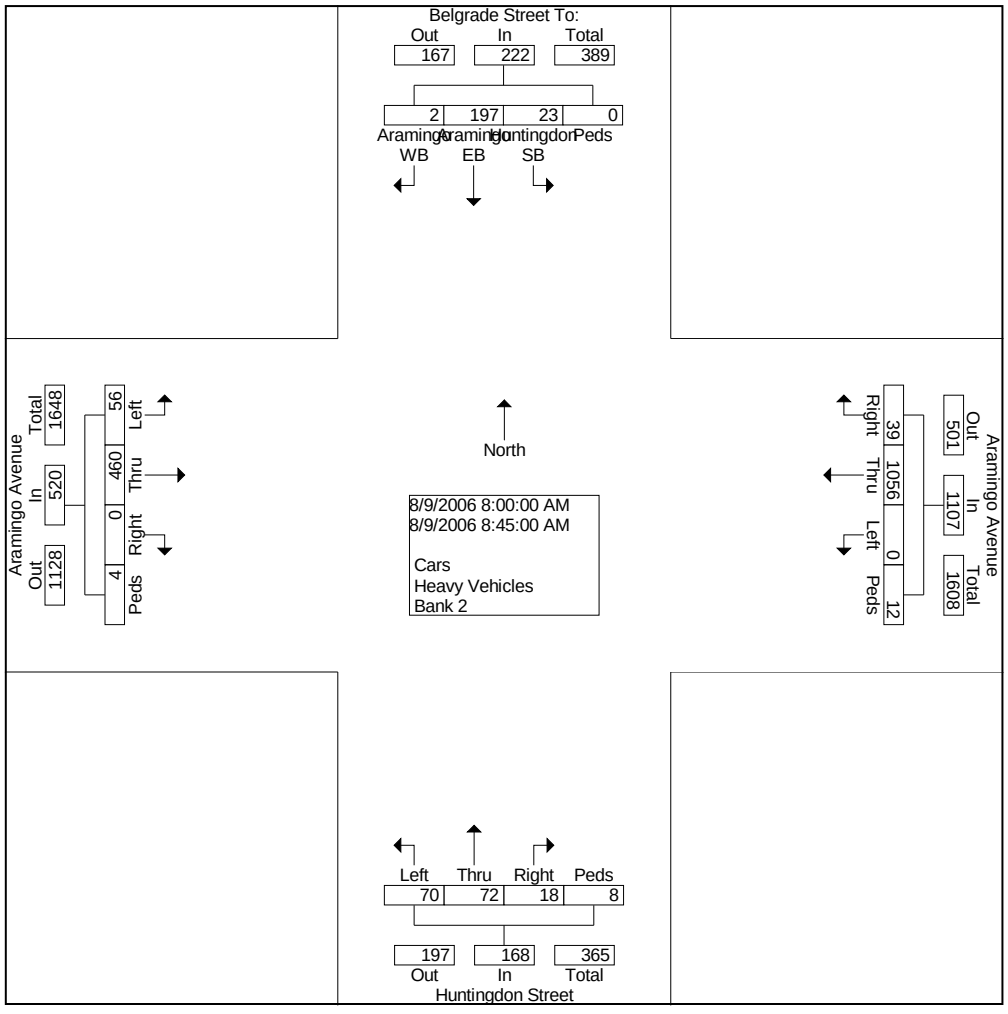
Title Code : 00000000
Start Date : 08/09/2006

	Belgrade Street To: Southbound					Aramingo Avenue Westbound					Huntingdon Street Northbound					Aramingo Avenue Eastbound					
Start Time	Aramingo WB	Aramingo EB	Huntingdon SB	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	2	197	23	0	222	39	1056	0	12	1107	18	72	70	8	168	0	460	56	4	520	2017
Percent	0.9	88.7	10.4	0.0		3.5	95.4	0.0	1.1		10.7	42.9	41.7	4.8		0.0	88.5	10.8	0.8		
08:15 Volume	2	54	4	0	60	11	278	0	1	290	5	20	18	2	45	0	110	12	2	124	519
Peak Factor																					0.972
High Int.	08:15 AM					08:00 AM					08:00 AM					08:45 AM					
Volume	2	54	4	0	60	10	290	0	4	304	4	18	22	2	46	0	143	19	1	163	
Peak Factor					0.925					0.910					0.913					0.798	



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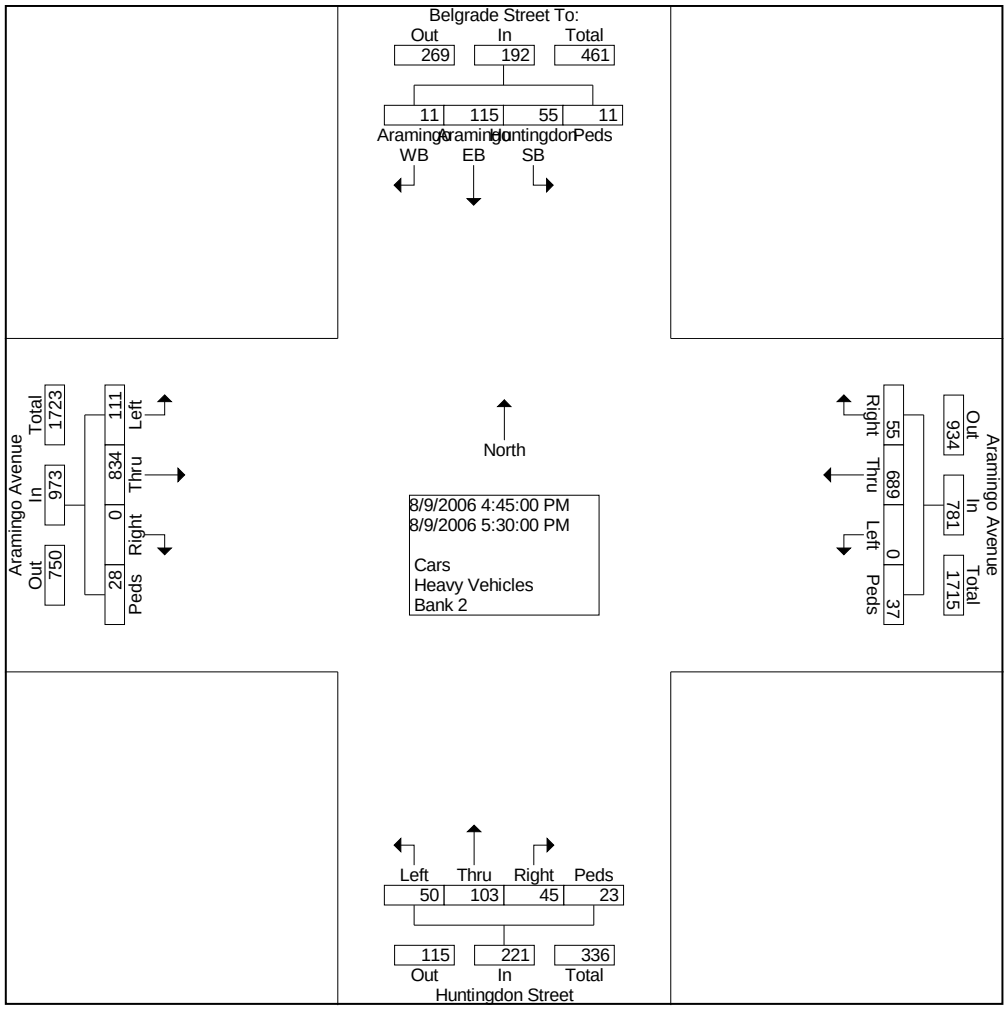
Then Click the Titles Tab

File Name : Aramingo & Huntingdon & Belgrade
Site Code : 00000000
Start Date : 08/09/2006

	Belgrade Street To: Southbound					Aramingo Avenue Westbound					Huntingdon Street Northbound					Aramingo Avenue Eastbound					
Start Time	Aramingo WB	Aramingo EB	Huntingdon SB	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	11	115	55	11	192	55	689	0	37	781	45	103	50	23	221	0	834	111	28	973	2167
Percent	5.7	59.9	28.6	5.7		7.0	88.2	0.0	4.7		20.4	46.6	22.6	10.4		0.0	85.7	11.4	2.9		
05:15 Volume	1	30	11	5	47	17	183	0	7	207	16	21	18	7	62	0	211	31	10	252	568
Peak Factor																					0.954
High Int.	04:45 PM					05:00 PM					05:15 PM					05:15 PM					
Volume	7	30	15	6	58	16	187	0	8	211	16	21	18	7	62	0	211	31	10	252	
Peak Factor					0.828					0.925					0.891					0.965	



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File Name : LS0823~1
Site Code : 00000000
Start Date : 08/23/2006
Page No : 1

Groups Printed- Cars - Heavy Vehicles - Bank 2

	Cumberland Street Southbound				Aramingo Avenue Westbound				Cumberland Street Northbound				Aramingo Avenue Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	16	10	24	6	1	273	15	1	5	0	13	3	0	98	0	5	470
07:15 AM	22	18	21	7	0	267	16	5	3	0	11	0	0	99	0	3	472
07:30 AM	27	23	20	3	0	320	29	1	3	0	18	1	0	152	0	3	600
07:45 AM	34	23	23	0	0	371	23	3	7	0	13	1	0	118	0	2	618
Total	99	74	88	16	1	1231	83	10	18	0	55	5	0	467	0	13	2160
08:00 AM	29	17	14	5	0	309	19	4	6	0	11	1	0	128	0	4	547
08:15 AM	25	20	34	1	0	345	25	8	5	0	14	1	0	141	0	6	625
08:30 AM	30	27	14	2	0	286	21	5	9	0	14	1	0	132	0	11	552
08:45 AM	26	21	24	3	0	253	18	4	5	0	12	1	0	120	0	1	488
Total	110	85	86	11	0	1193	83	21	25	0	51	4	0	521	0	22	2212
09:00 AM	23	16	12	1	0	216	13	2	3	0	12	0	0	157	0	2	457
09:15 AM	24	32	13	10	0	183	22	2	5	1	13	2	0	118	0	3	428
*** BREAK ***																	
Total	47	48	25	11	0	399	35	4	8	1	25	2	0	275	0	5	885
*** BREAK ***																	
04:00 PM	25	33	20	4	0	202	18	7	22	0	13	4	0	200	0	1	549
04:15 PM	23	33	31	8	0	205	20	4	16	0	22	1	0	217	0	7	587
04:30 PM	19	35	20	0	0	201	28	5	26	0	20	6	0	213	0	5	578
04:45 PM	23	24	21	2	0	202	29	12	11	0	15	7	0	246	0	11	603
Total	90	125	92	14	0	810	95	28	75	0	70	18	0	876	0	24	2317
05:00 PM	28	35	27	17	0	212	25	13	20	0	15	1	1	231	0	3	628
05:15 PM	21	39	36	5	0	226	16	12	20	0	19	0	0	221	0	9	624
05:30 PM	31	36	27	4	0	185	32	3	17	0	18	6	0	236	0	8	603
05:45 PM	14	33	19	4	0	181	22	3	13	1	15	6	0	223	0	7	541
Total	94	143	109	30	0	804	95	31	70	1	67	13	1	911	0	27	2396
Grand Total	440	475	400	82	1	4437	391	94	196	2	268	42	1	3050	0	91	9970
Apprch %	31.5	34.0	28.6	5.9	0.0	90.1	7.9	1.9	38.6	0.4	52.8	8.3	0.0	97.1	0.0	2.9	
Total %	4.4	4.8	4.0	0.8	0.0	44.5	3.9	0.9	2.0	0.0	2.7	0.4	0.0	30.6	0.0	0.9	

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File Name : LS0823~1
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Start Date : 08/23/2006
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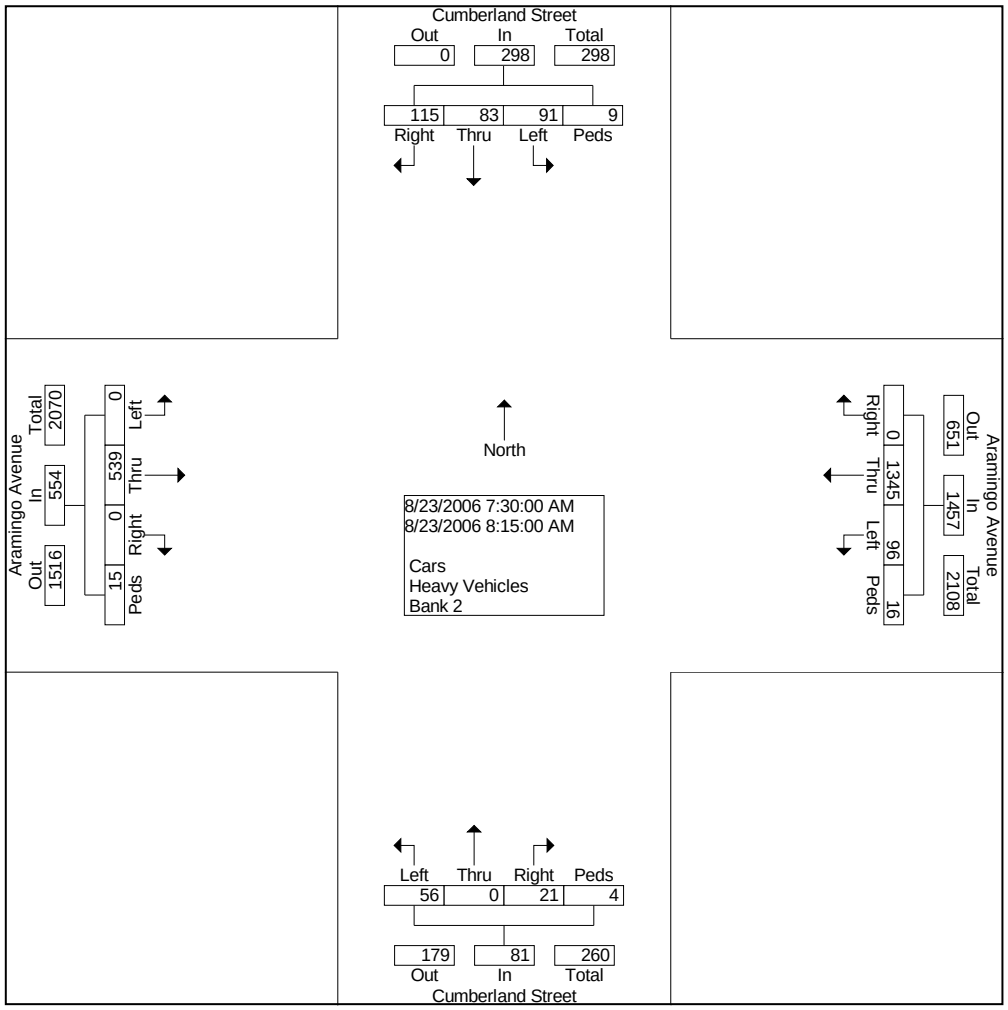
	Cumberland Street Southbound					Aramingo Avenue Westbound					Cumberland Street Northbound					Aramingo Avenue Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	115	83	91	9	298	0	1345	96	16	1457	21	0	56	4	81	0	539	0	15	554	2390
Percent	38.6	27.9	30.5	3.0		0.0	92.3	6.6	1.1		25.9	0.0	69.1	4.9		0.0	97.3	0.0	2.7		
08:15 Volume	25	20	34	1	80	0	345	25	8	378	5	0	14	1	20	0	141	0	6	147	625
Peak Factor																					0.956
High Int.	07:45 AM					07:45 AM					07:30 AM					07:30 AM					
Volume	34	23	23	0	80	0	371	23	3	397	3	0	18	1	22	0	152	0	3	155	
Peak Factor					0.931					0.918					0.920					0.894	



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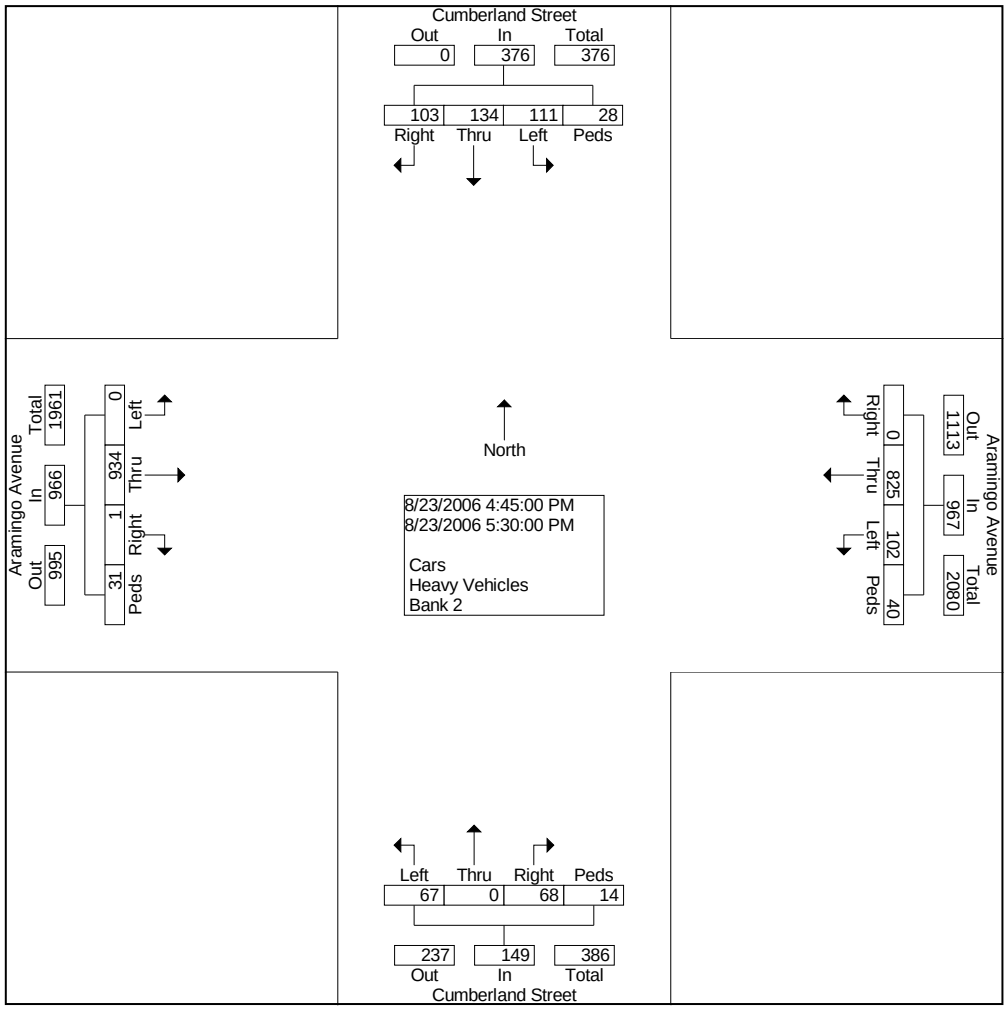
File Name : LS0823~1
Site Code : 00000000
Start Date : 08/23/2006

	Cumberland Street Southbound					Aramingo Avenue Westbound					Cumberland Street Northbound					Aramingo Avenue Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	103	134	111	28	376	0	825	102	40	967	68	0	67	14	149	1	934	0	31	966	2458
Percent	27.4	35.6	29.5	7.4		0.0	85.3	10.5	4.1		45.6	0.0	45.0	9.4		0.1	96.7	0.0	3.2		
05:00 Volume	28	35	27	17	107	0	212	25	13	250	20	0	15	1	36	1	231	0	3	235	628
Peak Factor																					0.979
High Int.	05:00 PM					05:15 PM					05:30 PM					04:45 PM					
Volume	28	35	27	17	107	0	226	16	12	254	17	0	18	6	41	0	246	0	11	257	
Peak Factor					0.879					0.952					0.909					0.940	



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File Name : Girard & Berks
Site Code : 00000000
Start Date : 08/16/2006
Page No : 1

Groups Printed- Cars - Heavy Trucks & Trolleys - Bank 2

	Girard Ave Southbound				Berks St. Westbound				Girard Ave Northbound				Berks St. Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	33	122	21	4	0	0	0	6	0	76	8	2	0	0	0	3	275
07:15 AM	33	167	26	1	0	0	0	0	1	95	15	0	0	0	0	3	341
07:30 AM	40	158	34	15	0	0	0	2	1	80	6	0	0	0	0	4	340
07:45 AM	33	134	27	5	0	0	0	4	1	101	10	3	0	0	0	4	322
Total	139	581	108	25	0	0	0	12	3	352	39	5	0	0	0	14	1278
08:00 AM	30	141	31	2	0	0	0	3	2	96	9	4	0	0	0	9	327
08:15 AM	32	145	30	6	0	0	0	9	0	84	9	1	0	0	0	5	321
08:30 AM	31	144	46	6	0	0	0	3	0	81	12	1	0	0	0	9	333
08:45 AM	26	143	32	5	0	0	0	3	2	94	10	8	0	0	0	2	325
Total	119	573	139	19	0	0	0	18	4	355	40	14	0	0	0	25	1306
09:00 AM	33	127	40	2	0	0	0	2	2	79	11	6	0	0	0	10	312
09:15 AM	29	135	35	3	0	0	0	9	8	72	7	2	0	0	0	10	310
*** BREAK ***																	
Total	62	262	75	5	0	0	0	11	10	151	18	8	0	0	0	20	622
*** BREAK ***																	
04:00 PM	52	126	17	2	0	0	0	3	3	191	4	5	0	0	0	2	405
04:15 PM	72	143	12	2	0	0	0	3	0	173	11	2	0	0	0	8	426
04:30 PM	65	134	12	1	0	0	0	3	2	161	16	2	0	0	0	4	400
04:45 PM	78	144	14	0	0	0	0	5	1	177	14	4	0	0	0	6	443
Total	267	547	55	5	0	0	0	14	6	702	45	13	0	0	0	20	1674
05:00 PM	54	135	19	6	0	0	0	2	2	147	19	1	0	0	0	6	391
05:15 PM	72	175	22	2	0	0	0	3	0	171	12	6	0	0	0	11	474
05:30 PM	57	148	19	2	0	0	0	2	2	171	20	8	0	0	0	6	435
05:45 PM	65	145	18	0	0	0	0	3	0	127	19	11	0	0	0	9	397
Total	248	603	78	10	0	0	0	10	4	616	70	26	0	0	0	32	1697
Grand Total	835	2566	455	64	0	0	0	65	27	2176	212	66	0	0	0	111	6577
Apprch %	21.3	65.5	11.6	1.6	0.0	0.0	0.0	100.0	1.1	87.7	8.5	2.7	0.0	0.0	0.0	100.0	
Total %	12.7	39.0	6.9	1.0	0.0	0.0	0.0	1.0	0.4	33.1	3.2	1.0	0.0	0.0	0.0	1.7	

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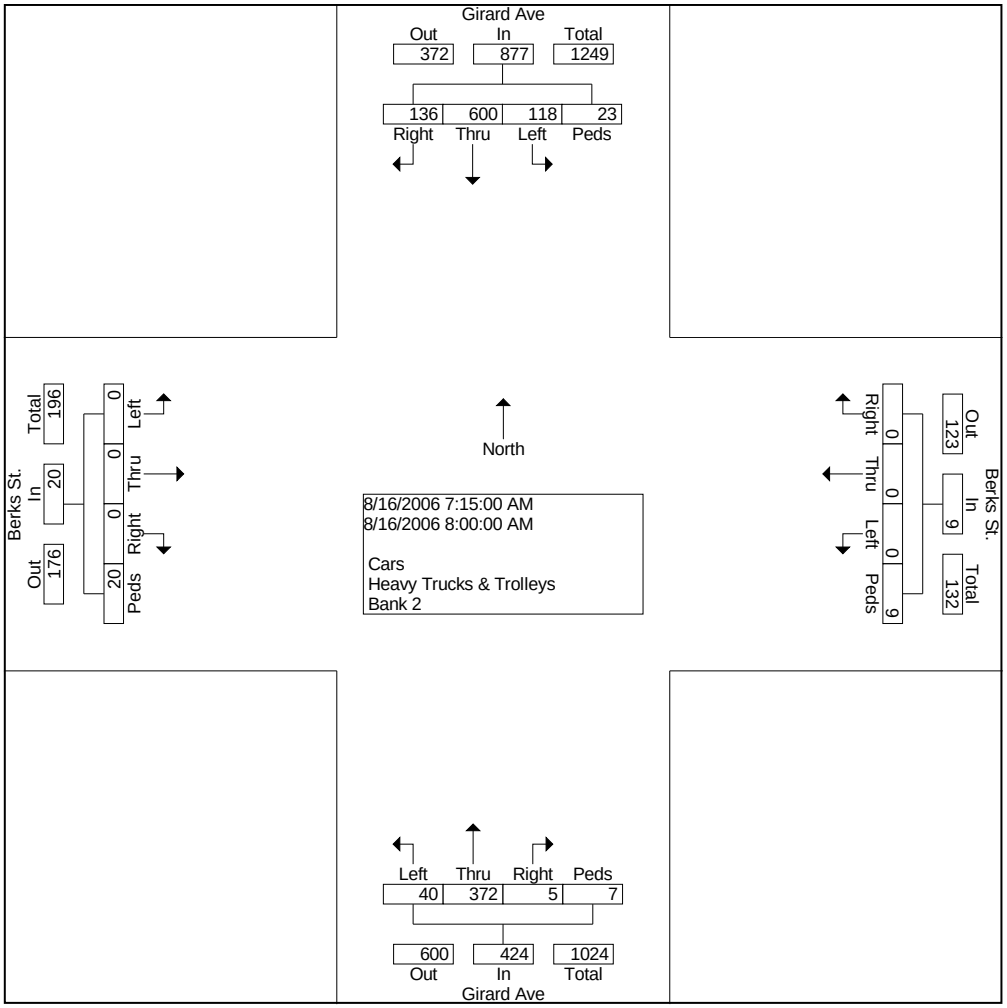
File Name : Girard & Berks
Site Code : 00000000
Start Date : 08/16/2006

	Girard Ave Southbound					Berks St. Westbound					Girard Ave Northbound					Berks St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	136	600	118	23	877	0	0	0	9	9	5	372	40	7	424	0	0	0	20	20	1330
Percent	15.5	68.4	13.5	2.6		0.0	0.0	0.0	100.0		1.2	87.7	9.4	1.7		0.0	0.0	0.0	100.0		
07:15 Volume	33	167	26	1	227	0	0	0	0	0	1	95	15	0	111	0	0	0	3	3	341
Peak Factor																					0.975
High Int.	07:30 AM					07:45 AM					07:45 AM					08:00 AM					
Volume	40	158	34	15	247	0	0	0	4	4	1	101	10	3	115	0	0	0	9	9	
Peak Factor					0.888					0.563					0.922					0.556	



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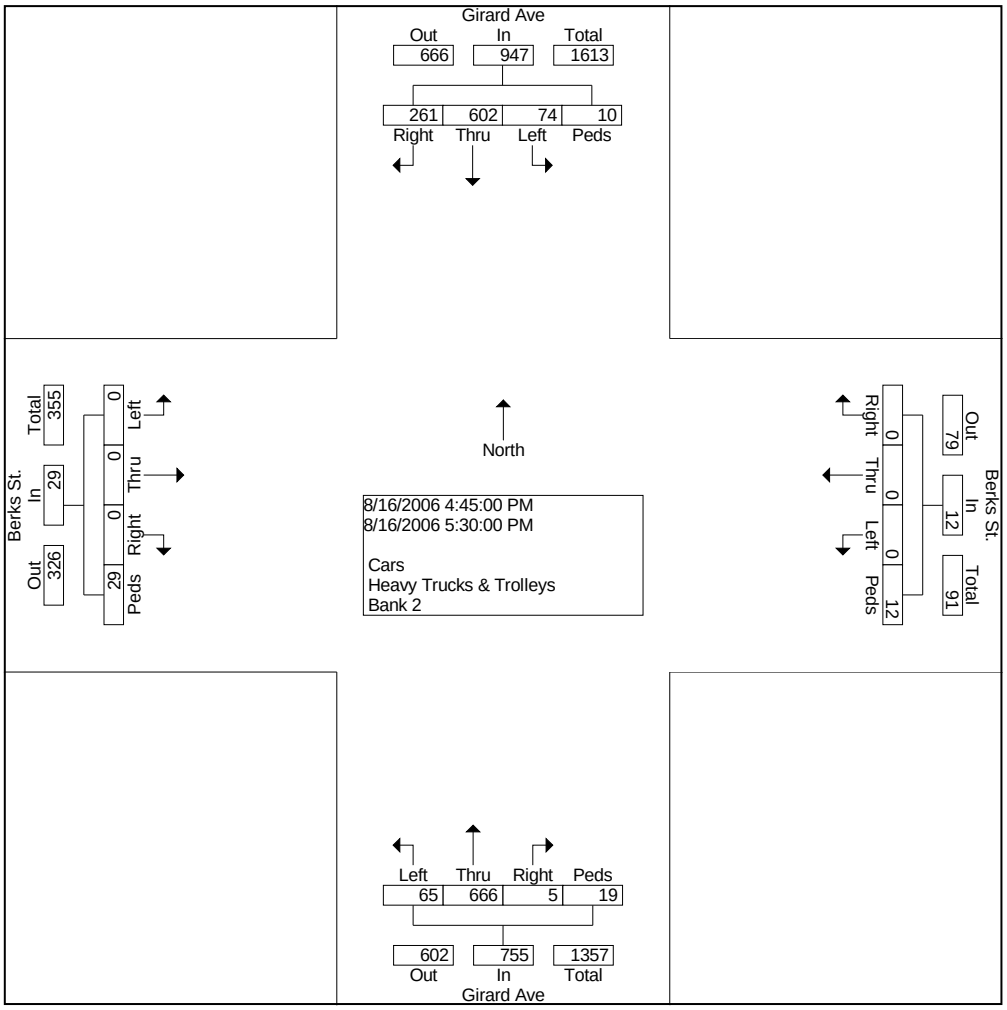
File Name : Girard & Berks
Site Code : 00000000
Start Date : 08/16/2006

	Girard Ave Southbound					Berks St. Westbound					Girard Ave Northbound					Berks St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	261	602	74	10	947	0	0	0	12	12	5	666	65	19	755	0	0	0	29	29	1743
Percent	27.6	63.6	7.8	1.1		0.0	0.0	0.0	100.0		0.7	88.2	8.6	2.5		0.0	0.0	0.0	100.0		
05:15 Volume	72	175	22	2	271	0	0	0	3	3	0	171	12	6	189	0	0	0	11	11	474
Peak Factor																					0.919
High Int.	05:15 PM					04:45 PM					05:30 PM					05:15 PM					
Volume	72	175	22	2	271	0	0	0	5	5	2	171	20	8	201	0	0	0	11	11	
Peak Factor					0.874					0.600					0.939					0.659	



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File Name : LS0823-15
Site Code : 00000000
Start Date : 08/23/2006
Page No : 1

Groups Printed- Cars - Heavy Vehicles - Bank 2

	COLUMBIA AVE Southbound				GIRARD AVE Westbound				COLUMBIA AVE Northbound				GIRARD AVE Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	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	
07:00 AM	5	13	10	9	0	108	2	5	0	0	0	16	3	59	0	4	234
07:15 AM	7	5	12	1	0	133	9	2	0	0	0	8	4	71	0	2	254
07:30 AM	8	9	9	9	0	132	5	6	0	0	0	9	9	92	0	4	292
07:45 AM	5	8	15	7	0	125	8	12	0	0	0	9	8	70	0	3	270
Total	25	35	46	26	0	498	24	25	0	0	0	42	24	292	0	13	1050
08:00 AM	11	6	13	6	0	119	10	4	0	0	0	15	7	82	0	2	275
08:15 AM	13	10	10	5	0	146	6	9	0	0	0	7	7	82	0	6	301
08:30 AM	13	4	16	6	0	127	8	4	0	0	0	11	6	71	0	5	271
08:45 AM	16	4	14	6	0	142	10	9	0	0	0	6	6	72	0	4	289
Total	53	24	53	23	0	534	34	26	0	0	0	39	26	307	0	17	1136
09:00 AM	9	9	6	7	0	138	3	7	0	0	0	21	11	65	0	5	281
09:15 AM	7	1	8	6	0	121	5	13	0	0	0	10	9	88	0	7	275
*** BREAK ***																	
Total	16	10	14	13	0	259	8	20	0	0	0	31	20	153	0	12	556
*** BREAK ***																	
04:00 PM	14	6	11	12	0	89	7	11	0	0	0	9	4	148	0	7	318
04:15 PM	14	10	9	16	0	122	4	21	0	0	0	13	7	164	0	7	387
04:30 PM	6	11	10	14	0	111	3	14	0	0	0	4	9	164	0	10	356
04:45 PM	4	8	12	19	0	126	9	8	0	0	0	15	11	174	0	18	404
Total	38	35	42	61	0	448	23	54	0	0	0	41	31	650	0	42	1465
05:00 PM	7	6	17	9	0	107	7	15	0	0	0	5	7	181	0	9	370
05:15 PM	10	8	11	15	0	131	4	3	0	0	0	9	11	197	0	3	402
05:30 PM	5	8	9	17	0	112	9	6	0	0	0	8	11	188	0	5	378
05:45 PM	6	5	8	10	0	118	3	10	0	0	0	4	11	129	0	5	309
Total	28	27	45	51	0	468	23	34	0	0	0	26	40	695	0	22	1459
Grand Total	160	131	200	174	0	2207	112	159	0	0	0	179	141	2097	0	106	5666
Apprch %	24.1	19.7	30.1	26.2	0.0	89.1	4.5	6.4	0.0	0.0	0.0	100.0	6.0	89.5	0.0	4.5	
Total %	2.8	2.3	3.5	3.1	0.0	39.0	2.0	2.8	0.0	0.0	0.0	3.2	2.5	37.0	0.0	1.9	

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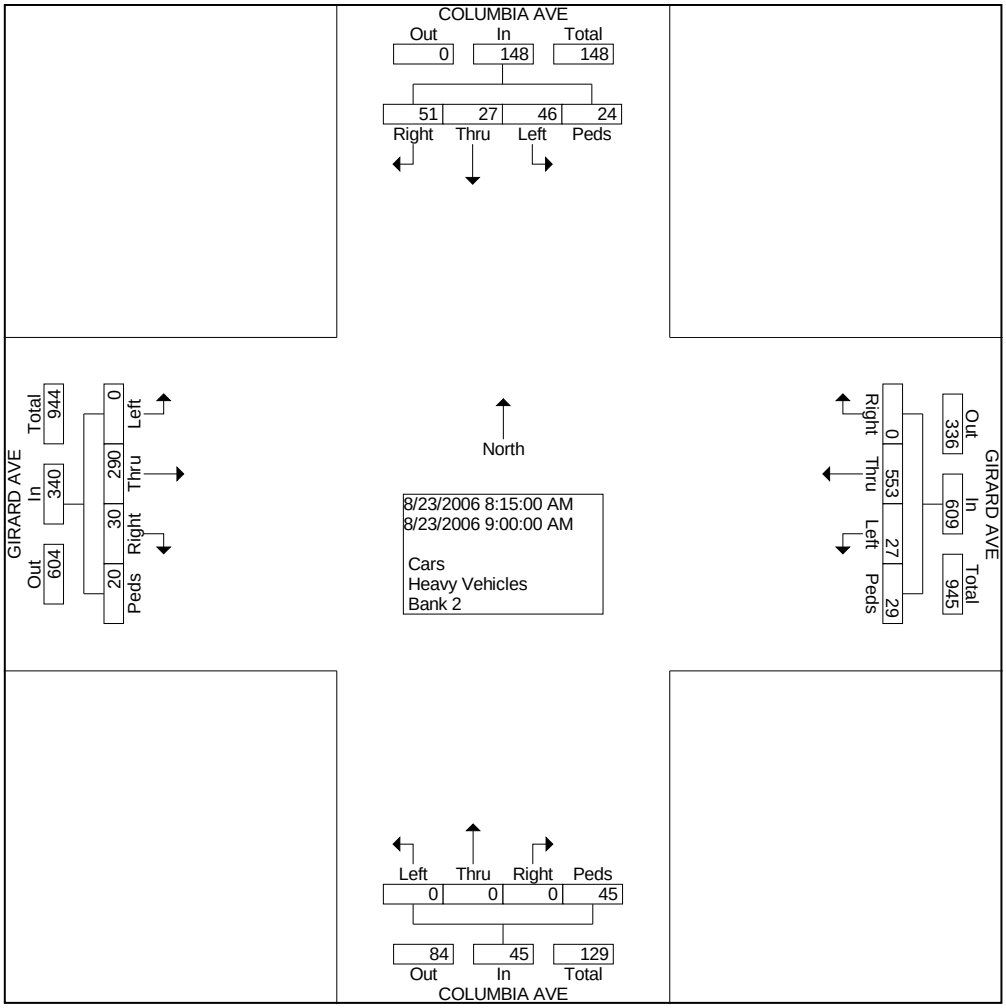
	COLUMBIA AVE Southbound					GIRARD AVE Westbound					COLUMBIA AVE Northbound					GIRARD AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:15 AM																				
Volume	51	27	46	24	148	0	553	27	29	609	0	0	0	45	45	30	290	0	20	340	1142
Percent	34.5	18.2	31.1	16.2		0.0	90.8	4.4	4.8		0.0	0.0	0.0	100.0		8.8	85.3	0.0	5.9		
08:15 Volume	13	10	10	5	38	0	146	6	9	161	0	0	0	7	7	7	82	0	6	95	301
Peak Factor																					0.949
High Int.	08:45 AM					08:15 AM					09:00 AM					08:15 AM					
Volume	16	4	14	6	40	0	146	6	9	161	0	0	0	21	21	7	82	0	6	95	
Peak Factor					0.925					0.946					0.536					0.895	



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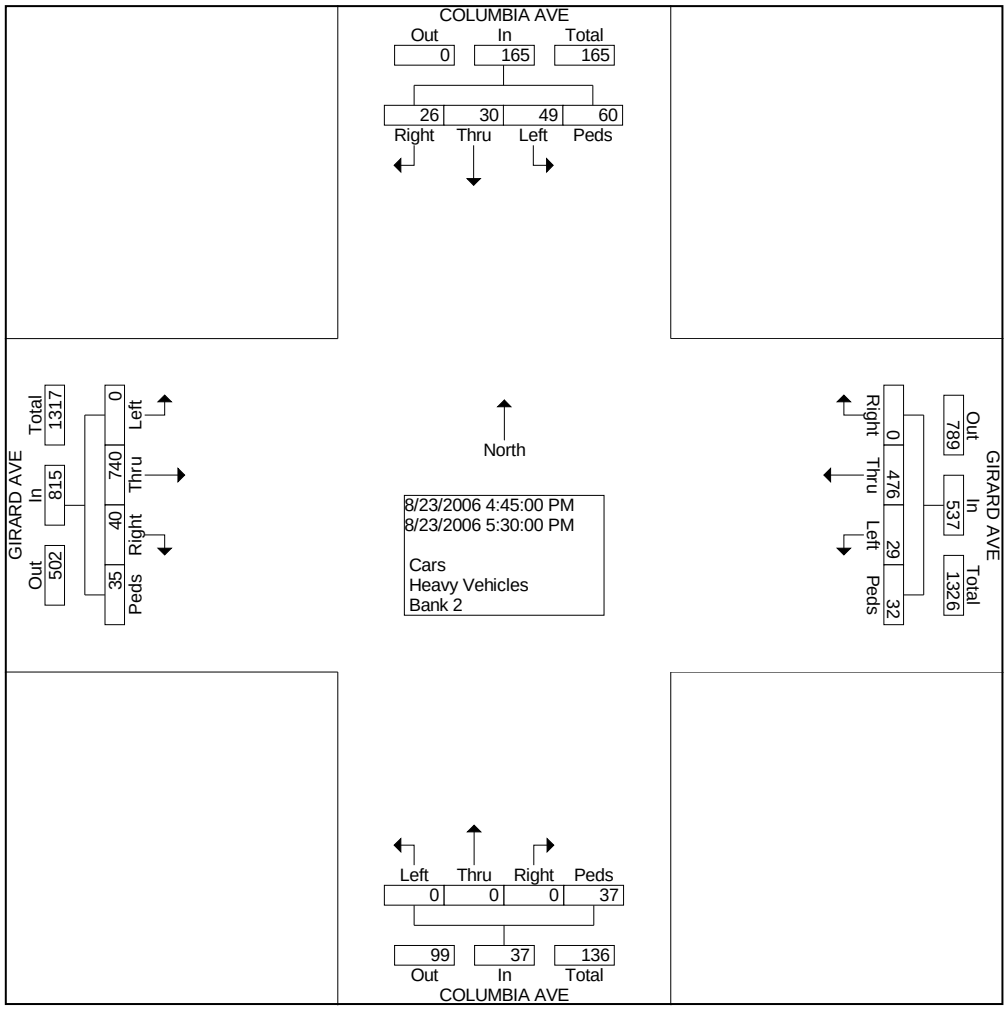
Site Code : 00000000
Start Date : 08/23/2006
Page No : 3

	COLUMBIA AVE Southbound					GIRARD AVE Westbound					COLUMBIA AVE Northbound					GIRARD AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	26	30	49	60	165	0	476	29	32	537	0	0	0	37	37	40	740	0	35	815	1554
Percent	15.8	18.2	29.7	36.4		0.0	88.6	5.4	6.0		0.0	0.0	0.0	100.0		4.9	90.8	0.0	4.3		
04:45 Volume	4	8	12	19	43	0	126	9	8	143	0	0	0	15	15	11	174	0	18	203	404
Peak Factor																					0.962
High Int.	05:15 PM					04:45 PM					04:45 PM					05:15 PM					
Volume	10	8	11	15	44	0	126	9	8	143	0	0	0	15	15	11	197	0	3	211	
Peak Factor					0.938					0.939					0.617					0.966	



WORK ORDER 2130	LOCATION Aramingo Ave & Cumberland St				INVESTIGATION DIST. #12 A
TYPE	INVESTIGATED BY	DATE	WORK COMPLETED BY	DATE	
Signal	APPROVED BY	DATE 6/20/89	WORK INSPECTED BY	DATE	INVESTIGATION NO.

INDICATE NORTH

Traffic Signals at the above location have been re-installed by the developer of the Port Richmond Plaza (JAE Electric Contractor) and been accepted by the City

Start of Work (New Signals)

New Operation ~~6/5/88~~ 6/28/88 Friday; 7/6/88 Monday

Acceptance 6/20/89

							F
Aramingo Ave	G	Y	R	R	R	R	Y
Cumberland St	R	R	R	G	Y	R	R

Dial 1 & 2 & 3

Seconds	56.7	3.6	1.8	22.5	3.6	1.8	90 Sec.
Percent	63	4	2	25	4	2	

Pin Setting: 0 63 67 69 94 99 0

R 1 = 85

Interconnected w/ Aramingo & York Time Clocks & Synchronize @ York

WORK ORDER
51726

TYPE: Signal

LOCATION: Aramingo Belgrade & Huntingdon

INVESTIGATION DIST: #11

INVESTIGATED BY	DATE	WORK COMPLETED BY	DATE
Stig & Jorg	1/26/01	Calvin Walker	1/28/01

APPROVED BY	DATE	WORK INSPECTED BY	DATE	INVESTIGATION NUMBER
[signature]	1/26/01			

INDICATE NORTH

Please Revise the Electromechanical controller with the following cycle length & timing change

Cycle Length = 90 sec

										Flash
Aramingo	G	Y	R	R	R	R	R	R	R	Y
Huntingdon	R	R	R	G	Y	R	R	R	R	R
Belgrade	R	R	R	R	R	R	G	Y	R	R
seconds	42.3	3	6	2	7	12.6	3.6	2.7	16.2	3.6	2.7
%	47	4	3	14	4	3	18	4	3		

0 47 51 54 68 72 75 93 97 0

R1 = 57%

77-164 (Rev/ 8/93)

CITY OF PHILADELPHIA
DEPARTMENT OF STREETS
TRAFFIC ENGINEERING DIVISION

APPENDIX C

TRIP GENERATION AND FUTURE VOLUME WORKSHEETS

PENNONI ASSOCIATES, INC.
Consulting Engineers

Trip Generation of Subject Development and Adjacent Planned/Committed Development(s)

SUBJECT DEVELOPMENT

					Peak Hours of Adjacent Street(s)						Saturday PM Peak Hour		
	SUMMARY	**UNIT**	**VAR**	**AM**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**		**Peak**	**Enter**	**Exit**
445	Movie Theater (w Matinee)	screen	12	0	0	0	12	5	7		289	173	116
932	High Turnover Restaurants	1,000 sf	27,855	16	8	8	15	9	6		28	18	10
934	Fast Food	1,000 sf	27,855	61	37	24	36	19	18		62	32	31
931	Quality Restaurants	1,000 sf	13,928	1	1	0	10	7	3		15	9	6
820	General Retail	1,000 sf	23,691	1	1	0	4	2	2		4	2	2
814	Specialty Shop	1,000 sf	23,691	8	4	4	3	1	2		3	1	2
465	Ice Skating Rink*	1,000 sf	137,445	0	0	0	32	15	18		32	15	18
	*Winter Months Only												
	TOTAL AUXILIARY LAND USE			**88**	**51**	**37**	**114**	**58**	**56**		**434**	**249**	**184**

		Peak Hours of Adjacent Street(s)						Saturday PM Peak Hour		
		AM	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**Peak**	**Enter**	**Exit**
	Temp Casino (1,500 slots)	**248**	**193**	**54**	**609**	**286**	**323**	**716**	**379**	**336**
	Phase 1 Casino (3,000 slots)++	**583**	**437**	**146**	**1332**	**630**	**702**	**1865**	**1008**	**857**

ADJACENT DEVELOPMENT - CONDO TOWERS

				Peak Hours of Adjacent Street(s)						Saturday PM Peak Hour		
ITE Code	Land Use	Size	Daily	**AM**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**Peak**	**Enter**	**Exit**
230	Condominium/Townhouse	780 du			17%	83%		67%	33%		67%	33%
	Residential	equation	3,731	**267**	45	222	**324**	217	107	**269**	180	89
	7th Edition	rate	4,571	**343**	58	285	**406**	272	134	**367**	246	121
	50% OF TOTAL	**0.5**		**172**	**29**	**143**	**203**	**136**	**67**	**184**	**123**	**61**

				Other Planned Development			TEMPORARY CASINO			PHASE 1 PERMANENT CASINO			
				Weekday-AM	Enter	Exit	Weekday-AM	Enter	Exit	Weekday-AM	Enter	Exit	
				172	29	143	248	193	54	583	437	146	
	Future Volumes		AM 2006 Existing	0.021 6.3% Growth	Enter 29	Exit 142.5	AM 2009 Pre-Dev	Enter 193	Exit 54	AM 2009 Post-Dev	Enter 437	Exit 146	AM 2009 Post-Dev
INT #	Road Name			3	Distrib	Assign	3	Distrib	Assign		Distrib	Assign	
1	Delaware	EB L	0	0		0	0		0	0	0%	0	0
1	Delaware	EB T	397	25	-75%	107	529	42%	81	610	42%	183	712
1	Delaware	EB R	1	0		0	1		0	1	0%	0	1
1	Columbia	SB L	23	1		0	24	43%	83	107	43%	188	212
1	Columbia	SB T	3	0		0	3		0	3	0%	0	3
1	Columbia	SB R	22	1		0	23		0	23	0%	0	23
1	Delaware	WB L	8	1		0	9		0	9	0%	0	9
1	Delaware	WB T	953	60	75%	22	1035	-10%	5	1040	-10%	15	1050
1	Delaware	WB R	39	2		0	41		0	41	0%	0	41
1	Columbia	NB L	51	3		0	54		0	54	0%	0	54
1	Columbia	NB T	0	0		0	0		0	0	0%	0	0
1	Columbia	NB R	24	2		0	26		0	26	0%	0	26
											0%	0	0
2	Berks	NB L	0	0		0	0		0	0	0%	0	0
2	Berks	NB T	0	0		0	0		0	0	0%	0	0
2	Berks	NB R	3	0		0	3		0	3	0%	0	3
2	Delaware	EB L	0	0		0	0		0	0	0%	0	0
2	Delaware	EB T	1025	65	-75%	107	1197	85%	164	1361	85%	371	1568
2	Delaware	EB R	21	1		0	22		0	22	0%	0	22
2	Berks	SB L	0	0		0	0		0	0	0%	0	0
2	Berks	SB T	0	0		0	0		0	0	0%	0	0
2	Berks	SB R	144	9		0	153		0	153	0%	0	153
2	Delaware	WB L	0	0		0	0		0	0	0%	0	0
2	Delaware	WB T	739	47	75%	22	808	-10%	5	813	-10%	15	823
2	Delaware	WB R	0	0		0	0		0	0	0%	0	0
											0%	0	0
											0%	0	0
3	Delaware	NB T	693	44	-50%	71	808		0	808	0%	0	808
3	Delaware	NB R	0	0		0	0		0	0	0%	0	0
3	Delaware	SB L	0	0		0	0		0	0	0%	0	0
3	Delaware	SB T	392	25	50%	15	432		0	432	0%	0	432
3	Richmond	WB L	381	24		0	405		0	405	0%	0	405
3	Richmond	WB R	179	11		0	190	-1%	1	191	-1%	1	191
											0%	0	0
4	Dyott	NB L	6	0		0	6	-51%	28	34	-51%	74	80
4	Dyott	NB T	0	0		0	0		0	0	0%	0	0
4	Dyott	NB R	12	1		0	13	-49%	27	40	-49%	72	85
4	Richmond	EB L	24	2		0	26		0	26	0%	0	26
4	Richmond	EB T	222	14	-25%	36	272		0	272	0%	0	272
4	Richmond	EB R	4	0		0	4	85%	164	168	85%	371	375
4	Richmond	WB L	32	2		0	34	15%	29	63	15%	65	99
4	Richmond	WB T	531	33	25%	7	571		0	571	0%	0	571
4	Richmond	WB R	1	0		0	1		0	1	0%	0	1
											0%	0	0
5	Schirra	NB L	4	0		0	4		0	4	0%	0	4
5	Schirra	NB R	3	0		0	3		0	3	0%	0	3
5	Richmond	EB T	214	13	-25%	36	263	-49%	27	290	-49%	72	335
5	Richmond	EB R	15	1		0	16		0	16	0%	0	16
5	Richmond	WB L	7	0		0	7		0	7	0%	0	7
5	Richmond	WB T	573	36	25%	7	616	15%	29	645	15%	65	681
											0%	0	0
6	Richmond	EB L	52	3		0	55		0	55	0%	0	55
6	Richmond	EB T	159	10	-25%	36	205	-49%	27	232	-49%	72	277
6	Richmond	WB T	617	39	25%	7	663	15%	29	692	15%	65	728
6	Richmond	WB R	74	5		0	79		0	79	0%	0	79
6	Girard	SB L	33	2		0	35		0	35	0%	0	35
6	Girard	SB R	8	1		0	9		0	9	0%	0	9
											0%	0	0
7	Cumberland	NB L	2	0		0	2		0	2	0%	0	2
7	Cumberland	NB T	1	0		0	1		0	1	0%	0	1
7	Cumberland	NB R	0	0		0	0		0	0	0%	0	0
7	Richmond	EB L	22	1		0	23	-45%	25	48	-45%	66	89
7	Richmond	EB T	112	7	-25%	36	155	-4%	2	157	-4%	6	161
7	Richmond	EB R	0	0		0	0		0	0	0%	0	0
7	Cumberland	SB L	6	0		0	6		0	6	0%	0	6
7	Cumberland	SB T	2	0		0	2		0	2	0%	0	2
7	Cumberland	SB R	153	10		0	163	5%	10	173	5%	22	185
7	Richmond	WB L	12	1		0	13		0	13	0%	0	13
7	Richmond	WB T	510	32	25%	7	549	10%	19	568	10%	44	593
7	Richmond	WB R	37	2		0	39		0	39	0%	0	39
											0%	0	0

				Other Planned Development			TEMPORARY CASINO			PHASE 1 PERMANENT CASINO			
				Weekday-AM	Enter	Exit	Weekday-AM	Enter	Exit	Weekday-AM	Enter	Exit	
				172	29	143	248	193	54	583	437	146	
	Future Volumes		AM 2006 Existing	0.021 6.3% Growth	Enter 29	Exit 142.5	AM 2009 Pre-Dev	Enter 193	Exit 54	AM 2009 Post-Dev	Enter 437	Exit 146	AM 2009 Post-Dev
INT #	Road Name			3	Distrib	Assign	3	Distrib	Assign		Distrib	Assign	
8	Richmond	EB L	24	2		0	26		0	26	0%	0	26
8	Richmond	EB T	100	6	-25%	36	142	-4%	2	144	-4%	6	148
8	Huntingdon	SB L	0	0		0	0		0	0	0%	0	0
8	Huntingdon	SB T	0	0		0	0		0	0	0%	0	0
8	Huntingdon	SB R	0	0		0	0		0	0	0%	0	0
8	Richmond	WB T	542	34	-25%	36	612	10%	19	631	10%	44	656
8	Richmond	WB R	28	2		0	30		0	30	0%	0	30
											0%	0	0
9	Richmond	EB L	19	1		0	20	-3%	2	22	-3%	4	24
9	Richmond	EB T	78	5	-25%	36	119	-1%	1	120	-1%	1	120
9	Lehigh	SB L	27	2		0	29		0	29	0%	0	29
9	Lehigh	SB R	102	6		0	108	7%	14	122	7%	31	139
9	Richmond	WB T	462	29	25%	7	498	3%	6	504	3%	13	511
9	Richmond	WB R	104	7		0	111		0	111	0%	0	111
											0%	0	0
10	Aramingo	NB L	228	14		0	242		0	242	0%	0	242
10	Aramingo	NB T	248	16	-50%	71	335	-4%	2	337	-4%	6	341
10	Aramingo	NB R	21	1		0	22		0	22	0%	0	22
10	Lehigh	EB L	90	6		0	96		0	96	0%	0	96
10	Lehigh	EB T	88	6		0	94	4%	8	102	4%	17	111
10	Lehigh	EB R	358	23		0	381		0	381	0%	0	381
10	Aramingo	SB L	9	1		0	10	3%	6	16	3%	13	23
10	Aramingo	SB T	795	50	50%	15	860		0	860	0%	0	860
10	Aramingo	SB R	149	9		0	158		0	158	0%	0	158
10	Lehigh	WB L	20	1		0	21		0	21	0%	0	21
10	Lehigh	WB T	150	9		0	159	-3%	2	161	-3%	4	163
10	Lehigh	WB R	4	0		0	4		0	4	0%	0	4
											0%	0	0
11	Aramingo	NB L	56	4		0	60	-1%	1	61	-1%	1	61
11	Aramingo	NB T	460	29	-50%	71	560	-4%	2	562	-4%	6	566
11	Huntingdon	NWB L	70	4		0	74		0	74	0%	0	74
11	Huntingdon	NWB T	72	5		0	77		0	77	0%	0	77
11	Huntingdon	NWB R	18	1		0	19		0	19	0%	0	19
11	Aramingo	SB T	1056	67	50%	15	1138		0	1138	0%	0	1138
11	Aramingo	SB R	39	2		0	41		0	41	0%	0	41
11	Belgrade	To NB Hunti	23	1		0	24	1%	2	26	1%	4	28
11	Belgrade	To SB Aram	197	12		0	209		0	209	0%	0	209
11	Belgrade	To NB Aram	2	0		0	2		0	2	0%	0	2
											0%	0	0
12a	Aramingo	NB T	539	34	-50%	71	644		0	644	0%	0	644
12a	*Aramingo*	*NB R*	*71*	*4*		0	75	*2%*	4	79	2%	9	84
12a	Cumberland	EB L	91	6		0	97		0	97	0%	0	97
12a	Cumberland	EB T	83	5		0	88	2%	4	92	2%	9	97
12a	Cumberland	EB R	115	7		0	122		0	122	0%	0	122
12a	Aramingo	SB L	96	6		0	102	1%	2	104	1%	4	106
12a	Aramingo	SB T	1345	85	50%	15	1445		0	1445	0%	0	1445
12a	Cumberland	WB L	56	4		0	60	-40%	22	82	-40%	58	118
12a	Cumberland	WB R	21	1		0	22	-5%	3	25	-5%	7	29
											0%	0	0
13	Aramingo	NB L	118	7		0	125	-1%	1	126	-1%	1	126
13	Aramingo	NB T	540	34	-50%	71	645		0	645	0%	0	645
13	Aramingo	NB R	73	5		0	78		0	78	0%	0	78
13	York	EB L	57	4		0	61	2%	4	65	2%	9	70
13	York	EB T	49	3		0	52		0	52	0%	0	52
13	York	EB R	195	12		0	207		0	207	0%	0	207
13	Aramingo	SB L	24	2		0	26		0	26	0%	0	26
13	Aramingo	SB T	1356	85	50%	15	1456	-40%	22	1478	-40%	58	1514
13	Aramingo	SB R	71	4		0	75		0	75	0%	0	75
13	Port Richmor	WB L	81	5		0	86		0	86	0%	0	86
13	Port Richmor	WB T	44	3		0	47		0	47	0%	0	47
13	Port Richmor	WB R	13	1		0	14		0	14	0%	0	14
											0%	0	0
14	Berks	NB L		0		0	0		0	0	0%	0	0
14	Berks	NB T		0		0	0		0	0	0%	0	0
14	Berks	NB R		0		0	0		0	0	0%	0	0
14	Girard	EB L	40	3		0	43		0	43	0%	0	43
14	Girard	EB T	372	23		0	395		0	395	0%	0	395
14	Girard	EB R	5	0		0	5		0	5	0%	0	5
14	Berks	SB L		0		0	0		0	0	0%	0	0
14	Berks	SB T		0		0	0		0	0	0%	0	0
14	Berks	SB R		0		0	0		0	0	0%	0	0

				Other Planned Development			TEMPORARY CASINO			PHASE 1 PERMANENT CASINO			
				Weekday-AM	Enter	Exit	**Weekday-AM**	Enter	Exit	**Weekday-AM**	Enter	Exit	
				172	**29**	**143**	**248**	**193**	**54**	**583**	**437**	**146**	
	Future Volumes		**AM**	**0.021**	**Enter**	**Exit**	**AM**	**Enter**	**Exit**	**AM**	**Enter**	**Exit**	**AM**
			2006	6.3%	**29**	**142.5**	**2009**	**193**	**54**	**2009**	**437**	**146**	**2009**
			Existing	**Growth**			**Pre-Dev**			**Post-Dev**			**Post-Dev**
INT #	**Road Name**			**3**	**Distrib**	**Assign**	**3**	**Distrib**	**Assign**		**Distrib**	**Assign**	
14	Girard	WB L	**118**	7		0	**125**		0	**125**	0%	0	**125**
14	Girard	WB T	**600**	38		0	**638**	40%	77	**715**	40%	175	**813**
14	Girard	WB R	**136**	9		0	**145**		0	**145**	0%	0	**145**
											0%	0	**0**
15	Girard	EB T	**290**	18		0	**308**		0	**308**	0%	0	**308**
15	Girard	EB R	**30**	2		0	**32**	2%	4	**36**	2%	9	**41**
15	Columbia	SB L	**46**	3		0	**49**		0	**49**	0%	0	**49**
15	Columbia	SB T	**27**	2		0	**29**	1%	2	**31**	1%	4	**33**
15	Columbia	SB R	**51**	3		0	**54**		0	**54**	0%	0	**54**
15	Girard	WB L	**27**	2		0	**29**	40%	77	**106**	40%	175	**204**
15	Girard	WB T	**553**	35		0	**588**		0	**588**	0%	0	**588**

			Other Planned Development			PINNACLE CASINO			PHASE 1 PERMANENT CASINO			
			Weekday-PM	Enter	Exit	Weekday-PM	Enter	Exit	Weekday-PM	Enter	Exit	
			203	136	67	609	286	323	1332	630	702	
	Future Volumes		**PM**	**0.021**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**AM**
			2006	0	**136**	**67**	**2009**	**286**	**323**	**2009**	**630**	**702**	**2009**
			Existing	**Growth**			**Pre-Dev**			**Post-Dev**			**Post-Dev**
INT #	**Road Name**			**3**	**Distrib**	**Assign**	**3**	**Distrib**	**Assign**		**Distrib**	**Assign**	
1	Delaware	EB L	**2**	0		0	**2**		0	**2**	0%	0	**2**
1	Delaware	EB T	**1810**	114	-75%	50	**1974**	47%	135	**2109**	47%	296	**2270**
1	Delaware	EB R	**1**	0		0	**1**		0	**1**	0%	0	**1**
1	Columbia	SB L	**102**	6		0	**108**	43%	123	**231**	43%	271	**379**
1	Columbia	SB T	**10**	1		0	**11**		0	**11**	0%	0	**11**
1	Columbia	SB R	**22**	1		0	**23**		0	**23**	0%	0	**23**
1	Delaware	WB L	**13**	1		0	**14**		0	**14**	0%	0	**14**
1	Delaware	WB T	**286**	18	75%	102	**406**	-7%	23	**429**	-7%	49	**455**
1	Delaware	WB R	**26**	2		0	**28**		0	**28**	0%	0	**28**
1	Columbia	NB L	**51**	3		0	**54**		0	**54**	0%	0	**54**
1	Columbia	NB T	**0**	0		0	**0**		0	**0**	0%	0	**0**
1	Columbia	NB R	**37**	2		0	**39**		0	**39**	0%	0	**39**
0						0					0%	0	**0**
2	Berks	NB L	**0**	0		0	**0**		0	**0**	0%	0	**0**
2	Berks	NB T	**0**	0		0	**0**		0	**0**	0%	0	**0**
2	Berks	NB R	**1**	0		0	**1**		0	**1**	0%	0	**1**
2	Delaware	EB L	**0**	0		0	**0**		0	**0**	0%	0	**0**
2	Delaware	EB T	**2931**	185	-75%	50	**3166**	90%	258	**3424**	90%	567	**3733**
2	Delaware	EB R	**7**	0		0	**7**		0	**7**	0%	0	**7**
2	Berks	SB L	**0**	0		0	**0**		0	**0**	0%	0	**0**
2	Berks	SB T	**0**	0		0	**0**		0	**0**	0%	0	**0**
2	Berks	SB R	**95**	6		0	**101**		0	**101**	0%	0	**101**
2	Delaware	WB L	**0**	0		0	**0**		0	**0**	0%	0	**0**
2	Delaware	WB T	**420**	26	75%	102	**548**	-7%	23	**571**	-7%	49	**597**
2	Delaware	WB R	**0**	0		0	**0**		0	**0**	0%	0	**0**
0						0					0%	0	**0**
											0%	0	**0**
3	Delaware	NB T	**2073**	131	-50%	34	**2238**		0	**2238**	0%	0	**2238**
3	Delaware	NB R	**1**	0		0	**1**		0	**1**	0%	0	**1**
3	Delaware	SB L	**0**	0		0	**0**		0	**0**	0%	0	**0**
3	Delaware	SB T	**215**	14	50%	68	**297**		0	**297**	0%	0	**297**
3	Richmond	WB L	**169**	11		0	**180**		0	**180**	0%	0	**180**
3	Richmond	WB R	**253**	16		0	**269**	-1%	3	**272**	-1%	7	**276**
0						0					0%	0	**0**
4	Dyott	NB L	**36**	2		0	**38**	-48%	155	**193**	-48%	337	**375**
4	Dyott	NB T	**0**	0		0	**0**		0	**0**	0%	0	**0**
4	Dyott	NB R	**248**	16		0	**264**	-52%	168	**432**	-52%	365	**629**
4	Richmond	EB L	**27**	2		0	**29**		0	**29**	0%	0	**29**
4	Richmond	EB T	**672**	42	-25%	17	**731**		0	**731**	0%	0	**731**
4	Richmond	EB R	**0**	0		0	**0**	90%	258	**258**	90%	567	**567**
4	Richmond	WB L	**13**	1		0	**14**	10%	29	**43**	10%	63	**77**
4	Richmond	WB T	**381**	24	25%	34	**439**		0	**439**	0%	0	**439**
4	Richmond	WB R	**2**	0		0	**2**		0	**2**	0%	0	**2**
0						0					0%	0	**0**
5	Schirra	NB L	**11**	1		0	**12**		0	**12**	0%	0	**12**
5	Schirra	NB R	**10**	1		0	**11**		0	**11**	0%	0	**11**
5	Richmond	EB T	**930**	59	-25%	17	**1006**	-52%	168	**1174**	-52%	365	**1371**
5	Richmond	EB R	**4**	0		0	**4**		0	**4**	0%	0	**4**
5	Richmond	WB L	**2**	0		0	**2**		0	**2**	0%	0	**2**
5	Richmond	WB T	**382**	24	25%	34	**440**	10%	29	**469**	10%	63	**503**
0						0					0%	0	**0**
6	Richmond	EB L	**40**	3		0	**43**		0	**43**	0%	0	**43**
6	Richmond	EB T	**967**	61	-25%	17	**1045**	-52%	168	**1213**	-52%	365	**1410**
6	Richmond	WB T	**436**	27	25%	34	**497**	10%	29	**526**	10%	63	**560**
6	Richmond	WB R	**48**	3		0	**51**		0	**51**	0%	0	**51**
6	Girard	SB L	**131**	8		0	**139**		0	**139**	0%	0	**139**
6	Girard	SB R	**4**	0		0	**4**		0	**4**	0%	0	**4**
0						0					0%	0	**0**
7	Cumberland	NB L	**0**	0		0	**0**		0	**0**	0%	0	**0**
7	Cumberland	NB T	**4**	0		0	**4**		0	**4**	0%	0	**4**
7	Cumberland	NB R	**2**	0		0	**2**		0	**2**	0%	0	**2**
7	Richmond	EB L	**66**	4		0	**70**	-45%	145	**215**	-45%	316	**386**
7	Richmond	EB T	**818**	52	-25%	17	**887**	-7%	23	**910**	-7%	49	**936**
7	Richmond	EB R	**2**	0		0	**2**		0	**2**	0%	0	**2**
7	Cumberland	SB L	**13**	1		0	**14**		0	**14**	0%	0	**14**
7	Cumberland	SB T	**2**	0		0	**2**		0	**2**	0%	0	**2**
7	Cumberland	SB R	**106**	7		0	**113**	4%	11	**124**	4%	25	**138**
7	Richmond	WB L	**7**	0		0	**7**		0	**7**	0%	0	**7**
7	Richmond	WB T	**244**	15	25%	34	**293**	6%	17	**310**	6%	38	**331**
7	Richmond	WB R	**45**	3		0	**48**		0	**48**	0%	0	**48**
0						0					0%	0	**0**

				Other Planned Development			PINNACLE CASINO			PHASE 1 PERMANENT CASINO			
				Weekday-PM	Enter	Exit	**Weekday-PM**	Enter	Exit	**Weekday-PM**	Enter	Exit	
				203	**136**	**67**	**609**	**286**	**323**	**1332**	**630**	**702**	
	Future Volumes		**PM**	**0.021**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**AM**
			2006	0	**136**	**67**	**2009**	**286**	**323**	**2009**	**630**	**702**	**2009**
			Existing	**Growth**			**Pre-Dev**			**Post-Dev**			**Post-Dev**
INT #	**Road Name**			**3**	**Distrib**	**Assign**	**3**	**Distrib**	**Assign**		**Distrib**	**Assign**	
8	Richmond	EB L	**103**	6		0	**109**		0	**109**	0%	0	**109**
8	Richmond	EB T	**703**	44	-25%	17	**764**	-7%	23	**787**	-7%	49	**813**
8	Huntingdon	SB L	**0**	0		0	**0**		0	**0**	0%	0	**0**
8	Huntingdon	SB T	**0**	0		0	**0**		0	**0**	0%	0	**0**
8	Huntingdon	SB R	**0**	0		0	**0**		0	**0**	0%	0	**0**
8	Richmond	WB T	**275**	17	-25%	17	**309**	6%	17	**326**	6%	38	**347**
8	Richmond	WB R	**43**	3		0	**46**		0	**46**	0%	0	**46**
0											0%	0	**0**
9	Richmond	EB L	**103**	6		0	**109**	-3%	10	**119**	-3%	21	**130**
9	Richmond	EB T	**599**	38	-25%	17	**654**	-4%	13	**667**	-4%	28	**682**
9	Lehigh	SB L	**56**	4		0	**60**		0	**60**	0%	0	**60**
9	Lehigh	SB R	**95**	6		0	**101**	5%	14	**115**	5%	32	**133**
9	Richmond	WB T	**222**	14	25%	34	**270**	1%	3	**273**	1%	6	**276**
9	Richmond	WB R	**117**	7		0	**124**		0	**124**	0%	0	**124**
0											0%	0	**0**
10	Aramingo	NB L	**233**	15		0	**248**		0	**248**	0%	0	**248**
10	Aramingo	NB T	**588**	37	-50%	34	**659**	-4%	13	**672**	-4%	28	**687**
10	Aramingo	NB R	**31**	2		0	**33**		0	**33**	0%	0	**33**
10	Lehigh	EB L	**185**	12		0	**197**		0	**197**	0%	0	**197**
10	Lehigh	EB T	**198**	12		0	**210**	3%	9	**219**	3%	19	**229**
10	Lehigh	EB R	**300**	19		0	**319**		0	**319**	0%	0	**319**
10	Aramingo	SB L	**21**	1		0	**22**	2%	6	**28**	2%	13	**35**
10	Aramingo	SB T	**349**	22	50%	68	**439**		0	**439**	0%	0	**439**
10	Aramingo	SB R	**133**	8		0	**141**		0	**141**	0%	0	**141**
10	Lehigh	WB L	**19**	1		0	**20**		0	**20**	0%	0	**20**
10	Lehigh	WB T	**159**	10		0	**169**	-3%	*10*	**179**	-3%	21	**190**
10	Lehigh	WB R	**25**	2		0	**27**		0	**27**	0%	0	**27**
0		0									0%	0	**0**
11	Aramingo	NB L	**111**	7		0	**118**	-1%	3	**121**	-1%	7	**125**
11	Aramingo	NB T	**834**	53	-50%	34	**921**	-4%	13	**934**	-4%	28	**949**
11	Huntingdon	NWB L	**50**	3		0	**53**		0	**53**	0%	0	**53**
11	Huntingdon	NWB T	**103**	6		0	**109**		0	**109**	0%	0	**109**
11	Huntingdon	NWB R	**45**	3		0	**48**		0	**48**	0%	0	**48**
11	Aramingo	SB T	**689**	43	50%	68	**800**		0	**800**	0%	0	**800**
11	Aramingo	SB R	**55**	3		0	**58**		0	**58**	0%	0	**58**
11	Belgrade	To NB Huntir	**55**	3		0	**58**	0%	0	**58**	0%	0	**58**
11	Belgrade	To SB Arami	**115**	7		0	**122**		0	**122**	0%	0	**122**
11	Belgrade	To NB Arami	**11**	1		0	**12**		0	**12**	0%	0	**12**
											0%	0	**0**
12a	Aramingo	NB T	**934**	59	-50%	34	**1027**		0	**1027**	0%	0	**1027**
12a	Aramingo	*NB R*	***194***	*12*		0	**206**	*2%*	6	**212**	2%	13	**219**
12a	Cumberland	EB L	**111**	7		0	**118**		0	**118**	0%	0	**118**
12a	Cumberland	EB T	**134**	8		0	**142**	2%	6	**148**	2%	13	**155**
12a	Cumberland	EB R	**103**	6		0	**109**		0	**109**	0%	0	**109**
12a	Aramingo	SB L	**102**	6		0	**108**	0%	0	**108**	0%	0	**108**
12a	Aramingo	SB T	**825**	52	50%	68	**945**		0	**945**	0%	0	**945**
12a	Cumberland	WB L	**67**	4		0	**71**	-40%	129	**200**	-40%	281	**352**
12a	Cumberland	WB R	**68**	4		0	**72**	-5%	16	**88**	-5%	35	**107**
											0%	0	**0**
13	Aramingo	NB L	**166**	10		0	**176**	-1%	3	**179**	-1%	7	**183**
13	Aramingo	NB T	**934**	59	-50%	34	**1027**		0	**1027**	0%	0	**1027**
13	Aramingo	NB R	**123**	8		0	**131**		0	**131**	0%	0	**131**
13	York	EB L	**110**	7		0	**117**	2%	6	**123**	2%	13	**130**
13	York	EB T	**114**	7		0	**121**		0	**121**	0%	0	**121**
13	York	EB R	**173**	11		0	**184**		0	**184**	0%	0	**184**
13	Aramingo	SB L	**50**	3		0	**53**		0	**53**	0%	0	**53**
13	Aramingo	SB T	**863**	54	50%	68	**985**	-40%	129	**1114**	-40%	281	**1266**
13	Aramingo	SB R	**115**	7		0	**122**		0	**122**	0%	0	**122**
13	Port Richmor	WB L	**112**	7		0	**119**		0	**119**	0%	0	**119**
13	Port Richmor	WB T	**114**	7		0	**121**		0	**121**	0%	0	**121**
13	Port Richmor	WB R	**84**	5		0	**89**		0	**89**	0%	0	**89**
											0%	0	**0**
14	Berks	NB L		0		0	**0**		0	**0**	0%	0	**0**
14	Berks	NB T		0		0	**0**		0	**0**	0%	0	**0**
14	Berks	NB R		0		0	**0**		0	**0**	0%	0	**0**
14	Girard	EB L	**65**	4		0	**69**		0	**69**	0%	0	**69**
14	Girard	EB T	**666**	42		0	**708**		0	**708**	0%	0	**708**
14	Girard	EB R	**5**	0		0	**5**		0	**5**	0%	0	**5**
14	Berks	SB L		0		0	**0**		0	**0**	0%	0	**0**
14	Berks	SB T		0		0	**0**		0	**0**	0%	0	**0**
14	Berks	SB R		0		0	**0**		0	**0**	0%	0	**0**

			Other Planned Development			PINNACLE CASINO			PHASE 1 PERMANENT CASINO			
			Weekday-PM	Enter	Exit	**Weekday-PM**	Enter	Exit	**Weekday-PM**	Enter	Exit	
			203	**136**	**67**	**609**	**286**	**323**	**1332**	**630**	**702**	
	Future Volumes		**PM**	**0.021**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**PM**	**Enter**	**Exit**	**AM**
			2006	0	**136**	**67**	**2009**	**286**	**323**	**2009**	**630**	**702**	**2009**
			Existing	**Growth**			**Pre-Dev**			**Post-Dev**			**Post-Dev**
INT #	**Road Name**			**3**	**Distrib**	**Assign**	**3**	**Distrib**	**Assign**		**Distrib**	**Assign**	
14	Girard	WB L	**74**	5		0	**79**		0	**79**	0%	0	**79**
14	Girard	WB T	**602**	38		0	**640**	40%	114	**754**	40%	252	**892**
14	Girard	WB R	**261**	16		0	**277**		0	**277**	0%	0	**277**
											0%	0	**0**
15	Girard	EB T	**740**	47		0	**787**		0	**787**	0%	0	**787**
15	Girard	EB R	**40**	3		0	**43**	3%	9	**52**	3%	19	**62**
15	Columbia	SB L	**49**	3		0	**52**		0	**52**	0%	0	**52**
15	Columbia	SB T	**30**	2		0	**32**	0%	0	**32**	0%	0	**32**
15	Columbia	SB R	**26**	2		0	**28**		0	**28**	0%	0	**28**
15	Girard	WB L	**29**	2		0	**31**	40%	114	**145**	40%	252	**283**
15	Girard	WB T	**476**	30		0	**506**		0	**506**	0%	0	**506**

				Other Planned Development			PINNACLE CASINO			PHASE 1 PERMANENT CASINO			
			Saturday-PM	Enter	Exit	Saturday-PM	Enter	Exit	Saturday-PM	Enter	Exit	
			184	123	61	716	379	336	1865	1008	857	
	Future Volumes		**PM 2006 Existing**	**0.021 0 Growth**	**Enter 123**	**Exit 61**	**PM 2009 Pre-Dev**	**Enter 379**	**Exit 336**	**PM 2009 Post-Dev**	**Enter 1008**	**Exit 857**	**PM 2009 Post-Dev**
INT #	**Road Name**			**3**	**Distrib**	**Assign**	**3**	**Distrib**	**Assign**		**Distrib**	**Assign**	
1	Delaware	EB L	1	0		0	1		0	1		0	1
1	Delaware	EB T	947	60	-75%	45	1051	47%	178	1229	47%	474	1525
1	Delaware	EB R	1	0		0	1		0	1		0	1
1	Columbia	SB L	53	3		0	57	43%	163	220	43%	433	490
1	Columbia	SB T	5	0		0	6		0	6		0	6
1	Columbia	SB R	12	1		0	12		0	12		0	12
1	Delaware	WB L	7	0		0	7		0	7		0	7
1	Delaware	WB T	150	9	75%	92	251	-7%	24	275	-7%	60	311
1	Delaware	WB R	14	1		0	14		0	14		0	14
1	Columbia	NB L	27	2		0	28		0	28		0	28
1	Columbia	NB T	0	0		0	0		0	0		0	0
1	Columbia	NB R	19	1		0	21		0	21		0	21
0						0			0			0	0
2	Berks	NB L	0	0		0	0		0	0		0	0
2	Berks	NB T	0	0		0	0		0	0		0	0
2	Berks	NB R	1	0		0	1		0	1		0	1
2	Delaware	EB L	0	0		0	0		0	0		0	0
2	Delaware	EB T	1660	105	-75%	45	1809	90%	341	2150	90%	907	2716
2	Delaware	EB R	4	0		0	4		0	4		0	4
2	Berks	SB L	0	0		0	0		0	0		0	0
2	Berks	SB T	0	0		0	0		0	0		0	0
2	Berks	SB R	54	3		0	57		0	57		0	57
2	Delaware	WB L	0	0		0	0		0	0		0	0
2	Delaware	WB T	238	15	75%	92	345	-7%	24	369	-7%	60	405
2	Delaware	WB R	0	0		0	0		0	0		0	0
0						0			0			0	0
0						0			0			0	0
3	Delaware	NB T	1174	74	-50%	30	1278		0	1278		0	1278
3	Delaware	NB R	1	0		0	1		0	1		0	1
3	Delaware	SB L	0	0		0	0		0	0		0	0
3	Delaware	SB T	122	8	50%	62	191		0	191		0	191
3	Richmond	WB L	96	6		0	102		0	102		0	102
3	Richmond	WB R	143	9		0	152	-1%	3	155	-1%	9	161
0						0			0			0	0
4	Dyott	NB L	19	1		0	21	-48%	161	182	-48%	411	432
4	Dyott	NB T	0	0		0	0		0	0		0	0
4	Dyott	NB R	134	8		0	143	-52%	175	318	-52%	445	588
4	Richmond	EB L	15	1		0	16		0	16		0	16
4	Richmond	EB T	363	23	-25%	15	401		0	401		0	401
4	Richmond	EB R	0	0		0	0	90%	341	341	90%	907	907
4	Richmond	WB L	7	0		0	7	10%	38	45	10%	101	108
4	Richmond	WB T	206	13	25%	31	250		0	250		0	250
4	Richmond	WB R	1	0		0	1		0	1		0	1
0						0			0			0	0
5	Schirra	NB L	6	0		0	6		0	6		0	6
5	Schirra	NB R	5	0		0	6		0	6		0	6
5	Richmond	EB T	498	31	-25%	15	544	-52%	175	719	-52%	445	989
5	Richmond	EB R	2	0		0	2		0	2		0	2
5	Richmond	WB L	1	0		0	1		0	1		0	1
5	Richmond	WB T	204	13	25%	31	248	10%	38	286	10%	101	349
0						0			0			0	0
6	Richmond	EB L	21	1		0	23		0	23		0	23
6	Richmond	EB T	518	33	-25%	15	565	-52%	175	740	-52%	445	1010
6	Richmond	WB T	233	15	25%	31	279	10%	38	317	10%	101	380
6	Richmond	WB R	26	2		0	27		0	27		0	27
6	Girard	SB L	70	4		0	75		0	75		0	75
6	Girard	SB R	2	0		0	2		0	2		0	2
0						0			0			0	0
7	Cumberland	NB L	0	0		0	0		0	0		0	0
7	Cumberland	NB T	2	0		0	2		0	2		0	2
7	Cumberland	NB R	1	0		0	1		0	1		0	1
7	Richmond	EB L	35	2		0	38	-45%	151	189	-45%	386	424
7	Richmond	EB T	438	28	-25%	15	480	-7%	24	504	-7%	60	540
7	Richmond	EB R	1	0		0	1		0	1		0	1
7	Cumberland	SB L	7	0		0	7		0	7		0	7
7	Cumberland	SB T	1	0		0	1		0	1		0	1
7	Cumberland	SB R	57	4		0	60	4%	15	75	4%	40	100
7	Richmond	WB L	4	0		0	4		0	4		0	4
7	Richmond	WB T	131	8	25%	31	170	6%	23	193	6%	60	230
7	Richmond	WB R	24	2		0	26		0	26		0	26
0						0			0			0	0

				Other Planned Development			PINNACLE CASINO			PHASE 1 PERMANENT CASINO			
				Saturday-PM	Enter	Exit	Saturday-PM	Enter	Exit	Saturday-PM	Enter	Exit	
				184	123	61	716	379	336	1865	1008	857	
	Future Volumes		PM 2006 Existing	0.021 0 Growth	Enter 123	Exit 61	PM 2009 Pre-Dev	Enter 379	Exit 336	PM 2009 Post-Dev	Enter 1008	Exit 857	PM 2009 Post-Dev
INT #	Road Name			3	Distrib	Assign	3	Distrib	Assign		Distrib	Assign	
8	Richmond	EB L	55	3		0	59		0	59		0	59
8	Richmond	EB T	376	24	-25%	15	415	-7%	24	439	-7%	60	475
8	Huntingdon	SB L	0	0		0	0		0	0		0	0
8	Huntingdon	SB T	0	0		0	0		0	0		0	0
8	Huntingdon	SB R	0	0		0	0		0	0		0	0
8	Richmond	WB T	147	9	-25%	15	171	6%	23	194	6%	60	231
8	Richmond	WB R	23	1		0	24		0	24		0	24
0						0			0			0	0
9	Richmond	EB L	77	5		0	81	-3%	10	91	-3%	26	107
9	Richmond	EB T	445	28	-25%	15	488	-4%	13	501	-4%	34	522
9	Lehigh	SB L	42	3		0	44		0	44		0	44
9	Lehigh	SB R	71	4		0	75	5%	19	94	5%	50	125
9	Richmond	WB T	165	10	25%	31	206	1%	4	210	1%	10	216
9	Richmond	WB R	87	5		0	92		0	92		0	92
0						0			0			0	0
10	Aramingo	NB L	173	11		0	184		0	184		0	184
10	Aramingo	NB T	437	28	-50%	30	494	-4%	13	507	-4%	34	528
10	Aramingo	NB R	23	1		0	24		0	24		0	24
10	Lehigh	EB L	137	9		0	146		0	146		0	146
10	Lehigh	EB T	147	9		0	156	3%	11	167	3%	30	186
10	Lehigh	EB R	223	14		0	237		0	237		0	237
10	Aramingo	SB L	16	1		0	17	2%	8	25	2%	20	37
10	Aramingo	SB T	259	16	50%	62	338		0	338		0	338
10	Aramingo	SB R	99	6		0	105		0	105		0	105
10	Lehigh	WB L	14	1		0	15		0	15		0	15
10	Lehigh	WB T	118	7		0	126	-3%	10	136	-3%	26	152
10	Lehigh	WB R	19	1		0	20		0	20		0	20
0						0			0			0	0
11	Aramingo	NB L	82	5		0	88	-1%	3	91	-1%	9	97
11	Aramingo	NB T	619	39	-50%	30	688	-4%	13	701	-4%	34	722
11	Huntingdon	NWB L	37	2		0	39		0	39		0	39
11	Huntingdon	NWB T	77	5		0	81		0	81		0	81
11	Huntingdon	NWB R	33	2		0	36		0	36		0	36
11	Aramingo	SB T	512	32	50%	62	606		0	606		0	606
11	Aramingo	SB R	41	3		0	43		0	43		0	43
11	Belgrade	To NB Huntir	41	3		0	43	0%	0	43	0%	0	43
11	Belgrade	To SB Arami	85	5		0	91		0	91		0	91
11	Belgrade	To NB Arami	8	1		0	9		0	9		0	9
0						0			0			0	0
12a	Aramingo	NB T	694	44	-50%	30	767		0	767		0	767
12a	Aramingo	*NB R*	*144*	9		0	153	*2%*	8	161	*2%*	20	173
12a	Cumberland	EB L	82	5		0	88		0	88		0	88
12a	Cumberland	EB T	100	6		0	106	2%	8	114	2%	20	126
12a	Cumberland	EB R	77	5		0	81		0	81		0	81
12a	Aramingo	SB L	76	5		0	81	0%	0	81	0%	0	81
12a	Aramingo	SB T	613	39	50%	62	713		0	713		0	713
12a	Cumberland	WB L	50	3		0	53	-40%	135	188	-40%	343	**396**
12a	Cumberland	WB R	51	3		0	54	-5%	17	71	-5%	43	97
0						0			0			0	0
13	Aramingo	NB L	123	8		0	131	-1%	3	134	-1%	9	140
13	Aramingo	NB T	694	44	-50%	30	767		0	767		0	767
13	Aramingo	NB R	91	6		0	97		0	97		0	97
13	York	EB L	82	5		0	87	2%	8	95	2%	20	107
13	York	EB T	85	5		0	90		0	90		0	90
13	York	EB R	128	8		0	137		0	137		0	137
13	Aramingo	SB L	37	2		0	39		0	39		0	39
13	Aramingo	SB T	641	40	50%	62	743	-40%	135	878	-40%	343	1086
13	Aramingo	SB R	85	5		0	91		0	91		0	91
13	Port Richmor	WB L	83	5		0	88		0	88		0	88
13	Port Richmor	WB T	85	5		0	90		0	90		0	90
13	Port Richmor	WB R	62	4		0	66		0	66		0	66
0						0			0			0	0
14	Berks	NB L	0	0		0	0		0	0		0	0
14	Berks	NB T	0	0		0	0		0	0		0	0
14	Berks	NB R	0	0		0	0		0	0		0	0
14	Girard	EB L	46	3		0	49		0	49		0	49
14	Girard	EB T	469	30		0	498		0	498		0	498
14	Girard	EB R	4	0		0	4		0	4		0	4
14	Berks	SB L	0	0		0	0		0	0		0	0
14	Berks	SB T	0	0		0	0		0	0		0	0
14	Berks	SB R	0	0		0	0		0	0		0	0

				Other Planned Development			PINNACLE CASINO			PHASE 1 PERMANENT CASINO			
				Saturday-PM	Enter	Exit	**Saturday-PM**	Enter	Exit	**Saturday-PM**	Enter	Exit	
				184	**123**	**61**	**716**	**379**	**336**	**1865**	**1008**	**857**	
	Future Volumes		**PM 2006 Existing**	**0.021** 0 **Growth**	**Enter 123**	**Exit 61**	**PM 2009 Pre-Dev**	**Enter 379**	**Exit 336**	**PM 2009 Post-Dev**	**Enter 1008**	**Exit 857**	**PM 2009 Post-Dev**
INT #	**Road Name**			**3**	**Distrib**	**Assign**	**3**	**Distrib**	**Assign**		**Distrib**	**Assign**	
14	Girard	WB L	**52**	3		0	**55**		0	**55**		0	**55**
14	Girard	WB T	**424**	27		0	**451**	40%	152	**603**	40%	403	**854**
14	Girard	WB R	**184**	12		0	**195**		0	**195**		0	**195**
0						0			0			0	**0**
15	Girard	EB T	**521**	33		0	**554**		0	**554**		0	**554**
15	Girard	EB R	**28**	2		0	**30**	3%	11	**41**	3%	30	**60**
15	Columbia	SB L	**34**	2		0	**37**		0	**37**		0	**37**
15	Columbia	SB T	**21**	1		0	**22**	0%	0	**22**	0%	0	**22**
15	Columbia	SB R	**18**	1		0	**19**		0	**19**		0	**19**
15	Girard	WB L	**20**	1		0	**22**	40%	152	**174**	40%	403	**425**
15	Girard	WB T	**335**	21		0	**356**		0	**356**		0	**356**

	Future Volumes		AM	Enter		AM	PM	Enter	Exit	PM	SAT	Enter	Exit	SAT
			2011	437	146	2011	2011	630	702	2011	2011	1008	857	2011
			Pre-Dev			Post-Dev	Pre-Dev			Post-Dev	Pre-Dev			Post-Dev
INT #	Road Name		5	Distrib	Assign		5	Distrib	Assign		5	Distrib	Assign	
1	Delaware	EB L	0	0%	0	0	2		0	2	1		0	1
1	Delaware	EB T	546	2%	9	555	2050	7%	44	2094	1091	7%	71	1162
1	Delaware	EB R	1	0%	0	1	1		0	1	1		0	1
1	Columbia	SB L	25	3%	13	38	113	3%	19	132	59	3%	30	89
1	Columbia	SB T	3	0%	0	3	11		0	11	6		0	6
1	Columbia	SB R	24	0%	0	24	24		0	24	13		0	13
1	Delaware	WB L	9	0%	0	9	14		0	14	8		0	8
1	Delaware	WB T	1075	-6%	9	1084	418	-2%	14	432	257	-2%	17	274
1	Delaware	WB R	43	0%	0	43	29		0	29	15		0	15
1	Columbia	NB L	56	0%	0	56	56		0	56	29		0	29
1	Columbia	NB T	0	0%	0	0	0		0	0	0		0	0
1	Columbia	NB R	27	0%	0	27	41		0	41	21		0	21
									0				0	
2	Berks	NB L	0	0%	0	0	0		0	0	0		0	0
2	Berks	NB T	0	0%	0	0	0		0	0	0		0	0
2	Berks	NB R	3	0%	0	3	1		0	1	1		0	1
2	Delaware	EB L	0	0%	0	0	0		0	0	0		0	0
2	Delaware	EB T	1240	5%	22	1262	3289	10%	63	3352	1879	10%	101	1980
2	Delaware	EB R	23	0%	0	23	8		0	8	4		0	4
2	Berks	SB L	0	0%	0	0	0		0	0	0		0	0
2	Berks	SB T	0	0%	0	0	0		0	0	0		0	0
2	Berks	SB R	159	0%	0	159	105		0	105	59		0	59
2	Delaware	WB L	0	0%	0	0	0		0	0	0		0	0
2	Delaware	WB T	839	-6%	9	848	566	-2%	14	580	355	-2%	17	372
2	Delaware	WB R	0	0%	0	0	0		0	0	0		0	0
With 1 Access									0				0	
3 - NEW	Delaware	EB L	253		0	253	296		0	296	168		0	168
3 - NEW	Delaware	EB T	451		0	451	1284		0	1284	727		0	727
3 - NEW	Delaware	EB R	0	5%	22	22		10%	63	63	0	10%	101	101
3 - NEW	Aramingo	SB L	86		0	86	99		0	99	56		0	56
3 - NEW	Aramingo	SB T	0	45%	196	196		44%	277	277	0	44%	443	443
3 - NEW	Aramingo	SB R	632		0	632	367		0	367	208		0	208
3 - NEW	Delaware	WB L	0	50%	218	218		46%	290	290	0	46%	464	464
3 - NEW	Delaware	WB T	449		0	449	250		0	250	142		0	142
3 - NEW	Delaware	WB R	459		0	459	591		0	591	335		0	335
3 - NEW	ACCESS	NB L	0	-6%	9	9		-2%	14	14	0	-2%	17	17
3 - NEW	ACCESS	NB T	0	-53%	77	77		-54%	379	379	0	-54%	463	463
3 - NEW	ACCESS	NB R	0	-41%	60	60		-44%	309	309	0	-44%	377	377
With 1 Access									0				0	
5-NEW	Richmond	EB L	378	-40%	58	436	1032	-40%	281	1313	552	-40%	343	895
5-NEW	Richmond	EB T	159	-1%	1	160	351	-4%	28	379	188	-4%	34	222
5-NEW	Richmond	EB R			0	0	0		0	0	0		0	0
5-NEW	Schirra	SB L	223		0	223	294		0	294	157		0	157
5-NEW	Schirra	SB T	0		0	0	0		0	0	0		0	0
5-NEW	Schirra	SB R	479	40%	175	654	595	40%	252	847	318	40%	403	721
5-NEW	Richmond	WB L	0		0	0	0		0	0	0		0	0
5-NEW	Richmond	WB T	429	10%	44	473	246	6%	38	284	132	6%	60	192
5-NEW	Richmond	WB R	461		0	461	670		0	670	358		0	358
4	Dyott	NB L	31	0%	0	31	48		0	48	22		0	22
4	Dyott	NB T	0	0%	0	0	0		0	0	0		0	0
4	Dyott	NB R	21	0%	0	21	114		0	114	148		0	148
4	Richmond	EB L	86	-1%	1	87	662		0	662	16		0	16
4	Richmond	EB T	66	-41%	60	126	79	-44%	309	388	416	-44%	377	793
4	Richmond	EB R	113	0%	0	113	105		0	105	0		0	0
4	Richmond	WB L	511	0%	0	511	245		0	245	8		0	8
4	Richmond	WB T	122	50%	218	340	163	46%	290	453	259	46%	464	723
4	Richmond	WB R	0	0%	0	0	0		0	0	1		0	1
				0%					0				0	
6-NEW	Richmond	EB L	59		0	59	39		0	39	21		0	21
6-NEW	Richmond	EB T	323	-1%	1	324	605	-4%	28	633	324	-4%	34	358
6-NEW	Richmond	WB T	533	10%	44	577	325	6%	38	363	174	6%	60	234
6-NEW	Richmond	WB R	156		0	156	123		0	123	66		0	66
6-NEW	Girard	SB L	50		0	50	147		0	147	79		0	79
6-NEW	Girard	SB R	357		0	357	591		0	591	316		0	316
									0				0	
7	Cumberland	NB L	2	0%	0	2	0		0	0	0		0	0
7	Cumberland	NB T	1	0%	0	1	4		0	4	2		0	2
7	Cumberland	NB R	0	0%	0	0	2		0	2	1		0	1
7	Richmond	EB L	24		0	24	73		0	73	39		0	39
7	Richmond	EB T	160	-1%	1	161	921	-4%	28	949	499	-4%	34	533
7	Richmond	EB R	0	0%	0	0	2		0	2	1		0	1
7	Cumberland	SB L	7	0%	0	7	14		0	14	8		0	8
7	Cumberland	SB T	2	0%	0	2	2		0	2	1		0	1
7	Cumberland	SB R	169	0%	0	169	117		0	117	63		0	63
7	Richmond	WB L	13	0%	0	13	8		0	8	4		0	4
7	Richmond	WB T	571	10%	44	615	304	6%	38	342	175	6%	60	235
7	Richmond	WB R	41	0%	0	41	50		0	50	27		0	27
									0				0	
8	Richmond	EB L	27	0%	0	27	114		0	114	61		0	61
8	Richmond	EB T	147	-1%	1	148	794	-4%	28	822	431	-4%	34	465
8	Huntingdon	SB L	0	0%	0	0	0		0	0	0		0	0
8	Huntingdon	SB T	0	0%	0	0	0		0	0	0		0	0
8	Huntingdon	SB R	0	0%	0	0	0		0	0	0		0	0
8	Richmond	WB T	635	10%	44	679	321	6%	38	359	178	6%	60	238
8	Richmond	WB R	31	0%	0	31	48		0	48	25		0	25
				0%					0				0	
9	Richmond	EB L	21	0%	0	21	114		0	114	85		0	85
9	Richmond	EB T	122	-1%	1	123	679	-4%	28	707	507	-4%	34	541
9	Lehigh	SB L	30	0%	0	30	62		0	62	46		0	46
9	Lehigh	SB R	113	7%	31	144	105	5%	32	137	78	5%	50	128
9	Richmond	WB T	518	3%	13	531	279	1%	6	285	213	1%	10	223

	Future Volumes		AM	Enter		AM	PM	Enter	Exit	PM	SAT	Enter	Exit	SAT
			2011	437	146	2011	2011	630	702	2011	2011	1008	857	2011
			Pre-Dev			Post-Dev	Pre-Dev			Post-Dev	Pre-Dev			Post-Dev
INT #	Road Name		5	Distrib	Assign		5	Distrib	Assign		5	Distrib	Assign	
9	Richmond	WB R	115	0%	0	115	129		0	129	96		0	96
				0%					0				0	
10	Aramingo	NB L	252	-3%	4	256	257	-3%	21	278	191	-3%	26	217
10	Aramingo	NB T	345	-4%	6	351	684	-4%	28	712	513	-4%	34	547
10	Aramingo	NB R	23	0%	0	23	34		0	34	25		0	25
10	Lehigh	EB L	99	0%	0	99	204		0	204	152		0	152
10	Lehigh	EB T	97	4%	17	114	219	3%	19	238	163	3%	30	193
10	Lehigh	EB R	396	0%	0	396	332		0	332	246		0	246
10	Aramingo	SB L	10	3%	13	23	23	2%	13	36	17	2%	20	37
10	Aramingo	SB T	893	0%	0	893	454		0	454	348		0	348
10	Aramingo	SB R	165	0%	0	165	147		0	147	109		0	109
10	Lehigh	WB L	22	0%	0	22	21		0	21	16		0	16
10	Lehigh	WB T	166	0%	0	166	176		0	176	130		0	130
10	Lehigh	WB R	4	0%	0	4	28		0	28	21		0	21
				0%					0				0	
11	Aramingo	NB L	62	-1%	1	63	123	-1%	7	130	91	-1%	9	100
11	Aramingo	NB T	579	-7%	10	589	956	-7%	49	1005	714	-7%	60	774
11	Huntingdon	NWB L	77	0%	0	77	55		0	55	41		0	41
11	Huntingdon	NWB T	80	0%	0	80	114		0	114	85		0	85
11	Huntingdon	NWB R	20	0%	0	20	50		0	50	37		0	37
11	Aramingo	SB T	1182	0%	0	1182	829		0	829	627		0	627
11	Aramingo	SB R	43	0%	0	43	61		0	61	45		0	45
11	Belgrade	To NB Hu	25	0%	0	25	61		0	61	45		0	45
11	Belgrade	To SB Ara	218	1%	4	222	127	0%	0	127	94	0%	0	94
11	Belgrade	To NB Ara	2	0%	0	2	12		0	12	9		0	9
				0%					0				0	
12a	Aramingo	NB T	667	-8%	12	679	1066	-8%	56	1122	797	-8%	69	866
12a	*Aramingo*	*NB R*	*78*	0%	*0*	*78*	*214*		0	*214*	*159*		0	*159*
12a	Cumberland	EB L	101	0%	0	101	123		0	123	91		0	91
12a	Cumberland	EB T	92	0%	0	92	148		0	148	110		0	110
12a	Cumberland	EB R	127	0%	0	127	114		0	114	85		0	85
12a	Aramingo	SB L	106	0%	0	106	113		0	113	84		0	84
12a	Aramingo	SB T	1501	1%	4	1505	980	0%	0	980	739	0%	0	739
12a	Cumberland	WB L	62	0%	0	62	74		0	74	55		0	55
12a	Cumberland	WB R	23	2%	9	32	75	2%	13	88	56	2%	20	76
									0				0	
13-NEW	Aramingo	NB L	180	-1%	1	181	210	-2%	14	224	156	-2%	17	173
13-NEW	Aramingo	NB T	691	-8%	12	703	921	-8%	56	977	684	-8%	69	753
13-NEW	Aramingo	NB R	120		0	120	128		0	128	95		0	95
13-NEW	York	EB L	34		0	34	51		0	51	38		0	38
13-NEW	York	EB T	69		0	69	77		0	77	57		0	57
13-NEW	York	EB R	240	2%	9	249	223	2%	13	236	166	2%	20	186
13-NEW	Aramingo	SB L	17		0	17	34		0	34	25		0	25
13-NEW	Aramingo	SB T	1426	3%	13	1439	873	2%	13	886	649	2%	20	669
13-NEW	Aramingo	SB R	26		0	26	34		0	34	25		0	25
13-NEW	Port Richmonc	WB L	180		0	180	188		0	188	140		0	140
13-NEW	Port Richmonc	WB T	103		0	103	111		0	111	82		0	82
13-NEW	Port Richmonc	WB R	17		0	17	34		0	34	25		0	25
									0				0	
14-NEW	Berks	NB L	0		0	0	0		0	0	0		0	0
14-NEW	Berks	NB T	0		0	0	0		0	0	0		0	0
14-NEW	Berks	NB R	0		0	0	0		0	0	0		0	0
14-NEW	Girard	EB L	35		0	35	51		0	51	36		0	36
14-NEW	Girard	EB T	638		0	638	832		0	832	586		0	586
14-NEW	Girard	EB R	9		0	9	10		0	10	7		0	7
14-NEW	Berks	SB L	0		0	0	0		0	0	0		0	0
14-NEW	Berks	SB T	0		0	0	0		0	0	0		0	0
14-NEW	Berks	SB R	0		0	0	0		0	0	0		0	0
14-NEW	Girard	WB L	82		0	82	72		0	72	51		0	51
14-NEW	Girard	WB T	900	-3%	4	904	697	-3%	21	718	491	-3%	26	517
14-NEW	Girard	WB R	134	-1%	1	135	218	-1%	7	225	153	-1%	9	162
									0				0	
15	Girard	EB T	320	0%	0	320	818		0	818	576		0	576
15	Girard	EB R	33	2%	9	42	44	3%	19	63	31	3%	30	61
15	Columbia	SB L	51	0%	0	51	54		0	54	38		0	38
15	Columbia	SB T	30	1%	4	34	33	0%	0	33	23	0%	0	23
15	Columbia	SB R	56	0%	0	56	29		0	29	20		0	20
15	Girard	WB L	30		0	30	32		0	32	23		0	23
15	Girard	WB T	611	-3%	4	615	526	-3%	21	547	370	-3%	26	396

APPENDIX D

LEVEL OF SERVICE DEFINITION

PENNONI ASSOCIATES, INC.
Consulting Engineers

Levels of Service for Signalized Intersections

For signalized intersections, the Level of Service for the intersection is calculated by taking the Intersection Delay and converting it to a letter using the following TABLE 3A.

TABLE 3A
Level of Service from Control Delay (based on Highway Capacity Manual 2000*)

LOS	Control Delay Per Vehicle (s)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Levels of Service for Unsignalized Intersections

For an unsignalized *two-way stopped controlled (TWSC)* or *all-way stop-controlled (AWSC)* intersection, the Level of Service for the intersection is calculated by taking the Intersection Delay and converting it to a letter using the following TABLE 3B.

TABLE 3B
Level of Service Criteria for TWSC and AWSC intersections (based on Highway Capacity Manual 2000*)

LOS	Control Delay Per Vehicle (s)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

The LOS criteria for a TWSC and AWSC intersection are different than that used for a signalized intersection. The primary reason for this is that drivers expect different levels of performance between signalized and unsignalized intersections.

Delay refers to the time a vehicle arriving at the intersection must wait before proceeding through the intersection. The volume/capacity ratio compares the number of vehicles attempting to utilize an approach or intersection to the capacity of the approach or intersection for a specific time period. As the traffic volumes near the capacity of the approach or intersection, congestion occurs. A V/C of 1.0 indicates that the volumes equal the estimated capacity of the intersection or approach.

For the purpose of this study any deficient Levels of Service will be indicated with a corresponding letter and the number of average delay in seconds immediately following the letter; i.e., the designation LOS “E” (56) will be utilized to describe a deficient Level of Service “E” with an average movement delay of 56 seconds.

APPENDIX E

HCM LEVEL OF SERVICE ANALYSES REPORTS

PENNONI ASSOCIATES, INC.
Consulting Engineers

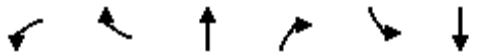
Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	1.00		0.99	1.00			0.99			0.98	
Frt	1.00		1.00	0.99			0.96			0.94	
Flt Protected	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	3504		1753	3513			1609			1580	
Flt Permitted	1.00		0.38	1.00			0.79			0.85	
Satd. Flow (perm)	3504		703	3513			1309			1380	
Volume (vph)	512	1	8	995	40	52	0	25	23	3	22
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.92	0.78	0.78	0.78	0.54	0.54	0.54
Adj. Flow (vph)	595	1	9	1082	43	67	0	32	43	6	41
RTOR Reduction (vph)	0	0	0	0	0	0	19	0	0	25	0
Lane Group Flow (vph)	596	0	9	1125	0	0	80	0	0	65	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	3%	2%	2%	2%	2%	8%	2%	4%	2%	2%	5%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1830		367	1835			509			537	
v/s Ratio Prot	0.17			c0.32							
v/s Ratio Perm			0.01				c0.06			0.05	
v/c Ratio	0.33		0.02	0.61			0.16			0.12	
Uniform Delay, d1	12.4		10.4	15.1			17.9			17.6	
Progression Factor	1.00		1.37	1.29			1.00			1.00	
Incremental Delay, d2	0.5		0.1	1.5			0.7			0.5	
Delay (s)	12.9		14.3	21.1			18.6			18.1	
Level of Service	B		B	C			B			B	
Approach Delay (s)	12.9			21.0			18.6			18.1	
Approach LOS	B			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1154	21	0	777	0	0	0	3	0	0	147
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.55	0.55	0.55	0.91	0.91	0.91
Hourly flow rate (vph)	0	1282	23	0	818	0	0	0	5	0	0	162
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	818			1306			1865	2112	440	1252	2123	410
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	783			1306			1861	2115	440	1230	2127	363
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	74
cM capacity (veh/h)	807			526			32	49	564	129	48	615

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	513	513	280	409	409	5	162
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	23	0	0	5	162
cSH	1700	1700	1700	1700	1700	564	615
Volume to Capacity	0.30	0.30	0.16	0.24	0.24	0.01	0.26
Queue Length 95th (ft)	0	0	0	0	0	1	26
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.4	12.9
Lane LOS						B	B
Approach Delay (s)	0.0			0.0		11.4	12.9
Approach LOS						B	B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.95		1.00			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	3438		3622			3657
Flt Permitted	0.97		1.00			1.00
Satd. Flow (perm)	3438		3622			3657
Volume (vph)	389	183	780	0	0	415
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.93	0.93
Adj. Flow (vph)	418	197	918	0	0	446
RTOR Reduction (vph)	65	0	0	0	0	0
Lane Group Flow (vph)	550	0	918	0	0	446
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	993		2254			2275
v/s Ratio Prot	c0.16		c0.25			0.12
v/s Ratio Perm						
v/c Ratio	0.55		0.41			0.20
Uniform Delay, d1	27.1		8.6			7.3
Progression Factor	0.99		0.61			1.00
Incremental Delay, d2	2.2		0.5			0.2
Delay (s)	29.2		5.8			7.5
Level of Service	C		A			A
Approach Delay (s)	29.2		5.8			7.5
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	25	0	263	4	33	549	1	6	0	12	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.92	0.92	0.92	0.64	0.64	0.64	0.50	0.50
Hourly flow rate (vph)	0	0	299	5	36	597	1	9	0	19	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	598			303			972	971	301	989	972
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	598			303			972	971	301	989	972
tC, single (s)	0.0	4.1			4.2			7.3	6.5	6.3	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.3			3.7	4.0	3.4	3.5	4.0
p0 queue free %	0	100			97			96	100	97	99	100
cM capacity (veh/h)	0	979			1219			212	245	725	215	245

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	303	36	598	28	4
Volume Left	0	36	0	9	2
Volume Right	5	0	1	19	2
cSH	1700	1219	1700	401	301
Volume to Capacity	0.18	0.03	0.35	0.07	0.01
Queue Length 95th (ft)	0	2	0	6	1
Control Delay (s)	0.0	8.0	0.0	14.6	17.1
Lane LOS		A		B	C
Approach Delay (s)	0.0	0.5		14.6	17.1
Approach LOS				B	C

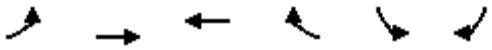
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	1
Peak Hour Factor	0.50
Hourly flow rate (vph)	2
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	597
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	597
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	503
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	254	15	7	592	4	3
Peak Hour Factor	0.94	0.94	0.95	0.95	0.65	0.65
Hourly flow rate (vph)	270	16	7	623	6	5
Pedestrians				1	6	
Lane Width (ft)				11.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			292		922	285
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			292		922	285
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			99		98	99
cM capacity (veh/h)			1257		270	749

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	286	7	623	11
Volume Left	0	7	0	6
Volume Right	16	0	0	5
cSH	1700	1257	1700	372
Volume to Capacity	0.17	0.01	0.37	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	7.9	0.0	15.0
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		15.0
Approach LOS				B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	53	198	637	76	34	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	59	220	708	84	42	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	792				1088	750
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	792				1088	750
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	93				79	98
cM capacity (veh/h)	820				207	411

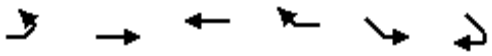
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	59	220	792	52
Volume Left	59	0	0	42
Volume Right	0	0	84	10
cSH	820	1700	1700	228
Volume to Capacity	0.07	0.13	0.47	0.23
Queue Length 95th (ft)	6	0	0	22
Control Delay (s)	9.7	0.0	0.0	25.4
Lane LOS	A			D
Approach Delay (s)	2.1		0.0	25.4
Approach LOS				D

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	22	150	0	12	528	38	2	1	0	6	2	156
Peak Hour Factor	0.75	0.75	0.75	0.88	0.88	0.88	0.58	0.58	0.58	0.85	0.85	0.85
Hourly flow rate (vph)	29	200	0	14	600	43	3	2	0	7	2	184
Pedestrians		6			2			11			9	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	652			211			1109	949	213	919	928	637
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	652			211			1109	949	213	919	928	637
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.9	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	4.2	4.0	3.3
p0 queue free %	97			99			97	99	100	96	99	61
cM capacity (veh/h)	893			1347			106	245	818	172	252	467

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	29	200	657	5	193
Volume Left	29	0	14	3	7
Volume Right	0	0	43	0	184
cSH	893	1700	1347	131	435
Volume to Capacity	0.03	0.12	0.01	0.04	0.44
Queue Length 95th (ft)	3	0	1	3	56
Control Delay (s)	9.2	0.0	0.3	33.7	19.7
Lane LOS	A		A	D	C
Approach Delay (s)	1.2		0.3	33.7	19.7
Approach LOS				D	C

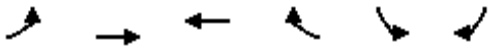
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	25	138	589	29	0	0
Peak Hour Factor	0.68	0.68	0.94	0.94	0.45	0.45
Hourly flow rate (vph)	37	203	627	31	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked	0.83				0.83	0.83
vC, conflicting volume	666				927	651
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	599				913	581
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	806				241	428

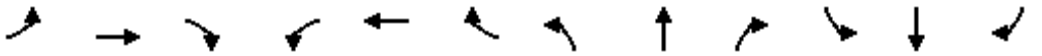
Direction, Lane #	EB 1	WB 1
Volume Total	240	657
Volume Left	37	0
Volume Right	0	31
cSH	806	1700
Volume to Capacity	0.05	0.39
Queue Length 95th (ft)	4	0
Control Delay (s)	1.9	0.0
Lane LOS	A	
Approach Delay (s)	1.9	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.98		0.89	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1754	1696		1471	
Flt Permitted		0.90	1.00		0.99	
Satd. Flow (perm)		1591	1696		1471	
Volume (vph)	19	116	479	106	28	104
Peak-hour factor, PHF	0.72	0.72	0.91	0.91	0.85	0.85
Adj. Flow (vph)	26	161	526	116	33	122
RTOR Reduction (vph)	0	0	13	0	85	0
Lane Group Flow (vph)	0	187	629	0	70	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	5%	8%	2%	2%	4%	5%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		902	961		441	
v/s Ratio Prot			c0.37		c0.05	
v/s Ratio Perm		0.12				
v/c Ratio		0.21	0.65		0.16	
Uniform Delay, d1		6.4	9.0		15.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.5	3.5		0.8	
Delay (s)		6.9	12.4		16.2	
Level of Service		A	B		B	
Approach Delay (s)		6.9	12.4		16.2	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.88		1.00	1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	1.00
Satd. Flow (prot)	1703	3089		1711	3407			3335			3419	1501
Flt Permitted	0.64	1.00		0.34	1.00			0.53			0.94	1.00
Satd. Flow (perm)	1139	3089		608	3407			1795			3227	1501
Volume (vph)	92	90	366	20	153	4	233	325	21	9	827	152
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.89	0.89	0.89	0.88	0.88	0.88
Adj. Flow (vph)	102	100	407	24	180	5	262	365	24	10	940	173
RTOR Reduction (vph)	0	106	0	0	2	0	0	3	0	0	0	47
Lane Group Flow (vph)	102	401	0	24	183	0	0	648	0	0	950	126
Heavy Vehicles (%)	6%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	329	892		176	984			1117			2008	934
v/s Ratio Prot		c0.13			0.05							
v/s Ratio Perm	0.09			0.04				c0.36			0.29	0.08
v/c Ratio	0.31	0.45		0.14	0.19			0.92dl			0.47	0.13
Uniform Delay, d1	25.0	26.2		23.7	24.0			10.0			9.1	7.0
Progression Factor	1.00	1.00		1.00	1.00			0.55			1.00	1.00
Incremental Delay, d2	2.4	1.6		1.6	0.4			1.1			0.8	0.3
Delay (s)	27.4	27.8		25.3	24.5			6.7			9.9	7.3
Level of Service	C	C		C	C			A			A	A
Approach Delay (s)		27.7			24.6			6.7			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.98			1.00	0.99		0.98		
Flt Protected		0.98			1.00	1.00		0.96		
Satd. Flow (prot)		2026			2993	2598		1991		
Flt Permitted		0.98			0.62	1.00		0.96		
Satd. Flow (perm)		2026			1859	2598		1991		
Volume (vph)	71	74	18	57	542	1093	40	201	23	2
Peak-hour factor, PHF	0.91	0.91	0.91	0.80	0.80	0.91	0.91	0.93	0.93	0.93
Adj. Flow (vph)	78	81	20	71	678	1201	44	216	25	2
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	179	0	0	749	1242	0	243	0	0
Heavy Vehicles (%)	2%	3%	2%	3%	13%	30%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		450			868	1212		354		
v/s Ratio Prot		c0.09				c0.48		c0.12		
v/s Ratio Perm					0.40					
v/c Ratio		0.40			0.90dl	1.03		0.69		
Uniform Delay, d1		29.9			21.4	24.0		34.7		
Progression Factor		1.00			0.88	0.73		1.00		
Incremental Delay, d2		2.6			10.8	31.0		10.4		
Delay (s)		32.5			29.7	48.4		45.0		
Level of Service		C			C	D		D		
Approach Delay (s)		32.5			29.7	48.4		45.0		
Approach LOS		C			C	D		D		

Intersection Summary			
HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1927		1574		1370		3240		1652	3303	
Flt Permitted	0.95	1.00		0.49		1.00		1.00		0.37	1.00	
Satd. Flow (perm)	2006	1927		815		1370		3240		640	3303	
Volume (vph)	93	85	117	57	0	21	0	622	0	98	1388	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	100	91	126	62	0	23	0	676	0	110	1560	0
RTOR Reduction (vph)	0	31	0	0	0	17	0	0	0	0	0	0
Lane Group Flow (vph)	100	186	0	62	0	6	0	676	0	110	1560	0
Heavy Vehicles (%)	2%	2%	2%	7%	2%	10%	2%	4%	2%	2%	2%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	514		217		365		2088		412	2129	
v/s Ratio Prot		c0.10						0.21			c0.47	
v/s Ratio Perm	0.05			0.08		0.00				0.17		
v/c Ratio	0.19	0.36		0.29		0.02		0.32		0.27	0.73	
Uniform Delay, d1	25.5	26.8		26.2		24.3		7.2		6.9	10.8	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.87	1.79	
Incremental Delay, d2	0.8	2.0		3.3		0.1		0.4		0.8	1.2	
Delay (s)	26.2	28.8		29.5		24.4		7.6		13.7	20.5	
Level of Service	C	C		C		C		A		B	C	
Approach Delay (s)		28.0			28.1			7.6			20.0	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1631	1863	1531	2006	2040		1636	3250		1652	4711	
Flt Permitted	0.72	1.00	1.00	0.57	1.00		0.12	1.00		0.31	1.00	
Satd. Flow (perm)	1234	1863	1531	1203	2040		207	3250		536	4711	
Volume (vph)	58	50	199	83	45	13	120	623	75	25	1399	72
Peak-hour factor, PHF	0.92	0.92	0.92	0.99	0.99	0.99	0.87	0.87	0.87	0.94	0.94	0.94
Adj. Flow (vph)	63	54	216	84	45	13	138	716	86	27	1488	77
RTOR Reduction (vph)	0	0	189	0	9	0	0	5	0	0	3	0
Lane Group Flow (vph)	63	54	27	84	49	0	138	797	0	27	1562	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		75.6	75.6		75.6	75.6	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		77.6	77.6		77.6	77.6	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.65	0.65		0.65	0.65	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	233	191	307	442		134	2102		347	3046	
v/s Ratio Prot		0.03		c0.02	0.02			0.25			0.33	
v/s Ratio Perm	c0.05		0.02	0.04			c0.67			0.05		
v/c Ratio	0.41	0.23	0.14	0.27	0.11		1.03	0.38		0.08	0.51	
Uniform Delay, d1	48.4	47.3	46.8	38.5	37.7		21.2	9.9		7.9	11.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.9	2.3	1.5	2.2	0.5		85.9	0.5		0.4	0.6	
Delay (s)	56.3	49.6	48.3	40.7	38.2		107.1	10.4		8.3	11.8	
Level of Service	E	D	D	D	D		F	B		A	B	
Approach Delay (s)		50.0			39.7			24.6			11.8	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.97							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1636	3464		1762	3352							
Flt Permitted	0.32	1.00		0.51	1.00							
Satd. Flow (perm)	554	3464		941	3352							
Volume (vph)	41	380	5	120	613	139	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.56	0.56	0.56	0.56	0.56	0.56
Adj. Flow (vph)	45	413	5	135	689	156	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	32	0	0	0	0	0	0	0
Lane Group Flow (vph)	45	417	0	135	813	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Heavy Vehicles (%)	10%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	642	2483		939	2402							
v/s Ratio Prot	0.01	0.12		c0.02	c0.24							
v/s Ratio Perm	0.05			0.10								
v/c Ratio	0.07	0.17		0.14	0.34							
Uniform Delay, d1	0.6	2.7		0.6	3.2							
Progression Factor	0.30	0.29		1.05	1.07							
Incremental Delay, d2	0.2	0.1		0.3	0.4							
Delay (s)	0.4	0.9		0.9	3.8							
Level of Service	A	A		A	A							
Approach Delay (s)		0.9			3.4			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3285		1770	3388						1613	
Flt Permitted		1.00		0.54	1.00						0.98	
Satd. Flow (perm)		3285		1014	3388						1613	
Volume (vph)	0	296	31	28	565	0	0	0	0	47	28	52
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.54	0.54	0.54	0.93	0.93	0.93
Adj. Flow (vph)	0	312	33	31	628	0	0	0	0	51	30	56
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	32	0
Lane Group Flow (vph)	0	345	0	31	628	0	0	0	0	0	105	0
Heavy Vehicles (%)	2%	5%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1424		439	1468						699	
v/s Ratio Prot		0.11			c0.19							
v/s Ratio Perm				0.03							0.07	
v/c Ratio		0.24		0.07	0.43						0.15	
Uniform Delay, d1		10.8		9.9	11.8						10.3	
Progression Factor		1.00		0.95	0.89						1.00	
Incremental Delay, d2		0.4		0.3	0.9						0.5	
Delay (s)		11.2		9.7	11.4						10.8	
Level of Service		B		A	B						B	
Approach Delay (s)		11.2			11.3			0.0			10.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

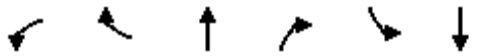
Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	1.00		0.99	1.00			0.99			0.98	
Frt	1.00		1.00	0.99			0.96			0.94	
Flt Protected	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	3504		1754	3512			1609			1579	
Flt Permitted	1.00		0.37	1.00			0.78			0.85	
Satd. Flow (perm)	3504		683	3512			1304			1377	
Volume (vph)	529	1	9	1035	41	54	0	26	24	3	23
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.92	0.78	0.78	0.78	0.54	0.54	0.54
Adj. Flow (vph)	615	1	10	1125	45	69	0	33	44	6	43
RTOR Reduction (vph)	0	0	0	0	0	0	19	0	0	26	0
Lane Group Flow (vph)	616	0	10	1170	0	0	83	0	0	67	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	3%	2%	2%	2%	2%	8%	2%	4%	2%	2%	5%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1830		357	1834			507			536	
v/s Ratio Prot	0.18			c0.33							
v/s Ratio Perm			0.01				c0.06			0.05	
v/c Ratio	0.34		0.03	0.64			0.16			0.12	
Uniform Delay, d1	12.5		10.4	15.4			17.9			17.7	
Progression Factor	1.00		1.36	1.29			1.00			1.00	
Incremental Delay, d2	0.5		0.1	1.7			0.7			0.5	
Delay (s)	13.0		14.3	21.6			18.6			18.1	
Level of Service	B		B	C			B			B	
Approach Delay (s)	13.0			21.5			18.6			18.1	
Approach LOS	B			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1197	22	0	808	0	0	0	3	0	0	153
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.55	0.55	0.55	0.91	0.91	0.91
Hourly flow rate (vph)	0	1330	24	0	851	0	0	0	5	0	0	168
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	851			1354			1937	2193	457	1300	2205	426
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	817			1354			1935	2198	457	1280	2211	381
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	72
cM capacity (veh/h)	784			504			28	43	551	118	42	599

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	532	532	290	425	425	5	168
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	24	0	0	5	168
cSH	1700	1700	1700	1700	1700	551	599
Volume to Capacity	0.31	0.31	0.17	0.25	0.25	0.01	0.28
Queue Length 95th (ft)	0	0	0	0	0	1	29
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.6	13.3
Lane LOS						B	B
Approach Delay (s)	0.0			0.0		11.6	13.3
Approach LOS						B	B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.95		1.00			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	3438		3622			3657
Flt Permitted	0.97		1.00			1.00
Satd. Flow (perm)	3438		3622			3657
Volume (vph)	405	190	808	0	0	432
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.93	0.93
Adj. Flow (vph)	435	204	951	0	0	465
RTOR Reduction (vph)	65	0	0	0	0	0
Lane Group Flow (vph)	574	0	951	0	0	465
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	993		2254			2275
v/s Ratio Prot	c0.17		c0.26			0.13
v/s Ratio Perm						
v/c Ratio	0.58		0.42			0.20
Uniform Delay, d1	27.3		8.7			7.4
Progression Factor	1.00		0.68			1.00
Incremental Delay, d2	2.4		0.6			0.2
Delay (s)	29.6		6.5			7.6
Level of Service	C		A			A
Approach Delay (s)	29.6		6.5			7.6
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	26	0	272	4	34	571	1	6	0	13	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.92	0.92	0.92	0.64	0.64	0.64	0.50	0.50
Hourly flow rate (vph)	0	0	309	5	37	621	1	9	0	20	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	622			314			1008	1007	311	1027	1009
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	622			314			1008	1007	311	1027	1009
tC, single (s)	0.0	4.1			4.2			7.3	6.5	6.3	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.3			3.7	4.0	3.4	3.5	4.0
p0 queue free %	0	100			97			95	100	97	99	100
cM capacity (veh/h)	0	959			1208			200	233	715	202	233

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	314	37	622	30	4
Volume Left	0	37	0	9	2
Volume Right	5	0	1	20	2
cSH	1700	1208	1700	394	285
Volume to Capacity	0.18	0.03	0.37	0.08	0.01
Queue Length 95th (ft)	0	2	0	6	1
Control Delay (s)	0.0	8.1	0.0	14.9	17.8
Lane LOS		A		B	C
Approach Delay (s)	0.0	0.5		14.9	17.8
Approach LOS				B	C

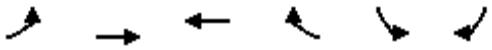
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	1
Peak Hour Factor	0.50
Hourly flow rate (vph)	2
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	621
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	621
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	487
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	263	16	7	616	4	3
Peak Hour Factor	0.94	0.94	0.95	0.95	0.65	0.65
Hourly flow rate (vph)	280	17	7	648	6	5
Pedestrians				1	6	
Lane Width (ft)				11.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			303		957	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			303		957	295
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			99		98	99
cM capacity (veh/h)			1246		257	740

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	297	7	648	11
Volume Left	0	7	0	6
Volume Right	17	0	0	5
cSH	1700	1246	1700	357
Volume to Capacity	0.17	0.01	0.38	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	7.9	0.0	15.4
Lane LOS		A		C
Approach Delay (s)	0.0	0.1		15.4
Approach LOS				C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	55	205	663	79	35	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	61	228	737	88	44	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	824				1131	781
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	824				1131	781
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	92				77	97
cM capacity (veh/h)	797				193	395

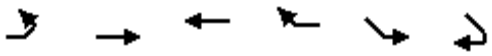
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	61	228	824	55
Volume Left	61	0	0	44
Volume Right	0	0	88	11
cSH	797	1700	1700	216
Volume to Capacity	0.08	0.13	0.48	0.25
Queue Length 95th (ft)	6	0	0	24
Control Delay (s)	9.9	0.0	0.0	27.3
Lane LOS	A			D
Approach Delay (s)	2.1		0.0	27.3
Approach LOS				D

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	23	155	0	13	549	39	2	1	0	6	2	163
Peak Hour Factor	0.75	0.75	0.75	0.88	0.88	0.88	0.58	0.58	0.58	0.85	0.85	0.85
Hourly flow rate (vph)	31	207	0	15	624	44	3	2	0	7	2	192
Pedestrians		6			2			11			9	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	677			218			1154	986	220	955	964	661
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	677			218			1154	986	220	955	964	661
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.9	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	4.2	4.0	3.3
p0 queue free %	96			99			96	99	100	96	99	58
cM capacity (veh/h)	874			1340			93	232	811	161	239	452

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	31	207	683	5	201
Volume Left	31	0	15	3	7
Volume Right	0	0	44	0	192
cSH	874	1700	1340	117	421
Volume to Capacity	0.04	0.12	0.01	0.04	0.48
Queue Length 95th (ft)	3	0	1	3	63
Control Delay (s)	9.3	0.0	0.3	37.3	21.1
Lane LOS	A		A	E	C
Approach Delay (s)	1.2		0.3	37.3	21.1
Approach LOS				E	C

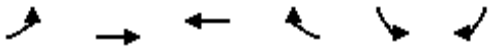
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	26	142	612	30	0	0
Peak Hour Factor	0.68	0.68	0.94	0.94	0.45	0.45
Hourly flow rate (vph)	38	209	651	32	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked	0.81				0.81	0.81
vC, conflicting volume	692				961	676
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	620				952	600
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	770				221	406

Direction, Lane #	EB 1	WB 1
Volume Total	247	683
Volume Left	38	0
Volume Right	0	32
cSH	770	1700
Volume to Capacity	0.05	0.40
Queue Length 95th (ft)	4	0
Control Delay (s)	2.0	0.0
Lane LOS	A	
Approach Delay (s)	2.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.98		0.89	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1754	1696		1471	
Flt Permitted		0.89	1.00		0.99	
Satd. Flow (perm)		1574	1696		1471	
Volume (vph)	20	119	498	111	29	108
Peak-hour factor, PHF	0.72	0.72	0.91	0.91	0.85	0.85
Adj. Flow (vph)	28	165	547	122	34	127
RTOR Reduction (vph)	0	0	13	0	89	0
Lane Group Flow (vph)	0	193	656	0	72	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	5%	8%	2%	2%	4%	5%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		892	961		441	
v/s Ratio Prot			c0.39		c0.05	
v/s Ratio Perm		0.12				
v/c Ratio		0.22	0.68		0.16	
Uniform Delay, d1		6.4	9.2		15.5	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.6	3.9		0.8	
Delay (s)		7.0	13.1		16.3	
Level of Service		A	B		B	
Approach Delay (s)		7.0	13.1		16.3	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.88		1.00	1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	1.00
Satd. Flow (prot)	1703	3089		1711	3408			3335			3419	1501
Flt Permitted	0.63	1.00		0.32	1.00			0.52			0.94	1.00
Satd. Flow (perm)	1131	3089		580	3408			1775			3222	1501
Volume (vph)	96	94	381	21	159	4	242	335	22	10	860	158
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.89	0.89	0.89	0.88	0.88	0.88
Adj. Flow (vph)	107	104	423	25	187	5	272	376	25	11	977	180
RTOR Reduction (vph)	0	98	0	0	2	0	0	3	0	0	0	47
Lane Group Flow (vph)	107	429	0	25	190	0	0	670	0	0	988	133
Heavy Vehicles (%)	6%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	327	892		168	985			1104			2005	934
v/s Ratio Prot		c0.14			0.06							
v/s Ratio Perm	0.09			0.04				c0.38			0.31	0.09
v/c Ratio	0.33	0.48		0.15	0.19			1.00dl			0.49	0.14
Uniform Delay, d1	25.1	26.4		23.8	24.1			10.3			9.3	7.0
Progression Factor	1.00	1.00		1.00	1.00			0.63			1.00	1.00
Incremental Delay, d2	2.7	1.9		1.9	0.4			1.0			0.9	0.3
Delay (s)	27.8	28.3		25.6	24.5			7.5			10.1	7.4
Level of Service	C	C		C	C			A			B	A
Approach Delay (s)		28.2			24.7			7.5			9.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.98			1.00	0.99		0.99		
Flt Protected		0.98			1.00	1.00		0.96		
Satd. Flow (prot)		2026			2993	2598		1991		
Flt Permitted		0.98			0.60	1.00		0.96		
Satd. Flow (perm)		2026			1794	2598		1991		
Volume (vph)	74	77	19	60	560	1138	41	209	24	2
Peak-hour factor, PHF	0.91	0.91	0.91	0.80	0.80	0.91	0.91	0.93	0.93	0.93
Adj. Flow (vph)	81	85	21	75	700	1251	45	225	26	2
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	187	0	0	775	1293	0	253	0	0
Heavy Vehicles (%)	2%	3%	2%	3%	13%	30%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		450			837	1212		354		
v/s Ratio Prot		c0.09				c0.50		c0.13		
v/s Ratio Perm					0.43					
v/c Ratio		0.42			0.97dl	1.07		0.71		
Uniform Delay, d1		30.0			22.5	24.0		34.9		
Progression Factor		1.00			0.88	0.73		1.00		
Incremental Delay, d2		2.8			17.2	44.3		11.7		
Delay (s)		32.8			37.1	61.8		46.5		
Level of Service		C			D	E		D		
Approach Delay (s)		32.8			37.1	61.8		46.5		
Approach LOS		C			D	E		D		

Intersection Summary			
HCM Average Control Delay	50.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1928		1574		1370		3240		1652	3303	
Flt Permitted	0.95	1.00		0.48		1.00		1.00		0.36	1.00	
Satd. Flow (perm)	2006	1928		790		1370		3240		621	3303	
Volume (vph)	97	88	122	60	0	22	0	644	0	102	1445	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	104	95	131	65	0	24	0	700	0	115	1624	0
RTOR Reduction (vph)	0	26	0	0	0	18	0	0	0	0	0	0
Lane Group Flow (vph)	104	200	0	65	0	6	0	700	0	115	1624	0
Heavy Vehicles (%)	2%	2%	2%	7%	2%	10%	2%	4%	2%	2%	2%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	514		211		365		2088		400	2129	
v/s Ratio Prot		c0.10						0.22			c0.49	
v/s Ratio Perm	0.05			0.08		0.00				0.19		
v/c Ratio	0.19	0.39		0.31		0.02		0.34		0.29	0.76	
Uniform Delay, d1	25.5	27.0		26.4		24.3		7.3		7.0	11.2	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.87	1.77	
Incremental Delay, d2	0.8	2.2		3.8		0.1		0.4		0.8	1.2	
Delay (s)	26.3	29.2		30.1		24.4		7.7		13.9	21.0	
Level of Service	C	C		C		C		A		B	C	
Approach Delay (s)		28.3			28.6			7.7			20.5	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1631	1863	1531	2006	2038		1636	3250		1652	4711	
Flt Permitted	0.72	1.00	1.00	0.57	1.00		0.11	1.00		0.30	1.00	
Satd. Flow (perm)	1231	1863	1531	1200	2038		190	3250		516	4711	
Volume (vph)	61	52	207	86	47	14	125	645	78	26	1456	75
Peak-hour factor, PHF	0.92	0.92	0.92	0.99	0.99	0.99	0.87	0.87	0.87	0.94	0.94	0.94
Adj. Flow (vph)	66	57	225	87	47	14	144	741	90	28	1549	80
RTOR Reduction (vph)	0	0	197	0	9	0	0	5	0	0	3	0
Lane Group Flow (vph)	66	57	28	87	52	0	144	826	0	28	1626	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		75.6	75.6		75.6	75.6	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		77.6	77.6		77.6	77.6	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.65	0.65		0.65	0.65	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	233	191	307	442		123	2102		334	3046	
v/s Ratio Prot		0.03		c0.02	0.03			0.25			0.35	
v/s Ratio Perm	c0.05		0.02	0.04			c0.76			0.05		
v/c Ratio	0.43	0.24	0.15	0.28	0.12		1.17	0.39		0.08	0.53	
Uniform Delay, d1	48.5	47.4	46.8	38.6	37.8		21.2	10.0		7.9	11.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.5	2.5	1.6	2.3	0.5		134.3	0.6		0.5	0.7	
Delay (s)	57.0	49.9	48.4	40.9	38.3		155.5	10.6		8.4	12.1	
Level of Service	E	D	D	D	D		F	B		A	B	
Approach Delay (s)		50.3			39.8			32.0			12.1	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.97							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1636	3464		1762	3351							
Flt Permitted	0.31	1.00		0.50	1.00							
Satd. Flow (perm)	532	3464		927	3351							
Volume (vph)	43	395	5	125	638	145	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.56	0.56	0.56	0.56	0.56	0.56
Adj. Flow (vph)	47	429	5	140	717	163	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	33	0	0	0	0	0	0	0
Lane Group Flow (vph)	47	433	0	140	847	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Heavy Vehicles (%)	10%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	627	2483		929	2402							
v/s Ratio Prot	0.01	0.12		c0.02	c0.25							
v/s Ratio Perm	0.05			0.11								
v/c Ratio	0.07	0.17		0.15	0.35							
Uniform Delay, d1	0.6	2.8		0.6	3.2							
Progression Factor	0.43	0.36		1.02	1.03							
Incremental Delay, d2	0.2	0.2		0.3	0.4							
Delay (s)	0.5	1.1		0.9	3.7							
Level of Service	A	A		A	A							
Approach Delay (s)		1.1			3.4			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

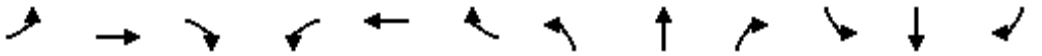
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3285		1770	3388						1613	
Flt Permitted		1.00		0.54	1.00						0.98	
Satd. Flow (perm)		3285		1002	3388						1613	
Volume (vph)	0	308	32	29	588	0	0	0	0	49	29	54
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.54	0.54	0.54	0.93	0.93	0.93
Adj. Flow (vph)	0	324	34	32	653	0	0	0	0	53	31	58
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	33	0
Lane Group Flow (vph)	0	358	0	32	653	0	0	0	0	0	109	0
Heavy Vehicles (%)	2%	5%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1424		434	1468						699	
v/s Ratio Prot		0.11			c0.19							
v/s Ratio Perm				0.03							0.07	
v/c Ratio		0.25		0.07	0.44						0.16	
Uniform Delay, d1		10.8		10.0	11.9						10.3	
Progression Factor		1.00		0.86	0.79						1.00	
Incremental Delay, d2		0.4		0.3	0.9						0.5	
Delay (s)		11.2		8.9	10.4						10.8	
Level of Service		B		A	B						B	
Approach Delay (s)		11.2			10.3			0.0			10.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	1.00		0.99	1.00			0.99			0.98	
Frt	1.00		1.00	0.99			0.96			0.94	
Flt Protected	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	3504		1753	3512			1608			1576	
Flt Permitted	1.00		0.38	1.00			0.81			0.87	
Satd. Flow (perm)	3504		705	3512			1344			1411	
Volume (vph)	546	1	9	1075	43	56	0	27	25	3	24
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	593	1	10	1168	47	61	0	29	27	3	26
RTOR Reduction (vph)	0	0	0	0	0	0	18	0	0	16	0
Lane Group Flow (vph)	594	0	10	1215	0	0	72	0	0	40	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	3%	2%	2%	2%	2%	8%	2%	4%	2%	2%	5%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1830		368	1834			523			549	
v/s Ratio Prot	0.17			c0.35							
v/s Ratio Perm			0.01				c0.05			0.03	
v/c Ratio	0.32		0.03	0.66			0.14			0.07	
Uniform Delay, d1	12.4		10.4	15.7			17.8			17.3	
Progression Factor	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.5		0.1	1.9			0.6			0.3	
Delay (s)	12.8		10.6	17.6			18.3			17.6	
Level of Service	B		B	B			B			B	
Approach Delay (s)	12.8			17.6			18.3			17.6	
Approach LOS	B			B			B			B	

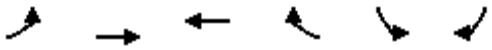
Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	700	23	0	1030	0	0	0	3	0	0	159
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	761	25	0	1120	0	0	0	3	0	0	173
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					452							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	1120			786			1507	1893	267	1377	1905	561
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1086			786			1488	1889	267	1354	1902	505
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	65
cM capacity (veh/h)	615			829			54	67	730	104	66	493

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	304	304	177	560	560	3	173
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	25	0	0	3	173
cSH	1700	1700	1700	1700	1700	730	493
Volume to Capacity	0.18	0.18	0.10	0.33	0.33	0.00	0.35
Queue Length 95th (ft)	0	0	0	0	0	0	39
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.0	16.2
Lane LOS						A	C
Approach Delay (s)	0.0			0.0		10.0	16.2
Approach LOS						A	C

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		



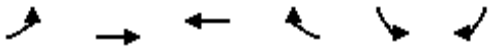
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3547	3657	3657	1636	1829	2880
Flt Permitted	0.46	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1712	3657	3657	1636	1829	2880
Volume (vph)	253	451	449	459	86	632
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	275	490	488	499	93	687
RTOR Reduction (vph)	0	0	0	250	0	343
Lane Group Flow (vph)	275	490	488	250	93	344
Turn Type	Perm			Perm		custom
Protected Phases		4	8		6	6
Permitted Phases	4			8		6
Actuated Green, G (s)	29.0	29.0	29.0	29.0	21.0	21.0
Effective Green, g (s)	30.0	30.0	30.0	30.0	22.0	22.0
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.37	0.37
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	856	1829	1829	818	671	1056
v/s Ratio Prot		0.13	0.13		0.05	c0.12
v/s Ratio Perm	c0.16			0.15		
v/c Ratio	0.32	0.27	0.27	0.31	0.14	0.33
Uniform Delay, d1	8.9	8.7	8.7	8.8	12.7	13.7
Progression Factor	1.00	1.00	0.59	1.27	1.00	1.00
Incremental Delay, d2	1.0	0.4	0.3	0.9	0.4	0.8
Delay (s)	9.9	9.0	5.5	12.1	13.1	14.5
Level of Service	A	A	A	B	B	B
Approach Delay (s)		9.3	8.8		14.3	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	15	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.91	0.88	1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	3830		1637	5085	2787	1770	1749			1775	1583
Flt Permitted	0.47	1.00		0.63	1.00	1.00	0.58	1.00			0.72	1.00
Satd. Flow (perm)	1716	3830		1090	5085	2787	1082	1749			1346	1583
Volume (vph)	378	159	16	7	429	461	4	5	3	223	2	479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	173	17	8	466	501	4	5	3	242	2	521
RTOR Reduction (vph)	0	10	0	0	0	292	0	2	0	0	0	140
Lane Group Flow (vph)	411	180	0	8	466	209	4	6	0	0	244	381
Confl. Peds. (#/hr)			6	6					1			
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0	24.0	26.0	26.0			26.0	26.0
Effective Green, g (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0			27.0	27.0
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.45	0.45			0.45	0.45
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lane Grp Cap (vph)	715	1596		454	2119	1161	487	787			606	712
v/s Ratio Prot		0.05			0.09			0.00				
v/s Ratio Perm	c0.24			0.01		0.07	0.00				0.18	c0.24
v/c Ratio	0.57	0.11		0.02	0.22	0.18	0.01	0.01			0.40	0.54
Uniform Delay, d1	13.4	10.7		10.3	11.2	11.0	9.1	9.1			11.1	12.0
Progression Factor	0.71	0.74		0.76	0.83	1.98	1.00	1.00			1.00	1.00
Incremental Delay, d2	3.3	0.1		0.1	0.2	0.3	0.0	0.0			2.0	2.9
Delay (s)	12.8	8.0		7.9	9.5	22.1	9.1	9.1			13.1	14.8
Level of Service	B	A		A	A	C	A	A			B	B
Approach Delay (s)		11.3			15.9			9.1			14.3	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



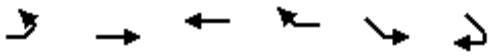
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	13	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1620	3539	1925	1482	1530	1583
Flt Permitted	0.28	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	480	3539	1925	1482	1530	1583
Volume (vph)	59	323	533	156	50	357
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	351	579	170	54	388
RTOR Reduction (vph)	0	0	0	88	0	141
Lane Group Flow (vph)	64	351	579	82	54	247
Heavy Vehicles (%)	4%	2%	2%	9%	18%	2%
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	27.0	27.0	27.0	27.0	21.0	21.0
Effective Green, g (s)	29.0	29.0	29.0	29.0	23.0	23.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.38	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	232	1711	930	716	587	607
v/s Ratio Prot		0.10	c0.30		0.04	
v/s Ratio Perm	0.13			0.06		c0.16
v/c Ratio	0.28	0.21	0.62	0.11	0.09	0.41
Uniform Delay, d1	9.2	8.9	11.5	8.5	11.8	13.5
Progression Factor	0.67	0.67	0.97	1.44	1.00	1.00
Incremental Delay, d2	2.9	0.3	1.9	0.2	0.3	2.0
Delay (s)	9.1	6.2	13.0	12.4	12.1	15.5
Level of Service	A	A	B	B	B	B
Approach Delay (s)		6.7	12.8		15.1	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	9	13	12	12	12	12	12	12	12	16	16	16
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			0.99			1.00			0.87	
Flt Protected	0.95	1.00			1.00			0.97			1.00	
Satd. Flow (prot)	1490	1870			1823			1794			1696	
Flt Permitted	0.22	1.00			0.99			0.87			0.99	
Satd. Flow (perm)	343	1870			1812			1609			1685	
Volume (vph)	24	160	0	13	571	41	2	1	0	7	2	169
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	174	0	14	621	45	2	1	0	8	2	184
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	129	0
Lane Group Flow (vph)	26	174	0	0	676	0	0	3	0	0	65	0
Confl. Peds. (#/hr)	9			11		9	6			2		6
Heavy Vehicles (%)	9%	5%	2%	2%	3%	2%	2%	2%	2%	83%	2%	4%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0			22.0			16.0			16.0	
Effective Green, g (s)	34.0	34.0			24.0			18.0			18.0	
Actuated g/C Ratio	0.57	0.57			0.40			0.30			0.30	
Clearance Time (s)	4.0	6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)	309	1060			725			483			506	
v/s Ratio Prot	0.01	c0.09										
v/s Ratio Perm	0.04				c0.37			0.00			c0.04	
v/c Ratio	0.08	0.16			0.93			0.01			0.13	
Uniform Delay, d1	8.6	6.2			17.2			14.7			15.3	
Progression Factor	0.58	0.64			1.51			1.00			1.00	
Incremental Delay, d2	0.5	0.3			17.4			0.0			0.5	
Delay (s)	5.5	4.3			43.4			14.8			15.8	
Level of Service	A	A			D			B			B	
Approach Delay (s)		4.4			43.4			14.8			15.8	
Approach LOS		A			D			B			B	

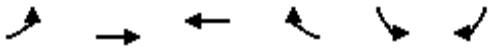
Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	27	147	635	31	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	160	690	34	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		862	786			
pX, platoon unblocked	0.79				0.79	0.79
vC, conflicting volume	733				935	716
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	663				917	642
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	726				229	376

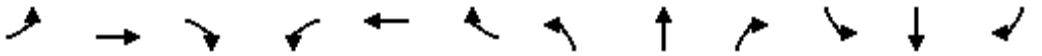
Direction, Lane #	EB 1	WB 1
Volume Total	189	724
Volume Left	29	0
Volume Right	0	34
cSH	726	1700
Volume to Capacity	0.04	0.43
Queue Length 95th (ft)	3	0
Control Delay (s)	2.0	0.0
Lane LOS	A	
Approach Delay (s)	2.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.98		0.89	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1754	1696		1471	
Flt Permitted		0.89	1.00		0.99	
Satd. Flow (perm)		1580	1696		1471	
Volume (vph)	21	122	518	115	30	113
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	133	563	125	33	123
RTOR Reduction (vph)	0	0	13	0	86	0
Lane Group Flow (vph)	0	156	675	0	70	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	5%	8%	2%	2%	4%	5%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		895	961		441	
v/s Ratio Prot			c0.40		c0.05	
v/s Ratio Perm		0.10				
v/c Ratio		0.17	0.70		0.16	
Uniform Delay, d1		6.3	9.4		15.4	
Progression Factor		2.52	1.00		1.00	
Incremental Delay, d2		0.4	4.3		0.8	
Delay (s)		16.2	13.6		16.2	
Level of Service		B	B		B	
Approach Delay (s)		16.2	13.6		16.2	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.88		1.00	1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	1.00
Satd. Flow (prot)	1703	3088		1711	3410			3334			3419	1501
Flt Permitted	0.64	1.00		0.32	1.00			0.52			0.94	1.00
Satd. Flow (perm)	1140	3088		569	3410			1777			3222	1501
Volume (vph)	99	97	396	22	166	4	252	345	23	10	893	165
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	105	430	24	180	4	274	375	25	11	971	179
RTOR Reduction (vph)	0	99	0	0	1	0	0	3	0	0	0	47
Lane Group Flow (vph)	108	436	0	24	183	0	0	671	0	0	982	132
Heavy Vehicles (%)	6%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	329	892		164	985			1106			2005	934
v/s Ratio Prot		c0.14			0.05							
v/s Ratio Perm	0.09			0.04				c0.38			0.30	0.09
v/c Ratio	0.33	0.49		0.15	0.19			1.00dl			0.49	0.14
Uniform Delay, d1	25.1	26.5		23.8	24.0			10.3			9.2	7.0
Progression Factor	1.00	1.00		1.00	1.00			0.52			1.00	1.00
Incremental Delay, d2	2.7	1.9		1.9	0.4			1.5			0.9	0.3
Delay (s)	27.8	28.4		25.6	24.5			6.9			10.1	7.4
Level of Service	C	C		C	C			A			B	A
Approach Delay (s)		28.3			24.6			6.9			9.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.98			1.00	0.99		0.99		
Flt Protected		0.98			1.00	1.00		0.96		
Satd. Flow (prot)		2025			2993	2598		1991		
Flt Permitted		0.98			0.60	1.00		0.96		
Satd. Flow (perm)		2025			1817	2598		1991		
Volume (vph)	77	80	20	62	579	1182	43	218	25	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	87	22	67	629	1285	47	237	27	2
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	193	0	0	696	1329	0	266	0	0
Heavy Vehicles (%)	2%	3%	2%	3%	13%	30%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		450			848	1212		354		
v/s Ratio Prot		c0.10				c0.51		c0.13		
v/s Ratio Perm					0.38					
v/c Ratio		0.43			0.87dl	1.10		0.75		
Uniform Delay, d1		30.1			20.7	24.0		35.1		
Progression Factor		1.00			0.92	0.72		1.00		
Incremental Delay, d2		3.0			8.5	55.2		13.7		
Delay (s)		33.1			27.5	72.6		48.8		
Level of Service		C			C	E		D		
Approach Delay (s)		33.1			27.5	72.6		48.8		
Approach LOS		C			C	E		D		

Intersection Summary			
HCM Average Control Delay	54.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.92		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1945		1574		1370		3240		1652	3303	
Flt Permitted	0.95	1.00		0.50		1.00		1.00		0.35	1.00	
Satd. Flow (perm)	2006	1945		834		1370		3240		602	3303	
Volume (vph)	127	92	101	62	0	23	0	667	0	106	1501	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	100	110	67	0	25	0	725	0	115	1632	0
RTOR Reduction (vph)	0	26	0	0	0	18	0	0	0	0	0	0
Lane Group Flow (vph)	138	184	0	67	0	7	0	725	0	115	1632	0
Heavy Vehicles (%)	2%	2%	2%	7%	1%	10%	2%	4%	2%	2%	2%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	519		222		365		2088		388	2129	
v/s Ratio Prot		c0.09						0.22			c0.49	
v/s Ratio Perm	0.07			0.08		0.00				0.19		
v/c Ratio	0.26	0.35		0.30		0.02		0.35		0.30	0.77	
Uniform Delay, d1	26.0	26.7		26.3		24.3		7.3		7.0	11.2	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.88	1.77	
Incremental Delay, d2	1.2	1.9		3.5		0.1		0.5		0.7	1.0	
Delay (s)	27.2	28.6		29.8		24.4		7.8		13.9	20.9	
Level of Service	C	C		C		C		A		B	C	
Approach Delay (s)		28.0			28.3			7.8			20.5	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1631	1863	1531	2006	2067		1652	3230		1652	4734	
Flt Permitted	0.67	1.00	1.00	0.54	1.00		0.12	1.00		0.28	1.00	
Satd. Flow (perm)	1156	1863	1531	1136	2067		206	3230		483	4734	
Volume (vph)	34	69	240	180	103	17	180	691	120	17	1426	26
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	75	261	196	112	18	196	751	130	18	1550	28
RTOR Reduction (vph)	0	0	228	0	5	0	0	7	0	0	1	0
Lane Group Flow (vph)	37	75	33	196	125	0	196	874	0	18	1577	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		75.6	75.6		75.6	75.6	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		77.6	77.6		77.6	77.6	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.65	0.65		0.65	0.65	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	145	233	191	297	448		133	2089		312	3061	
v/s Ratio Prot		0.04		c0.04	0.06			0.27			0.33	
v/s Ratio Perm	0.03		0.02	c0.10			c0.95			0.04		
v/c Ratio	0.26	0.32	0.17	0.66	0.28		1.47	0.42		0.06	0.52	
Uniform Delay, d1	47.5	47.9	46.9	42.3	39.2		21.2	10.3		7.8	11.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	3.6	1.9	11.0	1.6		249.2	0.6		0.4	0.6	
Delay (s)	51.7	51.5	48.9	53.3	40.7		270.4	10.9		8.1	11.9	
Level of Service	D	D	D	D	D		F	B		A	B	
Approach Delay (s)		49.7			48.3			58.1			11.8	
Approach LOS		D			D			E			B	

Intersection Summary			
HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.4
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.98							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1639	3463		1766	3387							
Flt Permitted	0.23	1.00		0.38	1.00							
Satd. Flow (perm)	393	3463		708	3387							
Volume (vph)	35	638	9	82	900	134	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	693	10	89	978	146	0	0	0	0	0	0
RTOR Reduction (vph)	0	2	0	0	20	0	0	0	0	0	0	0
Lane Group Flow (vph)	38	701	0	89	1104	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Heavy Vehicles (%)	10%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	528	2482		772	2427							
v/s Ratio Prot	0.01	0.20		c0.02	c0.33							
v/s Ratio Perm	0.05			0.08								
v/c Ratio	0.07	0.28		0.12	0.46							
Uniform Delay, d1	0.7	3.0		0.6	3.6							
Progression Factor	0.56	0.67		1.00	1.00							
Incremental Delay, d2	0.3	0.3		0.3	0.6							
Delay (s)	0.7	2.3		0.9	4.2							
Level of Service	A	A		A	A							
Approach Delay (s)		2.2			3.9			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	3.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		0.95			0.95						1.00	
Frt		0.99			1.00						0.94	
Flt Protected		1.00			1.00						0.98	
Satd. Flow (prot)		3286			3382						1613	
Flt Permitted		1.00			0.92						0.98	
Satd. Flow (perm)		3286			3132						1613	
Volume (vph)	0	320	33	30	611	0	0	0	0	51	30	56
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	348	36	33	664	0	0	0	0	55	33	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	35	0
Lane Group Flow (vph)	0	384	0	0	697	0	0	0	0	0	114	0
Heavy Vehicles (%)	2%	5%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0			25.0						24.0	
Effective Green, g (s)		26.0			26.0						26.0	
Actuated g/C Ratio		0.43			0.43						0.43	
Clearance Time (s)		5.0			5.0						6.0	
Lane Grp Cap (vph)		1424			1357						699	
v/s Ratio Prot		0.12										
v/s Ratio Perm					c0.22						0.07	
v/c Ratio		0.27			0.51						0.16	
Uniform Delay, d1		10.9			12.4						10.4	
Progression Factor		1.00			0.77						1.00	
Incremental Delay, d2		0.5			1.3						0.5	
Delay (s)		11.4			10.8						10.9	
Level of Service		B			B						B	
Approach Delay (s)		11.4			10.8			0.0			10.9	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

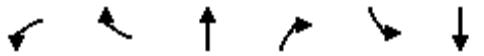
Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	1.00		0.99	1.00			1.00			0.97	
Frt	1.00		1.00	0.99			0.96			0.98	
Flt Protected	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	3504		1756	3513			1613			1629	
Flt Permitted	1.00		0.33	1.00			0.73			0.72	
Satd. Flow (perm)	3504		614	3513			1224			1219	
Volume (vph)	593	1	8	1000	40	52	0	25	106	3	22
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.92	0.78	0.78	0.78	0.54	0.54	0.54
Adj. Flow (vph)	690	1	9	1087	43	67	0	32	196	6	41
RTOR Reduction (vph)	0	0	0	0	0	0	19	0	0	8	0
Lane Group Flow (vph)	691	0	9	1130	0	0	80	0	0	235	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	3%	2%	2%	2%	2%	8%	2%	4%	2%	2%	5%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1830		321	1835			476			474	
v/s Ratio Prot	0.20			c0.32							
v/s Ratio Perm			0.01				0.07			c0.19	
v/c Ratio	0.38		0.03	0.62			0.17			0.50	
Uniform Delay, d1	12.8		10.4	15.1			18.0			20.8	
Progression Factor	1.00		1.39	1.30			1.00			1.00	
Incremental Delay, d2	0.6		0.2	1.5			0.8			3.7	
Delay (s)	13.4		14.7	21.2			18.7			24.5	
Level of Service	B		B	C			B			C	
Approach Delay (s)	13.4			21.1			18.7			24.5	
Approach LOS	B			C			B			C	

Intersection Summary			
HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1318	21	0	782	0	0	0	2	0	0	147
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.55	0.55	0.55	0.91	0.91	0.91
Hourly flow rate (vph)	0	1464	23	0	823	0	0	0	4	0	0	162
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	823			1488			2050	2299	501	1316	2311	413
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	785			1488			2052	2309	501	1294	2321	361
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	74
cM capacity (veh/h)	803			448			23	36	515	115	36	615

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	586	586	316	412	412	4	162
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	23	0	0	4	162
cSH	1700	1700	1700	1700	1700	515	615
Volume to Capacity	0.34	0.34	0.19	0.24	0.24	0.01	0.26
Queue Length 95th (ft)	0	0	0	0	0	1	26
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.0	12.9
Lane LOS						B	B
Approach Delay (s)	0.0			0.0		12.0	12.9
Approach LOS						B	B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.95		1.00			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	3438		3622			3657
Flt Permitted	0.97		1.00			1.00
Satd. Flow (perm)	3438		3622			3657
Volume (vph)	389	184	864	0	0	415
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.93	0.93
Adj. Flow (vph)	418	198	1016	0	0	446
RTOR Reduction (vph)	66	0	0	0	0	0
Lane Group Flow (vph)	550	0	1016	0	0	446
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	993		2254			2275
v/s Ratio Prot	c0.16		c0.28			0.12
v/s Ratio Perm						
v/c Ratio	0.55		0.45			0.20
Uniform Delay, d1	27.1		8.9			7.3
Progression Factor	1.00		0.75			1.00
Incremental Delay, d2	2.2		0.6			0.2
Delay (s)	29.3		7.4			7.5
Level of Service	C		A			A
Approach Delay (s)	29.3		7.4			7.5
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	12	13	16	12	16	16	16	12	12
Total Lost time (s)			4.0	4.0	4.0	4.0			4.0			4.0
Lane Util. Factor			1.00	1.00	1.00	1.00			1.00			1.00
Frt			1.00	0.85	1.00	1.00			0.93			0.93
Flt Protected			1.00	1.00	0.95	1.00			0.98			0.98
Satd. Flow (prot)			1910	1292	1711	2111			1741			1695
Flt Permitted			0.94	1.00	0.52	1.00			0.89			0.95
Satd. Flow (perm)			1798	1292	934	2111			1582			1642
Volume (vph)	25	0	263	168	62	549	1	34	0	38	1	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.92	0.92	0.92	0.64	0.64	0.64	0.92	0.92
Adj. Flow (vph)	28	0	299	191	67	597	1	53	0	59	1	0
RTOR Reduction (vph)	0	0	0	92	0	0	0	0	38	0	0	1
Lane Group Flow (vph)	0	0	327	99	67	598	0	0	74	0	0	1
Heavy Vehicles (%)	83%	2%	2%	25%	9%	2%	2%	17%	2%	8%	2%	2%
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases			4			8			2			6
Permitted Phases	4			4	8			2			6	
Actuated Green, G (s)			31.0	31.0	31.0	31.0			21.0			21.0
Effective Green, g (s)			31.0	31.0	31.0	31.0			21.0			21.0
Actuated g/C Ratio			0.52	0.52	0.52	0.52			0.35			0.35
Clearance Time (s)			4.0	4.0	4.0	4.0			4.0			4.0
Lane Grp Cap (vph)			929	668	483	1091			554			575
v/s Ratio Prot						c0.28						
v/s Ratio Perm			0.18	0.08	0.07				c0.05			0.00
v/c Ratio			0.35	0.15	0.14	0.55			0.13			0.00
Uniform Delay, d1			8.6	7.6	7.5	9.8			13.3			12.7
Progression Factor			1.00	1.00	1.08	0.95			1.00			1.00
Incremental Delay, d2			1.0	0.5	0.6	1.8			0.5			0.0
Delay (s)			9.6	8.1	8.7	11.1			13.8			12.7
Level of Service			A	A	A	B			B			B
Approach Delay (s)			9.0			10.9			13.8			12.7
Approach LOS			A			B			B			B

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

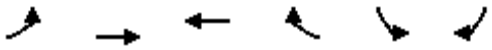
c Critical Lane Group

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	1
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	1
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	280	15	7	621	4	3
Peak Hour Factor	0.94	0.94	0.95	0.95	0.65	0.65
Hourly flow rate (vph)	298	16	7	654	6	5
Pedestrians				1	6	
Lane Width (ft)				11.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	320					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			320		980	313
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			274		979	266
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1196		233	719

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	314	7	654	11
Volume Left	0	7	0	6
Volume Right	16	0	0	5
cSH	1700	1196	1700	328
Volume to Capacity	0.18	0.01	0.38	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	8.0	0.0	16.3
Lane LOS		A		C
Approach Delay (s)	0.0	0.1		16.3
Approach LOS				C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	53	224	666	76	34	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	59	249	740	84	42	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1022				
pX, platoon unblocked						
vC, conflicting volume	824				1149	782
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	824				1149	782
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	93				78	97
cM capacity (veh/h)	797				189	394

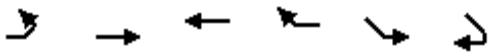
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	59	249	824	52
Volume Left	59	0	0	42
Volume Right	0	0	84	10
cSH	797	1700	1700	210
Volume to Capacity	0.07	0.15	0.48	0.25
Queue Length 95th (ft)	6	0	0	24
Control Delay (s)	9.9	0.0	0.0	27.8
Lane LOS	A			D
Approach Delay (s)	1.9		0.0	27.8
Approach LOS				D

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	46	152	0	12	547	38	2	1	0	6	2	166
Peak Hour Factor	0.75	0.75	0.75	0.88	0.88	0.88	0.58	0.58	0.58	0.85	0.85	0.85
Hourly flow rate (vph)	61	203	0	14	622	43	3	2	0	7	2	195
Pedestrians		6			2			11			9	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	674			214			1209	1037	216	1008	1016	658
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	674			214			1209	1037	216	1008	1016	658
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.9	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	4.2	4.0	3.3
p0 queue free %	93			99			96	99	100	95	99	57
cM capacity (veh/h)	876			1344			82	209	815	143	215	454

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	61	203	678	5	205
Volume Left	61	0	14	3	7
Volume Right	0	0	43	0	195
cSH	876	1700	1344	103	417
Volume to Capacity	0.07	0.12	0.01	0.05	0.49
Queue Length 95th (ft)	6	0	1	4	66
Control Delay (s)	9.4	0.0	0.3	41.7	21.6
Lane LOS	A		A	E	C
Approach Delay (s)	2.2		0.3	41.7	21.6
Approach LOS				E	C

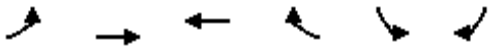
Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	59.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	25	140	608	29	0	0
Peak Hour Factor	0.68	0.68	0.94	0.94	0.45	0.45
Hourly flow rate (vph)	37	206	647	31	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked	0.83				0.83	0.83
vC, conflicting volume	687				951	671
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	620				940	602
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	784				230	412

Direction, Lane #	EB 1	WB 1
Volume Total	243	678
Volume Left	37	0
Volume Right	0	31
cSH	784	1700
Volume to Capacity	0.05	0.40
Queue Length 95th (ft)	4	0
Control Delay (s)	1.9	0.0
Lane LOS	A	
Approach Delay (s)	1.9	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.98		0.89	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1753	1697		1467	
Flt Permitted		0.89	1.00		0.99	
Satd. Flow (perm)		1569	1697		1467	
Volume (vph)	21	117	485	106	28	118
Peak-hour factor, PHF	0.72	0.72	0.91	0.91	0.85	0.85
Adj. Flow (vph)	29	162	533	116	33	139
RTOR Reduction (vph)	0	0	13	0	97	0
Lane Group Flow (vph)	0	191	636	0	75	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	5%	8%	2%	2%	4%	5%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		889	962		440	
v/s Ratio Prot			c0.37		c0.05	
v/s Ratio Perm		0.12				
v/c Ratio		0.21	0.66		0.17	
Uniform Delay, d1		6.4	9.0		15.5	
Progression Factor		0.80	1.00		1.00	
Incremental Delay, d2		0.5	3.6		0.8	
Delay (s)		5.7	12.6		16.3	
Level of Service		A	B		B	
Approach Delay (s)		5.7	12.6		16.3	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.88		1.00	1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	1.00
Satd. Flow (prot)	1703	3097		1711	3408			3335			3418	1501
Flt Permitted	0.63	1.00		0.33	1.00			0.53			0.93	1.00
Satd. Flow (perm)	1136	3097		595	3408			1792			3190	1501
Volume (vph)	92	98	366	20	155	4	233	327	21	15	827	152
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.89	0.89	0.89	0.88	0.88	0.88
Adj. Flow (vph)	102	109	407	24	182	5	262	367	24	17	940	173
RTOR Reduction (vph)	0	106	0	0	2	0	0	3	0	0	0	47
Lane Group Flow (vph)	102	410	0	24	185	0	0	650	0	0	957	126
Heavy Vehicles (%)	6%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	328	895		172	985			1115			1985	934
v/s Ratio Prot		c0.13			0.05							
v/s Ratio Perm	0.09			0.04				c0.36			0.30	0.08
v/c Ratio	0.31	0.46		0.14	0.19			0.93dl			0.48	0.14
Uniform Delay, d1	25.0	26.2		23.7	24.1			10.1			9.2	7.0
Progression Factor	1.00	1.00		1.00	1.00			0.56			1.00	1.00
Incremental Delay, d2	2.5	1.7		1.7	0.4			1.1			0.8	0.3
Delay (s)	27.5	27.9		25.4	24.5			6.7			10.0	7.3
Level of Service	C	C		C	C			A			B	A
Approach Delay (s)		27.8			24.6			6.7			9.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.98			1.00	0.99		0.98		
Flt Protected		0.98			1.00	1.00		0.96		
Satd. Flow (prot)		2026			2993	2598		1990		
Flt Permitted		0.98			0.62	1.00		0.96		
Satd. Flow (perm)		2026			1851	2598		1990		
Volume (vph)	71	74	18	58	544	1093	40	201	25	2
Peak-hour factor, PHF	0.91	0.91	0.91	0.80	0.80	0.91	0.91	0.93	0.93	0.93
Adj. Flow (vph)	78	81	20	72	680	1201	44	216	27	2
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	179	0	0	752	1242	0	245	0	0
Heavy Vehicles (%)	2%	3%	2%	3%	13%	30%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		450			864	1212		354		
v/s Ratio Prot		c0.09				c0.48		c0.12		
v/s Ratio Perm					0.41					
v/c Ratio		0.40			0.91dl	1.03		0.69		
Uniform Delay, d1		29.9			21.6	24.0		34.7		
Progression Factor		1.00			0.89	0.73		1.00		
Incremental Delay, d2		2.6			11.4	30.9		10.6		
Delay (s)		32.5			30.5	48.4		45.3		
Level of Service		C			C	D		D		
Approach Delay (s)		32.5			30.5	48.4		45.3		
Approach LOS		C			C	D		D		

Intersection Summary			
HCM Average Control Delay	41.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1931		1574		1370		3240		1652	3303	
Flt Permitted	0.95	1.00		0.48		1.00		1.00		0.37	1.00	
Satd. Flow (perm)	2006	1931		801		1370		3240		640	3303	
Volume (vph)	93	89	117	79	0	24	0	622	0	100	1388	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	100	96	126	86	0	26	0	676	0	112	1560	0
RTOR Reduction (vph)	0	31	0	0	0	19	0	0	0	0	0	0
Lane Group Flow (vph)	100	191	0	86	0	7	0	676	0	112	1560	0
Heavy Vehicles (%)	2%	2%	2%	7%	2%	10%	2%	4%	2%	2%	2%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	515		214		365		2088		412	2129	
v/s Ratio Prot		0.10						0.21			c0.47	
v/s Ratio Perm	0.05			c0.11		0.01				0.17		
v/c Ratio	0.19	0.37		0.40		0.02		0.32		0.27	0.73	
Uniform Delay, d1	25.5	26.9		27.1		24.3		7.2		6.9	10.8	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.87	1.79	
Incremental Delay, d2	0.8	2.0		5.5		0.1		0.4		0.8	1.2	
Delay (s)	26.2	28.9		32.6		24.4		7.6		13.7	20.5	
Level of Service	C	C		C		C		A		B	C	
Approach Delay (s)		28.1			30.7			7.6			20.0	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1631	1863	1531	2006	2040		1636	3250		1652	4712	
Flt Permitted	0.72	1.00	1.00	0.57	1.00		0.12	1.00		0.31	1.00	
Satd. Flow (perm)	1234	1863	1531	1203	2040		201	3250		536	4712	
Volume (vph)	62	50	199	83	45	13	121	623	75	25	1421	72
Peak-hour factor, PHF	0.92	0.92	0.92	0.99	0.99	0.99	0.87	0.87	0.87	0.94	0.94	0.94
Adj. Flow (vph)	67	54	216	84	45	13	139	716	86	27	1512	77
RTOR Reduction (vph)	0	0	189	0	9	0	0	5	0	0	3	0
Lane Group Flow (vph)	67	54	27	84	49	0	139	797	0	27	1586	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		75.6	75.6		75.6	75.6	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		77.6	77.6		77.6	77.6	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.65	0.65		0.65	0.65	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	233	191	307	442		130	2102		347	3047	
v/s Ratio Prot		0.03		c0.02	0.02			0.25			0.34	
v/s Ratio Perm	c0.05		0.02	0.04			c0.69			0.05		
v/c Ratio	0.44	0.23	0.14	0.27	0.11		1.07	0.38		0.08	0.52	
Uniform Delay, d1	48.6	47.3	46.8	38.5	37.7		21.2	9.9		7.9	11.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.7	2.3	1.5	2.2	0.5		98.7	0.5		0.4	0.6	
Delay (s)	57.3	49.6	48.3	40.7	38.2		119.9	10.4		8.3	11.9	
Level of Service	E	D	D	D	D		F	B		A	B	
Approach Delay (s)		50.3			39.7			26.6			11.9	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.97							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1637	3464		1762	3362							
Flt Permitted	0.29	1.00		0.51	1.00							
Satd. Flow (perm)	493	3464		941	3362							
Volume (vph)	41	380	5	120	690	139	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.56	0.56	0.56	0.56	0.56	0.56
Adj. Flow (vph)	45	413	5	136	784	158	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	28	0	0	0	0	0	0	0
Lane Group Flow (vph)	45	417	0	136	914	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Heavy Vehicles (%)	10%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	599	2483		939	2409							
v/s Ratio Prot	0.01	0.12		c0.02	c0.27							
v/s Ratio Perm	0.05			0.10								
v/c Ratio	0.08	0.17		0.14	0.38							
Uniform Delay, d1	0.6	2.7		0.6	3.3							
Progression Factor	0.67	0.36		1.00	1.01							
Incremental Delay, d2	0.2	0.1		0.3	0.5							
Delay (s)	0.6	1.1		0.9	3.8							
Level of Service	A	A		A	A							
Approach Delay (s)		1.1			3.4			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.98		1.00	1.00						0.95	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3367		1770	3388						1614	
Flt Permitted		1.00		0.54	1.00						0.98	
Satd. Flow (perm)		3367		1011	3388						1614	
Volume (vph)	0	296	35	105	565	0	0	0	0	47	30	52
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.54	0.54	0.54	0.93	0.93	0.93
Adj. Flow (vph)	0	312	37	117	628	0	0	0	0	51	32	56
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	32	0
Lane Group Flow (vph)	0	349	0	117	628	0	0	0	0	0	107	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1459		438	1468						699	
v/s Ratio Prot		0.10			c0.19							
v/s Ratio Perm				0.12							0.07	
v/c Ratio		0.24		0.27	0.43						0.15	
Uniform Delay, d1		10.7		10.9	11.8						10.3	
Progression Factor		1.00		0.82	0.80						1.00	
Incremental Delay, d2		0.4		1.4	0.9						0.5	
Delay (s)		11.1		10.3	10.3						10.8	
Level of Service		B		B	B						B	
Approach Delay (s)		11.1			10.3			0.0			10.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

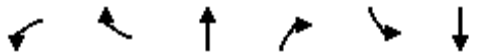
Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			1.00	
Flpb, ped/bikes	1.00		0.99	1.00			1.00			0.97	
Frt	1.00		1.00	0.99			0.96			0.99	
Flt Protected	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	3504		1760	3509			1616			1642	
Flt Permitted	1.00		0.27	1.00			0.72			0.70	
Satd. Flow (perm)	3504		498	3509			1202			1195	
Volume (vph)	712	1	9	1044	47	54	0	26	212	3	23
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.92	0.78	0.78	0.78	0.54	0.54	0.54
Adj. Flow (vph)	828	1	10	1135	51	69	0	33	393	6	43
RTOR Reduction (vph)	0	0	0	0	0	0	19	0	0	4	0
Lane Group Flow (vph)	829	0	10	1186	0	0	83	0	0	438	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	3%	2%	2%	2%	2%	8%	2%	4%	2%	2%	5%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1830		260	1832			467			465	
v/s Ratio Prot	0.24			c0.34							
v/s Ratio Perm			0.02				0.07			c0.37	
v/c Ratio	0.45		0.04	0.65			0.18			0.94	
Uniform Delay, d1	13.5		10.5	15.5			18.1			26.5	
Progression Factor	1.00		1.38	1.31			1.00			1.00	
Incremental Delay, d2	0.8		0.3	1.7			0.8			29.4	
Delay (s)	14.3		14.8	22.1			18.9			55.9	
Level of Service	B		B	C			B			E	
Approach Delay (s)	14.3			22.0			18.9			55.9	
Approach LOS	B			C			B			E	

Intersection Summary			
HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1568	22	0	823	0	0	0	3	0	0	153
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.55	0.55	0.55	0.91	0.91	0.91
Hourly flow rate (vph)	0	1742	24	0	866	0	0	0	5	0	0	168
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	866			1767			2357	2621	594	1454	2633	434
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	824			1767			2370	2644	594	1433	2657	376
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	72
cM capacity (veh/h)	773			349			13	22	448	90	22	599

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	697	697	373	433	433	5	168
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	24	0	0	5	168
cSH	1700	1700	1700	1700	1700	448	599
Volume to Capacity	0.41	0.41	0.22	0.25	0.25	0.01	0.28
Queue Length 95th (ft)	0	0	0	0	0	1	29
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.1	13.3
Lane LOS						B	B
Approach Delay (s)	0.0			0.0		13.1	13.3
Approach LOS						B	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	41.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.95		1.00			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	3438		3622			3657
Flt Permitted	0.97		1.00			1.00
Satd. Flow (perm)	3438		3622			3657
Volume (vph)	405	191	808	0	0	432
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.93	0.93
Adj. Flow (vph)	435	205	951	0	0	465
RTOR Reduction (vph)	65	0	0	0	0	0
Lane Group Flow (vph)	575	0	951	0	0	465
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	993		2254			2275
v/s Ratio Prot	c0.17		c0.26			0.13
v/s Ratio Perm						
v/c Ratio	0.58		0.42			0.20
Uniform Delay, d1	27.3		8.7			7.4
Progression Factor	1.00		0.80			1.00
Incremental Delay, d2	2.5		0.6			0.2
Delay (s)	29.8		7.6			7.6
Level of Service	C		A			A
Approach Delay (s)	29.8		7.6			7.6
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	12	13	16	12	16	12	16	12	12
Total Lost time (s)			4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor			1.00	1.00	1.00	1.00		0.95	0.91	0.95		1.00
Frt			1.00	0.85	1.00	1.00		1.00	0.95	0.85		0.93
Flt Protected			1.00	1.00	0.95	1.00		0.95	0.97	1.00		0.98
Satd. Flow (prot)			1906	1292	1711	2111		1661	1393	1610		1695
Flt Permitted			0.93	1.00	0.51	1.00		0.76	0.85	1.00		0.94
Satd. Flow (perm)			1784	1292	925	2111		1320	1216	1610		1628
Volume (vph)	26	0	272	375	99	571	1	80	0	85	1	0
Peak-hour factor, PHF	0.88	0.92	0.88	0.88	0.92	0.92	0.92	0.64	0.64	0.64	0.50	0.50
Adj. Flow (vph)	30	0	309	426	108	621	1	125	0	133	2	0
RTOR Reduction (vph)	0	0	0	199	0	0	0	0	23	66	0	1
Lane Group Flow (vph)	0	0	339	227	108	622	0	63	73	33	0	3
Heavy Vehicles (%)	83%	2%	2%	25%	9%	2%	2%	17%	2%	8%	2%	2%
Turn Type	Perm			Perm	Perm			Perm		Perm	Perm	
Protected Phases			4			8			2			6
Permitted Phases	4			4	8			2		2	6	
Actuated Green, G (s)			32.0	32.0	32.0	32.0		20.0	20.0	20.0		20.0
Effective Green, g (s)			32.0	32.0	32.0	32.0		20.0	20.0	20.0		20.0
Actuated g/C Ratio			0.53	0.53	0.53	0.53		0.33	0.33	0.33		0.33
Clearance Time (s)			4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Grp Cap (vph)			951	689	493	1126		440	405	537		543
v/s Ratio Prot						c0.29						
v/s Ratio Perm			0.19	0.18	0.12			0.05	c0.06	0.02		0.00
v/c Ratio			0.36	0.33	0.22	0.55		0.14	0.18	0.06		0.00
Uniform Delay, d1			8.1	7.9	7.4	9.3		14.0	14.2	13.6		13.4
Progression Factor			1.00	1.00	1.00	0.89		1.00	1.00	1.00		1.00
Incremental Delay, d2			1.0	1.3	0.9	1.8		0.7	1.0	0.2		0.0
Delay (s)			9.1	9.2	8.3	10.0		14.7	15.2	13.8		13.4
Level of Service			A	A	A	B		B	B	B		B
Approach Delay (s)			9.2			9.8			14.5			13.4
Approach LOS			A			A			B			B

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

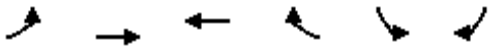
Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	1
Peak-hour factor, PHF	0.50
Adj. Flow (vph)	2
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	335	16	7	681	4	3
Peak Hour Factor	0.94	0.94	0.95	0.95	0.65	0.65
Hourly flow rate (vph)	356	17	7	717	6	5
Pedestrians				1	6	
Lane Width (ft)				11.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	320					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			379		1102	372
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			342		1109	334
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1137		195	664

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	373	7	717	11
Volume Left	0	7	0	6
Volume Right	17	0	0	5
cSH	1700	1137	1700	280
Volume to Capacity	0.22	0.01	0.42	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	8.2	0.0	18.4
Lane LOS		A		C
Approach Delay (s)	0.0	0.1		18.4
Approach LOS				C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	55	277	728	79	35	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	61	308	809	88	44	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1022				
pX, platoon unblocked						
vC, conflicting volume	897				1283	853
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	897				1283	853
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	92				72	97
cM capacity (veh/h)	749				155	359

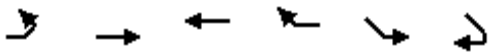
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	61	308	897	55
Volume Left	61	0	0	44
Volume Right	0	0	88	11
cSH	749	1700	1700	175
Volume to Capacity	0.08	0.18	0.53	0.31
Queue Length 95th (ft)	7	0	0	32
Control Delay (s)	10.2	0.0	0.0	34.6
Lane LOS	B			D
Approach Delay (s)	1.7		0.0	34.6
Approach LOS				D

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	89	161	0	13	593	39	2	1	0	6	2	185
Peak Hour Factor	0.75	0.75	0.75	0.88	0.88	0.88	0.58	0.58	0.58	0.85	0.85	0.85
Hourly flow rate (vph)	119	215	0	15	674	44	3	2	0	7	2	218
Pedestrians		6			2			11			9	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	727			226			1413	1220	228	1189	1198	711
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	727			226			1413	1220	228	1189	1198	711
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.9	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	4.2	4.0	3.3
p0 queue free %	86			99			93	99	100	93	98	49
cM capacity (veh/h)	836			1331			48	150	803	98	155	423

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	119	215	733	5	227
Volume Left	119	0	15	3	7
Volume Right	0	0	44	0	218
cSH	836	1700	1331	62	378
Volume to Capacity	0.14	0.13	0.01	0.08	0.60
Queue Length 95th (ft)	12	0	1	7	94
Control Delay (s)	10.0	0.0	0.3	68.7	27.9
Lane LOS	B		A	F	D
Approach Delay (s)	3.6		0.3	68.7	27.9
Approach LOS				F	D

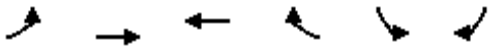
Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	26	148	656	30	0	0
Peak Hour Factor	0.68	0.68	0.92	0.92	0.45	0.45
Hourly flow rate (vph)	38	218	713	33	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked	0.79				0.79	0.79
vC, conflicting volume	755				1032	738
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	691				1041	670
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	710				191	363

Direction, Lane #	EB 1	WB 1
Volume Total	256	746
Volume Left	38	0
Volume Right	0	33
cSH	710	1700
Volume to Capacity	0.05	0.44
Queue Length 95th (ft)	4	0
Control Delay (s)	2.1	0.0
Lane LOS	A	
Approach Delay (s)	2.1	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.98		0.89	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1753	1697		1463	
Flt Permitted		0.87	1.00		0.99	
Satd. Flow (perm)		1537	1697		1463	
Volume (vph)	24	120	511	111	29	139
Peak-hour factor, PHF	0.72	0.72	0.91	0.91	0.85	0.85
Adj. Flow (vph)	33	167	562	122	34	164
RTOR Reduction (vph)	0	0	13	0	115	0
Lane Group Flow (vph)	0	200	671	0	83	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	5%	8%	2%	2%	4%	5%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		871	962		439	
v/s Ratio Prot			c0.40		c0.06	
v/s Ratio Perm		0.13				
v/c Ratio		0.23	0.70		0.19	
Uniform Delay, d1		6.5	9.3		15.6	
Progression Factor		0.86	1.00		1.00	
Incremental Delay, d2		0.6	4.2		1.0	
Delay (s)		6.2	13.5		16.5	
Level of Service		A	B		B	
Approach Delay (s)		6.2	13.5		16.5	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.88		1.00	1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	1.00
Satd. Flow (prot)	1703	3104		1711	3408			3336			3417	1501
Flt Permitted	0.63	1.00		0.31	1.00			0.52			0.92	1.00
Satd. Flow (perm)	1126	3104		554	3408			1769			3135	1501
Volume (vph)	96	111	381	21	163	4	242	341	22	23	860	158
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.89	0.89	0.89	0.88	0.88	0.88
Adj. Flow (vph)	107	123	423	25	192	5	272	383	25	26	977	180
RTOR Reduction (vph)	0	98	0	0	2	0	0	3	0	0	0	46
Lane Group Flow (vph)	107	448	0	25	195	0	0	677	0	0	1003	134
Heavy Vehicles (%)	6%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	325	897		160	985			1101			1951	934
v/s Ratio Prot		c0.14			0.06							
v/s Ratio Perm	0.10			0.05				c0.38			0.32	0.09
v/c Ratio	0.33	0.50		0.16	0.20			1.03dl			0.51	0.14
Uniform Delay, d1	25.1	26.6		23.8	24.1			10.4			9.4	7.0
Progression Factor	1.00	1.00		1.00	1.00			0.65			1.00	1.00
Incremental Delay, d2	2.7	2.0		2.1	0.5			1.0			1.0	0.3
Delay (s)	27.8	28.6		25.9	24.6			7.7			10.4	7.4
Level of Service	C	C		C	C			A			B	A
Approach Delay (s)		28.5			24.7			7.7			10.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.98			1.00	0.99		0.98		
Flt Protected		0.98			1.00	1.00		0.96		
Satd. Flow (prot)		2026			2993	2598		1989		
Flt Permitted		0.98			0.60	1.00		0.96		
Satd. Flow (perm)		2026			1801	2598		1989		
Volume (vph)	74	77	19	61	566	1123	41	209	28	2
Peak-hour factor, PHF	0.91	0.91	0.91	0.80	0.80	0.91	0.91	0.93	0.93	0.93
Adj. Flow (vph)	81	85	21	76	708	1234	45	225	30	2
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	187	0	0	784	1276	0	257	0	0
Heavy Vehicles (%)	2%	3%	2%	3%	13%	30%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		450			840	1212		354		
v/s Ratio Prot		c0.09				c0.49		c0.13		
v/s Ratio Perm					0.44					
v/c Ratio		0.42			0.99dl	1.05		0.73		
Uniform Delay, d1		30.0			22.7	24.0		34.9		
Progression Factor		1.00			0.89	0.73		1.00		
Incremental Delay, d2		2.8			18.1	39.4		12.3		
Delay (s)		32.8			38.2	57.0		47.2		
Level of Service		C			D	E		D		
Approach Delay (s)		32.8			38.2	57.0		47.2		
Approach LOS		C			D	E		D		

Intersection Summary			
HCM Average Control Delay	48.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.92		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1935		1574		1370		3240		1652	3303	
Flt Permitted	0.95	1.00		0.46		1.00		1.00		0.36	1.00	
Satd. Flow (perm)	2006	1935		765		1370		3240		621	3303	
Volume (vph)	97	97	122	118	0	29	0	644	0	106	1445	0
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	104	104	131	128	0	32	0	700	0	119	1624	0
RTOR Reduction (vph)	0	26	0	0	0	23	0	0	0	0	0	0
Lane Group Flow (vph)	104	209	0	128	0	9	0	700	0	119	1624	0
Heavy Vehicles (%)	2%	2%	2%	7%	2%	10%	2%	4%	2%	2%	2%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	516		204		365		2088		400	2129	
v/s Ratio Prot		0.11						0.22			c0.49	
v/s Ratio Perm	0.05			c0.17		0.01				0.19		
v/c Ratio	0.19	0.40		0.63		0.02		0.34		0.30	0.76	
Uniform Delay, d1	25.5	27.1		29.1		24.4		7.3		7.0	11.2	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.86	1.75	
Incremental Delay, d2	0.8	2.3		13.7		0.1		0.4		0.9	1.3	
Delay (s)	26.3	29.5		42.8		24.5		7.7		14.0	20.9	
Level of Service	C	C		D		C		A		B	C	
Approach Delay (s)		28.5			39.1			7.7			20.4	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1863	1531	2006	2038		1652	3250		1652	4713	
Flt Permitted	0.72	1.00	1.00	0.57	1.00		0.10	1.00		0.30	1.00	
Satd. Flow (perm)	1291	1863	1531	1200	2038		176	3250		516	4713	
Volume (vph)	70	52	207	86	47	14	126	645	78	26	1514	75
Peak-hour factor, PHF	0.92	0.92	0.92	0.99	0.99	0.99	0.87	0.87	0.87	0.94	0.94	0.94
Adj. Flow (vph)	76	57	225	87	47	14	145	741	90	28	1611	80
RTOR Reduction (vph)	0	0	197	0	9	0	0	5	0	0	3	0
Lane Group Flow (vph)	76	57	28	87	52	0	145	826	0	28	1688	0
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		75.6	75.6		75.6	75.6	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		77.6	77.6		77.6	77.6	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.65	0.65		0.65	0.65	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	161	233	191	307	442		114	2102		334	3048	
v/s Ratio Prot		0.03		c0.02	0.03			0.25			0.36	
v/s Ratio Perm	c0.06		0.02	0.04			c0.82			0.05		
v/c Ratio	0.47	0.24	0.15	0.28	0.12		1.27	0.39		0.08	0.55	
Uniform Delay, d1	48.8	47.4	46.8	38.6	37.8		21.2	10.0		7.9	11.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.6	2.5	1.6	2.3	0.5		174.2	0.6		0.5	0.7	
Delay (s)	58.4	49.9	48.4	40.9	38.3		195.4	10.6		8.4	12.4	
Level of Service	E	D	D	D	D		F	B		A	B	
Approach Delay (s)		50.8			39.8			38.1			12.3	
Approach LOS		D			D			D			B	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.98							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1638	3464		1762	3373							
Flt Permitted	0.24	1.00		0.50	1.00							
Satd. Flow (perm)	418	3464		927	3373							
Volume (vph)	44	395	5	125	813	145	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.56	0.56	0.56	0.56	0.56	0.56
Adj. Flow (vph)	48	429	5	140	913	163	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	24	0	0	0	0	0	0	0
Lane Group Flow (vph)	48	433	0	140	1052	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Heavy Vehicles (%)	10%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	545	2483		929	2417							
v/s Ratio Prot	0.01	0.12		c0.02	c0.31							
v/s Ratio Perm	0.06			0.11								
v/c Ratio	0.09	0.17		0.15	0.44							
Uniform Delay, d1	0.7	2.8		0.6	3.5							
Progression Factor	1.31	0.36		1.00	1.02							
Incremental Delay, d2	0.3	0.2		0.3	0.6							
Delay (s)	1.2	1.1		0.9	4.1							
Level of Service	A	A		A	A							
Approach Delay (s)		1.1			3.8			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	3.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.98		1.00	1.00						0.95	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3361		1770	3388						1616	
Flt Permitted		1.00		0.53	1.00						0.98	
Satd. Flow (perm)		3361		990	3388						1616	
Volume (vph)	0	308	41	204	588	0	0	0	0	49	33	54
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.54	0.54	0.54	0.93	0.93	0.93
Adj. Flow (vph)	0	324	43	227	653	0	0	0	0	53	35	58
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	33	0
Lane Group Flow (vph)	0	367	0	227	653	0	0	0	0	0	113	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1456		429	1468						700	
v/s Ratio Prot		0.11			0.19							
v/s Ratio Perm				c0.23							0.07	
v/c Ratio		0.25		0.53	0.44						0.16	
Uniform Delay, d1		10.8		12.5	11.9						10.4	
Progression Factor		1.00		0.77	0.79						1.00	
Incremental Delay, d2		0.4		4.2	0.9						0.5	
Delay (s)		11.2		13.9	10.3						10.9	
Level of Service		B		B	B						B	
Approach Delay (s)		11.2			11.3			0.0			10.9	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

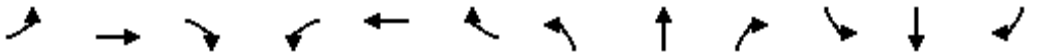
Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	1.00		0.99	1.00			0.99			0.98	
Frt	1.00		1.00	0.99			0.96			0.95	
Flt Protected	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	3504		1753	3512			1609			1592	
Flt Permitted	1.00		0.38	1.00			0.80			0.83	
Satd. Flow (perm)	3504		695	3512			1333			1366	
Volume (vph)	555	1	9	1084	43	56	0	27	38	3	24
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	603	1	10	1178	47	61	0	29	41	3	26
RTOR Reduction (vph)	0	0	0	0	0	0	18	0	0	16	0
Lane Group Flow (vph)	604	0	10	1225	0	0	72	0	0	54	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	3%	2%	2%	2%	2%	8%	2%	4%	2%	2%	5%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1830		363	1834			518			531	
v/s Ratio Prot	0.17			c0.35							
v/s Ratio Perm			0.01				c0.05			0.04	
v/c Ratio	0.33		0.03	0.67			0.14			0.10	
Uniform Delay, d1	12.4		10.4	15.8			17.8			17.5	
Progression Factor	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.5		0.1	1.9			0.6			0.4	
Delay (s)	12.9		10.6	17.7			18.3			17.9	
Level of Service	B		B	B			B			B	
Approach Delay (s)	12.9			17.7			18.3			17.9	
Approach LOS	B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	722	23	0	1041	0	0	0	3	0	0	159
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	785	25	0	1132	0	0	0	3	0	0	173
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					452							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	1132			810			1537	1929	275	1397	1941	567
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1123			810			1532	1928	275	1391	1941	552
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	63
cM capacity (veh/h)	600			812			50	65	722	100	64	472

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	314	314	182	566	566	3	173
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	25	0	0	3	173
cSH	1700	1700	1700	1700	1700	722	472
Volume to Capacity	0.18	0.18	0.11	0.33	0.33	0.00	0.37
Queue Length 95th (ft)	0	0	0	0	0	0	41
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.0	17.0
Lane LOS						B	C
Approach Delay (s)	0.0			0.0		10.0	17.0
Approach LOS						B	C

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		



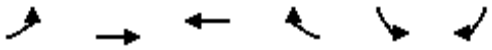
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	13	13	12	12	12	13	12	13
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00	1.00	1.00		1.00	0.88
Frt	1.00	0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)	3547	3632			3598	1636	1770	1845	1568		1835	2880
Flt Permitted	0.31	1.00			0.66	1.00	0.50	1.00	1.00		0.89	1.00
Satd. Flow (perm)	1151	3632			2408	1636	933	1845	1568		1655	2880
Volume (vph)	253	451	22	218	449	459	9	77	60	86	196	632
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	275	490	24	237	488	499	10	84	65	93	213	687
RTOR Reduction (vph)	0	6	0	0	0	274	0	0	38	0	0	273
Lane Group Flow (vph)	275	508	0	0	725	225	10	84	27	0	306	414
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		custom
Protected Phases		4			8			2			6	6
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	27.0	27.0			27.0	27.0	25.0	25.0	25.0		25.0	25.0
Effective Green, g (s)	27.0	27.0			27.0	27.0	25.0	25.0	25.0		25.0	25.0
Actuated g/C Ratio	0.45	0.45			0.45	0.45	0.42	0.42	0.42		0.42	0.42
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	518	1634			1084	736	389	769	653		690	1200
v/s Ratio Prot		0.14						0.05				0.14
v/s Ratio Perm	0.24				c0.30	0.14	0.01		0.02		c0.18	
v/c Ratio	0.53	0.31			0.67	0.31	0.03	0.11	0.04		0.44	0.34
Uniform Delay, d1	11.9	10.6			13.0	10.5	10.3	10.7	10.4		12.5	11.9
Progression Factor	1.00	1.00			1.33	3.50	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	0.5			2.7	0.9	0.1	0.3	0.1		2.1	0.8
Delay (s)	15.8	11.0			19.9	37.7	10.4	11.0	10.5		14.6	12.7
Level of Service	B	B			B	D	B	B	B		B	B
Approach Delay (s)		12.7			27.1			10.8			13.3	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	12	15	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.91	0.88	1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	3780		1621	5085	2787	1444	1749			1775	1583
Flt Permitted	0.45	1.00		0.63	1.00	1.00	0.58	1.00			0.72	1.00
Satd. Flow (perm)	1628	3780		1078	5085	2787	883	1749			1346	1583
Volume (vph)	436	160	16	7	473	461	4	5	3	223	2	654
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	474	174	17	8	514	501	4	5	3	242	2	711
RTOR Reduction (vph)	0	10	0	0	0	292	0	2	0	0	0	120
Lane Group Flow (vph)	474	181	0	8	514	209	4	6	0	0	244	591
Confl. Peds. (#/hr)			6	6					1			
Heavy Vehicles (%)	2%	3%	7%	3%	2%	2%	25%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0			27.0	27.0
Effective Green, g (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0			27.0	27.0
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.45	0.45			0.45	0.45
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	678	1575		449	2119	1161	397	787			606	712
v/s Ratio Prot		0.05			0.10			0.00				
v/s Ratio Perm	c0.29			0.01		0.07	0.00				0.18	c0.37
v/c Ratio	0.70	0.11		0.02	0.24	0.18	0.01	0.01			0.40	0.83
Uniform Delay, d1	14.4	10.7		10.3	11.4	11.0	9.1	9.1			11.1	14.5
Progression Factor	0.61	0.60		0.76	0.81	1.78	1.00	1.00			1.00	1.00
Incremental Delay, d2	5.7	0.1		0.1	0.2	0.3	0.0	0.0			2.0	10.8
Delay (s)	14.5	6.6		7.9	9.4	19.9	9.2	9.1			13.1	25.3
Level of Service	B	A		A	A	B	A	A			B	C
Approach Delay (s)		12.3			14.5			9.1			22.2	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



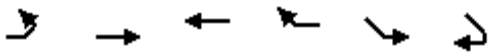
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	13	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1620	3539	1925	1482	1530	1583
Flt Permitted	0.24	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	412	3539	1925	1482	1530	1583
Volume (vph)	59	324	577	156	50	357
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	352	627	170	54	388
RTOR Reduction (vph)	0	0	0	81	0	123
Lane Group Flow (vph)	64	352	627	89	54	265
Heavy Vehicles (%)	4%	2%	2%	9%	18%	2%
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	27.0	27.0	27.0	27.0	21.0	21.0
Effective Green, g (s)	29.0	29.0	29.0	29.0	23.0	23.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.38	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	199	1711	930	716	587	607
v/s Ratio Prot		0.10	c0.33		0.04	
v/s Ratio Perm	0.16			0.06		c0.17
v/c Ratio	0.32	0.21	0.67	0.12	0.09	0.44
Uniform Delay, d1	9.5	8.9	11.9	8.5	11.8	13.7
Progression Factor	0.74	0.75	1.05	1.38	1.00	1.00
Incremental Delay, d2	4.1	0.3	2.5	0.2	0.3	2.3
Delay (s)	11.2	7.0	14.9	12.0	12.1	16.0
Level of Service	B	A	B	B	B	B
Approach Delay (s)		7.6	14.3		15.5	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	9	13	12	12	12	12	12	12	12	16	16	16
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			0.99			1.00			0.87	
Flt Protected	0.95	1.00			1.00			0.97			1.00	
Satd. Flow (prot)	1490	1870			1824			1794			1696	
Flt Permitted	0.24	1.00			0.99			0.88			0.99	
Satd. Flow (perm)	374	1870			1815			1629			1686	
Volume (vph)	24	161	0	13	615	41	2	1	0	7	2	169
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	175	0	14	668	45	2	1	0	8	2	184
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	132	0
Lane Group Flow (vph)	26	175	0	0	723	0	0	3	0	0	62	0
Confl. Peds. (#/hr)	9			11		9	6			2		6
Heavy Vehicles (%)	9%	5%	2%	2%	3%	2%	2%	2%	2%	83%	2%	4%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.0	34.0			26.0			16.0			16.0	
Effective Green, g (s)	35.0	35.0			27.0			17.0			17.0	
Actuated g/C Ratio	0.58	0.58			0.45			0.28			0.28	
Clearance Time (s)	2.0	5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)	293	1091			817			462			478	
v/s Ratio Prot	0.01	c0.09										
v/s Ratio Perm	0.05				c0.40			0.00			c0.04	
v/c Ratio	0.09	0.16			0.89			0.01			0.13	
Uniform Delay, d1	7.9	5.7			15.1			15.4			16.0	
Progression Factor	0.62	0.69			1.58			1.00			1.00	
Incremental Delay, d2	0.6	0.3			11.1			0.0			0.6	
Delay (s)	5.5	4.3			34.9			15.5			16.6	
Level of Service	A	A			C			B			B	
Approach Delay (s)		4.4			34.9			15.5			16.6	
Approach LOS		A			C			B			B	

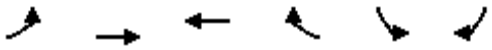
Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	27	148	679	31	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	161	738	34	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		862	786			
pX, platoon unblocked	0.78				0.78	0.78
vC, conflicting volume	781				983	764
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	718				979	696
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	679				206	343

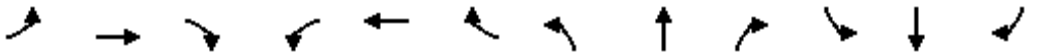
Direction, Lane #	EB 1	WB 1
Volume Total	190	772
Volume Left	29	0
Volume Right	0	34
cSH	679	1700
Volume to Capacity	0.04	0.45
Queue Length 95th (ft)	3	0
Control Delay (s)	2.1	0.0
Lane LOS	A	
Approach Delay (s)	2.1	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.98		0.89	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1754	1697		1463	
Flt Permitted		0.89	1.00		0.99	
Satd. Flow (perm)		1577	1697		1463	
Volume (vph)	21	122	531	115	30	144
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	133	577	125	33	157
RTOR Reduction (vph)	0	0	13	0	110	0
Lane Group Flow (vph)	0	156	689	0	80	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	5%	8%	2%	2%	4%	5%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		894	962		439	
v/s Ratio Prot			c0.41		c0.05	
v/s Ratio Perm		0.10				
v/c Ratio		0.17	0.72		0.18	
Uniform Delay, d1		6.3	9.5		15.6	
Progression Factor		2.52	1.00		1.00	
Incremental Delay, d2		0.4	4.6		0.9	
Delay (s)		16.1	14.0		16.5	
Level of Service		B	B		B	
Approach Delay (s)		16.1	14.0		16.5	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.88		1.00	1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	1.00
Satd. Flow (prot)	1703	3104		1711	3410			3335			3417	1501
Flt Permitted	0.64	1.00		0.30	1.00			0.52			0.92	1.00
Satd. Flow (perm)	1140	3104		543	3410			1770			3140	1501
Volume (vph)	99	114	396	22	166	4	256	351	23	23	893	165
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	124	430	24	180	4	278	382	25	25	971	179
RTOR Reduction (vph)	0	99	0	0	1	0	0	3	0	0	0	46
Lane Group Flow (vph)	108	455	0	24	183	0	0	682	0	0	996	133
Heavy Vehicles (%)	6%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	329	897		157	985			1101			1954	934
v/s Ratio Prot		c0.15			0.05							
v/s Ratio Perm	0.09			0.04				c0.39			0.32	0.09
v/c Ratio	0.33	0.51		0.15	0.19			1.03dl			0.51	0.14
Uniform Delay, d1	25.1	26.7		23.8	24.0			10.4			9.4	7.0
Progression Factor	1.00	1.00		1.00	1.00			0.55			1.00	1.00
Incremental Delay, d2	2.7	2.0		2.1	0.4			1.5			1.0	0.3
Delay (s)	27.8	28.7		25.9	24.5			7.2			10.4	7.4
Level of Service	C	C		C	C			A			B	A
Approach Delay (s)		28.6			24.6			7.2			9.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.98			1.00	0.99		0.99		
Flt Protected		0.98			1.00	1.00		0.96		
Satd. Flow (prot)		2025			2993	2598		1992		
Flt Permitted		0.98			0.60	1.00		0.96		
Satd. Flow (perm)		2025			1811	2598		1992		
Volume (vph)	77	80	20	63	589	1182	43	222	25	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	87	22	68	640	1285	47	241	27	2
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	193	0	0	708	1329	0	270	0	0
Heavy Vehicles (%)	2%	3%	2%	3%	13%	30%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		450			845	1212		354		
v/s Ratio Prot		c0.10				c0.51		c0.14		
v/s Ratio Perm					0.39					
v/c Ratio		0.43			0.88dl	1.10		0.76		
Uniform Delay, d1		30.1			21.0	24.0		35.2		
Progression Factor		1.00			0.92	0.73		1.00		
Incremental Delay, d2		3.0			9.4	55.1		14.4		
Delay (s)		33.1			28.7	72.6		49.6		
Level of Service		C			C	E		D		
Approach Delay (s)		33.1			28.7	72.6		49.6		
Approach LOS		C			C	E		D		

Intersection Summary			
HCM Average Control Delay	54.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.92		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1945		1574		1370		3240		1652	3303	
Flt Permitted	0.95	1.00		0.50		1.00		1.00		0.34	1.00	
Satd. Flow (perm)	2006	1945		834		1370		3240		592	3303	
Volume (vph)	127	92	101	62	0	32	0	679	0	106	1505	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	100	110	67	0	35	0	738	0	115	1636	0
RTOR Reduction (vph)	0	26	0	0	0	26	0	0	0	0	0	0
Lane Group Flow (vph)	138	184	0	67	0	9	0	738	0	115	1636	0
Heavy Vehicles (%)	2%	2%	2%	7%	2%	10%	2%	4%	2%	2%	2%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	519		222		365		2088		382	2129	
v/s Ratio Prot		c0.09						0.23			c0.50	
v/s Ratio Perm	0.07			0.08		0.01				0.19		
v/c Ratio	0.26	0.35		0.30		0.03		0.35		0.30	0.77	
Uniform Delay, d1	26.0	26.7		26.3		24.4		7.4		7.1	11.3	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.88	1.77	
Incremental Delay, d2	1.2	1.9		3.5		0.1		0.5		0.7	1.0	
Delay (s)	27.2	28.6		29.8		24.5		7.8		14.0	20.9	
Level of Service	C	C		C		C		A		B	C	
Approach Delay (s)		28.0			28.0			7.8			20.4	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1863	1531	2006	2067		1652	3231		1652	4734	
Flt Permitted	0.67	1.00	1.00	0.54	1.00		0.12	1.00		0.27	1.00	
Satd. Flow (perm)	1213	1863	1531	1136	2067		202	3231		475	4734	
Volume (vph)	34	69	249	180	103	17	181	703	120	17	1439	26
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	75	271	196	112	18	197	764	130	18	1564	28
RTOR Reduction (vph)	0	0	237	0	5	0	0	7	0	0	1	0
Lane Group Flow (vph)	37	75	34	196	125	0	197	887	0	18	1591	0
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		75.6	75.6		75.6	75.6	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		77.6	77.6		77.6	77.6	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.65	0.65		0.65	0.65	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	233	191	297	448		131	2089		307	3061	
v/s Ratio Prot		0.04		c0.04	0.06			0.27			0.34	
v/s Ratio Perm	0.03		0.02	c0.10			c0.98			0.04		
v/c Ratio	0.24	0.32	0.18	0.66	0.28		1.50	0.42		0.06	0.52	
Uniform Delay, d1	47.4	47.9	47.0	42.3	39.2		21.2	10.3		7.8	11.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	3.6	2.0	11.0	1.6		262.2	0.6		0.4	0.6	
Delay (s)	51.1	51.5	49.0	53.3	40.7		283.4	11.0		8.2	11.9	
Level of Service	D	D	D	D	D		F	B		A	B	
Approach Delay (s)		49.7			48.3			60.1			11.9	
Approach LOS		D			D			E			B	

Intersection Summary			
HCM Average Control Delay	35.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.4
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.98							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1639	3463		1766	3387							
Flt Permitted	0.23	1.00		0.38	1.00							
Satd. Flow (perm)	390	3463		708	3387							
Volume (vph)	35	638	9	82	904	135	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	693	10	89	983	147	0	0	0	0	0	0
RTOR Reduction (vph)	0	2	0	0	20	0	0	0	0	0	0	0
Lane Group Flow (vph)	38	701	0	89	1110	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Heavy Vehicles (%)	10%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	525	2482		772	2427							
v/s Ratio Prot	0.01	0.20		c0.02	c0.33							
v/s Ratio Perm	0.05			0.08								
v/c Ratio	0.07	0.28		0.12	0.46							
Uniform Delay, d1	0.7	3.0		0.6	3.6							
Progression Factor	0.58	0.67		1.00	1.00							
Incremental Delay, d2	0.3	0.3		0.3	0.6							
Delay (s)	0.7	2.3		0.9	4.2							
Level of Service	A	A		A	A							
Approach Delay (s)		2.2			4.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	3.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.98		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3361		1770	3388						1613	
Flt Permitted		1.00		0.51	1.00						0.98	
Satd. Flow (perm)		3361		952	3388						1613	
Volume (vph)	0	320	42	34	615	0	0	0	0	51	30	56
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	348	46	37	668	0	0	0	0	55	33	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	35	0
Lane Group Flow (vph)	0	394	0	37	668	0	0	0	0	0	114	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1456		413	1468						699	
v/s Ratio Prot		0.12			c0.20							
v/s Ratio Perm				0.04							0.07	
v/c Ratio		0.27		0.09	0.46						0.16	
Uniform Delay, d1		10.9		10.0	12.0						10.4	
Progression Factor		1.00		0.86	0.79						1.00	
Incremental Delay, d2		0.5		0.4	0.9						0.5	
Delay (s)		11.4		9.0	10.4						10.9	
Level of Service		B		A	B						B	
Approach Delay (s)		11.4			10.3			0.0			10.9	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

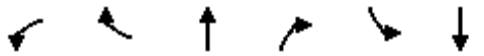
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			0.98			0.98	
Frt		1.00		1.00	0.99			0.94			0.98	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3539		1770	3473			1583			1647	
Flt Permitted		0.95		0.09	1.00			0.77			0.73	
Satd. Flow (perm)		3379		159	3473			1255			1250	
Volume (vph)	2	1810	1	13	286	26	51	0	37	102	10	22
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	2	2034	1	14	298	27	70	0	51	132	13	29
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	2037	0	14	325	0	0	118	0	0	174	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		83	1814			488			486	
v/s Ratio Prot					0.09							
v/s Ratio Perm		c0.60		0.09				0.09			c0.14	
v/c Ratio		1.15		0.17	0.18			0.24			0.36	
Uniform Delay, d1		21.5		11.3	11.3			18.5			19.5	
Progression Factor		1.00		1.21	1.18			1.00			1.00	
Incremental Delay, d2		76.3		4.3	0.2			1.2			2.1	
Delay (s)		97.8		18.0	13.6			19.7			21.6	
Level of Service		F		B	B			B			C	
Approach Delay (s)		97.8			13.8			19.7			21.6	
Approach LOS		F			B			B			C	

Intersection Summary			
HCM Average Control Delay	78.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	2931	7	0	420	0	0	0	1	0	0	95
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	3186	8	0	506	0	0	0	1	0	0	102
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked												
vC, conflicting volume	506			3195			3548	3698	1068	1569	3702	254
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	506			3195			3548	3698	1068	1569	3702	254
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	86
cM capacity (veh/h)	1055			94			2	5	217	74	5	745

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	1274	1274	645	253	253	1	102
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	8	0	0	1	102
cSH	1700	1700	1700	1700	1700	217	745
Volume to Capacity	0.75	0.75	0.38	0.15	0.15	0.01	0.14
Queue Length 95th (ft)	0	0	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	21.7	10.6
Lane LOS						C	B
Approach Delay (s)	0.0			0.0		21.7	10.6
Approach LOS						C	B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3332		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3332		3657			3657
Volume (vph)	169	253	2073	0	0	215
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	186	278	2205	0	0	295
RTOR Reduction (vph)	6	0	0	0	0	0
Lane Group Flow (vph)	458	0	2205	0	0	295
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	963		2275			2275
v/s Ratio Prot	c0.14		c0.60			0.08
v/s Ratio Perm						
v/c Ratio	0.48		0.97			0.13
Uniform Delay, d1	26.4		16.2			7.0
Progression Factor	0.99		0.79			1.00
Incremental Delay, d2	1.7		12.7			0.1
Delay (s)	27.9		25.4			7.1
Level of Service	C		C			A
Approach Delay (s)	27.9		25.4			7.1
Approach LOS	C		C			A

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	27	0	672	0	13	381	2	36	0	248	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Hourly flow rate (vph)	0	0	747	0	14	414	2	54	0	370	2	0
Pedestrians			5			1			1			
Lane Width (ft)			15.0			14.5			12.0			
Walking Speed (ft/s)			4.0			4.0			4.0			
Percent Blockage			1			0			0			
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	416			748			1204	1192	749	1561	1191
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	416			748			1204	1192	749	1561	1191
tC, single (s)	0.0	4.1			4.3			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			98			65	100	10	81	100
cM capacity (veh/h)	0	1143			773			155	183	411	9	184

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	747	14	416	424	10
Volume Left	0	14	0	54	2
Volume Right	0	0	2	370	9
cSH	1143	773	1700	340	50
Volume to Capacity	0.00	0.02	0.24	1.25	0.21
Queue Length 95th (ft)	0	1	0	473	17
Control Delay (s)	0.0	9.7	0.0	166.3	94.6
Lane LOS		A		F	F
Approach Delay (s)	0.0	0.3		166.3	94.6
Approach LOS				F	F

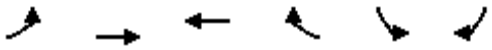
Intersection Summary			
Average Delay	44.4		
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	5
Peak Hour Factor	0.58
Hourly flow rate (vph)	9
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	420
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	420
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	630
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	930	4	2	382	11	10
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	1000	4	2	406	13	12
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1006		1415	1004
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1006		1415	1004
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		90	96
cM capacity (veh/h)			687		139	283

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1004	2	406	26
Volume Left	0	2	0	13
Volume Right	4	0	0	12
cSH	1700	687	1700	183
Volume to Capacity	0.59	0.00	0.24	0.14
Queue Length 95th (ft)	0	0	0	12
Control Delay (s)	0.0	10.3	0.0	27.8
Lane LOS		B		D
Approach Delay (s)	0.0	0.1		27.8
Approach LOS				D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	40	967	436	48	131	4
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	50	1209	661	73	208	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	733				2006	697
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	733				2006	697
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	93				0	98
cM capacity (veh/h)	746				54	369

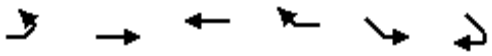
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	50	1209	733	214
Volume Left	50	0	0	208
Volume Right	0	0	73	6
cSH	746	1700	1700	55
Volume to Capacity	0.07	0.71	0.43	3.89
Queue Length 95th (ft)	5	0	0	Err
Control Delay (s)	10.2	0.0	0.0	Err
Lane LOS	B			F
Approach Delay (s)	0.4		0.0	9999.0
Approach LOS				F

Intersection Summary			
Average Delay	971.3		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	66	818	2	7	244	45	0	4	2	13	2	106
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	73	909	2	8	274	51	0	9	4	15	2	123
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	341			918			1518	1420	920	1398	1396	330
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	341			918			1518	1420	920	1398	1396	330
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	94			99			100	93	99	83	98	82
cM capacity (veh/h)	1197			739			72	124	326	87	128	686

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	73	911	333	13	141
Volume Left	73	0	8	0	15
Volume Right	0	2	51	4	123
cSH	1197	1700	739	156	379
Volume to Capacity	0.06	0.54	0.01	0.08	0.37
Queue Length 95th (ft)	5	0	1	7	42
Control Delay (s)	8.2	0.0	0.4	30.2	20.0
Lane LOS	A		A	D	C
Approach Delay (s)	0.6		0.4	30.2	20.0
Approach LOS				D	C

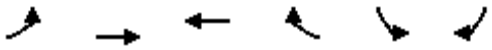
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	103	703	275	43	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	110	748	286	45	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	336				1281	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	336				1281	314
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				100	100
cM capacity (veh/h)	1223				166	726

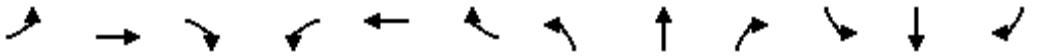
Direction, Lane #	EB 1	WB 1
Volume Total	857	331
Volume Left	110	0
Volume Right	0	45
cSH	1223	1700
Volume to Capacity	0.09	0.19
Queue Length 95th (ft)	7	0
Control Delay (s)	2.2	0.0
Lane LOS	A	
Approach Delay (s)	2.2	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.95		0.92	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1849	1635		1521	
Flt Permitted		0.89	1.00		0.98	
Satd. Flow (perm)		1662	1635		1521	
Volume (vph)	103	599	222	117	56	95
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	112	651	234	123	59	100
RTOR Reduction (vph)	0	0	32	0	70	0
Lane Group Flow (vph)	0	763	325	0	89	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		942	927		456	
v/s Ratio Prot			0.20		c0.06	
v/s Ratio Perm		c0.46				
v/c Ratio		0.81	0.35		0.20	
Uniform Delay, d1		10.4	7.0		15.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		7.5	1.0		1.0	
Delay (s)		17.9	8.1		16.6	
Level of Service		B	A		B	
Approach Delay (s)		17.9	8.1		16.6	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3220		1711	3352			3355			3412	1501
Flt Permitted	0.62	1.00		0.30	1.00			0.70			0.85	1.00
Satd. Flow (perm)	1142	3220		544	3352			2393			2910	1501
Volume (vph)	185	198	300	19	159	25	233	588	31	21	349	133
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	206	220	333	21	179	28	262	661	35	25	415	158
RTOR Reduction (vph)	0	237	0	0	14	0	0	3	0	0	0	60
Lane Group Flow (vph)	206	316	0	21	193	0	0	955	0	0	440	98
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	330	930		157	968			1489			1811	934
v/s Ratio Prot		0.10			0.06							
v/s Ratio Perm	c0.18			0.04				c0.40			0.15	0.07
v/c Ratio	0.62	0.34		0.13	0.20			0.64			0.24	0.11
Uniform Delay, d1	27.8	25.2		23.7	24.2			10.7			7.6	6.9
Progression Factor	1.00	1.00		1.00	1.00			0.68			1.00	1.00
Incremental Delay, d2	8.6	1.0		1.8	0.5			0.7			0.3	0.2
Delay (s)	36.4	26.2		25.4	24.6			8.0			7.9	7.1
Level of Service	D	C		C	C			A			A	A
Approach Delay (s)		29.0			24.7			8.0			7.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2000			3047	3045		1946		
Flt Permitted		0.99			0.67	1.00		0.97		
Satd. Flow (perm)		2000			2059	3045		1946		
Volume (vph)	50	103	45	111	834	689	55	115	55	11
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	56	114	50	114	860	741	59	139	66	13
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	220	0	0	974	794	0	216	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		444			961	1421		346		
v/s Ratio Prot		c0.11				0.26		c0.11		
v/s Ratio Perm					c0.47					
v/c Ratio		0.50			1.01	0.56		0.62		
Uniform Delay, d1		30.6			24.0	17.3		34.2		
Progression Factor		1.00			0.84	0.82		1.00		
Incremental Delay, d2		3.9			31.3	1.5		8.2		
Delay (s)		34.5			51.6	15.6		42.4		
Level of Service		C			D	B		D		
Approach Delay (s)		34.5			51.6	15.6		42.4		
Approach LOS		C			D	B		D		

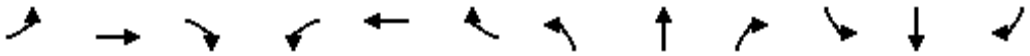
Intersection Summary			
HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1963		1652		1478		3303		1652	2905	
Flt Permitted	0.95	1.00		0.41		1.00		1.00		0.25	1.00	
Satd. Flow (perm)	2006	1963		705		1478		3303		429	2905	
Volume (vph)	111	134	103	67	0	68	0	934	0	102	825	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	126	152	117	74	0	75	0	983	0	109	878	0
RTOR Reduction (vph)	0	31	0	0	0	55	0	0	0	0	0	0
Lane Group Flow (vph)	126	238	0	74	0	20	0	983	0	109	878	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		188		394		2129		276	1872	
v/s Ratio Prot		c0.12						0.30			c0.30	
v/s Ratio Perm	0.06			0.10		0.01				0.25		
v/c Ratio	0.24	0.46		0.39		0.05		0.46		0.39	0.47	
Uniform Delay, d1	25.8	27.5		27.0		24.5		8.1		7.6	8.2	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.88	1.83	
Incremental Delay, d2	1.0	2.8		6.1		0.2		0.7		3.6	0.7	
Delay (s)	26.9	30.4		33.1		24.8		8.8		18.0	15.7	
Level of Service	C	C		C		C		A		B	B	
Approach Delay (s)		29.3			28.9			8.8			15.9	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1977		1652	3245		1652	4663	
Flt Permitted	0.61	1.00	1.00	0.40	1.00		0.22	1.00		0.18	1.00	
Satd. Flow (perm)	1086	1863	1531	840	1977		387	3245		305	4663	
Volume (vph)	110	114	173	112	114	84	166	934	123	50	863	115
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	125	190	137	139	102	180	1015	134	54	938	125
RTOR Reduction (vph)	0	0	166	0	22	0	0	7	0	0	11	0
Lane Group Flow (vph)	121	125	24	137	219	0	180	1142	0	54	1052	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	136	233	191	250	428		230	1925		181	2767	
v/s Ratio Prot		0.07		0.03	c0.11			0.35			0.23	
v/s Ratio Perm	c0.11		0.02	0.09			c0.46			0.18		
v/c Ratio	0.89	0.54	0.12	0.55	0.51		0.78	0.59		0.30	0.38	
Uniform Delay, d1	51.7	49.2	46.7	39.8	41.4		18.5	15.3		12.1	12.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.1	8.6	1.3	8.4	4.3		22.8	1.4		4.2	0.4	
Delay (s)	103.8	57.8	48.0	48.2	45.7		41.4	16.7		16.2	13.2	
Level of Service	F	E	D	D	D		D	B		B	B	
Approach Delay (s)		66.3			46.6			20.0			13.4	
Approach LOS		E			D			C			B	

Intersection Summary					
HCM Average Control Delay	27.0	HCM Level of Service	C		
HCM Volume to Capacity ratio	0.79				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8		
Intersection Capacity Utilization	63.6%	ICU Level of Service	B		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.95							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1765	3534		1765	3304							
Flt Permitted	0.27	1.00		0.38	1.00							
Satd. Flow (perm)	500	3534		698	3304							
Volume (vph)	65	666	5	74	602	261	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	69	709	5	85	692	300	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	81	0	0	0	0	0	0	0
Lane Group Flow (vph)	69	713	0	85	911	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	623	2533		765	2368							
v/s Ratio Prot	0.02	0.20		c0.02	c0.28							
v/s Ratio Perm	0.08			0.08								
v/c Ratio	0.11	0.28		0.11	0.38							
Uniform Delay, d1	0.6	3.0		0.6	3.3							
Progression Factor	0.04	0.05		1.00	1.02							
Incremental Delay, d2	0.3	0.2		0.3	0.5							
Delay (s)	0.3	0.4		0.9	3.9							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			3.6			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1642	
Flt Permitted		1.00		0.25	1.00						0.98	
Satd. Flow (perm)		3395		464	3421						1642	
Volume (vph)	0	740	40	29	476	0	0	0	0	49	30	26
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	787	43	30	491	0	0	0	0	52	32	28
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	830	0	30	491	0	0	0	0	0	96	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		201	1482						712	
v/s Ratio Prot		c0.24			0.14							
v/s Ratio Perm				0.06							0.06	
v/c Ratio		0.56		0.15	0.33						0.14	
Uniform Delay, d1		12.8		10.3	11.2						10.2	
Progression Factor		1.00		0.86	0.85						1.00	
Incremental Delay, d2		1.6		1.5	0.6						0.4	
Delay (s)		14.3		10.3	10.2						10.6	
Level of Service		B		B	B						B	
Approach Delay (s)		14.3			10.2			0.0			10.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

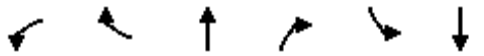
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			0.98			0.98	
Frt		1.00		1.00	0.99			0.94			0.98	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3539		1770	3488			1583			1648	
Flt Permitted		0.95		0.09	1.00			0.77			0.73	
Satd. Flow (perm)		3379		159	3488			1252			1243	
Volume (vph)	2	1898	1	13	394	27	52	0	38	104	10	22
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	2	2133	1	14	410	28	71	0	52	135	13	29
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	2136	0	14	438	0	0	121	0	0	177	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		83	1822			487			483	
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.63		0.09				0.10			c0.14	
v/c Ratio		1.21		0.17	0.24			0.25			0.37	
Uniform Delay, d1		21.5		11.3	11.7			18.6			19.6	
Progression Factor		1.00		1.23	1.19			1.00			1.00	
Incremental Delay, d2		100.1		4.3	0.3			1.2			2.1	
Delay (s)		121.6		18.2	14.2			19.8			21.7	
Level of Service		F		B	B			B			C	
Approach Delay (s)		121.6			14.4			19.8			21.7	
Approach LOS		F			B			B			C	

Intersection Summary			
HCM Average Control Delay	94.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	3043	7	0	531	0	0	0	1	0	0	97
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	3308	8	0	640	0	0	0	1	0	0	104
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	640			3317			3739	3953	1108	1744	3957	321
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	626			3317			3756	3972	1108	1741	3976	304
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	85
cM capacity (veh/h)	942			84			1	3	204	55	3	684

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	1323	1323	669	320	320	1	104
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	8	0	0	1	104
cSH	1700	1700	1700	1700	1700	204	684
Volume to Capacity	0.78	0.78	0.39	0.19	0.19	0.01	0.15
Queue Length 95th (ft)	0	0	0	0	0	0	13
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	22.8	11.2
Lane LOS						C	B
Approach Delay (s)	0.0			0.0		22.8	11.2
Approach LOS						C	B

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	69.0%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3332		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3332		3657			3657
Volume (vph)	173	258	2151	0	0	288
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	190	284	2288	0	0	395
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	469	0	2288	0	0	395
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	963		2275			2275
v/s Ratio Prot	c0.14		c0.63			0.11
v/s Ratio Perm						
v/c Ratio	0.49		1.01			0.17
Uniform Delay, d1	26.5		17.0			7.2
Progression Factor	0.98		0.41			1.00
Incremental Delay, d2	1.8		15.7			0.2
Delay (s)	27.7		22.6			7.4
Level of Service	C		C			A
Approach Delay (s)	27.7		22.6			7.4
Approach LOS	C		C			A

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	28	0	703	0	13	423	2	37	0	253	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Hourly flow rate (vph)	0	0	781	0	14	460	2	55	0	378	2	0
Pedestrians			5			1			1			
Lane Width (ft)			15.0			14.5			12.0			
Walking Speed (ft/s)			4.0			4.0			4.0			
Percent Blockage			1			0			0			
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	462			782			1284	1272	783	1649	1271
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	462			782			1284	1272	783	1649	1271
tC, single (s)	0.0	4.1			4.3			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			98			59	100	4	43	100
cM capacity (veh/h)	0	1099			749			136	164	393	3	164

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	781	14	462	433	10
Volume Left	0	14	0	55	2
Volume Right	0	0	2	378	9
cSH	1099	749	1700	317	18
Volume to Capacity	0.00	0.02	0.27	1.37	0.58
Queue Length 95th (ft)	0	1	0	548	39
Control Delay (s)	0.0	9.9	0.0	216.3	362.5
Lane LOS		A		F	F
Approach Delay (s)	0.0	0.3		216.3	362.5
Approach LOS				F	F

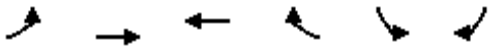
Intersection Summary			
Average Delay	57.3		
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	5
Peak Hour Factor	0.58
Hourly flow rate (vph)	9
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	466
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	466
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	594
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	967	4	2	424	11	10
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	1040	4	2	451	13	12
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1046		1499	1044
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1046		1499	1044
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		89	95
cM capacity (veh/h)			664		123	268

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1044	2	451	26
Volume Left	0	2	0	13
Volume Right	4	0	0	12
cSH	1700	664	1700	166
Volume to Capacity	0.61	0.00	0.27	0.15
Queue Length 95th (ft)	0	0	0	13
Control Delay (s)	0.0	10.4	0.0	30.6
Lane LOS		B		D
Approach Delay (s)	0.0	0.0		30.6
Approach LOS				D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	41	1004	479	49	134	4
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	51	1255	726	74	213	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	800				2120	763
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	800				2120	763
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	93				0	98
cM capacity (veh/h)	702				45	336

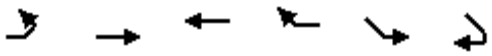
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	51	1255	800	219
Volume Left	51	0	0	213
Volume Right	0	0	74	6
cSH	702	1700	1700	46
Volume to Capacity	0.07	0.74	0.47	4.76
Queue Length 95th (ft)	6	0	0	Err
Control Delay (s)	10.5	0.0	0.0	Err
Lane LOS	B			F
Approach Delay (s)	0.4		0.0	Err
Approach LOS				F

Intersection Summary			
Average Delay	942.2		
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	67	852	2	7	283	46	0	4	2	13	2	108
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	74	947	2	8	318	52	0	9	4	15	2	126
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	386			956			1605	1505	958	1483	1480	375
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	386			956			1605	1505	958	1483	1480	375
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	94			99			100	92	99	80	98	81
cM capacity (veh/h)	1152			715			61	109	310	75	113	648

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	74	949	378	13	143
Volume Left	74	0	8	0	15
Volume Right	0	2	52	4	126
cSH	1152	1700	715	140	344
Volume to Capacity	0.06	0.56	0.01	0.09	0.42
Queue Length 95th (ft)	5	0	1	8	49
Control Delay (s)	8.3	0.0	0.3	33.4	22.7
Lane LOS	A		A	D	C
Approach Delay (s)	0.6		0.3	33.4	22.7
Approach LOS				D	C

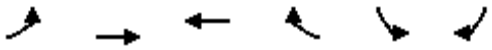
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	105	735	298	44	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	112	782	310	46	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	361				1344	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	361				1344	338
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				100	100
cM capacity (veh/h)	1197				152	704

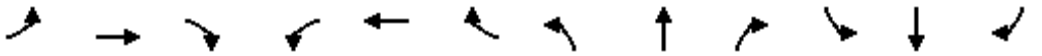
Direction, Lane #	EB 1	WB 1
Volume Total	894	356
Volume Left	112	0
Volume Right	0	46
cSH	1197	1700
Volume to Capacity	0.09	0.21
Queue Length 95th (ft)	8	0
Control Delay (s)	2.3	0.0
Lane LOS	A	
Approach Delay (s)	2.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.92	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1849	1643		1521	
Flt Permitted		0.89	1.00		0.98	
Satd. Flow (perm)		1651	1643		1521	
Volume (vph)	105	629	261	119	57	97
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	684	275	125	60	102
RTOR Reduction (vph)	0	0	27	0	71	0
Lane Group Flow (vph)	0	798	373	0	91	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		936	931		456	
v/s Ratio Prot			0.23		c0.06	
v/s Ratio Perm		c0.48				
v/c Ratio		0.85	0.40		0.20	
Uniform Delay, d1		10.9	7.3		15.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		9.7	1.3		1.0	
Delay (s)		20.6	8.6		16.6	
Level of Service		C	A		B	
Approach Delay (s)		20.6	8.6		16.6	
Approach LOS		C	A		B	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3219		1711	3351			3358			3413	1501
Flt Permitted	0.61	1.00		0.29	1.00			0.68			0.86	1.00
Satd. Flow (perm)	1134	3219		529	3351			2297			2934	1501
Volume (vph)	189	202	306	19	162	26	238	634	32	21	424	136
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	210	224	340	21	182	29	267	712	36	25	505	162
RTOR Reduction (vph)	0	242	0	0	14	0	0	3	0	0	0	61
Lane Group Flow (vph)	210	322	0	21	197	0	0	1012	0	0	530	101
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	328	930		153	968			1429			1826	934
v/s Ratio Prot		0.10			0.06							
v/s Ratio Perm	c0.19			0.04				c0.44			0.18	0.07
v/c Ratio	0.64	0.35		0.14	0.20			0.71			0.29	0.11
Uniform Delay, d1	27.9	25.3		23.7	24.2			11.5			7.8	6.9
Progression Factor	1.00	1.00		1.00	1.00			0.76			1.00	1.00
Incremental Delay, d2	9.2	1.0		1.9	0.5			0.3			0.4	0.2
Delay (s)	37.2	26.3		25.6	24.6			9.0			8.2	7.1
Level of Service	D	C		C	C			A			A	A
Approach Delay (s)		29.3			24.7			9.0			8.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2001			3046	3047		1946		
Flt Permitted		0.99			0.64	1.00		0.97		
Satd. Flow (perm)		2001			1967	3047		1946		
Volume (vph)	51	105	46	113	886	771	56	117	56	11
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	57	117	51	116	913	829	60	141	67	13
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	225	0	0	1029	883	0	219	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		445			918	1422		346		
v/s Ratio Prot		c0.11				0.29		c0.11		
v/s Ratio Perm					c0.52					
v/c Ratio		0.51			1.12	0.62		0.63		
Uniform Delay, d1		30.7			24.0	18.0		34.3		
Progression Factor		1.00			0.83	0.80		1.00		
Incremental Delay, d2		4.1			67.7	2.0		8.5		
Delay (s)		34.7			87.8	16.5		42.8		
Level of Service		C			F	B		D		
Approach Delay (s)		34.7			87.8	16.5		42.8		
Approach LOS		C			F	B		D		

Intersection Summary			
HCM Average Control Delay	51.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.94		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1963		1652		1478		3303		1652	2905	
Flt Permitted	0.95	1.00		0.40		1.00		1.00		0.23	1.00	
Satd. Flow (perm)	2006	1963		688		1478		3303		396	2905	
Volume (vph)	113	137	105	68	0	69	0	988	0	104	910	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	128	156	119	75	0	76	0	1040	0	111	968	0
RTOR Reduction (vph)	0	31	0	0	0	56	0	0	0	0	0	0
Lane Group Flow (vph)	128	244	0	75	0	20	0	1040	0	111	968	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		183		394		2129		255	1872	
v/s Ratio Prot		c0.12						0.31			c0.33	
v/s Ratio Perm	0.06			0.11		0.01				0.28		
v/c Ratio	0.24	0.47		0.41		0.05		0.49		0.44	0.52	
Uniform Delay, d1	25.8	27.6		27.2		24.5		8.3		7.9	8.5	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.92	1.91	
Incremental Delay, d2	1.1	3.0		6.7		0.2		0.8		4.3	0.8	
Delay (s)	26.9	30.6		33.8		24.8		9.1		19.6	17.1	
Level of Service	C	C		C		C		A		B	B	
Approach Delay (s)		29.4			29.3			9.1			17.4	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1976		1652	3247		1652	4668	
Flt Permitted	0.61	1.00	1.00	0.39	1.00		0.20	1.00		0.16	1.00	
Satd. Flow (perm)	1081	1863	1531	828	1976		341	3247		275	4668	
Volume (vph)	112	116	177	114	116	86	169	988	126	51	949	117
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	127	195	139	141	105	184	1074	137	55	1032	127
RTOR Reduction (vph)	0	0	171	0	23	0	0	6	0	0	9	0
Lane Group Flow (vph)	123	127	24	139	223	0	184	1205	0	55	1150	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	135	233	191	248	428		202	1927		163	2770	
v/s Ratio Prot		0.07		0.03	c0.11			0.37			0.25	
v/s Ratio Perm	c0.11		0.02	0.09			c0.54			0.20		
v/c Ratio	0.91	0.55	0.13	0.56	0.52		0.91	0.63		0.34	0.42	
Uniform Delay, d1	51.8	49.3	46.7	39.9	41.5		21.6	15.8		12.4	13.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	56.6	8.9	1.4	8.9	4.5		43.6	1.5		5.5	0.5	
Delay (s)	108.4	58.2	48.1	48.7	46.0		65.2	17.3		17.9	13.6	
Level of Service	F	E	D	D	D		E	B		B	B	
Approach Delay (s)		67.6			47.0			23.6			13.8	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM Average Control Delay	28.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.95							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1765	3535		1765	3304							
Flt Permitted	0.26	1.00		0.37	1.00							
Satd. Flow (perm)	487	3535		687	3304							
Volume (vph)	66	680	5	76	615	266	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	70	723	5	87	707	306	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	81	0	0	0	0	0	0	0
Lane Group Flow (vph)	70	727	0	87	932	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	614	2533		757	2368							
v/s Ratio Prot	0.02	0.21		c0.02	c0.28							
v/s Ratio Perm	0.08			0.08								
v/c Ratio	0.11	0.29		0.11	0.39							
Uniform Delay, d1	0.7	3.0		0.6	3.4							
Progression Factor	0.04	0.05		1.00	1.02							
Incremental Delay, d2	0.3	0.2		0.3	0.5							
Delay (s)	0.3	0.4		0.9	3.9							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			3.7			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1642	
Flt Permitted		1.00		0.24	1.00						0.98	
Satd. Flow (perm)		3395		449	3421						1642	
Volume (vph)	0	756	41	30	486	0	0	0	0	50	31	27
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	804	44	31	501	0	0	0	0	53	33	29
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	848	0	31	501	0	0	0	0	0	99	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		195	1482						712	
v/s Ratio Prot		c0.25			0.15							
v/s Ratio Perm				0.07							0.06	
v/c Ratio		0.58		0.16	0.34						0.14	
Uniform Delay, d1		12.8		10.3	11.3						10.2	
Progression Factor		1.00		0.86	0.85						1.00	
Incremental Delay, d2		1.7		1.6	0.6						0.4	
Delay (s)		14.5		10.5	10.2						10.7	
Level of Service		B		B	B						B	
Approach Delay (s)		14.5			10.2			0.0			10.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			0.98			0.98	
Frt		1.00		1.00	0.99			0.94			0.98	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3539		1770	3488			1584			1648	
Flt Permitted		0.95		0.09	1.00			0.76			0.72	
Satd. Flow (perm)		3379		159	3488			1247			1235	
Volume (vph)	2	1974	1	14	406	28	54	0	39	108	11	23
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	2	2218	1	15	423	29	74	0	53	140	14	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	2221	0	15	452	0	0	125	0	0	184	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		83	1822			485			480	
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.66		0.09				0.10			c0.15	
v/c Ratio		1.26		0.18	0.25			0.26			0.38	
Uniform Delay, d1		21.5		11.3	11.8			18.7			19.7	
Progression Factor		1.00		1.22	1.19			1.00			1.00	
Incremental Delay, d2		121.0		4.7	0.3			1.3			2.3	
Delay (s)		142.5		18.5	14.4			20.0			22.1	
Level of Service		F		B	B			B			C	
Approach Delay (s)		142.5			14.5			20.0			22.1	
Approach LOS		F			B			B			C	

Intersection Summary			
HCM Average Control Delay	110.0	HCM Level of Service	F
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	3166	7	0	548	0	0	0	1	0	0	101
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	3441	8	0	660	0	0	0	1	0	0	109
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	660			3451			3887	4107	1153	1809	4111	331
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	651			3451			3900	4123	1153	1807	4126	319
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	84
cM capacity (veh/h)	925			74			1	2	190	49	2	671

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	1377	1377	696	330	330	1	109
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	8	0	0	1	109
cSH	1700	1700	1700	1700	1700	190	671
Volume to Capacity	0.81	0.81	0.41	0.19	0.19	0.01	0.16
Queue Length 95th (ft)	0	0	0	0	0	1	14
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	24.0	11.4
Lane LOS						C	B
Approach Delay (s)	0.0			0.0		24.0	11.4
Approach LOS						C	B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3332		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3332		3657			3657
Volume (vph)	180	269	2238	1	0	297
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	198	296	2381	1	0	407
RTOR Reduction (vph)	4	0	0	0	0	0
Lane Group Flow (vph)	490	0	2382	0	0	407
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	963		2275			2275
v/s Ratio Prot	c0.15		c0.65			0.11
v/s Ratio Perm						
v/c Ratio	0.51		1.05			0.18
Uniform Delay, d1	26.7		17.0			7.2
Progression Factor	0.99		0.81			1.00
Incremental Delay, d2	1.9		32.4			0.2
Delay (s)	28.4		46.1			7.4
Level of Service	C		D			A
Approach Delay (s)	28.4		46.1			7.4
Approach LOS	C		D			A

Intersection Summary			
HCM Average Control Delay	38.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	29	0	731	0	14	439	2	38	0	264	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Hourly flow rate (vph)	0	0	812	0	15	477	2	57	0	394	2	0
Pedestrians			5			1			1			
Lane Width (ft)			15.0			14.5			12.0			
Walking Speed (ft/s)			4.0			4.0			4.0			
Percent Blockage			1			0			0			
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	479			813			1331	1323	814	1716	1322
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	479			813			1331	1323	814	1716	1322
tC, single (s)	0.0	4.1			4.3			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			98			55	100	0	0	100
cM capacity (veh/h)	0	1083			728			127	153	377	0	153

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	812	15	479	451	7
Volume Left	0	15	0	57	2
Volume Right	0	0	2	394	5
cSH	1083	728	1700	302	0
Volume to Capacity	0.00	0.02	0.28	1.49	Err
Queue Length 95th (ft)	0	2	0	632	Err
Control Delay (s)	0.0	10.0	0.0	270.0	Err
Lane LOS		B		F	F
Approach Delay (s)	0.0	0.3		270.0	Err
Approach LOS				F	F

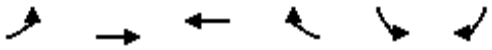
Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	3
Peak Hour Factor	0.58
Hourly flow rate (vph)	5
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	483
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	483
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	580
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1006	4	2	440	12	11
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	1082	4	2	468	15	13
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1088		1558	1086
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1088		1558	1086
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		87	95
cM capacity (veh/h)			640		113	253

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1086	2	468	28
Volume Left	0	2	0	15
Volume Right	4	0	0	13
cSH	1700	640	1700	154
Volume to Capacity	0.64	0.00	0.28	0.18
Queue Length 95th (ft)	0	0	0	16
Control Delay (s)	0.0	10.6	0.0	33.6
Lane LOS		B		D
Approach Delay (s)	0.0	0.0		33.6
Approach LOS				D

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	43	1045	497	51	139	4
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	54	1306	753	77	221	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	830				2205	792
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	830				2205	792
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	92				0	98
cM capacity (veh/h)	683				39	323

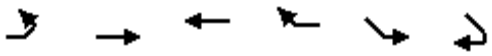
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	54	1306	830	227
Volume Left	54	0	0	221
Volume Right	0	0	77	6
cSH	683	1700	1700	40
Volume to Capacity	0.08	0.77	0.49	5.64
Queue Length 95th (ft)	6	0	0	Err
Control Delay (s)	10.7	0.0	0.0	Err
Lane LOS	B			F
Approach Delay (s)	0.4		0.0	Err
Approach LOS				F

Intersection Summary			
Average Delay	939.1		
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	70	887	2	7	293	48	0	4	2	14	2	113
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	78	986	2	8	329	54	0	9	4	16	2	131
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	399			995			1669	1564	997	1541	1538	387
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	399			995			1669	1564	997	1541	1538	387
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	93			99			100	91	99	76	98	79
cM capacity (veh/h)	1139			691			54	100	294	68	104	637

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	78	988	391	13	150
Volume Left	78	0	8	0	16
Volume Right	0	2	54	4	131
cSH	1139	1700	691	129	319
Volume to Capacity	0.07	0.58	0.01	0.10	0.47
Queue Length 95th (ft)	5	0	1	8	60
Control Delay (s)	8.4	0.0	0.4	36.2	25.9
Lane LOS	A		A	E	D
Approach Delay (s)	0.6		0.4	36.2	25.9
Approach LOS				E	D

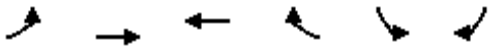
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	109	764	309	46	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	116	813	322	48	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	375				1396	351
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	375				1396	351
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				100	100
cM capacity (veh/h)	1184				140	693

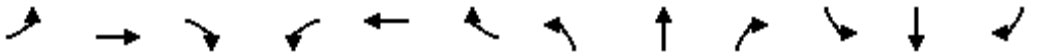
Direction, Lane #	EB 1	WB 1
Volume Total	929	370
Volume Left	116	0
Volume Right	0	48
cSH	1184	1700
Volume to Capacity	0.10	0.22
Queue Length 95th (ft)	8	0
Control Delay (s)	2.4	0.0
Lane LOS	A	
Approach Delay (s)	2.4	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.92	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1849	1642		1521	
Flt Permitted		0.88	1.00		0.98	
Satd. Flow (perm)		1644	1642		1521	
Volume (vph)	109	654	270	124	60	101
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	711	284	131	63	106
RTOR Reduction (vph)	0	0	28	0	74	0
Lane Group Flow (vph)	0	829	387	0	95	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		932	930		456	
v/s Ratio Prot			0.24		c0.06	
v/s Ratio Perm		c0.50				
v/c Ratio		0.89	0.42		0.21	
Uniform Delay, d1		11.4	7.4		15.7	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		12.4	1.4		1.0	
Delay (s)		23.8	8.7		16.7	
Level of Service		C	A		B	
Approach Delay (s)		23.8	8.7		16.7	
Approach LOS		C	A		B	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3219		1711	3351			3358			3413	1501
Flt Permitted	0.60	1.00		0.28	1.00			0.67			0.85	1.00
Satd. Flow (perm)	1116	3219		499	3351			2273			2913	1501
Volume (vph)	197	210	319	20	169	27	248	659	33	22	439	141
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	219	233	354	22	190	30	279	740	37	26	523	168
RTOR Reduction (vph)	0	252	0	0	14	0	0	3	0	0	0	63
Lane Group Flow (vph)	219	335	0	22	206	0	0	1053	0	0	549	105
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	322	930		144	968			1414			1813	934
v/s Ratio Prot		0.10			0.06							
v/s Ratio Perm	c0.20			0.04				c0.46			0.19	0.07
v/c Ratio	0.68	0.36		0.15	0.21			0.74			0.30	0.11
Uniform Delay, d1	28.3	25.4		23.8	24.2			12.0			7.9	6.9
Progression Factor	1.00	1.00		1.00	1.00			0.80			1.00	1.00
Incremental Delay, d2	11.0	1.1		2.2	0.5			0.3			0.4	0.2
Delay (s)	39.4	26.5		26.0	24.7			9.9			8.3	7.1
Level of Service	D	C		C	C			A			A	A
Approach Delay (s)		30.0			24.9			9.9			8.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2000			3046	3047		1946		
Flt Permitted		0.99			0.62	1.00		0.97		
Satd. Flow (perm)		2000			1911	3047		1946		
Volume (vph)	53	109	48	118	921	800	58	122	58	12
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	59	121	53	122	949	860	62	147	70	14
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	233	0	0	1071	916	0	229	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		444			892	1422		346		
v/s Ratio Prot		c0.12				0.30		c0.12		
v/s Ratio Perm					c0.56					
v/c Ratio		0.52			1.20	0.64		0.66		
Uniform Delay, d1		30.8			24.0	18.3		34.5		
Progression Factor		1.00			0.83	0.80		1.00		
Incremental Delay, d2		4.4			100.1	2.1		9.5		
Delay (s)		35.2			120.0	16.8		44.0		
Level of Service		D			F	B		D		
Approach Delay (s)		35.2			120.0	16.8		44.0		
Approach LOS		D			F	B		D		

Intersection Summary			
HCM Average Control Delay	66.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1962		1652		1478		3271		1652	2905	
Flt Permitted	0.95	1.00		0.38		1.00		1.00		0.22	1.00	
Satd. Flow (perm)	2006	1962		660		1478		3271		374	2905	
Volume (vph)	118	142	109	71	0	72	0	1027	0	108	945	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	134	161	124	78	0	79	0	1081	0	115	1005	0
RTOR Reduction (vph)	0	31	0	0	0	58	0	0	0	0	0	0
Lane Group Flow (vph)	134	254	0	78	0	21	0	1081	0	115	1005	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	3%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		176		394		2108		241	1872	
v/s Ratio Prot		c0.13						0.33			c0.35	
v/s Ratio Perm	0.07			0.12		0.01				0.31		
v/c Ratio	0.25	0.49		0.44		0.05		0.51		0.48	0.54	
Uniform Delay, d1	25.9	27.8		27.4		24.6		8.5		8.2	8.7	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.92	1.92	
Incremental Delay, d2	1.1	3.2		7.9		0.3		0.9		5.3	0.9	
Delay (s)	27.1	31.0		35.3		24.8		9.4		21.0	17.6	
Level of Service	C	C		D		C		A		C	B	
Approach Delay (s)		29.7			30.0			9.4			17.9	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1977		1652	3247		1652	4668	
Flt Permitted	0.57	1.00	1.00	0.38	1.00		0.18	1.00		0.15	1.00	
Satd. Flow (perm)	1023	1863	1531	793	1977		321	3247		253	4668	
Volume (vph)	117	121	184	119	121	89	176	1027	131	53	985	122
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	133	202	145	148	109	191	1116	142	58	1071	133
RTOR Reduction (vph)	0	0	177	0	22	0	0	6	0	0	10	0
Lane Group Flow (vph)	129	133	25	145	235	0	191	1252	0	58	1194	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	128	233	191	243	428		190	1927		150	2770	
v/s Ratio Prot		0.07		0.03	c0.12			0.39			0.26	
v/s Ratio Perm	c0.13		0.02	0.09			c0.59			0.23		
v/c Ratio	1.01	0.57	0.13	0.60	0.55		1.01	0.65		0.39	0.43	
Uniform Delay, d1	52.5	49.5	46.7	40.3	41.8		24.4	16.1		12.9	13.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	81.6	9.8	1.4	10.4	5.0		66.7	1.7		7.4	0.5	
Delay (s)	134.1	59.2	48.1	50.7	46.8		91.1	17.9		20.2	13.8	
Level of Service	F	E	D	D	D		F	B		C	B	
Approach Delay (s)		75.2			48.2			27.5			14.1	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM Average Control Delay	31.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.95							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1765	3535		1765	3304							
Flt Permitted	0.25	1.00		0.36	1.00							
Satd. Flow (perm)	463	3535		663	3304							
Volume (vph)	69	708	5	79	640	277	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	73	753	5	91	736	318	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	80	0	0	0	0	0	0	0
Lane Group Flow (vph)	73	757	0	91	974	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	597	2533		740	2368							
v/s Ratio Prot	0.02	0.21		c0.02	c0.29							
v/s Ratio Perm	0.09			0.09								
v/c Ratio	0.12	0.30		0.12	0.41							
Uniform Delay, d1	0.7	3.1		0.6	3.4							
Progression Factor	0.08	0.06		1.00	1.01							
Incremental Delay, d2	0.3	0.3		0.3	0.5							
Delay (s)	0.4	0.4		0.9	4.0							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			3.7			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary					
HCM Average Control Delay	2.4	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.36				
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	37.8%	ICU Level of Service		A	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1641	
Flt Permitted		1.00		0.22	1.00						0.98	
Satd. Flow (perm)		3395		419	3421						1641	
Volume (vph)	0	787	43	31	506	0	0	0	0	52	32	28
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	837	46	32	522	0	0	0	0	55	34	30
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	876	0	32	522	0	0	0	0	0	102	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		182	1482						711	
v/s Ratio Prot		c0.26			0.15							
v/s Ratio Perm				0.08							0.06	
v/c Ratio		0.60		0.18	0.35						0.14	
Uniform Delay, d1		13.0		10.4	11.4						10.3	
Progression Factor		1.00		0.85	0.85						1.00	
Incremental Delay, d2		1.8		1.9	0.6						0.4	
Delay (s)		14.8		10.8	10.2						10.7	
Level of Service		B		B	B						B	
Approach Delay (s)		14.8			10.3			0.0			10.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

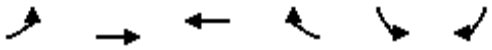
Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	1.00		1.00	1.00			1.00			0.98	
Frt	1.00		1.00	0.99			0.94			0.98	
Flt Protected	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	3539		1770	3489			1655			1646	
Flt Permitted	1.00		0.09	1.00			0.79			0.74	
Satd. Flow (perm)	3539		159	3489			1337			1265	
Volume (vph)	2050	1	14	418	29	56	0	41	113	11	24
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2228	1	15	454	32	61	0	45	123	12	26
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	8	0
Lane Group Flow (vph)	2229	0	15	486	0	0	104	0	0	153	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	3%	2%	2%	2%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1848		83	1822			520			492	
v/s Ratio Prot	c0.63			0.14							
v/s Ratio Perm			0.09				0.08			c0.12	
v/c Ratio	1.21		0.18	0.27			0.20			0.31	
Uniform Delay, d1	21.5		11.3	11.9			18.2			19.1	
Progression Factor	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	98.2		4.7	0.4			0.9			1.6	
Delay (s)	119.7		16.1	12.3			19.1			20.8	
Level of Service	F		B	B			B			C	
Approach Delay (s)	119.7			12.4			19.1			20.8	
Approach LOS	F			B			B			C	

Intersection Summary			
HCM Average Control Delay	92.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1789	23	0	566	0	0	0	1	0	0	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1945	25	0	615	0	0	0	1	0	0	114
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					459							
pX, platoon unblocked												
vC, conflicting volume	615			1970			2380	2572	662	1265	2585	309
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	615			1970			2380	2572	662	1265	2585	309
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	83
cM capacity (veh/h)	960			291			15	25	404	125	25	687

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	778	778	414	308	308	1	114
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	25	0	0	1	114
cSH	1700	1700	1700	1700	1700	404	687
Volume to Capacity	0.46	0.46	0.24	0.18	0.18	0.00	0.17
Queue Length 95th (ft)	0	0	0	0	0	0	15
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.9	11.3
Lane LOS						B	B
Approach Delay (s)	0.0			0.0		13.9	11.3
Approach LOS						B	B

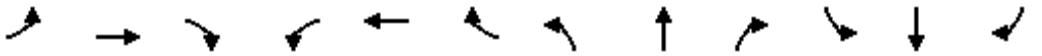
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3513	3622	3657	1636	1829	2880
Flt Permitted	0.58	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2161	3622	3657	1636	1829	2880
Volume (vph)	296	1284	250	591	99	367
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	1396	272	642	108	399
RTOR Reduction (vph)	0	0	0	268	0	286
Lane Group Flow (vph)	322	1396	272	375	108	113
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	Perm			Perm		custom
Protected Phases		4	8		6	6
Permitted Phases	4			8		6
Actuated Green, G (s)	34.0	34.0	34.0	34.0	16.0	16.0
Effective Green, g (s)	35.0	35.0	35.0	35.0	17.0	17.0
Actuated g/C Ratio	0.58	0.58	0.58	0.58	0.28	0.28
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	1261	2113	2133	954	518	816
v/s Ratio Prot		c0.39	0.07		c0.06	0.04
v/s Ratio Perm	0.15			0.23		
v/c Ratio	0.26	0.66	0.13	0.39	0.21	0.14
Uniform Delay, d1	6.1	8.5	5.6	6.8	16.4	16.0
Progression Factor	1.00	1.00	0.77	0.61	1.00	1.00
Incremental Delay, d2	0.5	1.6	0.1	1.0	0.9	0.4
Delay (s)	6.6	10.1	4.4	5.2	17.3	16.4
Level of Service	A	B	A	A	B	B
Approach Delay (s)		9.5	5.0		16.6	
Approach LOS		A	A		B	

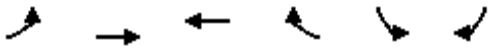
Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	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
Lane Width	12	15	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.91	0.88	1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.86			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	3819		1625	5085	2787	1444	1585			1775	1583
Flt Permitted	0.58	1.00		0.52	1.00	1.00	0.40	1.00			0.72	1.00
Satd. Flow (perm)	2098	3819		884	5085	2787	614	1585			1338	1583
Volume (vph)	1032	351	16	7	246	670	12	1	11	294	2	595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1122	382	17	8	267	728	13	1	12	320	2	647
RTOR Reduction (vph)	0	5	0	0	0	315	0	8	0	0	0	418
Lane Group Flow (vph)	1122	394	0	8	267	413	13	5	0	0	322	229
Confl. Peds. (#/hr)			6	6					1			
Heavy Vehicles (%)	2%	3%	7%	3%	2%	2%	25%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	33.0	33.0		33.0	33.0	33.0	17.0	17.0			17.0	17.0
Effective Green, g (s)	34.0	34.0		34.0	34.0	34.0	18.0	18.0			18.0	18.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57	0.30	0.30			0.30	0.30
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lane Grp Cap (vph)	1189	2164		501	2882	1579	184	476			401	475
v/s Ratio Prot		0.10			0.05			0.00				
v/s Ratio Perm	c0.53			0.01		0.15	0.02				c0.24	0.14
v/c Ratio	0.94	0.18		0.02	0.09	0.26	0.07	0.01			0.80	0.48
Uniform Delay, d1	12.1	6.3		5.7	5.9	6.6	15.0	14.7			19.4	17.2
Progression Factor	0.90	0.93		1.00	0.97	1.64	1.00	1.00			1.00	1.00
Incremental Delay, d2	13.1	0.1		0.0	0.0	0.3	0.7	0.0			15.6	3.5
Delay (s)	24.0	6.0		5.7	5.8	11.1	15.8	14.8			34.9	20.7
Level of Service	C	A		A	A	B	B	B			C	C
Approach Delay (s)		19.3			9.6			15.3			25.4	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



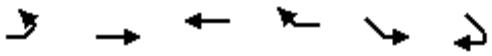
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	13	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1267	3195	1650	1170	1480	1077
Flt Permitted	0.48	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	643	3195	1650	1170	1480	1077
Volume (vph)	39	605	325	123	147	591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	658	353	134	160	642
RTOR Reduction (vph)	0	0	0	69	0	263
Lane Group Flow (vph)	42	658	353	65	160	379
Heavy Vehicles (%)	33%	13%	19%	38%	22%	50%
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	27.0	27.0	27.0	27.0	21.0	21.0
Effective Green, g (s)	29.0	29.0	29.0	29.0	23.0	23.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.38	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	311	1544	798	566	567	413
v/s Ratio Prot		0.21	c0.21		0.11	
v/s Ratio Perm	0.07			0.06		c0.35
v/c Ratio	0.14	0.43	0.44	0.11	0.28	0.92
Uniform Delay, d1	8.6	10.1	10.2	8.5	12.8	17.6
Progression Factor	0.92	0.82	0.78	0.93	1.00	1.00
Incremental Delay, d2	0.8	0.8	1.4	0.3	1.2	27.9
Delay (s)	8.7	9.0	9.4	8.2	14.0	45.5
Level of Service	A	A	A	A	B	D
Approach Delay (s)		9.0	9.1		39.2	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	9	13	12	12	12	12	12	12	12	16	16	16
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			0.99			1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.98			1.00			0.88	
Flt Protected	0.95	1.00			1.00			0.97			0.99	
Satd. Flow (prot)	1590	1924			1802			1792			1720	
Flt Permitted	0.34	1.00			0.74			0.88			0.98	
Satd. Flow (perm)	565	1924			1341			1630			1689	
Volume (vph)	73	921	2	8	304	50	2	1	0	14	2	117
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	1001	2	9	330	54	2	1	0	15	2	127
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	0	0	89	0
Lane Group Flow (vph)	79	1003	0	0	383	0	0	3	0	0	55	0
Confl. Peds. (#/hr)	9			11		9	6			2		6
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	30%	2%	4%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0			19.0			16.0			16.0	
Effective Green, g (s)	34.0	34.0			21.0			18.0			18.0	
Actuated g/C Ratio	0.57	0.57			0.35			0.30			0.30	
Clearance Time (s)	3.0	6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)	474	1090			469			489			507	
v/s Ratio Prot	0.03	c0.52										
v/s Ratio Perm	0.07				0.29			0.00			c0.03	
v/c Ratio	0.17	0.92			0.82			0.01			0.11	
Uniform Delay, d1	7.5	11.8			17.8			14.7			15.2	
Progression Factor	0.63	0.86			1.37			1.00			1.00	
Incremental Delay, d2	0.7	13.4			13.8			0.0			0.4	
Delay (s)	5.4	23.6			38.2			14.7			15.6	
Level of Service	A	C			D			B			B	
Approach Delay (s)		22.2			38.2			14.7			15.6	
Approach LOS		C			D			B			B	

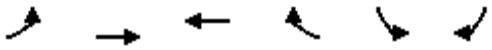
Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	114	794	321	48	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	124	863	349	52	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		862	786			
pX, platoon unblocked					0.49	
vC, conflicting volume	410				1495	384
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410				2011	384
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	100
cM capacity (veh/h)	1149				28	664

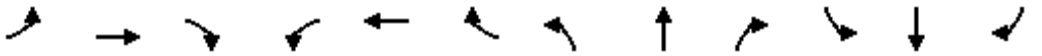
Direction, Lane #	EB 1	WB 1
Volume Total	987	401
Volume Left	124	0
Volume Right	0	52
cSH	1149	1700
Volume to Capacity	0.11	0.24
Queue Length 95th (ft)	9	0
Control Delay (s)	2.7	0.0
Lane LOS	A	
Approach Delay (s)	2.7	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1849	1653		1540	
Flt Permitted		0.87	1.00		0.98	
Satd. Flow (perm)		1629	1653		1540	
Volume (vph)	114	679	279	129	62	105
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	738	303	140	67	114
RTOR Reduction (vph)	0	0	28	0	80	0
Lane Group Flow (vph)	0	862	415	0	101	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		923	937		462	
v/s Ratio Prot			0.25		c0.07	
v/s Ratio Perm		c0.53				
v/c Ratio		0.93	0.44		0.22	
Uniform Delay, d1		12.0	7.5		15.7	
Progression Factor		1.89	1.00		1.00	
Incremental Delay, d2		8.5	1.5		1.1	
Delay (s)		31.1	9.0		16.8	
Level of Service		C	A		B	
Approach Delay (s)		31.1	9.0		16.8	
Approach LOS		C	A		B	

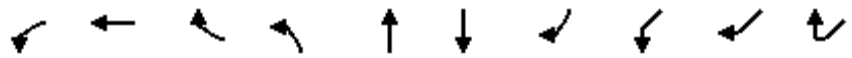
Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3219		1711	3352			3358			3413	1501
Flt Permitted	0.60	1.00		0.27	1.00			0.68			0.85	1.00
Satd. Flow (perm)	1114	3219		484	3352			2311			2912	1501
Volume (vph)	204	219	332	21	176	28	257	684	34	23	454	147
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	238	361	23	191	30	279	743	37	25	493	160
RTOR Reduction (vph)	0	257	0	0	14	0	0	3	0	0	0	60
Lane Group Flow (vph)	222	342	0	23	207	0	0	1056	0	0	518	100
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0		25.0	25.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	5.0	5.0		5.0	5.0			20.0			20.0	20.0
Lane Grp Cap (vph)	322	930		140	968			1438			1812	934
v/s Ratio Prot		0.11			0.06							
v/s Ratio Perm	c0.20			0.05				c0.46			0.18	0.07
v/c Ratio	0.69	0.37		0.16	0.21			0.73			0.29	0.11
Uniform Delay, d1	28.4	25.5		23.9	24.3			11.8			7.8	6.9
Progression Factor	1.00	1.00		1.00	1.00			0.85			1.00	1.00
Incremental Delay, d2	11.5	1.1		2.5	0.5			0.3			0.4	0.2
Delay (s)	39.9	26.6		26.4	24.8			10.4			8.2	7.1
Level of Service	D	C		C	C			B			A	A
Approach Delay (s)		30.2			24.9			10.4			7.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2001			3046	3047		1945		
Flt Permitted		0.99			0.60	1.00		0.97		
Satd. Flow (perm)		2001			1830	3047		1945		
Volume (vph)	55	114	50	123	956	829	61	127	61	12
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	124	54	134	1039	901	66	138	66	13
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	238	0	0	1173	961	0	215	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		445			854	1422		346		
v/s Ratio Prot		c0.12				0.32		c0.11		
v/s Ratio Perm					c0.64					
v/c Ratio		0.53			1.37	0.68		0.62		
Uniform Delay, d1		30.9			24.0	18.7		34.2		
Progression Factor		1.00			0.81	0.81		1.00		
Incremental Delay, d2		4.6			174.7	2.5		8.1		
Delay (s)		35.4			194.1	17.6		42.3		
Level of Service		D			F	B		D		
Approach Delay (s)		35.4			194.1	17.6		42.3		
Approach LOS		D			F	B		D		

Intersection Summary			
HCM Average Control Delay	101.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1962		1652		1478		3271		1652	2905	
Flt Permitted	0.95	1.00		0.38		1.00		1.00		0.19	1.00	
Satd. Flow (perm)	2006	1962		660		1478		3271		334	2905	
Volume (vph)	123	148	114	74	0	75	0	1066	0	113	980	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	161	124	80	0	82	0	1159	0	123	1065	0
RTOR Reduction (vph)	0	31	0	0	0	60	0	0	0	0	0	0
Lane Group Flow (vph)	134	254	0	80	0	22	0	1159	0	123	1065	0
Heavy Vehicles (%)	2%	3%	2%	2%	16%	2%	2%	3%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		176		394		2108		215	1872	
v/s Ratio Prot		c0.13						0.35			0.37	
v/s Ratio Perm	0.07			0.12		0.01				c0.37		
v/c Ratio	0.25	0.49		0.45		0.06		0.55		0.57	0.57	
Uniform Delay, d1	25.9	27.8		27.5		24.6		8.8		9.0	9.0	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.89	1.97	
Incremental Delay, d2	1.1	3.2		8.2		0.3		1.0		8.5	1.0	
Delay (s)	27.1	31.0		35.8		24.8		9.8		25.5	18.7	
Level of Service	C	C		D		C		A		C	B	
Approach Delay (s)		29.7			30.2			9.8			19.4	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	2037		1652	3243		1652	4720	
Flt Permitted	0.66	1.00	1.00	0.51	1.00		0.25	1.00		0.18	1.00	
Satd. Flow (perm)	1171	1863	1531	1082	2037		428	3243		309	4720	
Volume (vph)	51	77	223	188	111	34	210	921	128	34	873	34
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	84	242	204	121	37	228	1001	139	37	949	37
RTOR Reduction (vph)	0	0	212	0	9	0	0	7	0	0	2	0
Lane Group Flow (vph)	55	84	30	204	149	0	228	1133	0	37	984	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	146	233	191	288	441		254	1924		183	2801	
v/s Ratio Prot		0.05		c0.04	0.07			0.35			0.21	
v/s Ratio Perm	0.05		0.02	c0.11			c0.53			0.12		
v/c Ratio	0.38	0.36	0.16	0.71	0.34		0.90	0.59		0.20	0.35	
Uniform Delay, d1	48.2	48.1	46.9	42.9	39.7		21.2	15.3		11.3	12.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.3	4.3	1.8	13.7	2.1		35.2	1.3		2.5	0.3	
Delay (s)	55.5	52.4	48.6	56.7	41.8		56.4	16.6		13.8	12.9	
Level of Service	E	D	D	E	D		E	B		B	B	
Approach Delay (s)		50.4			50.2			23.2			12.9	
Approach LOS		D			D			C			B	

Intersection Summary					
HCM Average Control Delay	26.3	HCM Level of Service	C		
HCM Volume to Capacity ratio	0.84				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.8		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.96							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1766	3531		1768	3367							
Flt Permitted	0.27	1.00		0.30	1.00							
Satd. Flow (perm)	498	3531		550	3367							
Volume (vph)	51	832	10	72	697	218	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	904	11	78	758	237	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	50	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	914	0	78	945	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	622	2531		659	2413							
v/s Ratio Prot	0.01	0.26		c0.02	c0.28							
v/s Ratio Perm	0.06			0.08								
v/c Ratio	0.09	0.36		0.12	0.39							
Uniform Delay, d1	0.6	3.2		0.6	3.3							
Progression Factor	0.07	0.07		1.00	1.00							
Incremental Delay, d2	0.2	0.3		0.4	0.5							
Delay (s)	0.3	0.6		1.0	3.8							
Level of Service	A	A		A	A							
Approach Delay (s)		0.5			3.6			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary					
HCM Average Control Delay	2.2	HCM Level of Service	A		
HCM Volume to Capacity ratio	0.34				
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1641	
Flt Permitted		1.00		0.20	1.00						0.98	
Satd. Flow (perm)		3395		375	3421						1641	
Volume (vph)	0	818	44	32	526	0	0	0	0	54	33	29
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	889	48	35	572	0	0	0	0	59	36	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	937	0	35	572	0	0	0	0	0	109	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		163	1482						711	
v/s Ratio Prot		c0.28			0.17							
v/s Ratio Perm				0.09							0.07	
v/c Ratio		0.64		0.21	0.39						0.15	
Uniform Delay, d1		13.3		10.6	11.6						10.3	
Progression Factor		1.00		0.82	0.83						1.00	
Incremental Delay, d2		2.1		2.8	0.7						0.5	
Delay (s)		15.4		11.4	10.3						10.8	
Level of Service		B		B	B						B	
Approach Delay (s)		15.4			10.3			0.0			10.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

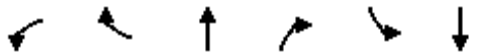
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			0.99			0.98	
Frt		1.00		1.00	0.99			0.94			0.99	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3539		1770	3491			1595			1660	
Flt Permitted		0.95		0.09	1.00			0.74			0.68	
Satd. Flow (perm)		3379		159	3491			1221			1181	
Volume (vph)	2	2032	1	13	417	27	52	0	38	227	10	22
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	2	2283	1	14	434	28	71	0	52	295	13	29
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	2286	0	14	462	0	0	122	0	0	337	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		83	1823			475			459	
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.68		0.09				0.10			c0.29	
v/c Ratio		1.30		0.17	0.25			0.26			0.73	
Uniform Delay, d1		21.5		11.3	11.8			18.7			23.5	
Progression Factor		1.00		1.22	1.18			1.00			1.00	
Incremental Delay, d2		137.2		4.3	0.3			1.3			10.0	
Delay (s)		158.7		18.1	14.3			20.0			33.5	
Level of Service		F		B	B			B			C	
Approach Delay (s)		158.7			14.4			20.0			33.5	
Approach LOS		F			B			B			C	

Intersection Summary			
HCM Average Control Delay	119.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	3300	7	0	554	0	0	0	1	0	0	97
Peak Hour Factor	0.91	0.91	0.91	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	3626	8	0	667	0	0	0	1	0	0	104
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	667			3636			4071	4300	1215	1878	4304	335
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	654			3636			4092	4322	1215	1876	4326	318
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	84
cM capacity (veh/h)	920			62			1	2	173	43	2	670

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	1451	1451	733	334	334	1	104
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	8	0	0	1	104
cSH	1700	1700	1700	1700	1700	173	670
Volume to Capacity	0.85	0.85	0.43	0.20	0.20	0.01	0.16
Queue Length 95th (ft)	0	0	0	0	0	1	14
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	26.0	11.4
Lane LOS						D	B
Approach Delay (s)	0.0			0.0		26.0	11.4
Approach LOS						D	B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3331		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3331		3657			3657
Volume (vph)	173	261	2151	0	0	288
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	190	287	2288	0	0	395
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	472	0	2288	0	0	395
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	962		2275			2275
v/s Ratio Prot	c0.14		c0.63			0.11
v/s Ratio Perm						
v/c Ratio	0.49		1.01			0.17
Uniform Delay, d1	26.5		17.0			7.2
Progression Factor	1.00		0.46			1.00
Incremental Delay, d2	1.8		14.1			0.2
Delay (s)	28.3		22.0			7.4
Level of Service	C		C			A
Approach Delay (s)	28.3		22.0			7.4
Approach LOS	C		C			A

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	12	13	16	12	16	16	16	12	12
Total Lost time (s)			4.0	4.0	4.0	4.0			4.0			4.0
Lane Util. Factor			1.00	1.00	1.00	1.00			1.00			1.00
Frpb, ped/bikes			1.00	1.00	1.00	1.00			0.99			1.00
Flpb, ped/bikes			1.00	1.00	1.00	1.00			1.00			1.00
Frt			1.00	0.85	1.00	1.00			0.91			0.90
Flt Protected			1.00	1.00	0.95	1.00			0.98			0.99
Satd. Flow (prot)			1978	1583	1516	2110			1849			1659
Flt Permitted			0.97	1.00	0.13	1.00			0.89			0.93
Satd. Flow (perm)			1932	1583	213	2110			1675			1567
Volume (vph)	28	0	703	257	42	423	2	192	0	421	1	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Adj. Flow (vph)	31	0	781	286	46	460	2	287	0	628	2	0
RTOR Reduction (vph)	0	0	0	106	0	1	0	0	88	0	0	3
Lane Group Flow (vph)	0	0	812	181	46	462	0	0	827	0	0	4
Confl. Peds. (#/hr)					1			5		1		
Heavy Vehicles (%)	93%	2%	2%	2%	23%	2%	2%	3%	2%	2%	2%	2%
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases			4			8			2			6
Permitted Phases	4			4	8			2			6	
Actuated Green, G (s)			30.0	30.0	30.0	30.0			22.0			22.0
Effective Green, g (s)			30.0	30.0	30.0	30.0			22.0			22.0
Actuated g/C Ratio			0.50	0.50	0.50	0.50			0.37			0.37
Clearance Time (s)			4.0	4.0	4.0	4.0			4.0			4.0
Lane Grp Cap (vph)			966	792	107	1055			614			575
v/s Ratio Prot						0.22						
v/s Ratio Perm			c0.42	0.11	0.22				c0.49			0.00
v/c Ratio			0.84	0.23	0.43	0.44			1.35			0.01
Uniform Delay, d1			12.9	8.5	9.6	9.6			19.0			12.1
Progression Factor			1.00	1.00	0.92	0.91			1.00			1.00
Incremental Delay, d2			8.8	0.7	12.1	1.3			166.7			0.0
Delay (s)			21.7	9.1	20.9	10.0			185.7			12.1
Level of Service			C	A	C	B			F			B
Approach Delay (s)			18.4			11.0			185.7			12.1
Approach LOS			B			B			F			B

Intersection Summary			
HCM Average Control Delay	77.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	109.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

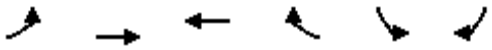
Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	3
Peak-hour factor, PHF	0.58
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1135	4	2	453	11	10
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	1220	4	2	482	13	12
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	320					
pX, platoon unblocked			0.64		0.64	0.64
vC, conflicting volume			1227		1711	1225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1353		2105	1349
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			99		59	89
cM capacity (veh/h)			327		32	114

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1225	2	482	26
Volume Left	0	2	0	13
Volume Right	4	0	0	12
cSH	1700	327	1700	49
Volume to Capacity	0.72	0.01	0.28	0.52
Queue Length 95th (ft)	0	0	0	49
Control Delay (s)	0.0	16.1	0.0	140.1
Lane LOS		C		F
Approach Delay (s)	0.0	0.1		140.1
Approach LOS				F

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	41	1172	508	49	134	4
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	51	1465	770	74	213	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1022				
pX, platoon unblocked					0.68	
vC, conflicting volume	844				2374	807
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	844				3032	807
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	92				0	98
cM capacity (veh/h)	674				8	316

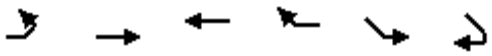
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	51	1465	844	219
Volume Left	51	0	0	213
Volume Right	0	0	74	6
cSH	674	1700	1700	8
Volume to Capacity	0.08	0.86	0.50	28.31
Queue Length 95th (ft)	6	0	0	Err
Control Delay (s)	10.8	0.0	0.0	Err
Lane LOS	B			F
Approach Delay (s)	0.4		0.0	Err
Approach LOS				F

Intersection Summary			
Average Delay	849.4		
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	212	875	2	7	300	46	0	4	2	13	2	119
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.85	0.85	0.85
Hourly flow rate (vph)	236	972	2	8	337	52	0	9	4	15	2	140
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	405			981			1986	1872	983	1850	1847	394
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405			981			1986	1872	983	1850	1847	394
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	79			99			100	84	99	55	96	78
cM capacity (veh/h)	1133			699			28	55	299	34	57	632

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	236	974	397	13	158
Volume Left	236	0	8	0	15
Volume Right	0	2	52	4	140
cSH	1133	1700	699	76	220
Volume to Capacity	0.21	0.57	0.01	0.17	0.72
Queue Length 95th (ft)	20	0	1	15	118
Control Delay (s)	9.0	0.0	0.3	62.3	54.3
Lane LOS	A		A	F	F
Approach Delay (s)	1.8		0.3	62.3	54.3
Approach LOS				F	F

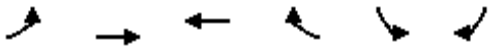
Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	105	758	315	44	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	112	806	328	46	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	379				1386	356
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379				1386	356
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				100	100
cM capacity (veh/h)	1180				143	688

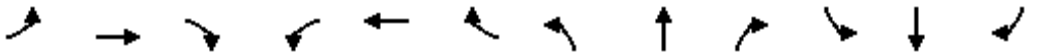
Direction, Lane #	EB 1	WB 1
Volume Total	918	374
Volume Left	112	0
Volume Right	0	46
cSH	1180	1700
Volume to Capacity	0.09	0.22
Queue Length 95th (ft)	8	0
Control Delay (s)	2.3	0.0
Lane LOS	A	
Approach Delay (s)	2.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1848	1643		1514	
Flt Permitted		0.88	1.00		0.98	
Satd. Flow (perm)		1633	1643		1514	
Volume (vph)	115	642	264	119	57	111
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	125	698	278	125	60	117
RTOR Reduction (vph)	0	0	27	0	82	0
Lane Group Flow (vph)	0	823	376	0	95	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		925	931		454	
v/s Ratio Prot			0.23		c0.06	
v/s Ratio Perm		c0.50				
v/c Ratio		0.89	0.40		0.21	
Uniform Delay, d1		11.4	7.3		15.7	
Progression Factor		0.99	1.00		1.00	
Incremental Delay, d2		9.2	1.3		1.0	
Delay (s)		20.5	8.6		16.7	
Level of Service		C	A		B	
Approach Delay (s)		20.5	8.6		16.7	
Approach LOS		C	A		B	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3225		1711	3354			3359			3411	1501
Flt Permitted	0.60	1.00		0.29	1.00			0.67			0.83	1.00
Satd. Flow (perm)	1112	3225		516	3354			2295			2833	1501
Volume (vph)	189	211	306	19	172	26	238	647	32	27	424	136
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	210	234	340	21	193	29	267	727	36	32	505	162
RTOR Reduction (vph)	0	242	0	0	14	0	0	3	0	0	0	61
Lane Group Flow (vph)	210	332	0	21	208	0	0	1027	0	0	537	101
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	321	932		149	969			1428			1763	934
v/s Ratio Prot		0.10			0.06							
v/s Ratio Perm	c0.19			0.04				c0.45			0.19	0.07
v/c Ratio	0.65	0.36		0.14	0.22			0.72			0.30	0.11
Uniform Delay, d1	28.1	25.4		23.7	24.3			11.6			7.9	6.9
Progression Factor	1.00	1.00		1.00	1.00			0.77			1.00	1.00
Incremental Delay, d2	10.0	1.1		2.0	0.5			0.3			0.4	0.2
Delay (s)	38.0	26.4		25.7	24.8			9.2			8.4	7.1
Level of Service	D	C		C	C			A			A	A
Approach Delay (s)		29.5			24.9			9.2			8.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2001			3046	3047		1946		
Flt Permitted		0.99			0.64	1.00		0.97		
Satd. Flow (perm)		2001			1949	3047		1946		
Volume (vph)	51	105	46	116	899	771	56	117	56	11
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	57	117	51	120	927	829	60	141	67	13
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	225	0	0	1047	883	0	219	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		445			910	1422		346		
v/s Ratio Prot		c0.11				0.29		c0.11		
v/s Ratio Perm					c0.54					
v/c Ratio		0.51			1.15	0.62		0.63		
Uniform Delay, d1		30.7			24.0	18.0		34.3		
Progression Factor		1.00			0.84	0.80		1.00		
Incremental Delay, d2		4.1			79.5	1.9		8.5		
Delay (s)		34.7			99.6	16.4		42.8		
Level of Service		C			F	B		D		
Approach Delay (s)		34.7			99.6	16.4		42.8		
Approach LOS		C			F	B		D		

Intersection Summary			
HCM Average Control Delay	57.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.94		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1977		1652		1478		3271		1652	3303	
Flt Permitted	0.95	1.00		0.39		1.00		1.00		0.23	1.00	
Satd. Flow (perm)	2006	1977		672		1478		3271		396	3303	
Volume (vph)	113	143	105	197	0	85	0	988	0	104	910	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	128	162	119	216	0	93	0	1040	0	111	968	0
RTOR Reduction (vph)	0	29	0	0	0	68	0	0	0	0	0	0
Lane Group Flow (vph)	128	252	0	216	0	25	0	1040	0	111	968	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	527		179		394		2108		255	2129	
v/s Ratio Prot		0.13						c0.32			0.29	
v/s Ratio Perm	0.06			c0.32		0.02				0.28		
v/c Ratio	0.24	0.48		1.21		0.06		0.49		0.44	0.45	
Uniform Delay, d1	25.8	27.7		33.0		24.6		8.3		7.9	8.0	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.93	1.93	
Incremental Delay, d2	1.1	3.1		133.8		0.3		0.8		4.3	0.6	
Delay (s)	26.9	30.8		166.8		24.9		9.2		19.6	16.1	
Level of Service	C	C		F		C		A		B	B	
Approach Delay (s)		29.6			124.1			9.2			16.4	
Approach LOS		C			F			A			B	

Intersection Summary			
HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1975		1652	3247		1652	4677	
Flt Permitted	0.61	1.00	1.00	0.39	1.00		0.16	1.00		0.16	1.00	
Satd. Flow (perm)	1082	1863	1531	828	1975		282	3247		275	4677	
Volume (vph)	118	116	177	114	115	86	172	988	126	51	1078	117
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	127	195	139	140	105	187	1074	137	55	1172	127
RTOR Reduction (vph)	0	0	171	0	23	0	0	6	0	0	8	0
Lane Group Flow (vph)	130	127	24	139	222	0	187	1205	0	55	1291	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	135	233	191	248	428		167	1927		163	2775	
v/s Ratio Prot		0.07		0.03	c0.11			0.37			0.28	
v/s Ratio Perm	c0.12		0.02	0.09			c0.66			0.20		
v/c Ratio	0.96	0.55	0.13	0.56	0.52		1.12	0.63		0.34	0.47	
Uniform Delay, d1	52.2	49.3	46.7	39.9	41.5		24.4	15.8		12.4	13.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	68.1	8.9	1.4	8.9	4.5		105.4	1.5		5.5	0.6	
Delay (s)	120.4	58.2	48.1	48.7	45.9		129.8	17.3		17.9	14.3	
Level of Service	F	E	D	D	D		F	B		B	B	
Approach Delay (s)		71.7			46.9			32.4			14.4	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.96							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1767	3535		1765	3331							
Flt Permitted	0.22	1.00		0.37	1.00							
Satd. Flow (perm)	413	3535		687	3331							
Volume (vph)	66	680	5	76	729	266	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	70	723	5	87	838	306	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	62	0	0	0	0	0	0	0
Lane Group Flow (vph)	70	727	0	87	1082	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	561	2533		757	2387							
v/s Ratio Prot	c0.02	0.21		0.02	c0.32							
v/s Ratio Perm	0.09			0.08								
v/c Ratio	0.12	0.29		0.11	0.45							
Uniform Delay, d1	0.8	3.0		0.6	3.6							
Progression Factor	0.60	0.05		1.01	1.02							
Incremental Delay, d2	0.4	0.2		0.3	0.6							
Delay (s)	0.8	0.4		0.9	4.3							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			4.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3390		1770	3421						1642	
Flt Permitted		1.00		0.24	1.00						0.98	
Satd. Flow (perm)		3390		441	3421						1642	
Volume (vph)	0	756	50	144	486	0	0	0	0	50	31	27
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	804	53	148	501	0	0	0	0	53	33	29
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	857	0	148	501	0	0	0	0	0	99	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1469		191	1482						712	
v/s Ratio Prot		0.25			0.15							
v/s Ratio Perm				c0.34							0.06	
v/c Ratio		0.58		0.77	0.34						0.14	
Uniform Delay, d1		12.9		14.5	11.3						10.2	
Progression Factor		1.00		0.81	0.84						1.00	
Incremental Delay, d2		1.7		23.6	0.6						0.4	
Delay (s)		14.6		35.4	10.0						10.7	
Level of Service		B		D	A						B	
Approach Delay (s)		14.6			15.8			0.0			10.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

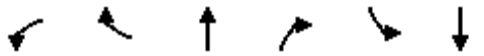
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	0.99			0.98			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			0.98	
Frt		1.00		1.00	0.98			0.94			0.99	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3539		1770	3436			1615			1665	
Flt Permitted		0.95		0.09	1.00			0.76			0.67	
Satd. Flow (perm)		3379		159	3436			1257			1163	
Volume (vph)	2	2270	1	14	420	63	54	0	39	379	11	23
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	2	2551	1	15	438	66	74	0	53	492	14	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	2554	0	15	504	0	0	126	0	0	536	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		83	1794			489			452	
v/s Ratio Prot					0.15							
v/s Ratio Perm		c0.76		0.09				0.10			c0.46	
v/c Ratio		1.45		0.18	0.28			0.26			1.19	
Uniform Delay, d1		21.5		11.3	12.0			18.7			27.5	
Progression Factor		1.00		1.22	1.19			1.00			1.00	
Incremental Delay, d2		204.4		4.7	0.4			1.3			104.1	
Delay (s)		225.9		18.6	14.7			20.0			131.6	
Level of Service		F		B	B			B			F	
Approach Delay (s)		225.9			14.9			20.0			131.6	
Approach LOS		F			B			B			F	

Intersection Summary			
HCM Average Control Delay	176.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	3733	7	0	597	0	0	0	1	0	0	101
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	4058	8	0	719	0	0	0	1	0	0	109
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	719			4067			4533	4783	1358	2073	4786	361
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	698			4067			4575	4829	1358	2074	4833	333
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	83
cM capacity (veh/h)	880			41			0	1	138	30	1	651

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	1623	1623	819	360	360	1	109
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	8	0	0	1	109
cSH	1700	1700	1700	1700	1700	138	651
Volume to Capacity	0.95	0.95	0.48	0.21	0.21	0.01	0.17
Queue Length 95th (ft)	0	0	0	0	0	1	15
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	31.3	11.6
Lane LOS						D	B
Approach Delay (s)	0.0			0.0		31.3	11.6
Approach LOS						D	B

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	82.3%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3332		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3332		3657			3657
Volume (vph)	180	269	2238	1	0	297
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	198	296	2381	1	0	407
RTOR Reduction (vph)	4	0	0	0	0	0
Lane Group Flow (vph)	490	0	2382	0	0	407
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	963		2275			2275
v/s Ratio Prot	c0.15		c0.65			0.11
v/s Ratio Perm						
v/c Ratio	0.51		1.05			0.18
Uniform Delay, d1	26.7		17.0			7.2
Progression Factor	1.00		0.49			1.00
Incremental Delay, d2	1.9		22.6			0.2
Delay (s)	28.6		31.0			7.4
Level of Service	C		C			A
Approach Delay (s)	28.6		31.0			7.4
Approach LOS	C		C			A

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	12	13	16	12	16	12	16	12	12
Total Lost time (s)			4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor			1.00	1.00	1.00	1.00		0.95	0.91	0.95		1.00
Frpb, ped/bikes			1.00	1.00	1.00	1.00		1.00	0.98	0.98		1.00
Flpb, ped/bikes			1.00	1.00	1.00	1.00		0.99	1.00	1.00		1.00
Frt			1.00	0.85	1.00	1.00		1.00	0.89	0.85		0.90
Flt Protected			1.00	1.00	0.95	1.00		0.95	0.99	1.00		0.99
Satd. Flow (prot)			1978	1583	1516	2110		1876	1459	1667		1659
Flt Permitted			0.97	1.00	0.13	1.00		0.75	0.91	1.00		0.92
Satd. Flow (perm)			1931	1583	213	2110		1487	1346	1667		1540
Volume (vph)	29	0	731	567	77	439	2	375	0	629	1	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Adj. Flow (vph)	32	0	812	630	84	477	2	560	0	939	2	0
RTOR Reduction (vph)	0	0	0	224	0	1	0	0	81	81	0	3
Lane Group Flow (vph)	0	0	844	406	84	479	0	414	466	457	0	4
Confl. Peds. (#/hr)					1			5		1		
Heavy Vehicles (%)	93%	2%	2%	2%	23%	2%	2%	3%	2%	2%	2%	2%
Turn Type	Perm			Perm	Perm			Perm		Perm	Perm	
Protected Phases			4			8			2			6
Permitted Phases	4			4	8			2		2	6	
Actuated Green, G (s)			30.0	30.0	30.0	30.0		22.0	22.0	22.0		22.0
Effective Green, g (s)			30.0	30.0	30.0	30.0		22.0	22.0	22.0		22.0
Actuated g/C Ratio			0.50	0.50	0.50	0.50		0.37	0.37	0.37		0.37
Clearance Time (s)			4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Grp Cap (vph)			966	792	107	1055		545	494	611		565
v/s Ratio Prot						0.23						
v/s Ratio Perm			c0.44	0.26	0.39			0.28	c0.35	0.27		0.00
v/c Ratio			0.87	0.51	0.79	0.45		0.76	0.94	0.75		0.01
Uniform Delay, d1			13.3	10.1	12.3	9.7		16.7	18.4	16.6		12.1
Progression Factor			1.00	1.00	0.92	0.92		1.00	1.00	1.00		1.00
Incremental Delay, d2			10.8	2.4	42.5	1.4		9.6	28.6	8.2		0.0
Delay (s)			24.1	12.4	53.8	10.3		26.3	47.0	24.7		12.1
Level of Service			C	B	D	B		C	D	C		B
Approach Delay (s)			19.1			16.8			33.3			12.1
Approach LOS			B			B			C			B

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

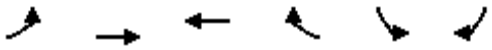
Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	3
Peak-hour factor, PHF	0.58
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1371	4	2	503	12	11
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	1474	4	2	535	15	13
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	320					
pX, platoon unblocked			0.62		0.62	0.62
vC, conflicting volume			1480		2018	1478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1771		2633	1768
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			99		0	78
cM capacity (veh/h)			219		14	62

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1478	2	535	28
Volume Left	0	2	0	15
Volume Right	4	0	0	13
cSH	1700	219	1700	22
Volume to Capacity	0.87	0.01	0.31	1.25
Queue Length 95th (ft)	0	1	0	90
Control Delay (s)	0.0	21.6	0.0	528.8
Lane LOS		C		F
Approach Delay (s)	0.0	0.1		528.8
Approach LOS				F

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	43	1410	560	51	139	4
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	54	1762	848	77	221	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1022				
pX, platoon unblocked					0.66	
vC, conflicting volume	926				2757	887
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	926				3667	887
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	91				0	98
cM capacity (veh/h)	625				3	282

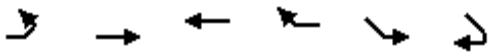
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	54	1762	926	227
Volume Left	54	0	0	221
Volume Right	0	0	77	6
cSH	625	1700	1700	3
Volume to Capacity	0.09	1.04	0.54	82.82
Queue Length 95th (ft)	7	0	0	Err
Control Delay (s)	11.3	0.0	0.0	Err
Lane LOS	B			F
Approach Delay (s)	0.3		0.0	Err
Approach LOS				F

Intersection Summary			
Average Delay	764.6		
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	386	936	2	7	331	48	0	4	2	14	2	138
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	429	1040	2	8	372	54	0	9	4	16	2	160
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	442			1049			2497	2363	1051	2340	2338	430
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442			1049			2497	2363	1051	2340	2338	430
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	61			99			100	58	98	0	89	73
cM capacity (veh/h)	1098			659			9	21	273	9	22	603

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	429	1042	434	13	179
Volume Left	429	0	8	0	16
Volume Right	0	2	54	4	160
cSH	1098	1700	659	30	85
Volume to Capacity	0.39	0.61	0.01	0.44	2.10
Queue Length 95th (ft)	47	0	1	35	398
Control Delay (s)	10.4	0.0	0.4	197.6	610.7
Lane LOS	B		A	F	F
Approach Delay (s)	3.0		0.4	197.6	610.7
Approach LOS				F	F

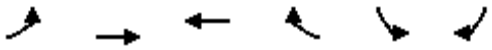
Intersection Summary			
Average Delay	55.6		
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	109	813	347	46	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	116	865	361	48	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	414				1487	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414				1487	390
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				100	100
cM capacity (veh/h)	1145				123	658

Direction, Lane #	EB 1	WB 1
Volume Total	981	409
Volume Left	116	0
Volume Right	0	48
cSH	1145	1700
Volume to Capacity	0.10	0.24
Queue Length 95th (ft)	8	0
Control Delay (s)	2.6	0.0
Lane LOS	A	
Approach Delay (s)	2.6	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1848	1643		1508	
Flt Permitted		0.85	1.00		0.98	
Satd. Flow (perm)		1590	1643		1508	
Volume (vph)	130	682	276	124	60	133
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	141	741	291	131	63	140
RTOR Reduction (vph)	0	0	27	0	98	0
Lane Group Flow (vph)	0	882	395	0	105	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		901	931		452	
v/s Ratio Prot			0.24		c0.07	
v/s Ratio Perm		c0.55				
v/c Ratio		0.98	0.42		0.23	
Uniform Delay, d1		12.7	7.4		15.8	
Progression Factor		0.97	1.00		1.00	
Incremental Delay, d2		22.3	1.4		1.2	
Delay (s)		34.5	8.8		17.0	
Level of Service		C	A		B	
Approach Delay (s)		34.5	8.8		17.0	
Approach LOS		C	A		B	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3230		1711	3358			3360			3409	1501
Flt Permitted	0.58	1.00		0.26	1.00			0.67			0.79	1.00
Satd. Flow (perm)	1070	3230		472	3358			2266			2688	1501
Volume (vph)	197	229	319	20	190	27	248	687	33	35	439	141
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	219	254	354	22	213	30	279	772	37	42	523	168
RTOR Reduction (vph)	0	252	0	0	12	0	0	3	0	0	0	63
Lane Group Flow (vph)	219	356	0	22	231	0	0	1085	0	0	565	105
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	309	933		136	970			1410			1673	934
v/s Ratio Prot		0.11			0.07							
v/s Ratio Perm	c0.20			0.05				c0.48			0.21	0.07
v/c Ratio	0.71	0.38		0.16	0.24			0.77			0.34	0.11
Uniform Delay, d1	28.6	25.6		23.9	24.4			12.3			8.1	6.9
Progression Factor	1.00	1.00		1.00	1.00			0.84			1.00	1.00
Incremental Delay, d2	12.9	1.2		2.5	0.6			0.4			0.5	0.2
Delay (s)	41.5	26.8		26.4	25.0			10.7			8.7	7.1
Level of Service	D	C		C	C			B			A	A
Approach Delay (s)		30.7			25.1			10.7			8.3	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2000			3047	3047		1946		
Flt Permitted		0.99			0.61	1.00		0.97		
Satd. Flow (perm)		2000			1884	3047		1946		
Volume (vph)	53	109	48	125	949	800	58	122	58	12
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	59	121	53	129	978	860	62	147	70	14
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	233	0	0	1107	916	0	229	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		444			879	1422		346		
v/s Ratio Prot		c0.12				0.30		c0.12		
v/s Ratio Perm					c0.59					
v/c Ratio		0.52			1.26	0.64		0.66		
Uniform Delay, d1		30.8			24.0	18.3		34.5		
Progression Factor		1.00			0.84	0.79		1.00		
Incremental Delay, d2		4.4			125.1	2.1		9.5		
Delay (s)		35.2			145.3	16.6		44.0		
Level of Service		D			F	B		D		
Approach Delay (s)		35.2			145.3	16.6		44.0		
Approach LOS		D			F	B		D		

Intersection Summary			
HCM Average Control Delay	78.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.94		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1969		1652		1478		3303		1652	2905	
Flt Permitted	0.95	1.00		0.36		1.00		1.00		0.22	1.00	
Satd. Flow (perm)	2006	1969		619		1478		3303		374	2905	
Volume (vph)	118	155	109	352	0	107	0	1027	0	108	945	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	134	176	124	387	0	118	0	1081	0	115	1005	0
RTOR Reduction (vph)	0	28	0	0	0	87	0	0	0	0	0	0
Lane Group Flow (vph)	134	272	0	387	0	31	0	1081	0	115	1005	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	525		165		394		2129		241	1872	
v/s Ratio Prot		0.14						0.33			c0.35	
v/s Ratio Perm	0.07			c0.63		0.02				0.31		
v/c Ratio	0.25	0.52		2.35		0.08		0.51		0.48	0.54	
Uniform Delay, d1	25.9	28.1		33.0		24.7		8.5		8.2	8.7	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.91	1.91	
Incremental Delay, d2	1.1	3.6		623.9		0.4		0.9		5.3	0.9	
Delay (s)	27.1	31.7		656.9		25.1		9.3		21.0	17.5	
Level of Service	C	C		F		C		A		C	B	
Approach Delay (s)		30.3			509.3			9.3			17.9	
Approach LOS		C			F			A			B	

Intersection Summary			
HCM Average Control Delay	95.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1977		1652	3247		1652	4684	
Flt Permitted	0.57	1.00	1.00	0.38	1.00		0.12	1.00		0.15	1.00	
Satd. Flow (perm)	1023	1863	1531	793	1977		210	3247		253	4684	
Volume (vph)	130	121	184	119	121	89	183	1027	131	53	1266	122
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	143	133	202	145	148	109	199	1116	142	58	1376	133
RTOR Reduction (vph)	0	0	177	0	22	0	0	6	0	0	7	0
Lane Group Flow (vph)	143	133	25	145	235	0	199	1252	0	58	1502	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	128	233	191	243	428		125	1927		150	2779	
v/s Ratio Prot		0.07		0.03	c0.12			0.39			0.32	
v/s Ratio Perm	c0.14		0.02	0.09			c0.95			0.23		
v/c Ratio	1.12	0.57	0.13	0.60	0.55		1.59	0.65		0.39	0.54	
Uniform Delay, d1	52.5	49.5	46.7	40.3	41.8		24.4	16.1		12.9	14.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	114.5	9.8	1.4	10.4	5.0		300.7	1.7		7.4	0.8	
Delay (s)	167.0	59.2	48.1	50.7	46.8		325.1	17.9		20.2	15.4	
Level of Service	F	E	D	D	D		F	B		C	B	
Approach Delay (s)		86.8			48.2			59.8			15.5	
Approach LOS		F			D			E			B	

Intersection Summary			
HCM Average Control Delay	44.2	HCM Level of Service	D
HCM Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.96							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1768	3535		1765	3354							
Flt Permitted	0.17	1.00		0.36	1.00							
Satd. Flow (perm)	317	3535		663	3354							
Volume (vph)	83	708	5	79	892	277	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	88	753	5	91	1025	318	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	49	0	0	0	0	0	0	0
Lane Group Flow (vph)	88	757	0	91	1294	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	492	2533		740	2404							
v/s Ratio Prot	c0.03	0.21		0.02	c0.39							
v/s Ratio Perm	0.13			0.09								
v/c Ratio	0.18	0.30		0.12	0.54							
Uniform Delay, d1	1.1	3.1		0.6	3.9							
Progression Factor	6.82	0.05		1.00	1.01							
Incremental Delay, d2	0.6	0.2		0.3	0.9							
Delay (s)	8.1	0.4		0.9	4.8							
Level of Service	A	A		A	A							
Approach Delay (s)		1.2			4.6			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	3.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3384		1770	3421						1641	
Flt Permitted		1.00		0.22	1.00						0.98	
Satd. Flow (perm)		3384		402	3421						1641	
Volume (vph)	0	787	62	283	506	0	0	0	0	52	32	28
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	837	66	292	522	0	0	0	0	55	34	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	903	0	292	522	0	0	0	0	0	102	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1466		174	1482						711	
v/s Ratio Prot		0.27			0.15							
v/s Ratio Perm				c0.73							0.06	
v/c Ratio		0.62		1.68	0.35						0.14	
Uniform Delay, d1		13.1		17.0	11.4						10.3	
Progression Factor		1.00		0.80	0.82						1.00	
Incremental Delay, d2		1.9		325.5	0.6						0.4	
Delay (s)		15.1		339.0	9.9						10.7	
Level of Service		B		F	A						B	
Approach Delay (s)		15.1			128.0			0.0			10.7	
Approach LOS		B			F			A			B	

Intersection Summary			
HCM Average Control Delay	64.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

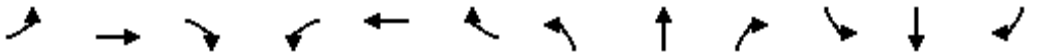
Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			1.00	
Flpb, ped/bikes	1.00		1.00	1.00			1.00			0.97	
Frt	1.00		1.00	0.99			0.94			0.98	
Flt Protected	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	3539		1770	3490			1656			1641	
Flt Permitted	1.00		0.09	1.00			0.78			0.73	
Satd. Flow (perm)	3539		159	3490			1323			1243	
Volume (vph)	2094	1	14	432	29	56	0	41	132	11	24
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2276	1	15	470	32	61	0	45	143	12	26
RTOR Reduction (vph)	0	0	0	0	0	0	1	0	0	7	0
Lane Group Flow (vph)	2277	0	15	502	0	0	105	0	0	174	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	3%	2%	2%	5%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	45.0		45.0	45.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	1848		83	1823			515			483	
v/s Ratio Prot	c0.64			0.14							
v/s Ratio Perm			0.09				0.08			c0.14	
v/c Ratio	1.23		0.18	0.28			0.20			0.36	
Uniform Delay, d1	21.5		11.3	12.0			18.2			19.5	
Progression Factor	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	109.4		4.7	0.4			0.9			2.1	
Delay (s)	130.9		16.1	12.4			19.1			21.6	
Level of Service	F		B	B			B			C	
Approach Delay (s)	130.9			12.5			19.1			21.6	
Approach LOS	F			B			B			C	

Intersection Summary			
HCM Average Control Delay	100.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1852	8	0	580	0	0	0	1	0	0	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2013	9	0	630	0	0	0	1	0	0	114
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					459							
pX, platoon unblocked												
vC, conflicting volume	630			2022			2448	2648	676	1304	2652	316
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	630			2022			2448	2648	676	1304	2652	316
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	83
cM capacity (veh/h)	948			277			13	23	395	118	23	679

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	805	805	411	315	315	1	114
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	9	0	0	1	114
cSH	1700	1700	1700	1700	1700	395	679
Volume to Capacity	0.47	0.47	0.24	0.19	0.19	0.00	0.17
Queue Length 95th (ft)	0	0	0	0	0	0	15
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.1	11.4
Lane LOS						B	B
Approach Delay (s)	0.0			0.0		14.1	11.4
Approach LOS						B	B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	46.3%	ICU Level of Service	A	
Analysis Period (min)	15			



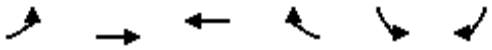
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	13	12	12	13	13	12	12	12	13	12	13
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00	1.00	1.00		1.00	0.88
Frt	1.00	0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			0.97	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)	3513	3598			3562	1636	1770	1863	1583		1838	2880
Flt Permitted	0.39	1.00			0.60	1.00	0.37	1.00	1.00		0.65	1.00
Satd. Flow (perm)	1459	3598			2195	1636	682	1863	1583		1216	2880
Volume (vph)	296	1284	63	290	250	591	14	379	309	99	277	367
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	1396	68	315	272	642	15	412	336	108	301	399
RTOR Reduction (vph)	0	6	0	0	0	139	0	0	13	0	0	246
Lane Group Flow (vph)	322	1458	0	0	587	503	15	412	323	0	409	153
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		custom
Protected Phases		4			8			2			6	6
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	29.0	29.0			29.0	29.0	23.0	23.0	23.0		23.0	23.0
Effective Green, g (s)	29.0	29.0			29.0	29.0	23.0	23.0	23.0		23.0	23.0
Actuated g/C Ratio	0.48	0.48			0.48	0.48	0.38	0.38	0.38		0.38	0.38
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	705	1739			1061	791	261	714	607		466	1104
v/s Ratio Prot		c0.41						0.22				0.05
v/s Ratio Perm	0.22				0.27	0.31	0.02		0.20		c0.34	
v/c Ratio	0.46	0.84			2.44dl	0.64	0.06	0.58	0.53		0.88	0.14
Uniform Delay, d1	10.3	13.5			10.9	11.6	11.7	14.6	14.3		17.2	12.0
Progression Factor	1.00	1.00			0.75	0.61	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.1	5.0			1.5	2.8	0.4	3.4	3.3		20.3	0.3
Delay (s)	12.4	18.5			9.6	9.8	12.1	18.0	17.7		37.5	12.3
Level of Service	B	B			A	A	B	B	B		D	B
Approach Delay (s)		17.4			9.7			17.7			25.0	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	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
Lane Width	12	15	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.91	0.88	1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.98			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.86			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	3827		1641	5085	2787	1530	1466			1775	1583
Flt Permitted	0.56	1.00		0.51	1.00	1.00	0.39	1.00			0.72	1.00
Satd. Flow (perm)	2038	3827		888	5085	2787	623	1466			1338	1583
Volume (vph)	1090	357	16	7	272	670	12	1	11	294	2	770
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1185	388	17	8	296	728	13	1	12	320	2	837
RTOR Reduction (vph)	0	5	0	0	0	303	0	9	0	0	0	409
Lane Group Flow (vph)	1185	400	0	8	296	425	13	4	0	0	322	429
Confl. Peds. (#/hr)			6	6					1			
Heavy Vehicles (%)	2%	2%	25%	2%	2%	2%	18%	2%	10%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	35.0	35.0		35.0	35.0	35.0	17.0	17.0			17.0	17.0
Effective Green, g (s)	35.0	35.0		35.0	35.0	35.0	17.0	17.0			17.0	17.0
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.28	0.28			0.28	0.28
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	1189	2232		518	2966	1626	177	415			379	449
v/s Ratio Prot		0.10			0.06			0.00				
v/s Ratio Perm	c0.58			0.01		0.15	0.02				0.24	c0.27
v/c Ratio	1.00	0.18		0.02	0.10	0.26	0.07	0.01			0.85	0.95
Uniform Delay, d1	12.4	5.8		5.3	5.5	6.1	15.7	15.5			20.3	21.1
Progression Factor	0.82	1.04		0.99	0.96	1.24	1.00	1.00			1.00	1.00
Incremental Delay, d2	19.3	0.1		0.0	0.0	0.2	0.8	0.0			20.6	32.5
Delay (s)	29.5	6.2		5.2	5.3	7.9	16.5	15.5			40.9	53.6
Level of Service	C	A		A	A	A	B	B			D	D
Approach Delay (s)		23.6			7.1			16.0			50.1	
Approach LOS		C			A			B			D	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



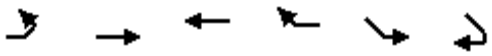
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	13	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1267	1681	1650	1170	1480	1077
Flt Permitted	0.44	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	591	1681	1650	1170	1480	1077
Volume (vph)	39	633	363	123	147	591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	688	395	134	160	642
RTOR Reduction (vph)	0	0	0	69	0	234
Lane Group Flow (vph)	42	688	395	65	160	408
Heavy Vehicles (%)	33%	13%	19%	38%	22%	50%
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	27.0	27.0	27.0	27.0	21.0	21.0
Effective Green, g (s)	29.0	29.0	29.0	29.0	23.0	23.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.38	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	286	812	798	566	567	413
v/s Ratio Prot		c0.41	0.24		0.11	
v/s Ratio Perm	0.07			0.06		c0.38
v/c Ratio	0.15	0.85	0.49	0.11	0.28	0.99
Uniform Delay, d1	8.6	13.6	10.5	8.5	12.8	18.4
Progression Factor	0.99	0.80	1.53	3.18	1.00	1.00
Incremental Delay, d2	1.0	9.7	2.0	0.4	1.2	41.2
Delay (s)	9.5	20.5	18.2	27.3	14.0	59.5
Level of Service	A	C	B	C	B	E
Approach Delay (s)		19.9	20.5		50.5	
Approach LOS		B	C		D	

Intersection Summary			
HCM Average Control Delay	31.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	9	13	12	12	12	12	12	12	12	16	16	16
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			0.97	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			0.98			0.96			0.88	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1580	1924			1806			1779			1720	
Flt Permitted	0.50	1.00			0.78			1.00			0.98	
Satd. Flow (perm)	827	1924			1403			1779			1690	
Volume (vph)	73	949	2	8	342	50	0	4	2	14	2	117
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	1032	2	9	372	54	0	4	2	15	2	127
RTOR Reduction (vph)	0	0	0	0	8	0	0	1	0	0	91	0
Lane Group Flow (vph)	79	1034	0	0	427	0	0	5	0	0	53	0
Confl. Peds. (#/hr)	9			11		9	6			2		6
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	30%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.0	34.0			34.0			16.0			16.0	
Effective Green, g (s)	35.0	35.0			35.0			17.0			17.0	
Actuated g/C Ratio	0.58	0.58			0.58			0.28			0.28	
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)	482	1122			818			504			479	
v/s Ratio Prot		c0.54						0.00				
v/s Ratio Perm	0.10				0.30						c0.03	
v/c Ratio	0.16	0.92			0.52			0.01			0.11	
Uniform Delay, d1	5.8	11.3			7.5			15.4			15.9	
Progression Factor	0.47	0.73			1.56			1.00			1.00	
Incremental Delay, d2	0.6	11.8			2.2			0.0			0.5	
Delay (s)	3.3	20.0			13.9			15.5			16.4	
Level of Service	A	B			B			B			B	
Approach Delay (s)		18.8			13.9			15.5			16.4	
Approach LOS		B			B			B			B	

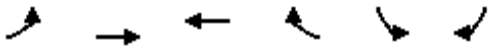
Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	114	822	359	48	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	124	893	390	52	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		862	786			
pX, platoon unblocked					0.47	
vC, conflicting volume	451				1567	425
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	451				2197	425
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	100
cM capacity (veh/h)	1109				21	629

Direction, Lane #	EB 1	WB 1
Volume Total	1017	442
Volume Left	124	0
Volume Right	0	52
cSH	1109	1700
Volume to Capacity	0.11	0.26
Queue Length 95th (ft)	9	0
Control Delay (s)	2.8	0.0
Lane LOS	A	
Approach Delay (s)	2.8	0.0
Approach LOS		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1850	1654		1529	
Flt Permitted		0.87	1.00		0.98	
Satd. Flow (perm)		1625	1654		1529	
Volume (vph)	114	707	285	129	62	137
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	768	310	140	67	149
RTOR Reduction (vph)	0	0	27	0	104	0
Lane Group Flow (vph)	0	892	423	0	112	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		921	937		459	
v/s Ratio Prot			0.26		c0.07	
v/s Ratio Perm		c0.55				
v/c Ratio		0.97	0.45		0.24	
Uniform Delay, d1		12.5	7.6		15.9	
Progression Factor		1.93	1.00		1.00	
Incremental Delay, d2		12.6	1.6		1.3	
Delay (s)		36.7	9.1		17.1	
Level of Service		D	A		B	
Approach Delay (s)		36.7	9.1		17.1	
Approach LOS		D	A		B	

Intersection Summary			
HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3230		1711	3352			3358			3409	1501
Flt Permitted	0.60	1.00		0.25	1.00			0.67			0.79	1.00
Satd. Flow (perm)	1114	3230		457	3352			2283			2695	1501
Volume (vph)	204	238	332	21	176	28	278	712	34	36	454	147
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	259	361	23	191	30	302	774	37	39	493	160
RTOR Reduction (vph)	0	257	0	0	14	0	0	3	0	0	0	60
Lane Group Flow (vph)	222	363	0	23	207	0	0	1110	0	0	532	100
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	322	933		132	968			1421			1677	934
v/s Ratio Prot		0.11			0.06							
v/s Ratio Perm	c0.20			0.05				c0.49			0.20	0.07
v/c Ratio	0.69	0.39		0.17	0.21			0.78			0.32	0.11
Uniform Delay, d1	28.4	25.6		24.0	24.3			12.5			8.0	6.9
Progression Factor	1.00	1.00		1.00	1.00			0.90			1.00	1.00
Incremental Delay, d2	11.5	1.2		2.9	0.5			0.4			0.5	0.2
Delay (s)	39.9	26.9		26.8	24.8			11.7			8.5	7.1
Level of Service	D	C		C	C			B			A	A
Approach Delay (s)		30.3			25.0			11.7			8.2	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2001			3046	3047		1945		
Flt Permitted		0.99			0.59	1.00		0.97		
Satd. Flow (perm)		2001			1817	3047		1945		
Volume (vph)	55	114	50	130	1005	829	61	127	61	12
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	124	54	141	1092	901	66	138	66	13
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	238	0	0	1233	961	0	215	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		18.0			40.0	40.0		14.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		6.0			6.0	6.0		6.0		
Lane Grp Cap (vph)		445			848	1422		346		
v/s Ratio Prot		c0.12				0.32		c0.11		
v/s Ratio Perm					c0.68					
v/c Ratio		0.53			1.45	0.68		0.62		
Uniform Delay, d1		30.9			24.0	18.7		34.2		
Progression Factor		1.00			0.80	0.80		1.00		
Incremental Delay, d2		4.6			210.0	2.5		8.1		
Delay (s)		35.4			229.1	17.5		42.3		
Level of Service		D			F	B		D		
Approach Delay (s)		35.4			229.1	17.5		42.3		
Approach LOS		D			F	B		D		

Intersection Summary			
HCM Average Control Delay	119.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1962		1652		1478		3240		1652	2905	
Flt Permitted	0.95	1.00		0.38		1.00		1.00		0.18	1.00	
Satd. Flow (perm)	2006	1962		660		1478		3240		305	2905	
Volume (vph)	123	148	114	74	0	88	0	1122	0	113	980	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	161	124	80	0	96	0	1220	0	123	1065	0
RTOR Reduction (vph)	0	31	0	0	0	65	0	0	0	0	0	0
Lane Group Flow (vph)	134	254	0	80	0	31	0	1220	0	123	1065	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	4%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		176		394		2088		197	1872	
v/s Ratio Prot		c0.13						0.38			0.37	
v/s Ratio Perm	0.07			0.12		0.02				c0.40		
v/c Ratio	0.25	0.49		0.45		0.08		0.58		0.62	0.57	
Uniform Delay, d1	25.9	27.8		27.5		24.7		9.1		9.5	9.0	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.89	1.96	
Incremental Delay, d2	1.1	3.2		8.2		0.4		1.2		11.3	1.0	
Delay (s)	27.1	31.0		35.8		25.1		10.3		29.3	18.6	
Level of Service	C	C		D		C		B		C	B	
Approach Delay (s)		29.7			30.0			10.3			19.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

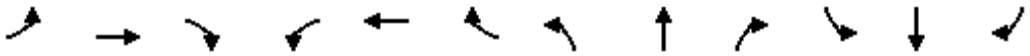
c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	2037		1652	3246		1652	4720	
Flt Permitted	0.60	1.00	1.00	0.52	1.00		0.18	1.00		0.16	1.00	
Satd. Flow (perm)	1063	1863	1531	1096	2037		318	3246		273	4720	
Volume (vph)	51	77	236	188	111	34	224	977	128	34	886	34
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	84	257	204	121	37	243	1062	139	37	963	37
RTOR Reduction (vph)	0	0	224	0	9	0	0	7	0	0	3	0
Lane Group Flow (vph)	55	84	33	204	149	0	243	1194	0	37	997	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
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		
Actuated Green, G (s)	19.4	14.6	14.6	26.6	18.8		67.6	59.2		52.2	47.8	
Effective Green, g (s)	19.4	15.6	15.6	27.6	19.8		69.6	61.2		54.2	49.8	
Actuated g/C Ratio	0.16	0.13	0.13	0.23	0.16		0.58	0.51		0.45	0.42	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	242	199	313	336		360	1655		174	1959	
v/s Ratio Prot	0.01	0.05		c0.04	0.07		c0.09	c0.37		0.01	0.21	
v/s Ratio Perm	0.04		0.02	c0.11			0.30			0.09		
v/c Ratio	0.29	0.35	0.17	0.65	0.44		0.68	0.72		0.21	0.51	
Uniform Delay, d1	43.6	47.6	46.4	40.9	45.1		15.1	22.8		19.7	26.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	3.9	1.8	10.1	4.2		4.9	2.8		0.6	0.9	
Delay (s)	44.4	51.5	48.2	51.0	49.3		20.1	25.5		20.3	27.0	
Level of Service	D	D	D	D	D		C	C		C	C	
Approach Delay (s)		48.4			50.3			24.6			26.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.8
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.96							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1766	3531		1768	3366							
Flt Permitted	0.26	1.00		0.30	1.00							
Satd. Flow (perm)	480	3531		550	3366							
Volume (vph)	51	832	10	72	718	225	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	904	11	78	780	245	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	50	0	0	0	0	0	0	0
Lane Group Flow (vph)	55	914	0	78	975	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	609	2531		659	2412							
v/s Ratio Prot	0.01	0.26		c0.02	c0.29							
v/s Ratio Perm	0.06			0.08								
v/c Ratio	0.09	0.36		0.12	0.40							
Uniform Delay, d1	0.7	3.2		0.6	3.4							
Progression Factor	0.07	0.07		1.00	1.00							
Incremental Delay, d2	0.2	0.3		0.4	0.5							
Delay (s)	0.3	0.5		1.0	3.9							
Level of Service	A	A		A	A							
Approach Delay (s)		0.5			3.7			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3385		1770	3421						1641	
Flt Permitted		1.00		0.19	1.00						0.98	
Satd. Flow (perm)		3385		360	3421						1641	
Volume (vph)	0	818	63	32	547	0	0	0	0	54	33	29
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	889	68	35	595	0	0	0	0	59	36	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	957	0	35	595	0	0	0	0	0	109	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						25.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Lane Grp Cap (vph)		1467		156	1482						711	
v/s Ratio Prot		c0.28			0.17							
v/s Ratio Perm				0.10							0.07	
v/c Ratio		0.65		0.22	0.40						0.15	
Uniform Delay, d1		13.4		10.7	11.7						10.3	
Progression Factor		1.00		0.81	0.82						1.00	
Incremental Delay, d2		2.3		3.1	0.8						0.5	
Delay (s)		15.7		11.7	10.3						10.8	
Level of Service		B		B	B						B	
Approach Delay (s)		15.7			10.4			0.0			10.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

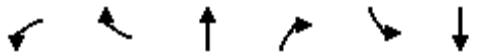
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			0.98			0.98	
Frt		1.00		1.00	0.99			0.94			0.98	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3538		1765	3470			1575			1619	
Flt Permitted		0.95		0.18	1.00			0.84			0.78	
Satd. Flow (perm)		3379		334	3470			1358			1311	
Volume (vph)	1	947	1	7	150	14	27	0	19	53	5	12
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	1	1064	1	7	156	15	37	0	26	69	6	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	1066	0	7	171	0	0	47	0	0	91	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	9%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		174	1812			528			510	
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.32		0.02				0.03			c0.07	
v/c Ratio		0.60		0.04	0.09			0.09			0.18	
Uniform Delay, d1		15.0		10.5	10.8			17.4			18.1	
Progression Factor		1.00		1.02	0.98			1.00			1.00	
Incremental Delay, d2		1.5		0.4	0.1			0.3			0.8	
Delay (s)		16.5		11.1	10.7			17.7			18.8	
Level of Service		B		B	B			B			B	
Approach Delay (s)		16.5			10.7			17.7			18.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1660	4	0	238	0	0	0	1	0	0	54
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	1804	4	0	287	0	0	0	1	0	0	58
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked												
vC, conflicting volume	287			1811			2011	2095	606	890	2097	144
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	287			1811			2011	2095	606	890	2097	144
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	93
cM capacity (veh/h)	1272			335			32	51	440	237	51	876

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	722	722	365	143	143	1	58
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	4	0	0	1	58
cSH	1700	1700	1700	1700	1700	440	876
Volume to Capacity	0.42	0.42	0.21	0.08	0.08	0.00	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.2	9.4
Lane LOS						B	A
Approach Delay (s)	0.0			0.0		13.2	9.4
Approach LOS						B	A

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	42.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3332		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3332		3657			3657
Volume (vph)	96	143	1174	1	0	122
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	105	157	1249	1	0	167
RTOR Reduction (vph)	53	0	0	0	0	0
Lane Group Flow (vph)	209	0	1250	0	0	167
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	963		2275			2275
v/s Ratio Prot	c0.06		c0.34			0.05
v/s Ratio Perm						
v/c Ratio	0.22		0.55			0.07
Uniform Delay, d1	24.3		9.8			6.7
Progression Factor	0.99		0.65			1.00
Incremental Delay, d2	0.5		0.9			0.1
Delay (s)	24.7		7.3			6.8
Level of Service	C		A			A
Approach Delay (s)	24.7		7.3			6.8
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	15	0	363	0	7	206	1	19	0	134	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Hourly flow rate (vph)	0	0	403	0	8	224	1	28	0	200	2	0
Pedestrians			5			1			1			
Lane Width (ft)			15.0			14.5			12.0			
Walking Speed (ft/s)			4.0			4.0			4.0			
Percent Blockage			1			0			0			
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	225			404			654	645	405	844	644
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	225			404			654	645	405	844	644
tC, single (s)	0.0	4.1			4.3			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			99			92	100	69	99	100
cM capacity (veh/h)	0	1344			1049			372	388	644	194	388

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	403	8	225	228	7
Volume Left	0	8	0	28	2
Volume Right	0	0	1	200	5
cSH	1344	1049	1700	591	450
Volume to Capacity	0.00	0.01	0.13	0.39	0.02
Queue Length 95th (ft)	0	1	0	45	1
Control Delay (s)	0.0	8.5	0.0	14.9	13.1
Lane LOS		A		B	B
Approach Delay (s)	0.0	0.3		14.9	13.1
Approach LOS				B	B

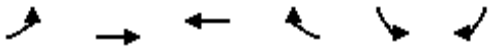
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	3
Peak Hour Factor	0.58
Hourly flow rate (vph)	5
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	229
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	229
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	806
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	498	2	1	204	6	5
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	535	2	1	217	7	6
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			540		758	539
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			540		758	539
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		98	99
cM capacity (veh/h)			1027		352	527

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	538	1	217	13
Volume Left	0	1	0	7
Volume Right	2	0	0	6
cSH	1700	1027	1700	415
Volume to Capacity	0.32	0.00	0.13	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	8.5	0.0	14.0
Lane LOS		A		B
Approach Delay (s)	0.0	0.0		14.0
Approach LOS				B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	21	518	233	26	70	2
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	26	648	353	39	111	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	392				1073	373
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392				1073	373
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	97				49	99
cM capacity (veh/h)	1016				218	579

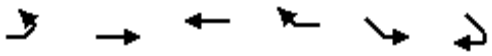
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	26	648	392	114
Volume Left	26	0	0	111
Volume Right	0	0	39	3
cSH	1016	1700	1700	222
Volume to Capacity	0.03	0.38	0.23	0.52
Queue Length 95th (ft)	2	0	0	67
Control Delay (s)	8.6	0.0	0.0	37.4
Lane LOS	A			E
Approach Delay (s)	0.3		0.0	37.4
Approach LOS				E

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	35	438	1	4	131	24	0	2	1	7	1	57
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	39	487	1	4	147	27	0	4	2	8	1	66
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	190			495			824	771	497	757	758	192
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	190			495			824	771	497	757	758	192
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	97			100			100	99	100	97	100	92
cM capacity (veh/h)	1359			1063			252	312	568	270	318	820

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	39	488	179	7	76
Volume Left	39	0	4	0	8
Volume Right	0	1	27	2	66
cSH	1359	1700	1063	367	659
Volume to Capacity	0.03	0.29	0.00	0.02	0.11
Queue Length 95th (ft)	2	0	0	1	10
Control Delay (s)	7.7	0.0	0.2	15.0	11.2
Lane LOS	A		A	B	B
Approach Delay (s)	0.6		0.2	15.0	11.2
Approach LOS				B	B

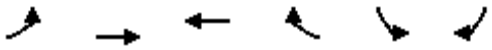
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	42.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	55	376	147	23	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	59	400	153	24	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	182				687	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				687	170
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	1393				395	874

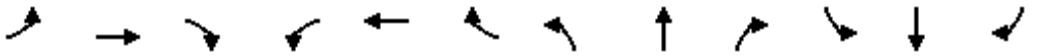
Direction, Lane #	EB 1	WB 1
Volume Total	459	177
Volume Left	59	0
Volume Right	0	24
cSH	1393	1700
Volume to Capacity	0.04	0.10
Queue Length 95th (ft)	3	0
Control Delay (s)	1.4	0.0
Lane LOS	A	
Approach Delay (s)	1.4	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.95		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1849	1634		1520	
Flt Permitted		0.92	1.00		0.98	
Satd. Flow (perm)		1705	1634		1520	
Volume (vph)	77	445	165	87	42	71
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	484	174	92	44	75
RTOR Reduction (vph)	0	0	32	0	53	0
Lane Group Flow (vph)	0	568	234	0	67	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		966	926		456	
v/s Ratio Prot			0.14		c0.04	
v/s Ratio Perm		c0.33				
v/c Ratio		0.59	0.25		0.15	
Uniform Delay, d1		8.4	6.6		15.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		2.6	0.7		0.7	
Delay (s)		11.1	7.2		16.0	
Level of Service		B	A		B	
Approach Delay (s)		11.1	7.2		16.0	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3219		1711	3351			3355			3411	1501
Flt Permitted	0.65	1.00		0.42	1.00			0.75			0.88	1.00
Satd. Flow (perm)	1207	3219		752	3351			2538			3023	1501
Volume (vph)	137	147	223	14	118	19	173	437	23	16	259	99
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	152	163	248	16	133	21	194	491	26	19	308	118
RTOR Reduction (vph)	0	176	0	0	14	0	0	3	0	0	0	45
Lane Group Flow (vph)	152	235	0	16	140	0	0	708	0	0	327	73
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	349	930		217	968			1579			1881	934
v/s Ratio Prot		0.07			0.04							
v/s Ratio Perm	c0.13			0.02				c0.28			0.11	0.05
v/c Ratio	0.44	0.25		0.07	0.14			0.45			0.17	0.08
Uniform Delay, d1	26.0	24.5		23.3	23.7			8.9			7.2	6.8
Progression Factor	1.00	1.00		1.00	1.00			0.43			1.00	1.00
Incremental Delay, d2	3.9	0.7		0.7	0.3			0.7			0.2	0.2
Delay (s)	29.9	25.2		23.9	24.1			4.6			7.4	6.9
Level of Service	C	C		C	C			A			A	A
Approach Delay (s)		26.5			24.0			4.6			7.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2001			3047	3045		1945		
Flt Permitted		0.99			0.79	1.00		0.97		
Satd. Flow (perm)		2001			2412	3045		1945		
Volume (vph)	37	77	33	82	619	512	41	85	41	8
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	41	86	37	85	638	551	44	102	49	10
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	164	0	0	723	589	0	159	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		445			1126	1421		346		
v/s Ratio Prot		c0.08				0.19		c0.08		
v/s Ratio Perm					c0.30					
v/c Ratio		0.37			0.64	0.41		0.46		
Uniform Delay, d1		29.7			18.3	15.9		33.1		
Progression Factor		1.00			0.75	0.83		1.00		
Incremental Delay, d2		2.3			2.6	0.9		4.3		
Delay (s)		32.0			16.2	14.1		37.4		
Level of Service		C			B	B		D		
Approach Delay (s)		32.0			16.2	14.1		37.4		
Approach LOS		C			B	B		D		

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1962		1652		1478		3303		1652	2905	
Flt Permitted	0.95	1.00		0.52		1.00		1.00		0.25	1.00	
Satd. Flow (perm)	2006	1962		899		1478		3303		429	2905	
Volume (vph)	82	100	77	50	0	51	0	934	0	76	613	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	93	114	88	55	0	56	0	983	0	81	652	0
RTOR Reduction (vph)	0	31	0	0	0	41	0	0	0	0	0	0
Lane Group Flow (vph)	93	171	0	55	0	15	0	983	0	81	652	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		240		394		2129		276	1872	
v/s Ratio Prot		c0.09						c0.30			0.22	
v/s Ratio Perm	0.05			0.06		0.01				0.19		
v/c Ratio	0.17	0.33		0.23		0.04		0.46		0.29	0.35	
Uniform Delay, d1	25.4	26.5		25.8		24.4		8.1		7.0	7.3	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.75	1.59	
Incremental Delay, d2	0.7	1.7		2.2		0.2		0.7		2.5	0.5	
Delay (s)	26.1	28.2		28.0		24.6		8.8		14.8	12.1	
Level of Service	C	C		C		C		A		B	B	
Approach Delay (s)		27.5			26.3			8.8			12.4	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1977		1652	3246		1652	4663	
Flt Permitted	0.64	1.00	1.00	0.49	1.00		0.32	1.00		0.27	1.00	
Satd. Flow (perm)	1148	1863	1531	1028	1977		549	3246		478	4663	
Volume (vph)	82	85	128	83	85	62	123	694	91	37	641	85
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	93	141	101	104	76	134	754	99	40	697	92
RTOR Reduction (vph)	0	0	123	0	22	0	0	6	0	0	10	0
Lane Group Flow (vph)	90	93	18	101	158	0	134	847	0	40	779	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	144	233	191	280	428		326	1926		284	2767	
v/s Ratio Prot		0.05		0.02	c0.08			c0.26			0.17	
v/s Ratio Perm	c0.08		0.01	0.06			0.24			0.08		
v/c Ratio	0.62	0.40	0.09	0.36	0.37		0.41	0.44		0.14	0.28	
Uniform Delay, d1	49.8	48.3	46.5	38.9	40.0		13.1	13.4		10.8	11.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.7	5.0	1.0	3.6	2.4		3.8	0.7		1.0	0.3	
Delay (s)	68.6	53.4	47.4	42.5	42.5		16.9	14.2		11.9	12.2	
Level of Service	E	D	D	D	D		B	B		B	B	
Approach Delay (s)		55.0			42.5			14.5			12.2	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	0.99	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.95							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1757	3534		1761	3304							
Flt Permitted	0.38	1.00		0.47	1.00							
Satd. Flow (perm)	708	3534		866	3304							
Volume (vph)	46	469	4	52	424	184	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	49	499	4	60	487	211	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	60	0	0	0	0	0	0	0
Lane Group Flow (vph)	49	502	0	60	638	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	771	2533		885	2368							
v/s Ratio Prot	0.01	0.14		c0.01	c0.19							
v/s Ratio Perm	0.05			0.05								
v/c Ratio	0.06	0.20		0.07	0.27							
Uniform Delay, d1	0.5	2.8		0.6	3.0							
Progression Factor	0.05	0.05		1.00	1.01							
Incremental Delay, d2	0.1	0.2		0.1	0.3							
Delay (s)	0.2	0.3		0.7	3.3							
Level of Service	A	A		A	A							
Approach Delay (s)		0.3			3.1			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	1.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1642	
Flt Permitted		1.00		0.38	1.00						0.98	
Satd. Flow (perm)		3395		712	3421						1642	
Volume (vph)	0	521	28	20	335	0	0	0	0	34	21	18
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	554	30	21	345	0	0	0	0	36	22	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	584	0	21	345	0	0	0	0	0	66	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		309	1482						712	
v/s Ratio Prot		c0.17			0.10							
v/s Ratio Perm				0.03							0.04	
v/c Ratio		0.40		0.07	0.23						0.09	
Uniform Delay, d1		11.6		9.9	10.7						10.0	
Progression Factor		1.00		0.90	0.88						1.00	
Incremental Delay, d2		0.8		0.4	0.4						0.3	
Delay (s)		12.4		9.3	9.8						10.3	
Level of Service		B		A	A						B	
Approach Delay (s)		12.4			9.7			0.0			10.3	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

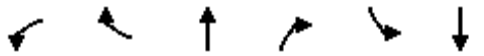
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			0.98			0.98	
Frt		1.00		1.00	0.99			0.94			0.98	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3538		1770	3495			1575			1619	
Flt Permitted		0.95		0.16	1.00			0.84			0.78	
Satd. Flow (perm)		3379		292	3495			1360			1309	
Volume (vph)	1	1012	1	7	245	14	27	0	20	54	5	12
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	1	1137	1	7	255	15	37	0	27	70	6	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	1139	0	7	270	0	0	48	0	0	92	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	9%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		152	1825			529			509	
v/s Ratio Prot					0.08							
v/s Ratio Perm		c0.34		0.02				0.03			c0.07	
v/c Ratio		0.65		0.05	0.15			0.09			0.18	
Uniform Delay, d1		15.5		10.5	11.1			17.4			18.1	
Progression Factor		1.00		0.99	0.93			1.00			1.00	
Incremental Delay, d2		1.8		0.6	0.2			0.3			0.8	
Delay (s)		17.3		11.0	10.5			17.7			18.9	
Level of Service		B		B	B			B			B	
Approach Delay (s)		17.3			10.5			17.7			18.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1740	4	0	335	0	0	0	1	0	0	55
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	1891	4	0	404	0	0	0	1	0	0	59
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked												
vC, conflicting volume	404			1898			2157	2299	635	1035	2301	203
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	404			1898			2157	2299	635	1035	2301	203
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	93
cM capacity (veh/h)	1152			310			25	38	421	185	38	804

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	757	757	383	202	202	1	59
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	4	0	0	1	59
cSH	1700	1700	1700	1700	1700	421	804
Volume to Capacity	0.45	0.45	0.23	0.12	0.12	0.00	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.6	9.8
Lane LOS						B	A
Approach Delay (s)	0.0			0.0		13.6	9.8
Approach LOS						B	A

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3333		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3333		3657			3657
Volume (vph)	98	146	1229	0	0	186
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	108	160	1307	0	0	255
RTOR Reduction (vph)	47	0	0	0	0	0
Lane Group Flow (vph)	221	0	1307	0	0	255
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	963		2275			2275
v/s Ratio Prot	c0.07		c0.36			0.07
v/s Ratio Perm						
v/c Ratio	0.23		0.57			0.11
Uniform Delay, d1	24.4		10.0			6.9
Progression Factor	0.98		0.46			1.00
Incremental Delay, d2	0.6		1.0			0.1
Delay (s)	24.5		5.6			7.0
Level of Service	C		A			A
Approach Delay (s)	24.5		5.6			7.0
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	15	0	386	0	7	241	1	20	0	137	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Hourly flow rate (vph)	0	0	429	0	8	262	1	30	0	204	2	0
Pedestrians			5			1			1			
Lane Width (ft)			15.0			14.5			12.0			
Walking Speed (ft/s)			4.0			4.0			4.0			
Percent Blockage			1			0			0			
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	263			430			717	708	431	912	708
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	263			430			717	708	431	912	708
tC, single (s)	0.0	4.1			4.3			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			99			91	100	67	99	100
cM capacity (veh/h)	0	1301			1025			337	357	623	170	357

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	429	8	263	234	7
Volume Left	0	8	0	30	2
Volume Right	0	0	1	204	5
cSH	1301	1025	1700	562	408
Volume to Capacity	0.00	0.01	0.15	0.42	0.02
Queue Length 95th (ft)	0	1	0	51	1
Control Delay (s)	0.0	8.5	0.0	15.9	14.0
Lane LOS		A		C	B
Approach Delay (s)	0.0	0.2		15.9	14.0
Approach LOS				C	B

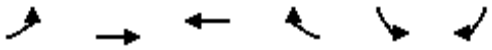
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	3
Peak Hour Factor	0.58
Hourly flow rate (vph)	5
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	268
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	268
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	767
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	523	2	1	204	6	5
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	562	2	1	217	7	6
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			567		785	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			567		785	565
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		98	99
cM capacity (veh/h)			1004		339	508

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	565	1	217	13
Volume Left	0	1	0	7
Volume Right	2	0	0	6
cSH	1700	1004	1700	400
Volume to Capacity	0.33	0.00	0.13	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	8.6	0.0	14.3
Lane LOS		A		B
Approach Delay (s)	0.0	0.0		14.3
Approach LOS				B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	22	548	269	26	72	2
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	28	685	408	39	114	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	447				1167	427
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	447				1167	427
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	97				40	99
cM capacity (veh/h)	967				190	537

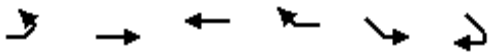
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	28	685	447	117
Volume Left	28	0	0	114
Volume Right	0	0	39	3
cSH	967	1700	1700	193
Volume to Capacity	0.03	0.40	0.26	0.61
Queue Length 95th (ft)	2	0	0	85
Control Delay (s)	8.8	0.0	0.0	48.9
Lane LOS	A			E
Approach Delay (s)	0.3		0.0	48.9
Approach LOS				E

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	36	462	1	4	164	25	0	2	1	7	1	58
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	40	513	1	4	184	28	0	4	2	8	1	67
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	228			521			891	838	524	824	825	229
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	228			521			891	838	524	824	825	229
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	97			100			100	98	100	97	100	91
cM capacity (veh/h)	1316			1039			225	285	549	242	290	782

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	40	514	217	7	77
Volume Left	40	0	4	0	8
Volume Right	0	1	28	2	67
cSH	1316	1700	1039	339	619
Volume to Capacity	0.03	0.30	0.00	0.02	0.12
Queue Length 95th (ft)	2	0	0	1	11
Control Delay (s)	7.8	0.0	0.2	15.8	11.6
Lane LOS	A		A	C	B
Approach Delay (s)	0.6		0.2	15.8	11.6
Approach LOS				C	B

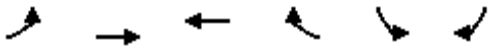
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	56	399	165	23	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	60	424	172	24	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	201				732	189
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	201				732	189
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	1371				371	853

Direction, Lane #	EB 1	WB 1
Volume Total	484	196
Volume Left	60	0
Volume Right	0	24
cSH	1371	1700
Volume to Capacity	0.04	0.12
Queue Length 95th (ft)	3	0
Control Delay (s)	1.3	0.0
Lane LOS	A	
Approach Delay (s)	1.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1849	1643		1520	
Flt Permitted		0.91	1.00		0.98	
Satd. Flow (perm)		1698	1643		1520	
Volume (vph)	78	469	199	89	42	72
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	85	510	209	94	44	76
RTOR Reduction (vph)	0	0	27	0	53	0
Lane Group Flow (vph)	0	595	276	0	67	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		962	931		456	
v/s Ratio Prot			0.17		c0.04	
v/s Ratio Perm		c0.35				
v/c Ratio		0.62	0.30		0.15	
Uniform Delay, d1		8.7	6.8		15.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		3.0	0.8		0.7	
Delay (s)		11.7	7.6		16.1	
Level of Service		B	A		B	
Approach Delay (s)		11.7	7.6		16.1	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3219		1711	3353			3358			3413	1501
Flt Permitted	0.65	1.00		0.41	1.00			0.72			0.89	1.00
Satd. Flow (perm)	1204	3219		738	3353			2455			3047	1501
Volume (vph)	140	150	228	14	121	19	177	477	24	16	327	101
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	156	167	253	16	136	21	199	536	27	19	389	120
RTOR Reduction (vph)	0	180	0	0	14	0	0	3	0	0	0	45
Lane Group Flow (vph)	156	240	0	16	143	0	0	759	0	0	408	75
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	348	930		213	969			1528			1896	934
v/s Ratio Prot		0.07			0.04							
v/s Ratio Perm	c0.13			0.02				c0.31			0.13	0.05
v/c Ratio	0.45	0.26		0.08	0.15			0.50			0.22	0.08
Uniform Delay, d1	26.1	24.6		23.3	23.8			9.3			7.4	6.8
Progression Factor	1.00	1.00		1.00	1.00			0.48			1.00	1.00
Incremental Delay, d2	4.1	0.7		0.7	0.3			0.9			0.3	0.2
Delay (s)	30.3	25.3		23.9	24.1			5.3			7.7	6.9
Level of Service	C	C		C	C			A			A	A
Approach Delay (s)		26.6			24.1			5.3			7.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2000			3046	3047		1945		
Flt Permitted		0.99			0.76	1.00		0.97		
Satd. Flow (perm)		2000			2322	3047		1945		
Volume (vph)	38	78	34	84	663	585	42	87	42	8
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	42	87	38	87	684	629	45	105	51	10
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	167	0	0	771	668	0	164	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		444			1084	1422		346		
v/s Ratio Prot		c0.08				0.22		c0.08		
v/s Ratio Perm					c0.33					
v/c Ratio		0.38			0.71	0.47		0.47		
Uniform Delay, d1		29.7			19.2	16.4		33.2		
Progression Factor		1.00			0.84	0.83		1.00		
Incremental Delay, d2		2.4			3.8	1.1		4.6		
Delay (s)		32.1			19.8	14.7		37.8		
Level of Service		C			B	B		D		
Approach Delay (s)		32.1			19.8	14.7		37.8		
Approach LOS		C			B	B		D		

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1963		1652		1478		3303		1652	2905	
Flt Permitted	0.95	1.00		0.51		1.00		1.00		0.32	1.00	
Satd. Flow (perm)	2006	1963		890		1478		3303		563	2905	
Volume (vph)	84	102	78	51	0	52	0	739	0	77	688	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	95	116	89	56	0	57	0	778	0	82	732	0
RTOR Reduction (vph)	0	31	0	0	0	42	0	0	0	0	0	0
Lane Group Flow (vph)	95	174	0	56	0	15	0	778	0	82	732	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		237		394		2129		363	1872	
v/s Ratio Prot		c0.09						0.24			c0.25	
v/s Ratio Perm	0.05			0.06		0.01				0.15		
v/c Ratio	0.18	0.33		0.24		0.04		0.37		0.23	0.39	
Uniform Delay, d1	25.4	26.6		25.8		24.5		7.4		6.7	7.6	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.85	1.73	
Incremental Delay, d2	0.7	1.7		2.3		0.2		0.5		1.3	0.6	
Delay (s)	26.1	28.3		28.2		24.6		7.9		13.6	13.7	
Level of Service	C	C		C		C		A		B	B	
Approach Delay (s)		27.6			26.4			7.9			13.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1976		1652	3248		1652	4669	
Flt Permitted	0.64	1.00	1.00	0.48	1.00		0.28	1.00		0.26	1.00	
Satd. Flow (perm)	1145	1863	1531	1016	1976		494	3248		444	4669	
Volume (vph)	83	86	131	85	86	64	126	739	93	38	716	87
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	95	144	104	105	78	137	803	101	41	778	95
RTOR Reduction (vph)	0	0	126	0	22	0	0	6	0	0	9	0
Lane Group Flow (vph)	91	95	18	104	161	0	137	898	0	41	864	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	233	191	278	428		293	1927		263	2770	
v/s Ratio Prot		0.05		0.02	c0.08			0.28			0.18	
v/s Ratio Perm	c0.08		0.01	0.06			c0.28			0.09		
v/c Ratio	0.64	0.41	0.09	0.37	0.38		0.47	0.47		0.16	0.31	
Uniform Delay, d1	49.9	48.4	46.5	39.0	40.1		13.7	13.7		10.9	12.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.7	5.2	1.0	3.8	2.5		5.3	0.8		1.3	0.3	
Delay (s)	69.6	53.6	47.5	42.8	42.6		19.0	14.5		12.2	12.5	
Level of Service	E	D	D	D	D		B	B		B	B	
Approach Delay (s)		55.3			42.7			15.1			12.5	
Approach LOS		E			D			B			B	

Intersection Summary					
HCM Average Control Delay	22.4	HCM Level of Service	C		
HCM Volume to Capacity ratio	0.49				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8		
Intersection Capacity Utilization	53.1%	ICU Level of Service	A		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	0.99	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.95							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1758	3534		1761	3304							
Flt Permitted	0.38	1.00		0.46	1.00							
Satd. Flow (perm)	695	3534		857	3304							
Volume (vph)	47	479	4	53	433	188	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	50	510	4	61	498	216	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	61	0	0	0	0	0	0	0
Lane Group Flow (vph)	50	513	0	61	653	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	762	2533		878	2368							
v/s Ratio Prot	0.01	0.15		c0.01	c0.20							
v/s Ratio Perm	0.05			0.05								
v/c Ratio	0.07	0.20		0.07	0.28							
Uniform Delay, d1	0.6	2.8		0.6	3.0							
Progression Factor	0.05	0.05		1.00	1.01							
Incremental Delay, d2	0.2	0.2		0.2	0.3							
Delay (s)	0.2	0.3		0.7	3.3							
Level of Service	A	A		A	A							
Approach Delay (s)		0.3			3.1			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	1.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1642	
Flt Permitted		1.00		0.37	1.00						0.98	
Satd. Flow (perm)		3395		697	3421						1642	
Volume (vph)	0	532	29	21	342	0	0	0	0	35	22	19
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	566	31	22	353	0	0	0	0	37	23	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	597	0	22	353	0	0	0	0	0	69	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		302	1482						712	
v/s Ratio Prot		c0.18			0.10							
v/s Ratio Perm				0.03							0.04	
v/c Ratio		0.41		0.07	0.24						0.10	
Uniform Delay, d1		11.7		9.9	10.7						10.1	
Progression Factor		1.00		0.89	0.88						1.00	
Incremental Delay, d2		0.8		0.5	0.4						0.3	
Delay (s)		12.5		9.3	9.8						10.3	
Level of Service		B		A	A						B	
Approach Delay (s)		12.5			9.8			0.0			10.3	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			0.98			0.98	
Frt		1.00		1.00	0.99			0.94			0.98	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3538		1770	3496			1575			1643	
Flt Permitted		0.95		0.14	1.00			0.84			0.78	
Satd. Flow (perm)		3379		267	3496			1357			1322	
Volume (vph)	1	1051	1	7	251	14	28	0	21	57	6	12
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	1	1181	1	7	261	15	38	0	29	74	8	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	1183	0	7	276	0	0	49	0	0	98	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		139	1826			528			514	
v/s Ratio Prot					0.08							
v/s Ratio Perm		c0.35		0.03				0.04			c0.07	
v/c Ratio		0.67		0.05	0.15			0.09			0.19	
Uniform Delay, d1		15.8		10.5	11.2			17.4			18.2	
Progression Factor		1.00		0.99	0.97			1.00			1.00	
Incremental Delay, d2		2.0		0.7	0.2			0.4			0.8	
Delay (s)		17.8		11.2	11.0			17.8			19.0	
Level of Service		B		B	B			B			B	
Approach Delay (s)		17.8			11.0			17.8			19.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1809	4	0	345	0	0	0	1	0	0	57
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	1966	4	0	416	0	0	0	1	0	0	61
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked												
vC, conflicting volume	416			1973			2241	2386	660	1072	2388	209
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	416			1973			2241	2386	660	1072	2388	209
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	92
cM capacity (veh/h)	1140			290			21	34	405	174	33	796

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	787	787	398	208	208	1	61
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	4	0	0	1	61
cSH	1700	1700	1700	1700	1700	405	796
Volume to Capacity	0.46	0.46	0.23	0.12	0.12	0.00	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.9	9.9
Lane LOS						B	A
Approach Delay (s)	0.0			0.0		13.9	9.9
Approach LOS						B	A

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	45.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3332		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3332		3657			3657
Volume (vph)	102	152	1278	1	0	191
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	112	167	1360	1	0	262
RTOR Reduction (vph)	42	0	0	0	0	0
Lane Group Flow (vph)	237	0	1361	0	0	262
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	963		2275			2275
v/s Ratio Prot	c0.07		c0.37			0.07
v/s Ratio Perm						
v/c Ratio	0.25		0.60			0.12
Uniform Delay, d1	24.5		10.2			6.9
Progression Factor	0.99		0.66			1.00
Incremental Delay, d2	0.6		1.2			0.1
Delay (s)	24.9		7.9			7.0
Level of Service	C		A			A
Approach Delay (s)	24.9		7.9			7.0
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Volume (veh/h)	16	0	401	0	7	250	1	21	0	143	3	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Hourly flow rate (vph)	0	0	446	0	8	272	1	31	0	213	5	0
Pedestrians			5			1			1			
Lane Width (ft)			15.0			14.5			12.0			
Walking Speed (ft/s)			4.0			4.0			4.0			
Percent Blockage			1			0			0			
Right turn flare (veh)												
Median type									None			None
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	273			447			740	735	448	947	734
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	273			447			740	735	448	947	734
tC, single (s)	0.0	4.1			4.3			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			99			90	100	65	97	100
cM capacity (veh/h)	0	1290			1010			326	344	610	155	344

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	446	8	273	245	7
Volume Left	0	8	0	31	5
Volume Right	0	0	1	213	2
cSH	1700	1010	1700	549	194
Volume to Capacity	0.26	0.01	0.16	0.45	0.04
Queue Length 95th (ft)	0	1	0	57	3
Control Delay (s)	0.0	8.6	0.0	16.7	24.2
Lane LOS		A		C	C
Approach Delay (s)	0.0	0.2		16.7	24.2
Approach LOS				C	C

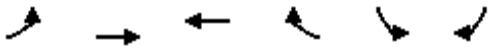
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Sign Control	
Grade	
Volume (veh/h)	1
Peak Hour Factor	0.58
Hourly flow rate (vph)	2
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	277
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	277
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	758
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	544	2	1	248	6	6
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	585	2	1	264	7	7
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			589		854	588
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			589		854	588
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		98	99
cM capacity (veh/h)			985		308	493

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	587	1	264	15
Volume Left	0	1	0	7
Volume Right	2	0	0	7
cSH	1700	985	1700	379
Volume to Capacity	0.35	0.00	0.16	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	8.7	0.0	14.9
Lane LOS		A		B
Approach Delay (s)	0.0	0.0		14.9
Approach LOS				B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	23	565	279	27	75	2
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	29	706	423	41	119	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	464				1207	443
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	464				1207	443
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	97				34	99
cM capacity (veh/h)	953				179	525

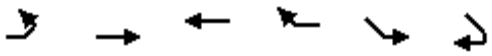
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	29	706	464	122
Volume Left	29	0	0	119
Volume Right	0	0	41	3
cSH	953	1700	1700	182
Volume to Capacity	0.03	0.42	0.27	0.67
Queue Length 95th (ft)	2	0	0	100
Control Delay (s)	8.9	0.0	0.0	57.7
Lane LOS	A			F
Approach Delay (s)	0.3		0.0	57.7
Approach LOS				F

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	38	480	1	4	170	26	0	2	1	7	1	60
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	42	533	1	4	191	29	0	4	2	8	1	70
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	236			541			925	871	544	856	856	237
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236			541			925	871	544	856	856	237
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	97			100			100	98	100	96	100	91
cM capacity (veh/h)	1307			1021			212	272	535	229	278	774

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	42	534	225	7	79
Volume Left	42	0	4	0	8
Volume Right	0	1	29	2	70
cSH	1307	1700	1021	326	609
Volume to Capacity	0.03	0.31	0.00	0.02	0.13
Queue Length 95th (ft)	3	0	0	2	11
Control Delay (s)	7.8	0.0	0.2	16.3	11.8
Lane LOS	A		A	C	B
Approach Delay (s)	0.6		0.2	16.3	11.8
Approach LOS				C	B

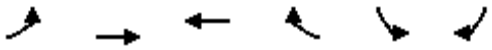
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	59	415	171	24	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	63	441	178	25	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	208				763	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	208				763	196
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	1363				355	846

Direction, Lane #	EB 1	WB 1
Volume Total	504	203
Volume Left	63	0
Volume Right	0	25
cSH	1363	1700
Volume to Capacity	0.05	0.12
Queue Length 95th (ft)	4	0
Control Delay (s)	1.4	0.0
Lane LOS	A	
Approach Delay (s)	1.4	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.92	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1849	1644		1521	
Flt Permitted		0.91	1.00		0.98	
Satd. Flow (perm)		1693	1644		1521	
Volume (vph)	81	488	206	92	45	75
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	530	217	97	47	79
RTOR Reduction (vph)	0	0	27	0	55	0
Lane Group Flow (vph)	0	618	287	0	71	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		959	932		456	
v/s Ratio Prot			0.17		c0.05	
v/s Ratio Perm		c0.36				
v/c Ratio		0.64	0.31		0.16	
Uniform Delay, d1		8.9	6.8		15.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		3.3	0.9		0.7	
Delay (s)		12.2	7.7		16.1	
Level of Service		B	A		B	
Approach Delay (s)		12.2	7.7		16.1	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3211		1711	3352			3358			3413	1501
Flt Permitted	0.65	1.00		0.41	1.00			0.72			0.89	1.00
Satd. Flow (perm)	1196	3211		730	3352			2435			3032	1501
Volume (vph)	146	146	237	15	126	20	184	494	24	17	338	105
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	162	162	263	17	142	22	207	555	27	20	402	125
RTOR Reduction (vph)	0	187	0	0	14	0	0	3	0	0	0	47
Lane Group Flow (vph)	162	238	0	17	150	0	0	786	0	0	422	78
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	346	928		211	968			1515			1887	934
v/s Ratio Prot		0.07			0.04							
v/s Ratio Perm	c0.14			0.02				c0.32			0.14	0.05
v/c Ratio	0.47	0.26		0.08	0.16			0.52			0.22	0.08
Uniform Delay, d1	26.3	24.6		23.3	23.8			9.5			7.5	6.8
Progression Factor	1.00	1.00		1.00	1.00			0.46			1.00	1.00
Incremental Delay, d2	4.5	0.7		0.7	0.3			0.9			0.3	0.2
Delay (s)	30.8	25.2		24.0	24.2			5.4			7.7	6.9
Level of Service	C	C		C	C			A			A	A
Approach Delay (s)		26.8			24.2			5.4			7.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2020			3228	3271		1945		
Flt Permitted		0.99			0.74	1.00		0.97		
Satd. Flow (perm)		2020			2409	3271		1945		
Volume (vph)	39	81	36	88	688	606	43	91	43	9
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	43	90	40	91	709	652	46	110	52	11
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	173	0	0	800	692	0	171	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		449			1124	1526		346		
v/s Ratio Prot		c0.09				0.21		c0.09		
v/s Ratio Perm					c0.33					
v/c Ratio		0.39			0.71	0.45		0.49		
Uniform Delay, d1		29.8			19.2	16.2		33.3		
Progression Factor		1.00			0.83	0.83		1.00		
Incremental Delay, d2		2.5			3.7	1.0		4.9		
Delay (s)		32.3			19.6	14.5		38.3		
Level of Service		C			B	B		D		
Approach Delay (s)		32.3			19.6	14.5		38.3		
Approach LOS		C			B	B		D		

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1963		1652		1478		3271		1652	2905	
Flt Permitted	0.95	1.00		0.50		1.00		1.00		0.31	1.00	
Satd. Flow (perm)	2006	1963		869		1478		3271		542	2905	
Volume (vph)	88	106	81	53	0	54	0	767	0	81	713	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	100	120	92	58	0	59	0	807	0	86	759	0
RTOR Reduction (vph)	0	31	0	0	0	43	0	0	0	0	0	0
Lane Group Flow (vph)	100	181	0	58	0	16	0	807	0	86	759	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	3%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		232		394		2108		349	1872	
v/s Ratio Prot		c0.09						0.25			c0.26	
v/s Ratio Perm	0.05			0.07		0.01				0.16		
v/c Ratio	0.19	0.35		0.25		0.04		0.38		0.25	0.41	
Uniform Delay, d1	25.5	26.7		25.9		24.5		7.6		6.8	7.7	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.80	1.68	
Incremental Delay, d2	0.8	1.8		2.6		0.2		0.5		1.5	0.6	
Delay (s)	26.2	28.5		28.5		24.7		8.1		13.7	13.6	
Level of Service	C	C		C		C		A		B	B	
Approach Delay (s)		27.8			26.6			8.1			13.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1978		1652	3248		1652	4669	
Flt Permitted	0.64	1.00	1.00	0.47	1.00		0.27	1.00		0.24	1.00	
Satd. Flow (perm)	1138	1863	1531	992	1978		473	3248		422	4669	
Volume (vph)	87	90	137	88	90	66	131	767	97	39	743	91
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	99	151	107	110	80	142	834	105	42	808	99
RTOR Reduction (vph)	0	0	132	0	22	0	0	6	0	0	9	0
Lane Group Flow (vph)	96	99	19	107	168	0	142	933	0	42	898	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	142	233	191	274	429		281	1927		250	2770	
v/s Ratio Prot		0.05		0.02	c0.08			0.29			0.19	
v/s Ratio Perm	c0.08		0.01	0.06			c0.30			0.10		
v/c Ratio	0.68	0.42	0.10	0.39	0.39		0.51	0.48		0.17	0.32	
Uniform Delay, d1	50.2	48.5	46.5	39.1	40.2		14.2	13.9		11.0	12.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.9	5.6	1.0	4.1	2.7		6.4	0.9		1.4	0.3	
Delay (s)	73.0	54.1	47.5	43.2	42.9		20.5	14.8		12.5	12.6	
Level of Service	E	D	D	D	D		C	B		B	B	
Approach Delay (s)		56.5			43.0			15.5			12.6	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	0.99	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.95							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1759	3534		1762	3304							
Flt Permitted	0.36	1.00		0.45	1.00							
Satd. Flow (perm)	673	3534		841	3304							
Volume (vph)	49	498	4	55	451	195	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	52	530	4	63	518	224	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	63	0	0	0	0	0	0	0
Lane Group Flow (vph)	52	533	0	63	679	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	746	2533		867	2368							
v/s Ratio Prot	0.01	0.15		c0.01	c0.21							
v/s Ratio Perm	0.05			0.05								
v/c Ratio	0.07	0.21		0.07	0.29							
Uniform Delay, d1	0.6	2.8		0.6	3.0							
Progression Factor	0.05	0.07		1.00	1.01							
Incremental Delay, d2	0.2	0.2		0.2	0.3							
Delay (s)	0.2	0.4		0.7	3.4							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			3.2			0.0			0.0	
Approach LOS		A			A			A			A	

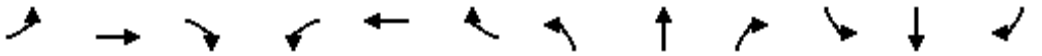
Intersection Summary			
HCM Average Control Delay	2.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1642	
Flt Permitted		1.00		0.36	1.00						0.98	
Satd. Flow (perm)		3395		670	3421						1642	
Volume (vph)	0	554	30	22	356	0	0	0	0	37	22	19
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	589	32	23	367	0	0	0	0	39	23	20
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	615	0	23	367	0	0	0	0	0	71	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		290	1482						712	
v/s Ratio Prot		c0.18			0.11							
v/s Ratio Perm				0.03							0.04	
v/c Ratio		0.42		0.08	0.25						0.10	
Uniform Delay, d1		11.8		10.0	10.8						10.1	
Progression Factor		1.00		0.89	0.87						1.00	
Incremental Delay, d2		0.9		0.5	0.4						0.3	
Delay (s)		12.6		9.4	9.8						10.3	
Level of Service		B		A	A						B	
Approach Delay (s)		12.6			9.8			0.0			10.3	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			0.97	
Frt		1.00		1.00	0.99			0.94			0.98	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3538		1770	3498			1609			1649	
Flt Permitted		0.95		0.14	1.00			0.85			0.79	
Satd. Flow (perm)		3379		265	3498			1405			1352	
Volume (vph)	1	1091	1	8	257	15	29	0	21	59	6	13
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1186	1	9	279	16	32	0	23	64	7	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1188	0	9	295	0	0	41	0	0	85	0
Confl. Peds. (#/hr)			9	9		10			24	24		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		138	1827			546			526	
v/s Ratio Prot					0.08							
v/s Ratio Perm		c0.35		0.03				0.03			c0.06	
v/c Ratio		0.67		0.07	0.16			0.07			0.16	
Uniform Delay, d1		15.8		10.6	11.2			17.3			17.9	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.1		0.9	0.2			0.3			0.7	
Delay (s)		17.9		11.5	11.4			17.6			18.6	
Level of Service		B		B	B			B			B	
Approach Delay (s)		17.9			11.4			17.6			18.6	
Approach LOS		B			B			B			B	

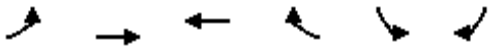
Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1150	23	0	355	0	0	0	1	0	0	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1250	25	0	386	0	0	0	1	0	0	64
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					431							
pX, platoon unblocked												
vC, conflicting volume	386			1275			1521	1648	430	805	1661	194
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	386			1275			1521	1648	430	805	1661	194
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	92
cM capacity (veh/h)	1169			540			75	98	573	273	96	814

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	500	500	275	193	193	1	64
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	25	0	0	1	64
cSH	1700	1700	1700	1700	1700	573	814
Volume to Capacity	0.29	0.29	0.16	0.11	0.11	0.00	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.3	9.8
Lane LOS						B	A
Approach Delay (s)	0.0			0.0		11.3	9.8
Approach LOS						B	A

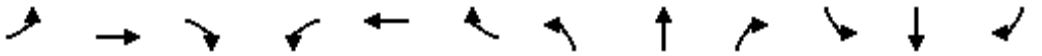
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3513	3622	3657	1636	1829	2880
Flt Permitted	0.65	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2420	3622	3657	1636	1829	2880
Volume (vph)	168	980	142	335	56	208
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	1065	154	364	61	226
RTOR Reduction (vph)	0	0	0	182	0	143
Lane Group Flow (vph)	183	1065	154	182	61	83
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	Perm			Perm		custom
Protected Phases		4	8		6	6
Permitted Phases	4			8		6
Actuated Green, G (s)	28.0	28.0	28.0	28.0	20.0	20.0
Effective Green, g (s)	30.0	30.0	30.0	30.0	22.0	22.0
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.37	0.37
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	1210	1811	1829	818	671	1056
v/s Ratio Prot		c0.29	0.04		c0.03	0.03
v/s Ratio Perm	0.08			0.11		
v/c Ratio	0.15	0.59	0.08	0.22	0.09	0.08
Uniform Delay, d1	8.1	10.6	7.8	8.4	12.4	12.4
Progression Factor	1.00	1.00	0.88	0.79	1.00	1.00
Incremental Delay, d2	0.3	1.4	0.1	0.6	0.3	0.1
Delay (s)	8.4	12.0	6.9	7.3	12.7	12.5
Level of Service	A	B	A	A	B	B
Approach Delay (s)		11.5	7.2		12.6	
Approach LOS		B	A		B	

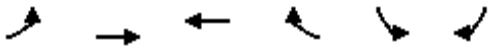
Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	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
Lane Width	12	15	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.91	0.88	1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	3790		1622	5085	2787	1444	1600			1775	1583
Flt Permitted	0.66	1.00		0.61	1.00	1.00	0.63	1.00			0.72	1.00
Satd. Flow (perm)	2375	3790		1048	5085	2787	959	1600			1347	1583
Volume (vph)	552	188	16	7	132	358	7	1	6	157	2	318
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	600	204	17	8	143	389	8	1	7	171	2	346
RTOR Reduction (vph)	0	7	0	0	0	169	0	5	0	0	0	242
Lane Group Flow (vph)	600	214	0	8	143	220	8	3	0	0	173	104
Confl. Peds. (#/hr)			6	6					1			
Heavy Vehicles (%)	2%	3%	7%	3%	2%	2%	25%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	32.0	32.0		32.0	32.0	32.0	16.0	16.0			16.0	16.0
Effective Green, g (s)	34.0	34.0		34.0	34.0	34.0	18.0	18.0			18.0	18.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57	0.30	0.30			0.30	0.30
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Grp Cap (vph)	1346	2148		594	2882	1579	288	480			404	475
v/s Ratio Prot		0.06			0.03			0.00				
v/s Ratio Perm	c0.25			0.01		0.08	0.01				c0.13	0.07
v/c Ratio	0.45	0.10		0.01	0.05	0.14	0.03	0.01			0.43	0.22
Uniform Delay, d1	7.5	6.0		5.7	5.8	6.1	14.8	14.7			16.9	15.7
Progression Factor	1.15	1.35		0.89	0.87	1.52	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.9	0.1		0.0	0.0	0.2	0.2	0.0			3.3	1.1
Delay (s)	9.6	8.2		5.1	5.1	9.5	15.0	14.8			20.2	16.8
Level of Service	A	A		A	A	A	B	B			C	B
Approach Delay (s)		9.2			8.3			14.9			17.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



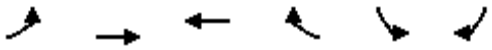
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	13	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1267	3195	1650	1170	1480	1077
Flt Permitted	0.64	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	851	3195	1650	1170	1480	1077
Volume (vph)	21	324	174	66	79	316
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	352	189	72	86	343
RTOR Reduction (vph)	0	0	0	37	0	212
Lane Group Flow (vph)	23	352	189	35	86	131
Heavy Vehicles (%)	33%	13%	19%	38%	22%	50%
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	27.0	27.0	27.0	27.0	21.0	21.0
Effective Green, g (s)	29.0	29.0	29.0	29.0	23.0	23.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.38	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	411	1544	798	566	567	413
v/s Ratio Prot		0.11	c0.11		0.06	
v/s Ratio Perm	0.03			0.03		c0.12
v/c Ratio	0.06	0.23	0.24	0.06	0.15	0.32
Uniform Delay, d1	8.2	9.0	9.0	8.3	12.1	13.0
Progression Factor	0.77	0.68	0.62	0.62	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.7	0.2	0.6	2.0
Delay (s)	6.6	6.4	6.2	5.3	12.7	15.0
Level of Service	A	A	A	A	B	B
Approach Delay (s)		6.4	6.0		14.5	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	9	13	12	12	12	12	12	12	12	16	16	16
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.98			1.00			0.88	
Flt Protected	0.95	1.00			1.00			0.97			0.99	
Satd. Flow (prot)	1587	1924			1804			1791			1717	
Flt Permitted	0.42	1.00			0.99			0.92			0.98	
Satd. Flow (perm)	707	1924			1784			1704			1695	
Volume (vph)	39	499	2	4	175	27	2	1	0	8	1	63
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	542	2	4	190	29	2	1	0	9	1	68
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	0	0	39	0
Lane Group Flow (vph)	42	544	0	0	214	0	0	3	0	0	39	0
Confl. Peds. (#/hr)	9			11		9	6			2		6
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	30%	2%	4%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.0	24.0			14.0			24.0			24.0	
Effective Green, g (s)	26.0	26.0			16.0			26.0			26.0	
Actuated g/C Ratio	0.43	0.43			0.27			0.43			0.43	
Clearance Time (s)	3.0	6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)	394	834			476			738			735	
v/s Ratio Prot	0.01	c0.28										
v/s Ratio Perm	0.04				0.12			0.00			c0.02	
v/c Ratio	0.11	0.65			0.45			0.00			0.05	
Uniform Delay, d1	10.7	13.4			18.3			9.7			9.9	
Progression Factor	0.77	0.87			1.01			1.00			1.00	
Incremental Delay, d2	0.5	3.9			3.0			0.0			0.1	
Delay (s)	8.8	15.7			21.4			9.7			10.0	
Level of Service	A	B			C			A			B	
Approach Delay (s)		15.2			21.4			9.7			10.0	
Approach LOS		B			C			A			B	

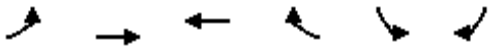
Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	61	431	178	25	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	468	193	27	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		862	786			
pX, platoon unblocked					0.78	
vC, conflicting volume	230				817	216
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	230				765	216
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	1338				274	824

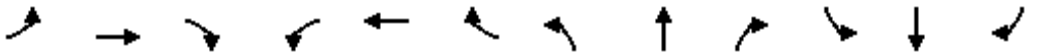
Direction, Lane #	EB 1	WB 1
Volume Total	535	221
Volume Left	66	0
Volume Right	0	27
cSH	1338	1700
Volume to Capacity	0.05	0.13
Queue Length 95th (ft)	4	0
Control Delay (s)	1.4	0.0
Lane LOS	A	
Approach Delay (s)	1.4	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.91		0.92	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1850	1572		1540	
Flt Permitted		0.90	1.00		0.98	
Satd. Flow (perm)		1684	1572		1540	
Volume (vph)	85	507	96	213	46	78
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	551	104	232	50	85
RTOR Reduction (vph)	0	0	101	0	60	0
Lane Group Flow (vph)	0	643	235	0	76	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		954	891		462	
v/s Ratio Prot			0.15		c0.05	
v/s Ratio Perm		c0.38				
v/c Ratio		0.67	0.26		0.16	
Uniform Delay, d1		9.1	6.6		15.5	
Progression Factor		1.53	1.00		1.00	
Incremental Delay, d2		3.4	0.7		0.8	
Delay (s)		17.3	7.3		16.2	
Level of Service		B	A		B	
Approach Delay (s)		17.3	7.3		16.2	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3220		1711	3349			3359			3413	1501
Flt Permitted	0.65	1.00		0.42	1.00			0.72			0.89	1.00
Satd. Flow (perm)	1196	3220		761	3349			2455			3034	1501
Volume (vph)	152	163	246	16	130	21	191	513	25	17	348	109
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	177	267	17	141	23	208	558	27	18	378	118
RTOR Reduction (vph)	0	172	0	0	15	0	0	3	0	0	0	52
Lane Group Flow (vph)	165	272	0	17	149	0	0	790	0	0	396	66
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	31.0	31.0		31.0	31.0			34.0			34.0	34.0
Effective Green, g (s)	32.0	32.0		32.0	32.0			50.0			50.0	50.0
Actuated g/C Ratio	0.36	0.36		0.36	0.36			0.56			0.56	0.56
Clearance Time (s)	5.0	5.0		5.0	5.0			20.0			20.0	20.0
Lane Grp Cap (vph)	425	1145		271	1191			1364			1686	834
v/s Ratio Prot		0.08			0.04							
v/s Ratio Perm	c0.14			0.02				c0.32			0.13	0.04
v/c Ratio	0.39	0.24		0.06	0.13			0.58			0.23	0.08
Uniform Delay, d1	21.7	20.4		19.1	19.6			13.1			10.2	9.3
Progression Factor	1.00	1.00		1.00	1.00			0.84			1.00	1.00
Incremental Delay, d2	2.7	0.5		0.4	0.2			1.0			0.3	0.2
Delay (s)	24.3	20.9		19.6	19.8			11.9			10.6	9.5
Level of Service	C	C		B	B			B			B	A
Approach Delay (s)		21.8			19.8			11.9			10.3	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2001			3046	3047		1945		
Flt Permitted		0.99			0.72	1.00		0.97		
Satd. Flow (perm)		2001			2202	3047		1945		
Volume (vph)	41	85	37	91	714	627	45	94	45	9
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	92	40	99	776	682	49	102	49	10
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	177	0	0	875	725	0	159	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		445			1028	1422		346		
v/s Ratio Prot		c0.09				0.24		c0.08		
v/s Ratio Perm					c0.40					
v/c Ratio		0.40			0.85	0.51		0.46		
Uniform Delay, d1		29.9			21.2	16.8		33.1		
Progression Factor		1.00			0.83	0.83		1.00		
Incremental Delay, d2		2.6			8.4	1.3		4.3		
Delay (s)		32.5			26.0	15.2		37.4		
Level of Service		C			C	B		D		
Approach Delay (s)		32.5			26.0	15.2		37.4		
Approach LOS		C			C	B		D		

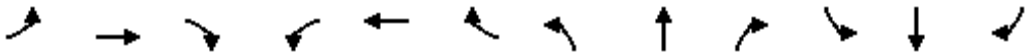
Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1963		1652		1478		3271		1652	2905	
Flt Permitted	0.95	1.00		0.50		1.00		1.00		0.29	1.00	
Satd. Flow (perm)	2006	1963		869		1478		3271		502	2905	
Volume (vph)	91	110	85	55	0	56	0	797	0	84	739	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	120	92	60	0	61	0	866	0	91	803	0
RTOR Reduction (vph)	0	31	0	0	0	45	0	0	0	0	0	0
Lane Group Flow (vph)	99	181	0	60	0	16	0	866	0	91	803	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	3%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	523		232		394		2108		324	1872	
v/s Ratio Prot		c0.09						0.26			c0.28	
v/s Ratio Perm	0.05			0.07		0.01				0.18		
v/c Ratio	0.19	0.35		0.26		0.04		0.41		0.28	0.43	
Uniform Delay, d1	25.5	26.7		26.0		24.5		7.7		6.9	7.9	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.88	1.78	
Incremental Delay, d2	0.8	1.8		2.7		0.2		0.6		1.9	0.6	
Delay (s)	26.2	28.5		28.7		24.7		8.3		15.0	14.7	
Level of Service	C	C		C		C		A		B	B	
Approach Delay (s)		27.8			26.7			8.3			14.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	2037		1652	3243		1652	4720	
Flt Permitted	0.68	1.00	1.00	0.57	1.00		0.34	1.00		0.28	1.00	
Satd. Flow (perm)	1217	1863	1531	1194	2037		589	3243		482	4720	
Volume (vph)	38	57	166	140	82	25	156	684	95	25	649	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	62	180	152	89	27	170	743	103	27	705	27
RTOR Reduction (vph)	0	0	158	0	9	0	0	7	0	0	2	0
Lane Group Flow (vph)	41	62	23	152	107	0	170	839	0	27	730	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	233	191	306	441		349	1924		286	2801	
v/s Ratio Prot		0.03		c0.03	0.05			0.26			0.15	
v/s Ratio Perm	0.03		0.01	c0.08			c0.29			0.06		
v/c Ratio	0.27	0.27	0.12	0.50	0.24		0.49	0.44		0.09	0.26	
Uniform Delay, d1	47.5	47.5	46.6	40.2	38.9		14.0	13.4		10.5	11.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	2.8	1.3	5.7	1.3		4.8	0.7		0.7	0.2	
Delay (s)	51.9	50.3	47.9	45.9	40.1		18.8	14.1		11.2	12.0	
Level of Service	D	D	D	D	D		B	B		B	B	
Approach Delay (s)		49.0			43.4			14.9			11.9	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.8
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.96							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1761	3531		1765	3367							
Flt Permitted	0.38	1.00		0.41	1.00							
Satd. Flow (perm)	708	3531		756	3367							
Volume (vph)	36	586	7	51	491	153	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	637	8	55	534	166	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	47	0	0	0	0	0	0	0
Lane Group Flow (vph)	39	644	0	55	653	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	772	2531		807	2413							
v/s Ratio Prot	0.01	0.18		c0.01	c0.19							
v/s Ratio Perm	0.04			0.05								
v/c Ratio	0.05	0.25		0.07	0.27							
Uniform Delay, d1	0.5	2.9		0.6	3.0							
Progression Factor	0.06	0.08		1.00	1.00							
Incremental Delay, d2	0.1	0.2		0.2	0.3							
Delay (s)	0.1	0.5		0.7	3.3							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			3.1			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	1.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3395		1770	3421						1642	
Flt Permitted		1.00		0.34	1.00						0.98	
Satd. Flow (perm)		3395		628	3421						1642	
Volume (vph)	0	576	31	23	370	0	0	0	0	38	23	20
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	626	34	25	402	0	0	0	0	41	25	22
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	660	0	25	402	0	0	0	0	0	76	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1471		272	1482						712	
v/s Ratio Prot		c0.19			0.12							
v/s Ratio Perm				0.04							0.05	
v/c Ratio		0.45		0.09	0.27						0.11	
Uniform Delay, d1		12.0		10.0	10.9						10.1	
Progression Factor		1.00		0.87	0.86						1.00	
Incremental Delay, d2		1.0		0.7	0.4						0.3	
Delay (s)		13.0		9.4	9.8						10.4	
Level of Service		B		A	A						B	
Approach Delay (s)		13.0			9.8			0.0			10.4	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

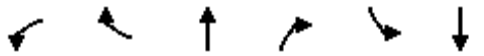
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			0.99			0.97	
Frt		1.00		1.00	0.99			0.94			0.99	
Flt Protected		1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)		3539		1770	3499			1593			1657	
Flt Permitted		0.95		0.10	1.00			0.76			0.72	
Satd. Flow (perm)		3379		189	3499			1250			1246	
Volume (vph)	1	1190	1	7	269	14	27	0	20	217	5	12
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	1	1337	1	7	280	15	37	0	27	282	6	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	1339	0	7	295	0	0	48	0	0	304	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		99	1827			486			485	
v/s Ratio Prot					0.08							
v/s Ratio Perm		c0.40		0.04				0.04			c0.24	
v/c Ratio		0.76		0.07	0.16			0.10			0.63	
Uniform Delay, d1		17.0		10.7	11.2			17.5			22.2	
Progression Factor		1.00		0.97	0.94			1.00			1.00	
Incremental Delay, d2		3.1		1.4	0.2			0.4			6.0	
Delay (s)		20.1		11.7	10.7			17.9			28.2	
Level of Service		C		B	B			B			C	
Approach Delay (s)		20.1			10.7			17.9			28.2	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	2081	4	0	359	0	0	0	1	0	0	55
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	2262	4	0	433	0	0	0	1	0	0	59
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked												
vC, conflicting volume	433			2268			2543	2699	758	1188	2701	217
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	433			2268			2543	2699	758	1188	2701	217
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	92
cM capacity (veh/h)	1123			221			12	21	349	143	21	786

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	905	905	457	216	216	1	59
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	4	0	0	1	59
cSH	1700	1700	1700	1700	1700	349	786
Volume to Capacity	0.53	0.53	0.27	0.13	0.13	0.00	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.4	9.9
Lane LOS						C	A
Approach Delay (s)	0.0			0.0		15.4	9.9
Approach LOS						C	A

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	50.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3330		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3330		3657			3657
Volume (vph)	98	149	1229	0	0	186
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	108	164	1307	0	0	255
RTOR Reduction (vph)	47	0	0	0	0	0
Lane Group Flow (vph)	225	0	1307	0	0	255
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	962		2275			2275
v/s Ratio Prot	c0.07		c0.36			0.07
v/s Ratio Perm						
v/c Ratio	0.23		0.57			0.11
Uniform Delay, d1	24.4		10.0			6.9
Progression Factor	1.00		0.55			1.00
Incremental Delay, d2	0.6		0.9			0.1
Delay (s)	25.0		6.4			7.0
Level of Service	C		A			A
Approach Delay (s)	25.0		6.4			7.0
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	12	13	16	12	16	16	16	12	12
Total Lost time (s)			4.0	4.0	4.0	4.0			4.0			4.0
Lane Util. Factor			1.00	1.00	1.00	1.00			1.00			1.00
Frpb, ped/bikes			1.00	1.00	1.00	1.00			0.99			1.00
Flpb, ped/bikes			1.00	1.00	1.00	1.00			1.00			1.00
Frt			1.00	0.85	1.00	1.00			0.91			0.90
Flt Protected			1.00	1.00	0.95	1.00			0.98			0.99
Satd. Flow (prot)			1978	1583	1515	2110			1859			1659
Flt Permitted			0.99	1.00	0.39	1.00			0.88			0.91
Satd. Flow (perm)			1954	1583	617	2110			1659			1528
Volume (vph)	15	0	386	341	45	241	1	181	0	312	1	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.92	0.67	0.58	0.58
Adj. Flow (vph)	17	0	429	379	49	262	1	270	0	466	2	0
RTOR Reduction (vph)	0	0	0	202	0	0	0	0	104	0	0	3
Lane Group Flow (vph)	0	0	446	177	49	263	0	0	632	0	0	4
Confl. Peds. (#/hr)					1			5		1		
Heavy Vehicles (%)	93%	2%	2%	2%	23%	2%	2%	3%	2%	2%	2%	2%
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases			4			8			2			6
Permitted Phases	4			4	8			2			6	
Actuated Green, G (s)			28.0	28.0	28.0	28.0			24.0			24.0
Effective Green, g (s)			28.0	28.0	28.0	28.0			24.0			24.0
Actuated g/C Ratio			0.47	0.47	0.47	0.47			0.40			0.40
Clearance Time (s)			4.0	4.0	4.0	4.0			4.0			4.0
Lane Grp Cap (vph)			912	739	288	985			664			611
v/s Ratio Prot						0.12						
v/s Ratio Perm			c0.23	0.11	0.08				c0.38			0.00
v/c Ratio			0.49	0.24	0.17	0.27			0.95			0.01
Uniform Delay, d1			11.1	9.6	9.3	9.7			17.4			10.8
Progression Factor			1.00	1.00	0.94	0.94			1.00			1.00
Incremental Delay, d2			1.9	0.8	1.3	0.7			25.0			0.0
Delay (s)			12.9	10.4	10.0	9.8			42.4			10.8
Level of Service			B	B	A	A			D			B
Approach Delay (s)			11.8			9.8			42.4			10.8
Approach LOS			B			A			D			B

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

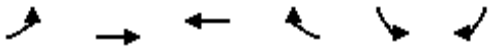
Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	3
Peak-hour factor, PHF	0.58
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	698	2	1	278	6	5
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	751	2	1	296	7	6
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	320					
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			755		1051	754
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			716		1060	715
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		96	98
cM capacity (veh/h)			763		200	360

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	753	1	296	13
Volume Left	0	1	0	7
Volume Right	2	0	0	6
cSH	1700	763	1700	250
Volume to Capacity	0.44	0.00	0.17	0.05
Queue Length 95th (ft)	0	0	0	4
Control Delay (s)	0.0	9.7	0.0	20.2
Lane LOS		A		C
Approach Delay (s)	0.0	0.0		20.2
Approach LOS				C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	22	718	307	26	72	2
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	28	898	465	39	114	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1022				
pX, platoon unblocked					0.99	
vC, conflicting volume	505				1437	485
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	505				1440	485
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	97				10	99
cM capacity (veh/h)	918				127	496

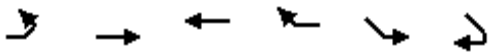
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	28	898	505	117
Volume Left	28	0	0	114
Volume Right	0	0	39	3
cSH	918	1700	1700	130
Volume to Capacity	0.03	0.53	0.30	0.90
Queue Length 95th (ft)	2	0	0	148
Control Delay (s)	9.0	0.0	0.0	119.4
Lane LOS	A			F
Approach Delay (s)	0.3		0.0	119.4
Approach LOS				F

Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	187	486	1	4	187	25	0	2	1	7	1	73
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	208	540	1	4	210	28	0	4	2	8	1	85
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	254			548			1297	1226	551	1212	1213	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	254			548			1297	1226	551	1212	1213	255
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	84			100			100	97	100	93	99	89
cM capacity (veh/h)	1288			1015			103	146	530	114	148	756

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	208	541	243	7	94
Volume Left	208	0	4	0	8
Volume Right	0	1	28	2	85
cSH	1288	1700	1015	192	492
Volume to Capacity	0.16	0.32	0.00	0.03	0.19
Queue Length 95th (ft)	14	0	0	3	18
Control Delay (s)	8.3	0.0	0.2	24.4	14.0
Lane LOS	A		A	C	B
Approach Delay (s)	2.3		0.2	24.4	14.0
Approach LOS				C	B

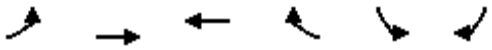
Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	60.9%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	56	423	188	23	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	60	450	196	24	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	225				782	213
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	225				782	213
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	1344				347	827

Direction, Lane #	EB 1	WB 1
Volume Total	510	220
Volume Left	60	0
Volume Right	0	24
cSH	1344	1700
Volume to Capacity	0.04	0.13
Queue Length 95th (ft)	3	0
Control Delay (s)	1.3	0.0
Lane LOS	A	
Approach Delay (s)	1.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1848	1645		1508	
Flt Permitted		0.90	1.00		0.98	
Satd. Flow (perm)		1678	1645		1508	
Volume (vph)	88	482	203	89	42	91
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	96	524	214	94	44	96
RTOR Reduction (vph)	0	0	26	0	67	0
Lane Group Flow (vph)	0	620	282	0	73	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		951	932		452	
v/s Ratio Prot			0.17		c0.05	
v/s Ratio Perm		c0.37				
v/c Ratio		0.65	0.30		0.16	
Uniform Delay, d1		8.9	6.8		15.4	
Progression Factor		0.81	1.00		1.00	
Incremental Delay, d2		3.3	0.8		0.8	
Delay (s)		10.6	7.6		16.2	
Level of Service		B	A		B	
Approach Delay (s)		10.6	7.6		16.2	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.91		1.00	0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3228		1711	3357			3359			3409	1501
Flt Permitted	0.65	1.00		0.40	1.00			0.72			0.85	1.00
Satd. Flow (perm)	1191	3228		719	3357			2450			2917	1501
Volume (vph)	140	161	228	14	131	19	177	490	24	24	327	101
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	156	179	253	16	147	21	199	551	27	29	389	120
RTOR Reduction (vph)	0	180	0	0	13	0	0	3	0	0	0	45
Lane Group Flow (vph)	156	252	0	16	155	0	0	774	0	0	418	75
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	344	933		208	970			1524			1815	934
v/s Ratio Prot		0.08			0.05							
v/s Ratio Perm	c0.13			0.02				c0.32			0.14	0.05
v/c Ratio	0.45	0.27		0.08	0.16			0.51			0.23	0.08
Uniform Delay, d1	26.2	24.7		23.3	23.9			9.4			7.5	6.8
Progression Factor	1.00	1.00		1.00	1.00			0.49			1.00	1.00
Incremental Delay, d2	4.3	0.7		0.7	0.4			0.9			0.3	0.2
Delay (s)	30.5	25.4		24.0	24.2			5.5			7.8	6.9
Level of Service	C	C		C	C			A			A	A
Approach Delay (s)		26.7			24.2			5.5			7.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2000			3046	3047		1945		
Flt Permitted		0.99			0.75	1.00		0.97		
Satd. Flow (perm)		2000			2304	3047		1945		
Volume (vph)	38	78	34	87	676	585	42	87	42	8
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	42	87	38	90	697	629	45	105	51	10
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	167	0	0	787	668	0	164	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		444			1075	1422		346		
v/s Ratio Prot		c0.08				0.22		c0.08		
v/s Ratio Perm					c0.34					
v/c Ratio		0.38			0.73	0.47		0.47		
Uniform Delay, d1		29.7			19.4	16.4		33.2		
Progression Factor		1.00			0.85	0.82		1.00		
Incremental Delay, d2		2.4			4.2	1.1		4.6		
Delay (s)		32.1			20.7	14.6		37.8		
Level of Service		C			C	B		D		
Approach Delay (s)		32.1			20.7	14.6		37.8		
Approach LOS		C			C	B		D		

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.94		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1968		1652		1478		3303		1652	2905	
Flt Permitted	0.95	1.00		0.50		1.00		1.00		0.32	1.00	
Satd. Flow (perm)	2006	1968		863		1478		3303		563	2905	
Volume (vph)	84	110	78	185	0	69	0	739	0	77	688	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	95	125	89	203	0	76	0	778	0	82	732	0
RTOR Reduction (vph)	0	29	0	0	0	56	0	0	0	0	0	0
Lane Group Flow (vph)	95	185	0	203	0	20	0	778	0	82	732	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	525		230		394		2129		363	1872	
v/s Ratio Prot		0.09						0.24			c0.25	
v/s Ratio Perm	0.05			c0.24		0.01				0.15		
v/c Ratio	0.18	0.35		0.88		0.05		0.37		0.23	0.39	
Uniform Delay, d1	25.4	26.7		31.6		24.5		7.4		6.7	7.6	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.85	1.73	
Incremental Delay, d2	0.7	1.9		35.3		0.2		0.5		1.3	0.6	
Delay (s)	26.1	28.6		66.9		24.8		7.9		13.6	13.7	
Level of Service	C	C		E		C		A		B	B	
Approach Delay (s)		27.8			55.4			7.9			13.7	
Approach LOS		C			E			A			B	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1976		1652	3248		1652	4680	
Flt Permitted	0.64	1.00	1.00	0.48	1.00		0.24	1.00		0.26	1.00	
Satd. Flow (perm)	1145	1863	1531	1016	1976		410	3248		444	4680	
Volume (vph)	91	86	131	85	86	64	129	739	93	38	850	87
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	95	144	104	105	78	140	803	101	41	924	95
RTOR Reduction (vph)	0	0	126	0	22	0	0	6	0	0	8	0
Lane Group Flow (vph)	100	95	18	104	161	0	140	898	0	41	1011	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	233	191	278	428		243	1927		263	2777	
v/s Ratio Prot		0.05		0.02	c0.08			0.28			0.22	
v/s Ratio Perm	c0.09		0.01	0.06			c0.34			0.09		
v/c Ratio	0.70	0.41	0.09	0.37	0.38		0.58	0.47		0.16	0.36	
Uniform Delay, d1	50.3	48.4	46.5	39.0	40.1		15.1	13.7		10.9	12.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.7	5.2	1.0	3.8	2.5		9.6	0.8		1.3	0.4	
Delay (s)	75.1	53.6	47.5	42.8	42.6		24.7	14.5		12.2	13.0	
Level of Service	E	D	D	D	D		C	B		B	B	
Approach Delay (s)		57.3			42.7			15.9			13.0	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.98							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.96							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1763	3534		1761	3349							
Flt Permitted	0.31	1.00		0.46	1.00							
Satd. Flow (perm)	567	3534		857	3349							
Volume (vph)	47	479	4	53	585	188	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	50	510	4	61	672	216	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	52	0	0	0	0	0	0	0
Lane Group Flow (vph)	50	513	0	61	836	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	671	2533		878	2400							
v/s Ratio Prot	c0.01	0.15		0.01	c0.25							
v/s Ratio Perm	0.05			0.05								
v/c Ratio	0.07	0.20		0.07	0.35							
Uniform Delay, d1	0.6	2.8		0.6	3.2							
Progression Factor	0.05	0.05		1.01	1.00							
Incremental Delay, d2	0.2	0.2		0.2	0.4							
Delay (s)	0.2	0.3		0.7	3.6							
Level of Service	A	A		A	A							
Approach Delay (s)		0.3			3.4			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3385		1770	3421						1642	
Flt Permitted		1.00		0.37	1.00						0.98	
Satd. Flow (perm)		3385		683	3421						1642	
Volume (vph)	0	532	40	173	342	0	0	0	0	35	22	19
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	566	43	178	353	0	0	0	0	37	23	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	609	0	178	353	0	0	0	0	0	69	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1467		296	1482						712	
v/s Ratio Prot		0.18			0.10							
v/s Ratio Perm				c0.26							0.04	
v/c Ratio		0.42		0.60	0.24						0.10	
Uniform Delay, d1		11.7		13.0	10.7						10.1	
Progression Factor		1.00		0.83	0.87						1.00	
Incremental Delay, d2		0.9		8.3	0.4						0.3	
Delay (s)		12.6		19.1	9.7						10.3	
Level of Service		B		B	A						B	
Approach Delay (s)		12.6			12.8			0.0			10.3	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

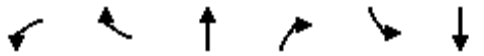
Movement	EBL2	EBT	EBR	WBL	WBT	WBR	NBL2	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.98			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			0.97	
Frt		1.00		1.00	0.99			0.94			1.00	
Flt Protected		1.00		0.95	1.00			0.97			0.95	
Satd. Flow (prot)		3539		1770	3503			1613			1662	
Flt Permitted		0.95		0.09	1.00			0.78			0.72	
Satd. Flow (perm)		3379		159	3503			1294			1247	
Volume (vph)	1	1464	1	7	305	14	28	0	21	434	6	12
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.73	0.73	0.73	0.77	0.77	0.77
Adj. Flow (vph)	1	1645	1	7	318	15	38	0	29	564	8	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	1647	0	7	333	0	0	58	0	0	588	0
Confl. Peds. (#/hr)	13		8	8		13	30		19	19		30
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	8%	2%	3%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)		47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)		5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)		1765		83	1829			503			485	
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.49		0.04				0.05			c0.47	
v/c Ratio		0.93		0.08	0.18			0.12			1.21	
Uniform Delay, d1		20.0		10.7	11.4			17.6			27.5	
Progression Factor		1.00		1.04	0.97			1.00			1.00	
Incremental Delay, d2		10.5		2.0	0.2			0.5			113.4	
Delay (s)		30.6		13.1	11.2			18.1			140.9	
Level of Service		C		B	B			B			F	
Approach Delay (s)		30.6			11.3			18.1			140.9	
Approach LOS		C			B			B			F	

Intersection Summary			
HCM Average Control Delay	52.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	2599	4	0	399	0	0	0	1	0	0	57
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.93	0.93	0.93
Hourly flow rate (vph)	0	2825	4	0	481	0	0	0	1	0	0	61
Pedestrians		1						2				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					398							
pX, platoon unblocked												
vC, conflicting volume	481			2831			3132	3310	946	1424	3312	241
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	481			2831			3132	3310	946	1424	3312	241
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	92
cM capacity (veh/h)	1078			132			4	8	262	95	8	759

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	1130	1130	569	240	240	1	61
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	4	0	0	1	61
cSH	1700	1700	1700	1700	1700	262	759
Volume to Capacity	0.66	0.66	0.33	0.14	0.14	0.01	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	18.8	10.2
Lane LOS						C	B
Approach Delay (s)	0.0			0.0		18.8	10.2
Approach LOS						C	B

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	60.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	13	13	13	13	13	13
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	0.97		0.95			0.95
Frt	0.91		1.00			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	3327		3657			3657
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	3327		3657			3657
Volume (vph)	102	160	1278	1	0	191
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.73	0.73
Adj. Flow (vph)	112	176	1360	1	0	262
RTOR Reduction (vph)	42	0	0	0	0	0
Lane Group Flow (vph)	246	0	1361	0	0	262
Turn Type						
Protected Phases	2		8			8
Permitted Phases						
Actuated Green, G (s)	24.0		54.0			54.0
Effective Green, g (s)	26.0		56.0			56.0
Actuated g/C Ratio	0.29		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Lane Grp Cap (vph)	961		2275			2275
v/s Ratio Prot	c0.07		c0.37			0.07
v/s Ratio Perm						
v/c Ratio	0.26		0.60			0.12
Uniform Delay, d1	24.6		10.2			6.9
Progression Factor	1.00		0.71			1.00
Incremental Delay, d2	0.6		1.0			0.1
Delay (s)	25.2		8.3			7.0
Level of Service	C		A			A
Approach Delay (s)	25.2		8.3			7.0
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	12	13	16	12	16	12	16	12	12
Total Lost time (s)			4.0	4.0	4.0	4.0		4.0		4.0		4.0
Lane Util. Factor			1.00	1.00	1.00	1.00		1.00		1.00		1.00
Frpb, ped/bikes			1.00	1.00	1.00	1.00		1.00		0.98		1.00
Flpb, ped/bikes			1.00	1.00	1.00	1.00		0.99		1.00		1.00
Frt			1.00	0.85	1.00	1.00		1.00		0.85		0.90
Flt Protected			1.00	1.00	0.95	1.00		0.95		1.00		0.99
Satd. Flow (prot)			1977	1583	1515	2110		1975		1755		1659
Flt Permitted			0.98	1.00	0.29	1.00		0.75		1.00		0.99
Satd. Flow (perm)			1949	1583	461	2110		1566		1755		1659
Volume (vph)	16	0	401	790	95	250	1	391	0	543	1	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.67	0.67	0.67	0.58	0.58
Adj. Flow (vph)	18	0	446	878	103	272	1	584	0	810	2	0
RTOR Reduction (vph)	0	0	0	556	0	0	0	0	0	112	0	3
Lane Group Flow (vph)	0	0	464	322	103	273	0	584	0	699	0	5
Confl. Peds. (#/hr)					1			5		1		
Heavy Vehicles (%)	93%	2%	2%	2%	23%	2%	2%	3%	2%	2%	2%	2%
Turn Type	Perm	Perm		Perm	Perm			custom		custom	Perm	
Protected Phases			4			8						6
Permitted Phases	4	4		4	8			2		2	6	
Actuated Green, G (s)			22.0	22.0	22.0	22.0		30.0		30.0		30.0
Effective Green, g (s)			22.0	22.0	22.0	22.0		30.0		30.0		30.0
Actuated g/C Ratio			0.37	0.37	0.37	0.37		0.50		0.50		0.50
Clearance Time (s)			4.0	4.0	4.0	4.0		4.0		4.0		4.0
Lane Grp Cap (vph)			715	580	169	774		783		878		830
v/s Ratio Prot						0.13						
v/s Ratio Perm			c0.24	0.20	0.22			0.37		c0.40		0.00
v/c Ratio			0.65	0.56	0.61	0.35		0.75		0.80		0.01
Uniform Delay, d1			15.8	15.1	15.5	13.8		12.0		12.5		7.5
Progression Factor			1.00	1.00	0.94	0.93		1.00		1.00		1.00
Incremental Delay, d2			4.5	3.8	15.3	1.3		6.4		7.4		0.0
Delay (s)			20.3	18.9	29.8	14.1		18.3		19.8		7.5
Level of Service			C	B	C	B		B		B		A
Approach Delay (s)			19.4			18.4			19.2			7.5
Approach LOS			B			B			B			A

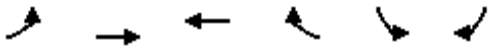
Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	3
Peak-hour factor, PHF	0.58
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	944	2	1	336	6	6
Peak Hour Factor	0.93	0.93	0.94	0.94	0.82	0.82
Hourly flow rate (vph)	1015	2	1	357	7	7
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	320					
pX, platoon unblocked			0.83		0.83	0.83
vC, conflicting volume			1019		1378	1018
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1023		1455	1022
tC, single (s)			4.1		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.4
p0 queue free %			100		93	97
cM capacity (veh/h)			562		109	229

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1017	1	357	15
Volume Left	0	1	0	7
Volume Right	2	0	0	7
cSH	1700	562	1700	148
Volume to Capacity	0.60	0.00	0.21	0.10
Queue Length 95th (ft)	0	0	0	8
Control Delay (s)	0.0	11.4	0.0	32.0
Lane LOS		B		D
Approach Delay (s)	0.0	0.0		32.0
Approach LOS				D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	23	965	367	27	75	2
Peak Hour Factor	0.80	0.80	0.66	0.66	0.63	0.63
Hourly flow rate (vph)	29	1206	556	41	119	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1022				
pX, platoon unblocked					0.95	
vC, conflicting volume	597				1840	577
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	597				1889	577
tC, single (s)	4.4				6.6	6.7
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	97				0	99
cM capacity (veh/h)	845				62	437

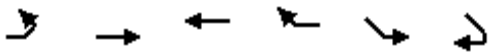
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	29	1206	597	122
Volume Left	29	0	0	119
Volume Right	0	0	41	3
cSH	845	1700	1700	64
Volume to Capacity	0.03	0.71	0.35	1.91
Queue Length 95th (ft)	3	0	0	283
Control Delay (s)	9.4	0.0	0.0	567.8
Lane LOS	A			F
Approach Delay (s)	0.2		0.0	567.8
Approach LOS				F

Intersection Summary			
Average Delay	35.7		
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	384	534	1	4	223	26	0	2	1	7	1	95
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.46	0.46	0.46	0.86	0.86	0.86
Hourly flow rate (vph)	427	593	1	4	251	29	0	4	2	8	1	110
Pedestrians		15			3			7			16	
Lane Width (ft)		11.0			12.0			12.0			16.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	296			601			1854	1759	604	1744	1745	296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	296			601			1854	1759	604	1744	1745	296
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	66			100			100	92	100	79	98	85
cM capacity (veh/h)	1243			970			33	54	494	38	55	717

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	427	594	284	7	120
Volume Left	427	0	4	0	8
Volume Right	0	1	29	2	110
cSH	1243	1700	970	77	308
Volume to Capacity	0.34	0.35	0.00	0.08	0.39
Queue Length 95th (ft)	39	0	0	7	44
Control Delay (s)	9.4	0.0	0.2	56.2	23.9
Lane LOS	A		A	F	C
Approach Delay (s)	3.9		0.2	56.2	23.9
Approach LOS				F	C

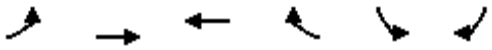
Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	65.8%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	59	469	224	24	0	0
Peak Hour Factor	0.94	0.94	0.96	0.96	0.42	0.42
Hourly flow rate (vph)	63	499	233	25	0	0
Pedestrians					5	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			786			
pX, platoon unblocked						
vC, conflicting volume	263				875	251
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	263				875	251
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	1301				304	788

Direction, Lane #	EB 1	WB 1
Volume Total	562	258
Volume Left	63	0
Volume Right	0	25
cSH	1301	1700
Volume to Capacity	0.05	0.15
Queue Length 95th (ft)	4	0
Control Delay (s)	1.4	0.0
Lane LOS	A	
Approach Delay (s)	1.4	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.96		0.90	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1847	1646		1499	
Flt Permitted		0.89	1.00		0.99	
Satd. Flow (perm)		1651	1646		1499	
Volume (vph)	104	519	215	92	44	119
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.95
Adj. Flow (vph)	113	564	226	97	46	125
RTOR Reduction (vph)	0	0	26	0	88	0
Lane Group Flow (vph)	0	677	297	0	84	0
Confl. Peds. (#/hr)	1			1	4	12
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		936	933		450	
v/s Ratio Prot			0.18		c0.06	
v/s Ratio Perm		c0.41				
v/c Ratio		0.72	0.32		0.19	
Uniform Delay, d1		9.5	6.9		15.6	
Progression Factor		0.99	1.00		1.00	
Incremental Delay, d2		4.5	0.9		0.9	
Delay (s)		14.0	7.8		16.5	
Level of Service		B	A		B	
Approach Delay (s)		14.0	7.8		16.5	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.92		1.00	0.98			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3239		1711	3362			3361			3405	1501
Flt Permitted	0.63	1.00		0.37	1.00			0.71			0.80	1.00
Satd. Flow (perm)	1167	3239		669	3362			2425			2751	1501
Volume (vph)	146	182	237	15	149	20	184	525	24	35	338	105
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	162	202	263	17	167	22	207	590	27	42	402	125
RTOR Reduction (vph)	0	187	0	0	11	0	0	3	0	0	0	47
Lane Group Flow (vph)	162	278	0	17	178	0	0	821	0	0	444	78
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	337	936		193	971			1509			1712	934
v/s Ratio Prot		0.09			0.05							
v/s Ratio Perm	c0.14			0.03				c0.34			0.16	0.05
v/c Ratio	0.48	0.30		0.09	0.18			0.54			0.26	0.08
Uniform Delay, d1	26.4	24.9		23.3	24.0			9.7			7.7	6.8
Progression Factor	1.00	1.00		1.00	1.00			0.56			1.00	1.00
Incremental Delay, d2	4.8	0.8		0.9	0.4			0.9			0.4	0.2
Delay (s)	31.3	25.7		24.2	24.4			6.3			8.0	6.9
Level of Service	C	C		C	C			A			A	A
Approach Delay (s)		27.1			24.4			6.3			7.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2000			3047	3047		1945		
Flt Permitted		0.99			0.73	1.00		0.97		
Satd. Flow (perm)		2000			2229	3047		1945		
Volume (vph)	39	81	36	96	719	606	43	91	43	9
Peak-hour factor, PHF	0.90	0.90	0.90	0.97	0.97	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	43	90	40	99	741	652	46	110	52	11
RTOR Reduction (vph)	0	0	0	0	0	6	0	2	0	0
Lane Group Flow (vph)	0	173	0	0	840	692	0	171	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	11%	10%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			39.0	39.0		13.0		
Effective Green, g (s)		20.0			42.0	42.0		16.0		
Actuated g/C Ratio		0.22			0.47	0.47		0.18		
Clearance Time (s)		7.0			7.0	7.0		7.0		
Lane Grp Cap (vph)		444			1040	1422		346		
v/s Ratio Prot		c0.09				0.23		c0.09		
v/s Ratio Perm					c0.38					
v/c Ratio		0.39			0.81	0.49		0.49		
Uniform Delay, d1		29.8			20.5	16.6		33.3		
Progression Factor		1.00			0.86	0.82		1.00		
Incremental Delay, d2		2.6			6.5	1.2		4.9		
Delay (s)		32.4			24.1	14.7		38.3		
Level of Service		C			C	B		D		
Approach Delay (s)		32.4			24.1	14.7		38.3		
Approach LOS		C			C	B		D		

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

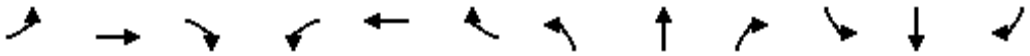
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.94		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1974		1652		1478		3303		1652	2905	
Flt Permitted	0.95	1.00		0.46		1.00		1.00		0.31	1.00	
Satd. Flow (perm)	2006	1974		808		1478		3303		542	2905	
Volume (vph)	88	124	81	361	0	92	0	767	0	81	713	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	100	141	92	397	0	101	0	807	0	86	759	0
RTOR Reduction (vph)	0	26	0	0	0	74	0	0	0	0	0	0
Lane Group Flow (vph)	100	207	0	397	0	27	0	807	0	86	759	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.0	22.0		22.0		22.0		56.0		56.0	56.0	
Effective Green, g (s)	24.0	24.0		24.0		24.0		58.0		58.0	58.0	
Actuated g/C Ratio	0.27	0.27		0.27		0.27		0.64		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	535	526		215		394		2129		349	1872	
v/s Ratio Prot		0.10						0.24			c0.26	
v/s Ratio Perm	0.05			c0.49		0.02				0.16		
v/c Ratio	0.19	0.39		1.85		0.07		0.38		0.25	0.41	
Uniform Delay, d1	25.5	27.0		33.0		24.6		7.5		6.8	7.7	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.86	1.75	
Incremental Delay, d2	0.8	2.2		398.4		0.3		0.5		1.5	0.6	
Delay (s)	26.2	29.2		431.4		25.0		8.0		14.1	14.1	
Level of Service	C	C		F		C		A		B	B	
Approach Delay (s)		28.3			349.0			8.0			14.1	
Approach LOS		C			F			A			B	

Intersection Summary			
HCM Average Control Delay	81.2	HCM Level of Service	F
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	1978		1652	3250		1652	4689	
Flt Permitted	0.64	1.00	1.00	0.47	1.00		0.18	1.00		0.23	1.00	
Satd. Flow (perm)	1138	1863	1531	992	1978		306	3250		402	4689	
Volume (vph)	105	90	137	88	90	66	139	797	97	39	1051	91
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	99	151	107	110	80	151	866	105	42	1142	99
RTOR Reduction (vph)	0	0	132	0	22	0	0	6	0	0	6	0
Lane Group Flow (vph)	115	99	19	107	168	0	151	965	0	42	1235	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	142	233	191	274	429		182	1928		239	2782	
v/s Ratio Prot		0.05		0.02	c0.08			0.30			0.26	
v/s Ratio Perm	c0.10		0.01	0.06			c0.49			0.10		
v/c Ratio	0.81	0.42	0.10	0.39	0.39		0.83	0.50		0.18	0.44	
Uniform Delay, d1	51.1	48.5	46.5	39.1	40.2		19.5	14.1		11.1	13.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	37.5	5.6	1.0	4.1	2.7		33.5	0.9		1.6	0.5	
Delay (s)	88.6	54.1	47.5	43.2	42.9		53.1	15.0		12.7	14.0	
Level of Service	F	D	D	D	D		D	B		B	B	
Approach Delay (s)		62.3			43.0			20.2			13.9	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.8
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.97							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1767	3534		1762	3386							
Flt Permitted	0.22	1.00		0.45	1.00							
Satd. Flow (perm)	412	3534		841	3386							
Volume (vph)	49	498	4	55	802	195	0	0	0	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.60	0.60	0.60	0.66	0.66	0.66
Adj. Flow (vph)	52	530	4	63	922	224	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	35	0	0	0	0	0	0	0
Lane Group Flow (vph)	52	533	0	63	1111	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	29		12	12		29						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	560	2533		867	2427							
v/s Ratio Prot	c0.01	0.15		0.01	c0.33							
v/s Ratio Perm	0.07			0.05								
v/c Ratio	0.09	0.21		0.07	0.46							
Uniform Delay, d1	0.7	2.8		0.6	3.6							
Progression Factor	0.73	0.05		1.00	1.00							
Incremental Delay, d2	0.3	0.2		0.2	0.6							
Delay (s)	0.8	0.3		0.7	4.2							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			4.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3374		1770	3421						1642	
Flt Permitted		1.00		0.34	1.00						0.98	
Satd. Flow (perm)		3374		640	3421						1642	
Volume (vph)	0	554	56	373	356	0	0	0	0	37	22	19
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.62	0.62	0.62	0.94	0.94	0.94
Adj. Flow (vph)	0	589	60	385	367	0	0	0	0	39	23	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	649	0	385	367	0	0	0	0	0	71	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0		25.0	25.0						24.0	
Effective Green, g (s)		26.0		26.0	26.0						26.0	
Actuated g/C Ratio		0.43		0.43	0.43						0.43	
Clearance Time (s)		5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)		1462		277	1482						712	
v/s Ratio Prot		0.19			0.11							
v/s Ratio Perm				c0.60							0.04	
v/c Ratio		0.44		1.39	0.25						0.10	
Uniform Delay, d1		11.9		17.0	10.8						10.1	
Progression Factor		1.00		0.81	0.85						1.00	
Incremental Delay, d2		1.0		194.3	0.4						0.3	
Delay (s)		12.9		208.0	9.5						10.3	
Level of Service		B		F	A						B	
Approach Delay (s)		12.9			111.1			0.0			10.3	
Approach LOS		B			F			A			B	

Intersection Summary			
HCM Average Control Delay	62.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	12
Total Lost time (s)	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00		1.00	1.00			0.98			1.00	
Flpb, ped/bikes	1.00		1.00	1.00			0.99			0.97	
Frt	1.00		1.00	0.99			0.94			0.98	
Flt Protected	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	3504		1770	3500			1656			1643	
Flt Permitted	1.00		0.12	1.00			0.84			0.76	
Satd. Flow (perm)	3504		231	3500			1428			1294	
Volume (vph)	1152	1	8	272	15	29	0	21	85	6	13
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1252	1	9	296	16	32	0	23	92	7	14
RTOR Reduction (vph)	0	0	0	0	0	0	14	0	0	6	0
Lane Group Flow (vph)	1253	0	9	312	0	0	41	0	0	108	0
Confl. Peds. (#/hr)		9	9		10	4		24	24		4
Heavy Vehicles (%)	3%	2%	2%	2%	4%	2%	2%	3%	2%	2%	2%
Turn Type			Perm			Perm			Perm		
Protected Phases	4			8			2			6	
Permitted Phases			8			2			6		
Actuated Green, G (s)	46.0		46.0	46.0			33.0			33.0	
Effective Green, g (s)	47.0		47.0	47.0			35.0			35.0	
Actuated g/C Ratio	0.52		0.52	0.52			0.39			0.39	
Clearance Time (s)	5.0		5.0	5.0			6.0			6.0	
Lane Grp Cap (vph)	1830		121	1828			555			503	
v/s Ratio Prot	c0.36			0.09							
v/s Ratio Perm			0.04				0.03			c0.08	
v/c Ratio	0.68		0.07	0.17			0.07			0.21	
Uniform Delay, d1	16.0		10.7	11.3			17.3			18.3	
Progression Factor	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.1		1.2	0.2			0.3			1.0	
Delay (s)	18.1		11.9	11.5			17.6			19.3	
Level of Service	B		B	B			B			B	
Approach Delay (s)	18.1			11.5			17.6			19.3	
Approach LOS	B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1238	4	0	370	0	0	0	1	0	0	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1346	4	0	402	0	0	0	1	0	0	64
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					431							
pX, platoon unblocked												
vC, conflicting volume	402			1350			1614	1750	452	853	1752	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	402			1350			1614	1750	452	853	1752	202
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	92
cM capacity (veh/h)	1153			506			64	85	555	252	85	804

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	538	538	273	201	201	1	64
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	4	0	0	1	64
cSH	1700	1700	1700	1700	1700	555	804
Volume to Capacity	0.32	0.32	0.16	0.12	0.12	0.00	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.5	9.9
Lane LOS						B	A
Approach Delay (s)	0.0			0.0		11.5	9.9
Approach LOS						B	A

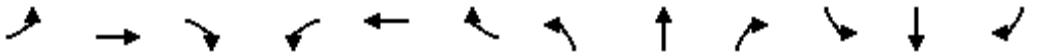
Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	34.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	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
Lane Width	13	13	12	12	13	13	12	12	12	13	12	13
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00	1.00	1.00		1.00	0.88
Frt	1.00	0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			0.96	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)	3513	3580			3527	1636	1770	1863	1583		1851	2880
Flt Permitted	0.40	1.00			0.60	1.00	0.27	1.00	1.00		0.74	1.00
Satd. Flow (perm)	1462	3580			2203	1636	502	1863	1583		1382	2880
Volume (vph)	168	980	88	404	142	335	15	416	339	56	386	208
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	1065	96	439	154	364	16	452	368	61	420	226
RTOR Reduction (vph)	0	11	0	0	0	109	0	0	40	0	0	143
Lane Group Flow (vph)	183	1150	0	0	593	255	16	452	328	0	481	83
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		custom
Protected Phases		4			8			2			6	6
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	29.0	29.0			29.0	29.0	21.0	21.0	21.0		21.0	21.0
Effective Green, g (s)	30.0	30.0			30.0	30.0	22.0	22.0	22.0		22.0	22.0
Actuated g/C Ratio	0.50	0.50			0.50	0.50	0.37	0.37	0.37		0.37	0.37
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	731	1790			1102	818	184	683	580		507	1056
v/s Ratio Prot		c0.32						0.24				0.03
v/s Ratio Perm	0.13				0.27	0.16	0.03		0.21		c0.35	
v/c Ratio	0.25	0.64			3.01dl	0.31	0.09	0.66	0.57		0.95	0.08
Uniform Delay, d1	8.6	11.0			10.3	8.9	12.4	15.9	15.2		18.5	12.4
Progression Factor	1.00	1.00			0.88	0.72	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	1.8			1.5	0.8	0.9	5.0	4.0		29.1	0.1
Delay (s)	9.4	12.8			10.5	7.2	13.4	20.9	19.1		47.5	12.5
Level of Service	A	B			B	A	B	C	B		D	B
Approach Delay (s)		12.4			9.3			20.0			36.3	
Approach LOS		B			A			B			D	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		

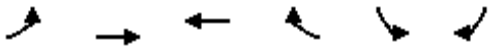
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Movement	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
Lane Width	12	15	12	10	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.91	0.88	1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	3789		1639	5085	2787	1530	1497			1775	1583
Flt Permitted	0.62	1.00		0.59	1.00	1.00	0.63	1.00			0.72	1.00
Satd. Flow (perm)	2241	3789		1024	5085	2787	1016	1497			1347	1583
Volume (vph)	860	219	16	7	185	358	7	1	6	157	2	669
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	935	238	17	8	201	389	8	1	7	171	2	727
RTOR Reduction (vph)	0	7	0	0	0	169	0	5	0	0	0	485
Lane Group Flow (vph)	935	248	0	8	201	220	8	3	0	0	173	242
Confl. Peds. (#/hr)			6	6					1			
Heavy Vehicles (%)	2%	2%	25%	2%	2%	2%	18%	2%	10%	2%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	33.0	33.0		33.0	33.0	33.0	17.0	17.0			17.0	17.0
Effective Green, g (s)	34.0	34.0		34.0	34.0	34.0	18.0	18.0			18.0	18.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57	0.30	0.30			0.30	0.30
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lane Grp Cap (vph)	1270	2147		580	2882	1579	305	449			404	475
v/s Ratio Prot		0.07			0.04			0.00				
v/s Ratio Perm	c0.42			0.01		0.08	0.01				0.13	c0.15
v/c Ratio	0.74	0.12		0.01	0.07	0.14	0.03	0.01			0.43	0.51
Uniform Delay, d1	9.7	6.0		5.7	5.9	6.1	14.8	14.7			16.9	17.4
Progression Factor	0.95	1.13		0.81	0.80	1.27	1.00	1.00			1.00	1.00
Incremental Delay, d2	2.9	0.1		0.0	0.0	0.2	0.2	0.0			3.3	3.9
Delay (s)	12.1	6.9		4.6	4.7	8.0	15.0	14.8			20.2	21.2
Level of Service	B	A		A	A	A	B	B			C	C
Approach Delay (s)		11.0			6.8			14.9			21.0	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



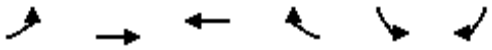
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	13	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1267	3195	1650	1170	1480	1077
Flt Permitted	0.59	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	782	3195	1650	1170	1480	1077
Volume (vph)	21	355	227	66	79	316
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	386	247	72	86	343
RTOR Reduction (vph)	0	0	0	37	0	212
Lane Group Flow (vph)	23	386	247	35	86	131
Heavy Vehicles (%)	33%	13%	19%	38%	22%	50%
Turn Type	Perm			Perm		Perm
Protected Phases		2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	27.0	27.0	27.0	27.0	21.0	21.0
Effective Green, g (s)	29.0	29.0	29.0	29.0	23.0	23.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.38	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	378	1544	798	566	567	413
v/s Ratio Prot		0.12	c0.15		0.06	
v/s Ratio Perm	0.03			0.03		c0.12
v/c Ratio	0.06	0.25	0.31	0.06	0.15	0.32
Uniform Delay, d1	8.3	9.1	9.4	8.3	12.1	13.0
Progression Factor	0.93	0.86	1.21	2.22	1.00	1.00
Incremental Delay, d2	0.3	0.4	1.0	0.2	0.6	2.0
Delay (s)	8.0	8.2	12.4	18.6	12.7	15.0
Level of Service	A	A	B	B	B	B
Approach Delay (s)		8.2	13.8		14.5	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	9	13	12	12	12	12	12	12	12	16	16	16
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			0.97	
Flpb, ped/bikes	0.99	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.99			1.00			0.88	
Flt Protected	0.95	1.00			1.00			0.97			0.99	
Satd. Flow (prot)	1577	1924			1813			1791			1717	
Flt Permitted	0.56	1.00			0.99			0.94			0.98	
Satd. Flow (perm)	925	1924			1802			1735			1699	
Volume (vph)	39	530	2	4	228	27	2	1	0	8	1	63
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	576	2	4	248	29	2	1	0	9	1	68
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	39	0
Lane Group Flow (vph)	42	578	0	0	274	0	0	3	0	0	39	0
Confl. Peds. (#/hr)	9			11		9	6			2		6
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	30%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.0	25.0			25.0			26.0			26.0	
Effective Green, g (s)	26.0	26.0			26.0			26.0			26.0	
Actuated g/C Ratio	0.43	0.43			0.43			0.43			0.43	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Lane Grp Cap (vph)	401	834			781			752			736	
v/s Ratio Prot		c0.30										
v/s Ratio Perm	0.05				0.15			0.00			c0.02	
v/c Ratio	0.10	0.69			0.35			0.00			0.05	
Uniform Delay, d1	10.1	13.8			11.4			9.7			9.9	
Progression Factor	0.81	0.92			0.94			1.00			1.00	
Incremental Delay, d2	0.5	4.7			1.2			0.0			0.1	
Delay (s)	8.7	17.4			11.9			9.7			10.0	
Level of Service	A	B			B			A			B	
Approach Delay (s)		16.8			11.9			9.7			10.0	
Approach LOS		B			B			A			B	

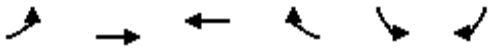
Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	61	462	231	25	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	502	251	27	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		862	786			
pX, platoon unblocked					0.75	
vC, conflicting volume	287				908	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	287				877	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	1275				225	765

Direction, Lane #	EB 1	WB 1
Volume Total	568	278
Volume Left	66	0
Volume Right	0	27
cSH	1275	1700
Volume to Capacity	0.05	0.16
Queue Length 95th (ft)	4	0
Control Delay (s)	1.5	0.0
Lane LOS	A	
Approach Delay (s)	1.5	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.91		0.90	
Flt Protected		0.99	1.00		0.99	
Satd. Flow (prot)		1850	1570		1522	
Flt Permitted		0.91	1.00		0.99	
Satd. Flow (perm)		1689	1570		1522	
Volume (vph)	85	538	96	222	46	122
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	585	104	241	50	133
RTOR Reduction (vph)	0	0	104	0	93	0
Lane Group Flow (vph)	0	677	241	0	90	0
Confl. Peds. (#/hr)					7	1
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		33.0	33.0		17.0	
Effective Green, g (s)		34.0	34.0		18.0	
Actuated g/C Ratio		0.57	0.57		0.30	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		957	890		457	
v/s Ratio Prot			0.15		c0.06	
v/s Ratio Perm		c0.40				
v/c Ratio		0.71	0.27		0.20	
Uniform Delay, d1		9.4	6.7		15.6	
Progression Factor		1.51	1.00		1.00	
Incremental Delay, d2		3.9	0.7		1.0	
Delay (s)		18.0	7.4		16.6	
Level of Service		B	A		B	
Approach Delay (s)		18.0	7.4		16.6	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Lane Width	12	12	12	11	11	11	11	11	9	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	1.00
Frt	1.00	0.92		1.00	0.98			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1752	3239		1711	3349			3358			3406	1501
Flt Permitted	0.65	1.00		0.37	1.00			0.71			0.81	1.00
Satd. Flow (perm)	1196	3239		659	3349			2426			2765	1501
Volume (vph)	152	189	246	16	130	21	214	544	25	35	348	109
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	205	267	17	141	23	233	591	27	38	378	118
RTOR Reduction (vph)	0	190	0	0	15	0	0	3	0	0	0	45
Lane Group Flow (vph)	165	282	0	17	149	0	0	848	0	0	416	73
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	24.0	24.0		24.0	24.0			40.0			40.0	40.0
Effective Green, g (s)	26.0	26.0		26.0	26.0			56.0			56.0	56.0
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.62			0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0			20.0			20.0	20.0
Lane Grp Cap (vph)	346	936		190	967			1510			1720	934
v/s Ratio Prot		0.09			0.04							
v/s Ratio Perm	c0.14			0.03				c0.35			0.15	0.05
v/c Ratio	0.48	0.30		0.09	0.15			0.56			0.24	0.08
Uniform Delay, d1	26.4	24.9		23.4	23.8			9.9			7.6	6.8
Progression Factor	1.00	1.00		1.00	1.00			0.60			1.00	1.00
Incremental Delay, d2	4.7	0.8		0.9	0.3			0.9			0.3	0.2
Delay (s)	31.0	25.8		24.3	24.2			6.9			7.9	6.9
Level of Service	C	C		C	C			A			A	A
Approach Delay (s)		27.1			24.2			6.9			7.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SWL	SWR	SWR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	10	10	10	10	16	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0		
Lane Util. Factor		1.00			0.95	0.95		1.00		
Frt		0.97			1.00	0.99		0.95		
Flt Protected		0.99			0.99	1.00		0.97		
Satd. Flow (prot)		2001			3284	3270		1945		
Flt Permitted		0.99			0.72	1.00		0.97		
Satd. Flow (perm)		2001			2373	3270		1945		
Volume (vph)	41	85	37	99	768	627	45	94	45	9
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	92	40	108	835	682	49	102	49	10
RTOR Reduction (vph)	0	0	0	0	0	6	0	3	0	0
Lane Group Flow (vph)	0	177	0	0	943	725	0	159	0	0
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	custom			Perm						
Protected Phases	4	4			2	6		8		
Permitted Phases	4			2						
Actuated Green, G (s)		17.0			42.0	42.0		13.0		
Effective Green, g (s)		19.0			44.0	44.0		15.0		
Actuated g/C Ratio		0.21			0.49	0.49		0.17		
Clearance Time (s)		6.0			6.0	6.0		6.0		
Lane Grp Cap (vph)		422			1160	1599		324		
v/s Ratio Prot		c0.09				0.22		c0.08		
v/s Ratio Perm					c0.40					
v/c Ratio		0.42			0.81	0.45		0.49		
Uniform Delay, d1		30.7			19.5	15.1		34.0		
Progression Factor		1.00			0.77	0.83		1.00		
Incremental Delay, d2		3.0			5.8	0.9		5.2		
Delay (s)		33.8			20.9	13.5		39.2		
Level of Service		C			C	B		D		
Approach Delay (s)		33.8			20.9	13.5		39.2		
Approach LOS		C			C	B		D		

Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Lane Width	16	16	16	10	16	10	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.93		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	2006	1963		1652		1478		3240		1652	2905	
Flt Permitted	0.95	1.00		0.52		1.00		1.00		0.26	1.00	
Satd. Flow (perm)	2006	1963		897		1478		3240		449	2905	
Volume (vph)	91	110	85	55	0	74	0	859	0	84	739	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	120	92	60	0	80	0	934	0	91	803	0
RTOR Reduction (vph)	0	31	0	0	0	57	0	0	0	0	0	0
Lane Group Flow (vph)	99	181	0	60	0	23	0	934	0	91	803	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	4%	2%	2%	16%	2%
Turn Type	Perm			custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	24.0	24.0		24.0		24.0		54.0		54.0	54.0	
Effective Green, g (s)	26.0	26.0		26.0		26.0		56.0		56.0	56.0	
Actuated g/C Ratio	0.29	0.29		0.29		0.29		0.62		0.62	0.62	
Clearance Time (s)	6.0	6.0		6.0		6.0		6.0		6.0	6.0	
Lane Grp Cap (vph)	580	567		259		427		2016		279	1808	
v/s Ratio Prot		c0.09						c0.29			0.28	
v/s Ratio Perm	0.05			0.07		0.02				0.20		
v/c Ratio	0.17	0.32		0.23		0.05		0.46		0.33	0.44	
Uniform Delay, d1	23.9	25.1		24.4		23.1		9.0		8.1	8.9	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.99	1.94	
Incremental Delay, d2	0.6	1.5		2.1		0.2		0.8		2.9	0.7	
Delay (s)	24.6	26.6		26.5		23.4		9.8		18.9	17.9	
Level of Service	C	C		C		C		A		B	B	
Approach Delay (s)		25.9			24.7			9.8			18.0	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

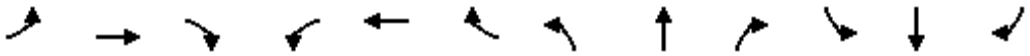
c Critical Lane Group

Movement	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
Lane Width	11	12	11	16	16	16	10	10	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	1863	1531	2006	2037		1652	3247		1652	4721	
Flt Permitted	0.68	1.00	1.00	0.57	1.00		0.33	1.00		0.25	1.00	
Satd. Flow (perm)	1217	1863	1531	1194	2037		575	3247		438	4721	
Volume (vph)	38	57	184	140	82	25	171	746	95	25	667	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	62	200	152	89	27	186	811	103	27	725	27
RTOR Reduction (vph)	0	0	175	0	9	0	0	6	0	0	2	0
Lane Group Flow (vph)	41	62	25	152	107	0	186	908	0	27	750	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	25.0	25.0		69.2	69.2		69.2	69.2	
Effective Green, g (s)	15.0	15.0	15.0	26.0	26.0		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.22	0.22		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0	5.0	3.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	233	191	306	441		341	1927		260	2801	
v/s Ratio Prot		0.03		c0.03	0.05			0.28			0.16	
v/s Ratio Perm	0.03		0.02	c0.08			c0.32			0.06		
v/c Ratio	0.27	0.27	0.13	0.50	0.24		0.55	0.47		0.10	0.27	
Uniform Delay, d1	47.5	47.5	46.7	40.2	38.9		14.7	13.8		10.6	11.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	2.8	1.4	5.7	1.3		6.1	0.8		0.8	0.2	
Delay (s)	51.9	50.3	48.1	45.9	40.1		20.8	14.6		11.4	12.0	
Level of Service	D	D	D	D	D		C	B		B	B	
Approach Delay (s)		49.1			43.4			15.7			12.0	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.8
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
Total Lost time (s)	4.0	4.0		4.0	4.0							
Lane Util. Factor	1.00	0.95		1.00	0.95							
Frpb, ped/bikes	1.00	1.00		1.00	0.99							
Flpb, ped/bikes	1.00	1.00		1.00	1.00							
Frt	1.00	1.00		1.00	0.96							
Flt Protected	0.95	1.00		0.95	1.00							
Satd. Flow (prot)	1761	3531		1765	3367							
Flt Permitted	0.38	1.00		0.41	1.00							
Satd. Flow (perm)	708	3531		756	3367							
Volume (vph)	36	586	7	51	491	153	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	637	8	55	534	166	0	0	0	0	0	0
RTOR Reduction (vph)	0	1	0	0	47	0	0	0	0	0	0	0
Lane Group Flow (vph)	39	644	0	55	653	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	20		9	9		20						
Turn Type	pm+pt			pm+pt								
Protected Phases	7	4		3	8							
Permitted Phases	4			8								
Actuated Green, G (s)	50.0	42.0		50.0	42.0							
Effective Green, g (s)	52.0	43.0		52.0	43.0							
Actuated g/C Ratio	0.87	0.72		0.87	0.72							
Clearance Time (s)	5.0	5.0		5.0	5.0							
Lane Grp Cap (vph)	772	2531		807	2413							
v/s Ratio Prot	0.01	0.18		c0.01	c0.19							
v/s Ratio Perm	0.04			0.05								
v/c Ratio	0.05	0.25		0.07	0.27							
Uniform Delay, d1	0.5	2.9		0.6	3.0							
Progression Factor	0.06	0.07		1.00	1.00							
Incremental Delay, d2	0.1	0.2		0.2	0.3							
Delay (s)	0.1	0.4		0.7	3.3							
Level of Service	A	A		A	A							
Approach Delay (s)		0.4			3.1			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	1.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	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
Lane Width	12	11	12	12	11	12	12	12	12	12	10	12
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		0.95			0.95						1.00	
Frt		0.99			1.00						0.97	
Flt Protected		1.00			1.00						0.98	
Satd. Flow (prot)		3375			3412						1642	
Flt Permitted		1.00			0.90						0.98	
Satd. Flow (perm)		3375			3089						1642	
Volume (vph)	0	576	57	23	393	0	0	0	0	38	23	20
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	626	62	25	427	0	0	0	0	41	25	22
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	688	0	0	452	0	0	0	0	0	76	0
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		25.0			25.0						24.0	
Effective Green, g (s)		26.0			26.0						26.0	
Actuated g/C Ratio		0.43			0.43						0.43	
Clearance Time (s)		5.0			5.0						6.0	
Lane Grp Cap (vph)		1463			1339						712	
v/s Ratio Prot		c0.20										
v/s Ratio Perm					0.15						0.05	
v/c Ratio		0.47			0.34						0.11	
Uniform Delay, d1		12.1			11.3						10.1	
Progression Factor		1.00			0.85						1.00	
Incremental Delay, d2		1.1			0.7						0.3	
Delay (s)		13.2			10.2						10.4	
Level of Service		B			B						B	
Approach Delay (s)		13.2			10.2			0.0			10.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX F

LEVEL OF SERVICE SUMMARY TABLE

PENNONI ASSOCIATES, INC.
Consulting Engineers

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Weekday Morning Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
1	Delaware	Eastbound Thru/Right	B	B	B	B	B	B	B
1	Delaware	Westbound Left	B	B	B	B	B	B	B
1	Delaware	Westbound Thru/ Right(Onto Allen St.)	C	C	C	C	C	B	B
1	Columbia	Northbound	B	B	B	B	B	B	B
1	Columbia	Southbound	B	B	C	B	E-56	B	B
		OVERALL	B	B	B	B	C	B	B
2	Delaware	Eastbound Thru/Right	a	a	a	a	a	a	a
2	Delaware	Westbound Thru	a	a	a	a	a	a	a
2	Berks	Northbound Right	b	b	b	b	b	a	b
2	Berks	Southbound Right	b	b	b	b	b	c	c
		Unsignalized							
3	Richmond	Westbound Left/Right	C	C	C	C	C		
3	Delaware	Northbound Thru/Right	A	A	A	A	A		
3	Delaware	Southbound Thru	A	A	A	A	A		
		OVERALL	B	B	B	B	B		
3a	Delaware	Eastbound Left						A	B
3a	Delaware	Eastbound Thru/Right						A	B
3a	Delaware	Westbound Thru/Left						A	B
3a	Delaware	Westbound Right						B	D
3a	Aramingo	Northbound Left							B
3a	Aramingo	Northbound Thru							B
3a	Aramingo	Northbound Right							B
3a	Aramingo	Southbound Thru/Left						B	B
3a	Aramingo	Southbound Right						B	B
		OVERALL						B	B
3b	Delaware	Eastbound Left						B	B
3b	Delaware	Eastbound Thru/Right						A	A
3b	Delaware	Westbound Left						A	A
3b	Delaware	Westbound Thru						A	A
3b	Delaware	Westbound Right						C	B
3b	I-95 Ramp	Northbound Left						A	A
3b	I-95 Ramp	Northbound Thru/Right						A	A
3b	I-95 Ramp	Southbound Thru/Left						B	B
3b	I-95 Ramp	Southbound Right						B	C
		OVERALL						B	B
4	Richmond	Eastbound Thru/Right	a	a	A	a	A		
		Eastbound Right			A		A		
4	Richmond	Westbound Left	a	a	A	a	A		
4	Richmond	Westbound Thru/Right	a	a	B	a	B		
4	Dyott	Northbound Left/Right	b	b	B	b	B		
		Northbound Right					B		

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Weekday Morning Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
	Ice Cream Factory Driveway	Southbound Thru	c	c	B	c	B		
		Unsignalized			B		B		
5	Richmond	Eastbound Thru/Right	a	a	a	a	a		
5	Richmond	Westbound Left	a	a	a	a	a		
5	Richmond	Westbound Thru	a	a	a	a	a		
5	Schirra	Northbound Left/Right	b	b	c	c	c		
		Unsignalized							
6	Richmond	Eastbound Left	a	a	a	a	b	A	B
6	Richmond	Eastbound Thru	a	a	a	a	a	A	A
6	Richmond	Westbound Thru/Right	a	a	a	a	a		
6	Girard	Southbound Left/Right	c	d	d	d	d		
6	Richmond	Westbound Thru						B	B
6	Richmond	Westbound Left						B	B
6	Girard	Southbound Left						B	B
6	Girard	Southbound Right						B	B
		Unsignalized						B	B
7	Richmond	Eastbound Left	a	a	a	a	b	A	A
7	Richmond	Eastbound Thru/Right	a	a	a	a	a	A	A
7	Richmond	Westbound	a	a	a	a	a	D	C
7	Cumberland	Northbound	d	d	e-42	e-37	f-69	B	B
7	Cumberland	Southbound	c	c	c	c	d	B	B
		Unsignalized						C	C
8	Richmond	Eastbound Thru/Left	a	a	a	a	a	a	a
8	Richmond	Wesbound Thru/Right	a	a	a	a	a	a	a
9	Richmond	Eastbound Thru/Left	A	A	A	A	A	B	B
9	Richmond	Westbound Thru/Right	B	B	B	B	B	B	B
9	Lehigh	Southbound Left/Right	B	B	B	B	B	B	B
		OVERALL	B	B	B	B	B	B	B
10	Aramingo	Eastbound Left	C	C	C	C	C	C	C
10	Aramingo	Eastbound Thru/Right	C	C	C	C	C	C	C
10	Aramingo	Westbound Left	C	C	C	C	C	C	C
10	Aramingo	Westbound Thru/Right	C	C	C	C	C	C	C
10	Lehigh	Northbound	A	A	A	A	A	A	A
10	Lehigh	Southbound Thru/Left	A	A	B	B	B	B	B
10	Lehigh	Southbound Right	A	A	A	A	A	A	A
		OVERALL	B	B	B	B	B	B	B
11	Huntingdon	Westbound	C	C	C	C	C	C	C
11	Aramingo	Northbound Thru/Left	C	C	C	C	D	C	C
11	Aramingo	Southbound Thru/Right	D	D	D	D	E	E-73	E-73
11	Belgrade	Southwest Left/Right	D	D	D	D	D	D	D
		OVERALL	C	D	D	D	D	D	D

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Weekday Morning Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
12a	Cumberland	Eastbound Left	C	C	C	C	C	C	C
12a	Cumberland	*Eastbound Thru/Right*	C	C	C	C	C	C	C
12a	Cumberland	Westbound Left	C	C	C	C	D	C	C
12a	Cumberland	Westbound Right	C	C	C	C	C	C	C
12a	Aramingo	Northbound Thru	A	A	A	A	A	A	A
12a	Aramingo	Southbound Left	B	B	B	B	B	B	B
	Aramingo	Southbound Thru	C	C	C	C	C	C	C
		OVERALL	B	B	B	B	B	B	B
13	York	Eastbound Left	E-56	E-56	E-57	E-57	E-58	D	D
13	York	Eastbound Thru	D	D	D	D	D	D	D
13	York	Eastbound Right	D	D	D	D	D	D	D
13	York	Westbound Left	D	D	D	D	D	D	D
13	York	Westbound Thru/Right	D	D	D	D	D	D	D
13	Aramingo	Northbound Left	F-83	F-107	F-120	F-156	F-195	F-270	F-283
13	Aramingo	Northbound Thru/Right	A	B	B	B	B	B	B
13	Aramingo	Southbound Left	A	A	A	A	A	A	A
13	Aramingo	Southbound Thru/Right	B	B	B	B	B	B	B
		OVERALL	C	C	C	C	C	C	D
14	Girard	Eastbound Left	A	A	A	A	A	A	A
14	Girard	Eastbound Thru/Right	A	A	A	A	A	A	A
14	Girard	Westbound Left	A	A	A	A	A	A	A
14	Girard	Westbound Thru/Right	A	A	A	A	A	A	A
		OVERALL	A	A	A	A	A	A	A
15	Girard	Eastbound Thru/Right	B	B	B	B	B	B	B
15	Girard	Westbound Left	A	A	B	A	B	B	A
15	Girard	Westbound Thru	B	B	B	B	B	B	B
15	Columbia	Southbound	B	B	B	B	B	B	B
15		OVERALL	B	B	B	B	B	B	B

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Weekday Evening Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
1	Delaware	Eastbound Thru/Right	F-98	F-122	F-159	F-143	F-226	F-120	F-131
1	Delaware	Westbound Left	B	B	B	B	B	B	B
1	Delaware	Westbound Thru/ Right(Onto Allen St.)	B	B	B	B	B	B	B
1	Columbia	Northbound	B	B	b	B	B	B	B
1	Columbia	Southbound	C	C	c	C	F-132	C	C
		OVERALL	E-79	F-94	F-119	F-110	F-176	F-93	F-101
2	Delaware	Eastbound Thru/Right	a	a	a	a	a	a	a
2	Delaware	Westbound Thru	a	a	a	a	a	a	a
2	Berks	Northbound Right	c	c	d	c	d	b	b
2	Berks	Southbound Right	b	b	b	b	b	b	b
		Unsignalized							
3	Richmond	Westbound Left/Right	C	C	C	C	C		
3	Delaware	Northbound Thru/Right	C	C	C	D	C		
3	Delaware	Southbound Thru	A	A	A	A	A		
		OVERALL	C	C	C	D	C		
3a	Delaware	Eastbound Left						A	B
3a	Delaware	Eastbound Thru/Right						B	B
3a	Delaware	Westbound Thru/Left						A	A
3a	Delaware	Westbound Right						A	B
3a	Aramingo	Northbound Left							B
3a	Aramingo	Northbound Thru							B
3a	Aramingo	Northbound Right							B
3a	Aramingo	Southbound Thru/Left						B	D
3a	Aramingo	Southbound Right						B	B
		OVERALL						A	B
3b	Delaware	Eastbound Left						C	C
3b	Delaware	Eastbound Thru/Right						A	A
3b	Delaware	Westbound Left						A	A
3b	Delaware	Westbound Thru						A	A
3b	Delaware	Westbound Right						B	A
3b	I-95 Ramp	Northbound Left						B	B
3b	I-95 Ramp	Northbound Thru/Right						B	B
3b	I-95 Ramp	Southbound Thru/Left						C	D
3b	I-95 Ramp	Southbound Right						C	D
		OVERALL						B	C
4	Richmond	Eastbound Thru/Right	a	a	C	a	C		
		Eastbound Right			A		B		
4	Richmond	Westbound Left	a	a	C	b	D		
4	Richmond	Westbound Thru/Right	a	a	B	a	B		
4	Dyott	Northbound Left/Right	f-166	f-216	*f-186*	f-270	*C*		
		Northbound Right					*C*		

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Weekday Evening Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
	Ice Cream Factory Driveway	Southbound Thru	f-95	f-171	*B*	*f*	*B*		
		Unsignalized			E-78		C		
5	Richmond	Eastbound Thru/Right	a	a	a	a	a		
5	Richmond	Westbound Left	b	b	c	b	b		
5	Richmond	Westbound Thru	a	a	a	a	a		
5	Schirra	Northbound Left/Right	d	d	f-140	d	f-529		
		Unsignalized							
6	Richmond	Eastbound Left	b	b	b	b	b	A	A
6	Richmond	Eastbound Thru	a	a	a	a	a	A	C
6	Richmond	Westbound Thru/Right	a	a	a	a	a		
6	Girard	Southbound Left/Right	*f*	*f*	*f*	*f*	*f*		
6	Richmond	Westbound Thru						A0	A
6	Richmond	Westbound Left						A	A
6	Girard	Southbound Left						B	B
6	Girard	Southbound Right						D	E-60
		Unsignalized						C	C
7	Richmond	Eastbound Left	a	a	a	a	b	A	B
7	Richmond	Eastbound Thru/Right	a	a	a	a	a	C	F-130
7	Richmond	Westbound	a	a	a	a	a	D	F-294
7	Cumberland	Northbound	d	d	f-62	e-36	f-198	B	A
7	Cumberland	Southbound	c	c	f-54	d	f-611	B	B
		Unsignalized						C	F-156
8	Richmond	Eastbound Thru/Left	a	a	a	a	a	a	a
8	Richmond	Wesbound Thru/Right	a	a	a	a	a	a	a
									a
9	Richmond	Eastbound Thru/Left	B	C	C	C	C	C	C
9	Richmond	Westbound Thru/Right	A	A	A	A	A	A	A
9	Lehigh	Southbound Left/Right	B	B	B	B	B	B	B
		OVERALL	B	B	B	B	C	C	B
10	Aramingo	Eastbound Left	D	D	D	D	D	D	D
10	Aramingo	Eastbound Thru/Right	C	C	C	C	C	C	C
10	Aramingo	Westbound Left	C	C	C	C	C	C	C
10	Aramingo	Westbound Thru/Right	C	C	C	C	C	C	C
10	Lehigh	Northbound	A	A	B	A	B	B	B
10	Lehigh	Southbound Thru/Left	A	A	A	A	A	A	A
10	Lehigh	Southbound Right	A	A	A	A	A	A	A
		OVERALL	B	B	B	B	B	B	B
11	Huntingdon	Westbound	C	C	C	D	D	D	D
11	Aramingo	Northbound Thru/Left	D	F-88	F-100	F-120	F-145	F-194	F-229
11	Aramingo	Southbound Thru/Right	B	B	B	B	B	B	B
11	Belgrade	Southwest Left/Right	D	D	D	D	D	D	D
		OVERALL	D	D	E-72	E-66	E-78	F-101	F-119

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Weekday Evening Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
12a	Cumberland	Eastbound Left	C	C	C	C	C	C	C
12a	Cumberland	Eastbound Thru/Right	C	C	C	C	C	C	C
12a	Cumberland	Westbound Left	C	C	F-167	D	F-657	D	D
12a	Cumberland	Westbound Right	C	C	C	C	C	C	C
12a	Aramingo	Northbound Thru	A	A	A	A	A	A	B
12a	Aramingo	Southbound Left	B	B	B	C	C	C	C
	Aramingo	Southbound Thru	B	B	B	B	B	B	B
		OVERALL	B	B	C	B	F-96	B	B
13	York	Eastbound Left	F-104	F-108	F-120	F-134	F-167	E-56	E-56
13	York	Eastbound Thru	E-58	E-58	E-58	E-59	E-59	D	D
13	York	Eastbound Right	D	D	D	D	D	D	D
13	York	Westbound Left	D	D	D	D	D	E-57	E-57
13	York	Westbound Thru/Right	D	D	D	D	D	D	D
13	Aramingo	Northbound Left	D	E-65	F-130	F-91	F-325	E-56	E-75
13	Aramingo	Northbound Thru/Right	B	B	B	B	B	B	B
13	Aramingo	Southbound Left	B	B	B	C	C	B	B
13	Aramingo	Southbound Thru/Right	B	B	B	B	B	B	B
		OVERALL	C	C	C	C	D	C	C
14	Girard	Eastbound Left	A	A	A	A	A	A	A
14	Girard	Eastbound Thru/Right	A	A	A	A	A	A	A
14	Girard	Westbound Left	A	A	A	A	A	A	A
14	Girard	Westbound Thru/Right	A	A	A	A	A	A	A
		OVERALL	A	A	A	A	A	A	A
15	Girard	Eastbound Thru/Right	B	B	B	B	B	B	B
15	Girard	Westbound Left	B	B	D	B	F-339	B	B
15	Girard	Westbound Thru	B	B	A	B	A	B	B
15	Columbia	Southbound	B	B	B	B	B	B	B
15		OVERALL	B	B	B	B	E-65	B	B

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Saturday Evening Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
1	Delaware	Eastbound Thru/Right	B	B	C	B	C	B	B
1	Delaware	Westbound Left	B	B	B	B	B	B	B
1	Delaware	Westbound Thru/ Right(Onto Allen St.)	B	B	B	B	B	B	B
1	Columbia	Northbound	B	B	B	B	B	B	B
1	Columbia	Southbound	B	B	C	B	F-141	B	B
		OVERALL	B	B	B	B	D	B	B
2	Delaware	Eastbound Thru/Right	a	a	a	a	a	a	a
2	Delaware	Westbound Thru	a	a	a	a	a	a	a
2	Berks	Northbound Right	b	b	c	b	c	b	b
2	Berks	Southbound Right	a	a	a	a	b	a	a
		Unsignalized							
3	Richmond	Westbound Left/Right	C	C	C	C	C		
3	Delaware	Northbound Thru/Right	A	A	A	A	A		
3	Delaware	Southbound Thru	A	A	A	A	A		
		OVERALL	A	A	A	B	B		
3a	Delaware	Eastbound Left						A	A
3a	Delaware	Eastbound Thru/Right						B	B
3a	Delaware	Westbound Thru/Left						A	B
3a	Delaware	Westbound Right						A	A
3a	Aramingo	Northbound Left							B
3a	Aramingo	Northbound Thru							C
3a	Aramingo	Northbound Right							B
3a	Aramingo	Southbound Thru/Left						B	D
3a	Aramingo	Southbound Right						B	B
		OVERALL						B	B
3b	Delaware	Eastbound Left						A	B
3b	Delaware	Eastbound Thru/Right						A	A
3b	Delaware	Westbound Left						A	A
3b	Delaware	Westbound Thru						A	A
3b	Delaware	Westbound Right						A	C
3b	I-95 Ramp	Northbound Left						B	B
3b	I-95 Ramp	Northbound Thru/Right						B	B
3b	I-95 Ramp	Southbound Thru/Left						C	C
3b	I-95 Ramp	Southbound Right						B	C
		OVERALL						B	B
4	Richmond	Eastbound Thru/Right	a	a	B	a	C		
		Eastbound Right			B		B		
4	Richmond	Westbound Left	a	a	A	a	C		
4	Richmond	Westbound Thru/Right	a	a	A	a	B		
4	Dyott	Northbound Left/Right	b	c	*D*	c	*B*		
		Northbound Right					*B*		

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Saturday Evening Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
	Ice Cream Factory Driveway	Southbound Thru	b	b	*B*	c	*A*		
		Unsignalized			C		B		
5	Richmond	Eastbound Thru/Right	a	a	a	a	a		
5	Richmond	Westbound Left	a	a	a	a	b		
5	Richmond	Westbound Thru	a	a	a	a	a		
5	Schirra	Northbound Left/Right	b	b	c	b	d		
		Unsignalized							
6	Richmond	Eastbound Left	a	a	a	a	a	A	A
6	Richmond	Eastbound Thru	a	a	a	a	a	A	A
6	Richmond	Westbound Thru/Right	a	a	a	a	a		
6	Girard	Southbound Left/Right	e-37	e-49	f-119	f-58	f-568		
6	Richmond	Westbound Thru						A	B
6	Richmond	Westbound Left						A	B
6	Girard	Southbound Left						B	B
6	Girard	Southbound Right						B	B
		Unsignalized						A	B
7	Richmond	Eastbound Left	a	a	a	a	a	A	A
7	Richmond	Eastbound Thru/Right	a	a	a	a	a	B	B
7	Richmond	Westbound	a	a	a	a	a	C	B
7	Cumberland	Northbound	b	c	c	c	f-56	A	A
7	Cumberland	Southbound	b	b	b	b	c	B	B
		Unsignalized						B	B
8	Richmond	Eastbound Thru/Left	a	a	a	a	a	a	a
8	Richmond	Wesbound Thru/Right	a	a	a	a	a	a	a
9	Richmond	Eastbound Thru/Left	B	B	B	B	B	B	B
9	Richmond	Westbound Thru/Right	A	A	A	A	A	A	A
9	Lehigh	Southbound Left/Right	B	B	B	B	B	B	B
		OVERALL	B	B	B	B	B	B	B
10	Aramingo	Eastbound Left	C	C	C	C	C	C	C
10	Aramingo	Eastbound Thru/Right	C	C	C	C	C	C	C
10	Aramingo	Westbound Left	C	C	C	C	C	B	C
10	Aramingo	Westbound Thru/Right	C	C	C	C	C	B	C
10	Lehigh	Northbound	A	A	A	A	A	B	A
10	Lehigh	Southbound Thru/Left	A	A	A	A	A	B	A
10	Lehigh	Southbound Right	A	A	A	A	A	A	A
		OVERALL	B	B	B	B	B	B	B
11	Huntingdon	Westbound	C	C	C	C	C	C	C
11	Aramingo	Northbound Thru/Left	B	B	C	B	C	C	C
11	Aramingo	Southbound Thru/Right	B	B	B	B	B	B	B
11	Belgrade	Southwest Left/Right	D	D	D	D	D	D	D
		OVERALL	B	C	C	C	C	C	C

PINNACLE CASINO
LEVEL OF SERVICE SUMMARY TABLE

Int #	Intersection	Movement	Saturday Evening Peak Hour						
			Today (2006)	Temporary Casino (Build Year: 2007)		Phase 1 Permanent Casino (Build Year: 2009)		New Girard Avenue Interchange (Build Year: 2011)	
			Existing	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
12a	Cumberland	Eastbound Left	C	C	C	C	C	C	C
12a	Cumberland	Eastbound Thru/Right	C	C	C	C	C	C	C
12a	Cumberland	Westbound Left	C	C	E-67	C	F-431	C	C
12a	Cumberland	Westbound Right	C	C	C	C	C	C	C
12a	Aramingo	Northbound Thru	A	A	A	A	A	A	A
12a	Aramingo	Southbound Left	B	B	B	B	B	B	B
	Aramingo	Southbound Thru	B	B	B	B	B	B	B
		OVERALL	B	B	B	B	F-81	B	B
13	York	Eastbound Left	E-69	E-70	E-75	E-73	F-89	D	D
13	York	Eastbound Thru	D	D	D	D	D	D	D
13	York	Eastbound Right	D	D	D	D	D	D	D
13	York	Westbound Left	D	D	D	D	D	D	D
13	York	Westbound Thru/Right	D	D	D	D	D	D	D
13	Aramingo	Northbound Left	B	B	C	C	D	B	C
13	Aramingo	Northbound Thru/Right	B	B	B	B	B	B	B
13	Aramingo	Southbound Left	B	B	B	B	B	B	B
13	Aramingo	Southbound Thru/Right	B	B	B	B	B	B	B
		OVERALL	C	C	C	C	C	C	C
14	Girard	Eastbound Left	A	A	A	A	A	A	A
14	Girard	Eastbound Thru/Right	A	A	A	A	A	A	A
14	Girard	Westbound Left	A	A	A	A	A	A	A
14	Girard	Westbound Thru/Right	A	A	A	A	A	A	A
		OVERALL	A	A	A	A	A	A	A
15	Girard	Eastbound Thru/Right	B	B	B	B	B	B	B
15	Girard	Westbound Left	A	A	B	A	F-208	A	B
15	Girard	Westbound Thru	A	A	A	A	A	A	B
15	Columbia	Southbound	B	B	B	B	B	B	B
15		OVERALL	B	B	B	B	E-63	B	B

APPENDIX G

LEVEL OF SERVICE AFTER IMPROVEMENTS

PENNONI ASSOCIATES, INC.
Consulting Engineers

Weekday Morning Peak Hour

Delaware Avenue and Columbia Avenue										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Thru/Right	B	B	B	**N/A**	B	B	**C**	B	B	**N/A**
Westbound Left	B	B	B	**N/A**	B	B	**C**	B	B	**N/A**
Westbound Thru/ Right	C	C	C	**N/A**	C	C	**C**	B	B	**N/A**
Northbound	B	B	B	**N/A**	B	B	**B**	B	B	**N/A**
Southbound	B	B	C	**N/A**	B	E-56	**C**	B	B	**N/A**
OVERALL	**B**	**B**	**B**	**N/A**	**B**	**C**	**C**	**B**	**B**	**N/A**

Richmond Street and Dyott Street (ACCESS TO PINNACLE)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound	a	a	a	**A**	a	a	**A**	Intersection will be removed. Access to Pinnacle Casino will be taken from a new signalized intersection		
Eastbound Right Turn	N/A	N/A		**A**	N/A	N/A	**A**			
Westbound Left	a	a	a	**A**	a	a	**A**			
Westbound Thru/Right	a	a	a	**B**	a	a	**B**			
Northbound Left Turn	N/A	N/A		**B**	N/A	N/A	**B**			
Northbound Shared L/R	b	b	d	**B**	N/A	N/A	**B**			
Northbound Right Turn	N/A	N/A		**B**	b	f-275	**B**			
Southbound Thru	c	c	c	**B**	c	e-36	**B**			
OVERALL	**Will be Signalized during the Post-Development Condition. Will operate well under signalized condition.**									

Richmond Street and Cumberland Street										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	a	a	a	**B**	a	b	**B**	A	C	**A**
Eastbound Thru/Right	a	a	a	**B**	a	a	**A**	A	A	**A**
Westbound	a	a	a	**B**	a	a	**B**	D	F-182	**C**
Northbound	d	d	e-47	**B**	e-37	f-69	**B**	B	A	**B**
Southbound	c	c	c	**B**	c	d	**B**	B	B	**B**
OVERALL	**N/A**	**N/A**	**N/A**	**B**	**N/A**	**N/A**	**B**	**C**	**F-121**	**C**

Aramingo Avenue (N-S) and Huntingdon Street (WB)and Belgrade Street (SWB)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Westbound	C	C	C	**C**	C	C	**C**	C	C	**D**
Northbound Thru/Left	C	C	D	**D**	D	D	**C**	D	C	**C**
Southbound Thru/Right	D	D	E-62	**D**	E-62	E-57	**D**	E-73	E-73	**D**
SW-bound Left/Right	D	D	D	**D**	D	D	**D**	D	D	**D**
OVERALL	**C**	**D**	**E-56**	**D**	**D**	**D**	**D**	**D**	**D**	**D**

Aramingo Avenue (N-S) and York Street/Port Richmond Shopping Center Access (E-W)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	E-56	E-56	E-56	**D**	E-57	E-58	**D**	D	D	**D**
Eastbound Thru	D	D	D	**D**	D	D	**D**	D	D	**D**
Eastbound Right	D	D	D	**D**	D	D	**D**	D	D	**D**
Westbound Left	D	D	D	**D**	D	D	**D**	D	D	**D**
Westbound Thru/Right	D	D	D	**D**	D	D	**D**	D	D	**D**
Northbound Left	F-83	F-100	F-174	**C**	F-156	F-195	**C**	F-270	F-283	**C**

Northbound Thru/Right	A	B	B	**B**	B	B	**B**	B	B	**B**
Southbound Left	A	A	A	**B**	A	A	**B**	A	A	**B**
Southbound Thru/Right	B	B	B	**C**	B	B	**C**	B	B	**C**
OVERALL	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**D**	**C**

Weekday Evening Peak Hour

Delaware Avenue and Columbia Avenue										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Thru/Right	F-98	F-107	F-180	**E-65**	F-143	F-226	**F-162**	F-120	F-131	**B**
Westbound Left	B	B	B	**B**	B	B	**B**	B	B	**A**
Westbound Thru/ Right	B	B	B	**A**	B	B	**B**	B	B	**A**
Northbound	B	B	C	**C**	B	B	**C**	B	B	**C**
*Southbound Left**	N/A	N/A	N/A	***E-64***	N/A	N/A	***F-138***	N/A	N/A	***D***
Southbound	C	C	D	**C**	C	F-132	**C**	C	C	**C**
OVERALL	**E-79**	**F-86**	**F-134**	**D**	**F-110**	**F-176**	**F-131**	**F-93**	**F-101**	**B**

Richmond Street and Dyott Street (ACCESS TO PINNACLE)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound	a	a	a	**B**	a	a	**C**	Intersection will be removed. Access to Pinnacle Casino will be taken from a new signalized intersection.		
Eastbound Right Turn				**A**			**B**			
Westbound Left	a	a	b	**B**	b	c	**D**			
Westbound Thru/Right	a	a	a	**A**	a	a	**B**			
Northbound Left Turn				**C**			**C**			
Northbound Shared L/R	f-166	f-190	*f*	**C**	f-270	*f*	**D**			
Northbound Right Turn				**B**			**C**			
Southbound Thru	f-95	f-171	*f*	**B**	*f*	*f*	**B**			
OVERALL	**Will be Signalized during the Post-Development Condition**									

Richmond Street and Cumberland Street										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	a	a	a	**B**	a	b	**C**	A	B	**A**
Eastbound Thru/Right	a	a	a	**C**	a	a	**C**	C	F-130	**B**
Westbound	a	a	a	**B**	a	a	**B**	D	F-294	**B**
Northbound	d	d	f-69	**B**	e-36	f-198	**B**	B	A	**B**
Southbound	c	c	f-76	**B**	d	f-611	**B**	B	B	**B**
OVERALL	**N/A**	**N/A**	**N/A**	**B**	**N/A**	**N/A**	**C**	C	F-156	**B**

Aramingo Avenue (N-S) and Huntingdon Street (WB)and Belgrade Street (SWB)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Westbound	C	C	D	**C**	D	F-145	**C**	D	D	**D**
Northbound Thru/Left	D	E-62	F-132	**D**	F-120	B	**C**	F-194	F-229	**C**
Southbound Thru/Right	B	B	B	**D**	B	D	**D**	B	B	**D**
SW-bound Left/Right	D	D	D	**D**	D	E-78	**D**	D	D	**D**
OVERALL	D	D	E-72	**D**	E-66	F-145	**D**	F-101	F-119	**D**

Aramingo Avenue (N-S) and York Street/Port Richmond Shopping Center Access (E-W)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	F-104	F-108	F-147	**E-63**	F-134	F-167	**E-68**	E-56	E-56	**D**
Eastbound Thru	E-58	E-58	E-59	**D**	E-59	E-59	**D**	D	D	**D**

Eastbound Right	D	D	D	**D**	D	D	**D**	D	D	**D**
Westbound Left	D	D	D	**D**	D	D	**D**	E-57	E-57	**D**
Westbound Thru/Right	D	D	D	**E-75**	D	D	**E-75**	D	D	**D**
Northbound Left	D	D	F-176	**C**	F-91	F-325	**D**	E-56	E-75	**C**
Northbound Thru/Right	B	B	B	**C**	B	B	**C**	B	B	**C**
Southbound Left	B	B	C	**C**	C	C	**C**	B	B	**C**
Southbound Thru/Right	B	B	B	**C**	B	B	**C**	B	B	**C**
OVERALL	**C**	**C**	**D**	**D**	**C**	**D**	**D**	**C**	**C**	**C**

Aramingo Avenue (N-S) and Cumberland Street (E-W)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	C	C	C	**C**	C	C	**B**	C	C	**D**
Eastbound Thru	C	C	C	**C**	C	C	**B**	C	C	**D**
Eastbound Right				**C**			**B**			**C**
Westbound Left	C	C	F-199	**D**	D	F-657	**D**	D	D	**D**
Westbound Right	C	C	C	**C**	C	C	**B**	C	C	**C**
Northbound Thru	A	A	A	**B**	A	A	**B**	A	B	**A**
Southbound Left	B	B	C	**C**	C	C	**D**	C	C	**B**
Southbound Thru	B	B	B	**C**	B	B	**B**	B	B	**A**
OVERALL	**B**	**B**	**C**	**C**	**B**	**F-96**	**C**	**B**	**B**	**B**

Girard Avenue and Columbia Avenue									
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Thru/Right	B	B	B	N/A	B	B	**C**	B	B	N/A
Westbound Left	B	B	D	N/A	B	F-339	**C**	B	B	N/A
Westbound Thru	B	B	B	N/A	B	A	**A**	B	B	N/A
Southbound	B	B	B	N/A	B	B	**B**	B	B	N/A
OVERALL	B	B	B	N/A	B	E-65	**B**	B	B	N/A

Saturday Evening Peak Hour

Delaware Avenue and Columbia Avenue										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Thru/Right	N/A				B	C	**D**	N/A		
Westbound Left					B	B	**B**			
Westbound Thru/ Right					B	B	**B**			
Northbound					B	B	**B**			
*Southbound Left**							***D***			
Southbound					B	F-141	**B**			
OVERALL					B	D	**D**			

Richmond Street and Dyott Street (ACCESS TO PINNACLE)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound	a	a	a	**B**	a	a	**C**	Intersection will be removed. Access to Pinnacle Casino will be taken from a new signalized intersection.		
Eastbound Right Turn				**A**			**B**			
Westbound Left	a	a	b	**B**	a	c	**D**			
Westbound Thru/Right	a	a	a	**A**	a	a	**B**			
Northbound Left Turn				**C**			**C**			
Northbound Shared L/R	b	b	*f-640*	**C**	c	*f*	**D**			
Northbound Right Turn				**B**			**C**			
Southbound Thru	b	b	*f*	**B**	*c*	*f*	**B**			
OVERALL	**Will be Signalized during the Post-Development Condition**									

Richmond Street and Cumberland Street										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	a	a	a	**B**	a	b	**C**	A	B	**A**
Eastbound Thru/Right	a	a	a	**C**	a	a	**C**	C	F-130	**B**
Westbound	a	a	a	**B**	a	a	**B**	D	F-294	**B**
Northbound	d	d	f-69	**B**	e-36	f-198	**B**	B	A	**B**
Southbound	c	c	f-76	**B**	d	f-611	**B**	B	B	**B**
OVERALL	**N/A**	**N/A**	**N/A**	**B**	**N/A**	**N/A**	**C**	C	F-156	**B**

Aramingo Avenue (N-S) and York Street/Port Richmond Shopping Center Access (E-W)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	E-69	E-69	E-79	**D**	E-73	F-89	**D**			
Eastbound Thru	D	D	D	**D**	D	D	**D**			
Eastbound Right	D	D	D	**D**	D	D	**D**			
Westbound Left	D	D	D	**D**	D	D	**D**			
Westbound Thru/Right	D	D	D	**D**	D	D	**D**			
Northbound Left	B	B	C	**B**	C	D	**C**	N/A		
Northbound Thru/Right	B	B	B	**C**	B	B	**C**			
Southbound Left	B	B	B	**B**	B	B	**B**			
Southbound Thru/Right	B	B	B	**C**	B	B	**C**			
OVERALL	C	C	C	**C**	C	C	**C**			

Aramingo Avenue (N-S) and Cumberland Street (E-W)										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Left	C	C	C	**C**	C	C	**B**	C	C	**D**
Eastbound Thru	C	C	C	**C**	C	C	**B**	C	C	**D**
Eastbound Right				**C**			**B**			**C**
Westbound Left	C	C	E-75	**D**	C	F-431	**D**	D	D	**D**
Westbound Right	C	C	C	**C**	C	C	**B**	C	C	**C**
Northbound Thru	A	A	A	**B**	A	A	**B**	A	B	**A**
Southbound Left	B	B	B	**C**	B	B	**D**	C	C	**B**
Southbound Thru	B	B	B	**C**	B	B	**B**	B	B	**A**
OVERALL	**B**	**B**	**C**	**C**	**B**	**F-81**	**C**	**B**	**B**	**B**

Girard Avenue and Columbia Avenue										
Scenarios	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**3c**	**4a**	**4b**	**4c**
	Existing	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**	**Pre-Dev**	**Post-Dev**	**Post-Dev w. Mitigation**
Eastbound Thru/Right	B	B	B	N/A	B	B	**C**	B	B	N/A
Westbound Left	A	A	C	N/A	A	F-208	**C**	A	B	N/A
Westbound Thru	A	A	A	N/A	A	A	**A**	A	B	N/A
Southbound	B	B	B	N/A	B	B	**B**	B	B	N/A
OVERALL	B	B	B	N/A	B	E-63	**B**	B	B	N/A

APPENDIX H

ARTICLES

PENNONI ASSOCIATES, INC.
Consulting Engineer

Gaming Casino Traffic

THE AUTHORS SUMMARIZE RESULTS FROM TRAFFIC VOLUME STUDIES OF TWO GAMING CASINOS—THE CASINO ST. CHARLES AND THE CASINO QUEEN.

BY PAUL C. BOX AND WILLIAM BUNTE

GAMING CASINOS GENERATE significant volumes of traffic—especially during the evening peak hour. Two studies of existing operations were made in the St. Louis, Mo., USA, metropolitan area, including hourly vehicular volumes and daily variations. Also, the projections from an economic report for a proposed casino were utilized to provide multiplication factors for traffic counted in any given month, to that expected during the peak summer months.

Gaming casinos have three general types of positions—individual, such as slots and video poker; table, such as blackjack and poker; and audience, such as Keno or racing. For riverboat type facilities, a land-side staging area is used. Other customary services include bar and restaurant.

The Casino St. Charles is located in the metropolitan area, west of the Missouri River. It is reported to have about 2,500 gaming positions, about 80 percent of which are slots or video poker machines.

In January 1995, counts of entering and leaving traffic were taken across weekdays, Saturday and Sunday.[1] For the peak hours, the counts were converted into rates of flow in and out of the facility per gaming position and were expanded to the summer peak conditions (see Table 1). The highest weekday traffic occurs on Friday, while the absolute peak hour occurs on Saturday evening.

From the counts, it also was possible to calculate the hourly variation by the days of the week during which counts

Table 1. Casino St. Charles peak hour rates of vehicular flow per gaming position.

Day	Hour	Rate*
Thursday facility peak	18:00 to 19:00	
IN		0.25
OUT		0.23
Thursday street peak	16:30 to 17:30	
IN		0.19
OUT		0.23
Friday facility peak	18:00 to 19:00	
IN		0.29
OUT		0.25
Friday street peak	16:30 to 17:30	
IN		0.19
OUT		0.24
Saturday facility peak	18:00 to 19:00	
IN		0.34
OUT		0.30
Sunday facility peak		
IN	13:00 to 14:00	0.25
OUT	16:00 to 17:00	0.25

*Expanded to summer peaks.
Source: Ref. 1

were taken. These data are given in Table 2. It should be noted that the facility is quite busy from 09:00 through 22:00 hours. Unlike residential, office or industrial developments, gaming casinos have no significant AM peak hour loading.

A second study was taken at the Casino Queen, a land-based facility on the north side of the Mississippi River in East St. Louis, Ill., USA. Table 3 gives the rates of flow in the PM peak hour per gaming position for customer traffic and separately for employee/service vehicles. The counts have been expanded to peak summer month activity. Only one truck entered or left the casino during the PM peak, which was from 16:30 to 17:30. This is a much smaller facility than the Casino St. Charles, with only 1,200 gaming positions. About 80 percent are slots or video poker. Furthermore, this casino is only open 22 hours per day (09:00 through 07:00). Pickup/dropoff traffic also was observed at the Casino Queen, and amounted to about 10 vehicles during the PM peak. Data on various characteristics of the casinos, such as floor area and employees, are given in Table 4.

The peak gaming months are reported as May, July and August. These may be considered as the "design" condition. The percent of average months and the monthly variation in expected casino traffic, provided in the form of a multiplier for counts taken in a given month to those projected during the peak months, is given in Table 5. For example, a February count would be expanded by 30 percent (1.3 times the count) to reach peak month volumes. The data are taken from an economic study,[3] prepared in connection with a gaming facility zoning application to St. Louis County.

Additional studies of casino traffic are warranted because of widely varying characteristics. For example, the St. Louis casinos had similar rates of peak flow per gaming position. However, the St. Charles facility continued to experience significant flow and had a weekday peak just after the PM peak, while the Casino Queen traffic dropped abruptly at the end of the rush hour. The count was discontinued at this point, because

Table 2. Hourly variation by day of week.

	Percent of Daily Vehicular Traffic					
	IN			OUT		
Hour Begin	Weekday*	Sat.	Sun.	Weekday*	Sat.	Sun.
00	2.5	3.0	3.9	4.3	5.9	7.3
01	1.8	2.7	3.7	3.9	4.4	6.2
02	1.2	1.3	1.9	3.3	4.2	5.4
03	0.7	0.8	1.0	3.2	4.7	5.2
04	1.0	0.6	0.9	3.3	3.7	3.9
05	0.7	0.6	0.9	1.6	2.0	2.5
06	1.0	0.7	0.8	0.6	0.7	0.8
07	1.6	1.1	1.3	0.6	0.5	0.4
08	3.9	3.3	4.4	1.2	0.9	0.8
09	5.6	4.7	6.1	1.3	0.9	0.9
10	5.2	4.3	5.6	2.1	1.7	1.9
11	5.5	4.9	5.7	3.0	2.6	2.9
12	5.8	4.8	6.6	4.1	2.8	3.8
13	6.0	5.2	7.2	5.2	3.5	4.4
14	5.4	5.6	6.5	6.1	4.1	5.5
15	5.2	5.6	6.1	6.4	5.8	6.5
16	5.3	5.7	5.8	7.1	6.3	6.6
17	5.9	6.7	6.2	6.6	6.8	6.0
18	7.8	7.8	5.8	7.0	6.9	6.4
19	7.4	7.7	4.0	5.7	6.4	5.8
20	6.3	6.5	3.9	5.3	6.7	4.3
21	5.3	6.1	5.0	5.7	6.1	4.3
22	4.7	5.7	3.4	6.3	6.0	4.6
23	4.0	4.6	3.3	6.1	6.4	3.6

*Average Monday AM, Thursday PM plus Friday.
Source: Ref. 1.

Table 3. Evening peak hour Casino Queen vehicular traffic.

	Rate per Gaming Position*	
Type of Traffic	IN	OUT
Customer	0.27	0.26
Employee/Service	0.02	0.02
TOTAL	0.29	0.28

*Expanded to peak months per Ref. 3.
Source: Ref. 2.

Table 4. Site characteristics.

	St. Charles	Casino Queen
Floor area (gaming and staging), square feet*	47,000	65,000
Employees	—	1,200
Employees at peak time	700	450
Capacity (gamblers)	4,200	—
*Conversion: One square foot = 0.093 square meter.		

Table 5. Monthly variation.

Month of Count	Percent of Average Month	Multiplier to Expand to Seasonal Peak
January	111%	1.1
February	90%	1.3
March	111%	1.1
April	108%	1.1
May	116%	1.0
June	108%	1.1
July	121%	1.0
August	121%	1.0
September	113%	1.1
October	105%	1.2
November	98%	1.2
December	105%	1.2

Source: Ref. 3.

the scope of study was intended to analyze only the PM street peak hour generation.

The two sites studied have provided useful information on hourly and monthly variation. These data should guide studies of other sites. Separate counts of customer and employee vehicular traffic, plus trucks, should be taken on busy weekdays and perhaps on a Saturday evening, if a street capacity problem is likely. At some locations, large numbers of patrons may arrive by bus, which relates to geometric design of driveways.

Other studies of gaming facilities needed include parking generation, which represents a major factor. The development of gaming on Native American tribal lands is often away from or at the fringe of metropolitan areas. Traffic and parking characteristics of these facilities may differ from those

within a metropolitan area. Busing may represent a more significant factor—especially relative to parking layout. ■

References

1. *Traffic Impact Study for the Ultimate Development of St. Charles Riverfront Station,* Final Report. Crawford, Bunte, Brammeier, August 1995, unpublished.

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3. *Horseshoe Gaming, St. Louis County Project.* Economics Research Associates, as presented to County Plan Commission about September 1996, unpublished.

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Recalibration of Trip Generation Model for Las Vegas Hotel / Casinos

AN UPDATED TRIP GENERATION STUDY FOR LAS VEGAS HOTEL / CASINOS IS PRESENTED IN THIS FEATURE USING THE NUMBER OF GAMING POSITIONS AS AN INDEPENDENT VARIABLE. REGRESSION ANALYSIS USING GAMING POSITIONS AND PREVIOUS INDEPENDENT VARIABLES (EMPLOYEES, CASINO FLOOR AREA AND HOTEL ROOMS) WAS PERFORMED TO DETERMINE THE "BEST" SINGLE OR MULTIVARIABLE EQUATIONS.

BY CURTIS D. ROWE, MOHAMED S. KASEKO AND KENNETH W. ACKERET

INTRODUCTION

The hotel/casinos of Las Vegas, NV, USA, provide an attraction destination for visitors from locations worldwide. Many of the world's largest hotels providing more than 3,000 rooms at a single facility are located in Las Vegas. The number and proximity of these resorts provide Las Vegas with thousands of hotel rooms and gaming positions unlike anywhere else in the world. Understanding the trip generation characteristics of these facilities is key to determining associated traffic impacts and roadway mitigation measures.

This trip generation study was motivated by the work conducted by Kenneth W. Ackeret and Robert C. Hosea III as presented in the May 1992 issue of *ITE Journal* in "Trip Generation Rates for Las Vegas Area Hotel-Casinos."[1] Ackeret and Hosea calibrated the number of vehicle trips generated by a hotel/casino as a function of casino floor area, number of hotel rooms and employees. The results of their study are the basis for the current method of estimating the number of vehicle trips generated by Las Vegas hotel/casinos. However, this method is based on a relatively limited data set. The data used were collected in and prior to 1990 for 21 hotel/casino counts. Since then, numerous hotel/casinos were constructed that conducted facility driveway trip counts within the Las Vegas metropolitan area. This increased data consisting of 46 hotel/casino vehicle generation counts is expected to provide more statistically significant results in trip-making characteristics. Likewise, it is believed that the independent variable of the number of gaming positions would be a good variable for estimation of trip generation. In other areas of the country, gaming positions have been used as an estimator of hotel/casino trips. However, the number of gaming positions as compared with expected trip generation has not been studied within the Las Vegas area. Therefore, one hypothesis tested in this feature is that the number of gaming positions is a good estimator of trips generated by hotel/casinos.

METHODOLOGY

The vehicle trip generation of a hotel/casino is dependent on various factors. Certain factors, such as size, location and type of hotel/casino all contribute to the trip generation of a facility. Facility size characteristics can be identified as the number of hotel rooms or the amount of casino floor area. Likewise, the number of gaming positions within a casino and/or the total number of employees can be factors affecting the number of vehicle trips generated by hotel/casinos.

The conducted study developed a set of regression equations for estimating the number of vehicle trips generated by a typical Las Vegas hotel/casino property, existing or proposed. The regression analysis was conducted using data obtained from various existing hotel/casinos that had vehicle generation counts conducted during the a.m. and p.m. peak hours to determine the number of vehicles entering and exiting individual casino properties. The following independent variables were used in the analysis:

- Number of gaming positions;
- Number of employees;
- Number of hotel rooms; and
- Casino floor area.

Data Collection

To determine equations that accurately estimate the number of peak-hour vehicle trips generated by a hotel/casino, an extensive amount of data was required. The data needed included the typical a.m. and p.m. adjacent-street peak-hour facility driveway count volumes, number of gaming positions,

Table 1. Resort corridor hotel / casino single-variable equations.

Independent variable	Time period	Directional distribution	Equation	R^2	F-statistic	F-critical @ 95% level	Average rate	Range of rates	Standard deviation
Gaming positions	a.m. peak	59% enter 41% exit	T = 0.377 (X) – 109.344 T = a.m. peak-hour trips X = number of gaming positions	0.84	134.21	4.25	0.332	0.047–0.516	0.115
	p.m. peak	48% enter 52% exit	T = 0.000137 (X^2) + 289.769 T = p.m. peak-hour trips X = number of gaming positions	0.91	301.31	4.16	0.463	0.151–0.778	0.171
Employees	a.m. peak	59% enter 41% exit	T = 0.232 (X) + 117.461 T = a.m. peak-hour trips X = number of employees	0.79	94.86	4.25	0.292	0.044–0.534	0.113
	p.m. peak	48% enter 52% exit	T = 0.432 (X) + 89.67 T = p.m. peak-hour trips X = number of employees	0.76	96.88	4.16	0.487	0.144–1.300	0.218
Hotel rooms	a.m. peak	59% enter 41% exit	T = 0.333 (X) + 117.239 T = a.m. peak-hour trips X = number of hotel rooms	0.73	67.39	4.25	0.482	0.096–2.188	0.383
	p.m. peak	48% enter 52% exit	T = 0.638 (X) T = p.m. peak-hour trips X = number of hotel rooms	0.78	109.99	4.16	0.702	0.210–2.801	0.468
Casino floor area	a.m. peak	59% enter 41% exit	T = 8.046 (X) + 174.380 T = a.m. peak-hour trips X = casino floor area (1,000 sf)	0.74	72.57	4.25	12.344	1.968–35.351	6.874
	p.m. peak	48% enter 52% exit	T = 16.991 (X) T = p.m. peak-hour trips X = casino floor area (1,000 sf)	0.81	134.49	4.16	18.374	6.238–52.541	9.708

number of hotel rooms, number of employees and casino floor area of each hotel/casino. The data used by Ackeret and Hosea[1] and the "Trip Generation Analysis Report,"[2] conducted by the University of Nevada–Las Vegas, were supplemented with data collected more recently and used for this study.

Existing Count Data

The first step of the additional data-collection effort involved obtaining count data conducted at facility access driveway locations for existing hotel/casinos. The count data obtained were from counts conducted at all facility driveways during 15-minute intervals on a weekday during the typical a.m. and p.m. peak-hour periods. Therefore, the count volumes collected reflect the highest one-hour period between 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. on a weekday. It is recognized that the facilities' trip generation may be greater during other hours of the day or week. The typical weekday peak-hour time periods were studied based upon availability of data that was collected in accordance with local requirements for analysis during these time periods. Limited proprietary data exists, which indicates the peak hour of the casino generator generally occurs around 7 p.m. At this time, the trip generation of the hotel/casinos is generally 15 percent greater than during the typical commuter peak hours. This increase should be recognized when analyzing specific traffic demands at intersections comprising primarily hotel/casino traffic. The count data may be obtained by requesting it from the authors.

Independent Variables

The independent variables associated with each of the hotel/casinos were collected for the time period corresponding to the date of the reported field traffic counts. The specific traffic studies reports and *ITE Journal* feature used for the count data were also reviewed to extract information on the number of employees, hotel rooms and casino square footage. Data, other than the number of gaming positions, were also obtained from the *Las Vegas Perspective*,[3] the *Top Rank Nevada 1999, Statewide Book of Lists*[4] and the *Book of Lists*.[5] Data that were still not available from these sources were obtained from telephone surveys with the hotel/casinos management. The gaming position data were obtained from the State of Nevada, Gaming Control Board for the current and historic count periods at each of the hotel/casino sites. The independent-variable data may be obtained by requesting it from the authors. The following are definitions of the key independent variables studied:

- Number of employees: The total number of people employed at a hotel/casino for all shifts;
- Casino floor area: The square footage that contained the gaming positions;
- Number of gaming positions: The number of gaming positions was defined to be the total number of slot machines within a casino plus the number of table games multiplied by seven positions per table. The average of seven gaming positions per table is consistent with the

Table 2. Resort corridor hotel/casino summary of results.

	a.m. peak hour 59% entering, 41% exiting Appropriate equations				p.m. peak hour 48% entering, 52% exiting Appropriate equations			
Known variables	Average rate	Equation variables used	Regression equation	R^2	Average rate	Equation variables used	Regression equation	R^2
At least positions and employees	N/A	Positions and employees*	$T = 0.241 (X_1) + 0.100(X_2) – 68.429$ T = a.m. peak-hour trips X_1 = number of gaming positions X_2 = number of employees	0.88	N/A	Positions and employees*	$T = 0.000108 (X_1^2) + 0.120 (X_2) + 184.063$ T = p.m. peak-hour trips X_1 = number of gaming positions X_2 = number of employees	0.93
Positions without employees	0.312	Positions	$T = 0.377 (X) – 109.344$ T = a.m. peak-hour trips X = number of gaming positions	0.84	0.463	Positions	$T = 0.000137 (X^2) + 289.769$ T = p.m. peak-hour trips X = number of gaming positions	0.91
Employees, rooms and casino area without positions	–	–	–	–	N/A	Employees, rooms and casino area	$T = 0.169 (X_1) + 0.174 (X_2)$ $+ 7.790 (X_3) – 84.407$ T = p.m. peak-hour trips X_1 = number of employees X_2 = number of hotel rooms X_3 = 1,000 sf of casino floor area	0.87
Employees and casino area without positions	N/A	Employees and casino area	$T = 0.145 (X_1) + 4.003 (X_2) + 78.003$ T = a.m. peak-hour trips X_1 = number of employees X_2 = 1,000 sf of casino floor area	0.86	N/A	Employees and casino area	$T = 0.214 (X_1) + 10.203 (X_2) – 43.014$ T = p.m. peak-hour trips X_1 = number of employees X_2 = 1,000 sf of casino floor area	0.89
Employees and rooms without positions or casino area	N/A	Employees and rooms	$T = 0.150 (X_1) + 0.154 (X_2) + 57.307$ T = a.m. peak-hour trips X_1 = number of employees X_2 = number of hotel rooms	0.85	N/A	Employees and rooms	$T = 0.228 (X_1) + 0.367 (X_2) – 63.760$ T = p.m. peak-hour trips X_1 = number of employees X_2 = number of hotel rooms	0.85
Rooms and casino area only	N/A	Rooms and casino area	$T = 0.168 (X_1) + 4.583 (X_2) + 107.789$ T = a.m. peak-hour trips X_1 = number of hotel rooms X_2 = 1,000 sf of casino floor area	0.79	N/A	Rooms and casino area	$T = 0.290 (X_1) + 9.780 (X_2)$ T = p.m. peak-hour trips X_1 = number of hotel rooms X_2 = 1,000 sf of casino floor area	0.86
Employees only	0.297	Employees	$T = 0.232 (X) + 117.461$ T = a.m. peak-hour trips X = number of employees	0.79	0.486	Employees	$T = 0.432 (X) + 89.67$ T = p.m. peak-hour trips X = number of employees	0.76
Casino area only (1,000 sf)	12.344	Casino area (1,000 sf)	$T = 8.046 (X) + 174.380$ T = a.m. peak-hour trips X = 1,000 sf of casino floor area	0.74	18.374	Casino area (1,000 sf)	$T = 16.991 (X)$ T = a.m. peak-hour trips X = 1,000 sf of casino floor area	0.81
Rooms only	0.482	Rooms	$T = 0.333 (X) + 117.239$ T = a.m. peak-hour trips X = number of hotel rooms	0.73	0.700	Rooms	$T = 0.638 (X)$ T = p.m. peak-hour trips X = number of hotel rooms	0.78

*Please note: * = best equation; N/A = not applicable; and – = equation not statistically significant.*

definition suggested by Finigan[6] for typical gaming operations throughout the United States; and

- Number of hotel rooms: The total number of hotel rooms at the facility.

Location Classification

The hotel/casinos evaluated were divided into two groups based on their locations. A hotel/casino was considered to be a resort corridor facility if it was located within the Clark County Regional Transportation Commission's defined area bound by Valley View Boulevard on the west, Maryland Parkway on the east, Washington Avenue on the north and McCarran International Airport on the south (Robindale Road). These boundaries, which include the famous Las Vegas "Strip," provide the limits of the accepted resort corridor of Las Vegas. A hotel/casino not located within the resort corridor was classified as a local facility. This classification was necessary to accurately distinguish the trip generation characteristics of these two distinct groups of hotel/casinos. Resort-corridor facilities experience significant nonvehicle trip sharing due to pedestrian walking trips as a result of the synergy created by the close proximity of the hotel/casinos. Local facilities primarily have vehicle trips and minimal pedestrian trips associated with them. This is due to the location of these resorts being outside of the resort corridor and away from other hotel/casinos.

Table 3. Local hotel / casino single-variable equations.

Independent variable	Time period	Directional distribution	Equation	R^2	F-statistic	F-critical @ 95% level	Average rate	Range of rates	Standard deviation
Gaming positions	a.m. peak	57% enter 43% exit	Ln(T) = 0.604 Ln(X) + 2.147 T = a.m. peak-hour trips X = number of gaming positions	0.72	26.00	4.96	0.470	0.267–0.884	0.191
	p.m. peak	52% enter 48% exit	Ln(T) = 0.794 Ln(X) + 1.278 T = p.m. peak-hour trips X = number of gaming positions	0.83	59.77	4.75	0.788	0.505–1.540	0.246
Employees	a.m. peak	57% enter 43% exit	Ln(T) = 0.710 Ln(X) + 1.506 T = a.m. peak-hour trips X = number of employees	0.77	32.70	4.96	0.566	0.311–0.840	0.160
	p.m. peak	52% enter 48% exit	Ln(T) = 0.847 Ln(X) + 1.086 T = p.m. peak-hour trips X = number of employees	0.72	30.16	4.75	1.021	0.639–1.466	0.313
Hotel rooms	a.m. peak	57% enter 43% exit	Not statistically significant	0.24	3.11	4.96	2.538	0.668–9.300	2.445
	p.m. peak	52% enter 48% exit	Not statistically significant	0.01	0.01	4.75	5.067	0.869–16.200	4.246
Casino floor area	a.m. peak	57% enter 43% exit	Ln(T) = 0.433 Ln(X) + 4.848 T = a.m. peak-hour trips X = casino floor area (1,000 sf)	0.71	24.13	4.96	14.078	4.794–48.091	11.502
	p.m. peak	52% enter 48% exit	Ln(T) = 0.527 Ln(X) + 4.999 T = p.m. peak-hour trips X = casino floor area (1,000 sf)	0.72	30.19	4.75	22.342	6.792–62.591	13.372

Directional Distribution

A directional distribution of entering and exiting trips during the peak hours was calculated based upon the observed data. The average directional distributions were calculated separately for resort corridor and local hotel/casinos, as well as the a.m. and p.m. peak hours.

Average Trip Rates

Based upon the data collected, average trip rates were calculated for both groups of hotel/casinos to determine the average number of vehicle trips expected per independent variable. The average trip rates and standard deviation were calculated for each independent variable. An average trip rate was determined to be acceptable if the standard deviation was less than 110 percent of the average rate as described in the Institute of Transportation Engineers' (ITE) *Trip Generation Handbook, An ITE Proposed Recommended Practice*.[7]

Regression Analysis

Regression analysis was conducted to develop regression equations for estimating the number of trips generated by the casinos as a function of several combinations of independent variables. The stepwise regression procedure was used as outlined in *Basic Econometrics* by Damodar Gujarati.[8]

In this study, regression analysis of the data was used to determine the "best fit" equation of a line that most accurately estimates the number of peak-hour trips for both resort corridor and local hotel/casinos. Both linear and nonlinear equations were evaluated as provided in ITE's *Trip Generation*.[9] For the nonlinear equations, the natural logarithmic and squared polynomials were used to determine which type of equation would best estimate the trip generation of a hotel/casino.

After equations were obtained for the single-variable equations, the t-statistics were first evaluated to determine statistical significance of the coefficients of the variables. A confidence level of 95 percent was used. However, since regression equations that provide intercepts are viewed favorably by practitioners to differentiate between average rates and regression equations, a lower confidence level of 75 percent was utilized for the intercept. If the intercept did not prove to be significant by the t-test, the equation was recalculated with the y-intercept being forced through zero. The resulting equations were compared to determine which type of equation was the "best" model for estimation of the peak-hour trips. An analysis of variance was conducted for each model as provided by Gujarati.[8] To compare the models, the R-squared and F statistics were evaluated. The R-squared value demonstrated how closely the equation fit the data points. In general, R-squared values closest to 1.0 are desirable. Also larger values of the F statistic are desirable. After determination of the best equation for each independent variable, the data, average rate and "best" regression equation were plotted. To determine which independent variable estimated the number of peak-hour trips best, the F statistic was again compared for each equation.

Development of the "best" regression equation was done using the stepwise regression analysis procedure. In this procedure, the effect of adding a variable to an existing equation is evaluated using the

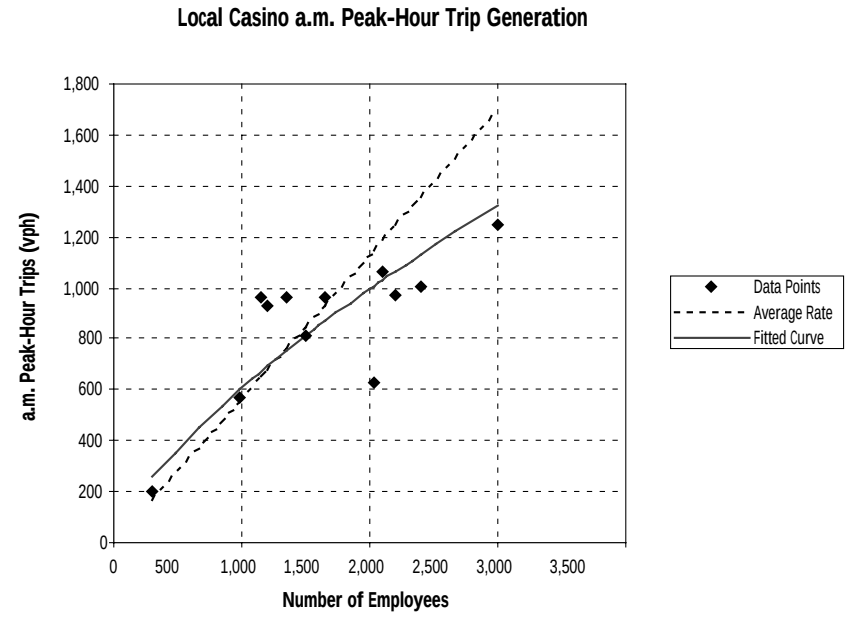
Average Vehicle Trip Ends vs: Number of Employees
On a: Weekday a.m. peak hour

Number of Studies: 12
Average Number of Employees: 1,655
Directional Distribution: 57% entering, 43% exiting

Trip Generation per Number of Employees

Average Rate	Range of Rates	Standard Deviation
0.5657	0.3108–0.8400	0.1597

Data Plot and Equation



Fitted Curve Equation: $Ln(T) = 0.710\ Ln(X) + 1.506$ $F = 32.70$ $R^2 = 0.77$
where: T = number of a.m. peak-hour trips
F_{crit} = 4.96 at 95% confidence level
X = number of employees

Figure 1. Local a.m. peak trips vs. employees.

partial F statistic. This statistic evaluates whether the contribution of the additional variable to the accuracy of the model is statistically significant. If different variables are added to the same equation, then the variable with the highest partial F that is statistically significant is selected.

RESORT CORRIDOR HOTEL / CASINOS RESULTS

Directional Distribution

The existing trips generated by the resort corridor hotel/casinos had an average distribution of 59 percent entering and 41 percent exiting during the a.m. peak hour. Likewise, during the p.m. peak hour, the directional distribution was found to be 49 percent entering and 51 percent exiting.

Single-Variable Equations

Table 1 provides the results for average trip rate and regression equations for the a.m. and p.m. peak-hour trips generated by a resort corridor hotel/casino. As these single-variable equations illustrate, all four independent-variable equations are statistically significant during both peak hours based on the critical F value. The equation with the highest F value was considered to be the "best" statistically significant equation to estimate trip generation. For both a.m. and p.m. peak hours, the number of gaming positions is the best estimator of the trip generation for a resort corridor hotel/casino. For the a.m. peak hour, the number of employees is the next best trip generation estimator, followed by casino floor area and, lastly, the number of hotel rooms. For the p.m. peak hour, the casino floor area is the second-best estimator followed by number of hotel rooms and then employees.

Average Trip Rates

The average trip rates were found to be acceptable for estimation of the number of trips generated by a hotel/casino for all studied independent variables, because the standard deviation was less than the established limit of 110 percent of the average rate.

"Best" Multivariable Regression Equations

As discussed earlier, the forward stepwise regression analysis approach was adopted to determine appropriate multivariable equations. Starting with the "best" single-variable equation, containing the variable for the number of gaming positions, partial F statistic analysis was conducted to determine an additional variable that would statistically best improve the accuracy of estimation. The best two variable equations for both the a.m. and p.m. peak hours was found to be combining the variables for the number of gaming positions and number of employees. Therefore, the "best" equations to estimate the number of vehicle trips during the peak hours were found to be as follows:

a.m. peak hour

$T = 0.241\ (X_1) + 0.100\ (X_2) - 68.429$
$R^2 = 0.88$
where
T = number of a.m. peak-hour trips;
X_1 = number of gaming positions; and
X_2 = number of employees.

p.m. peak hour

$T = 0.000108\ (X_1^2) + 0.120\ (X_2) + 184.063$
$R^2 = 0.93$
where
T = number of p.m. peak-hour trips;
X_1 = number of gaming positions; and
X_2 = number of employees.

Determining the Most Appropriate Equation for Practical Use

In practice, there are occasions when certain independent variables are not available for forecasting of trip generation of a facility. Typically, prior to the construction of a hotel/casino, the number of employees and gaming positions is not known. Or if the number of employees is known, it may be an estimate. It is important that the practitioner use caution when using equations with the number of employees prior to the construction of a hotel/casino to ensure the number of employees are estimated most accurately. In such a case, other variables may have to be used for forecasting. Normally in such cases, the number of rooms and casino floor area would be known. Table 2 is provided as a guideline to determine which equations to use depending on which independent-variable data is available. The equations in each row are provided in descending order of their statistical significance. The equation shown in the top row was found to be the most statistically significant equation. Therefore, if these independent variables are known, this equation should be used to make the best trip generation estimation for the facility.

LOCAL HOTEL / CASINOS RESULTS

Directional Distribution

The existing trips from count data at local hotel/casinos had an average distribution of 57 percent entering and 43 percent exiting during the a.m. peak hour. During the p.m. peak hour, the directional distribution was found to be 52 percent entering and 48 percent exiting.

Single-Variable Equations

Table 3 presents the results for single-variable regression analysis for the a.m. and p.m. peak-hour trips generated by a local hotel/casino. From the single independent-variable regression analysis, three of the four variables provide statistically significant models for estimating the expected number of trips generated by a local hotel/casino during the peak hours. The number of hotel rooms was determined not to be a good independent variable for trip estimation. This is likely due to the relatively small number of hotel rooms provided at a local hotel/casino. Likewise, the patrons of a local hotel/casino primarily live in the Las Vegas area, and the patrons of the hotel rooms are not a major proportion of the trips generated.

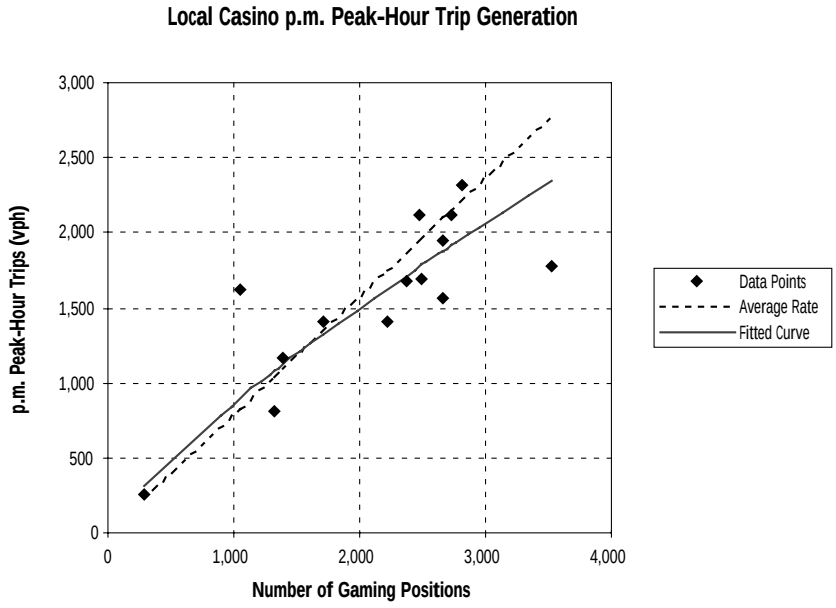
Average Vehicle Trip Ends vs: Number of Gaming Positions
On a: Weekday p.m. peak hour

Number of Studies: 14
Average Number of Gaming Positions: 2,122
Directional Distribution: 52% entering, 48% exiting

Trip Generation per Number of Gaming Positions

Average Rate	Range of Rates	Standard Deviation
0.7877	0.5047–1.5399	0.2462

Data Plot and Equation



Fitted Curve Equation: $Ln(T) = 0.794\ Ln(X) + 1.278$ $F = 59.77$ $R^2 = 0.83$

where: T = Number of p.m. peak-hour trips
F_{crit} = 4.75 at 95% confidence level
X = Number of gaming positions

Figure 2. Local p.m. peak trips vs. gaming positions.

Average Trip Rates

The average trip rates were found to be acceptable for estimating the number of trips for all independent variables, because the standard deviation was less than the established limit of 110 percent of the average rate.

"Best" Multivariable Regression Equations

Similar to the resort corridor hotel/casino analysis, the forward stepwise regression analysis approach was adopted to determine appropriate multivariable equations. For both the a.m. and p.m. peak hours, it was determined that no multivariable equations are more significant than the single-variable equations. Therefore, the "best" equations to estimate the number of vehicle trips during the peak hours are as follows:

a.m. peak hour

$Ln(T) = 0.710\ Ln(X) + 1.506$

$R^2 = 0.77$

where

T = number of a.m. peak-hour trips; and
X = number of employees.

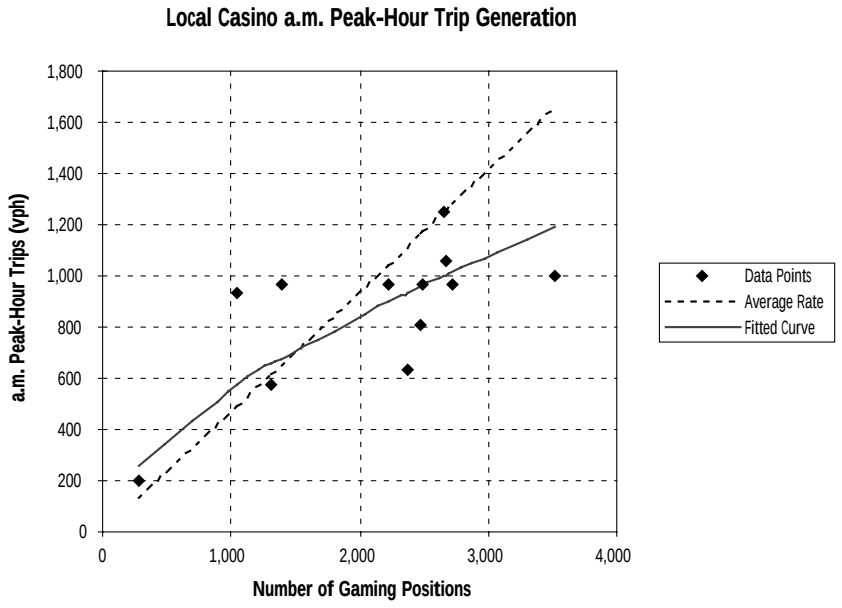
Average Vehicle Trip Ends vs: Number of Gaming Positions
On a: Weekday a.m. peak hour

Number of Studies: 12
Average Number of Gaming Positions: 2,098
Directional Distribution: 57% entering, 43% exiting

Trip Generation per Number of Gaming Positions

Average Rate	Range of Rates	Standard Deviation
0.4701	0.2667–0.8840	0.1913

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.604 Ln(X) + 2.147 F = 26.00 R^2 = 0.72
where: T = Number of a.m. peak-hour trips
F_{crit} = 4.96 at 95% confidence level
X = Number of gaming positions

Figure 3. Local a.m. peak trips vs. gaming positions.

p.m. peak hour
Ln(T) = 0.794 Ln(X) + 1.278
R^2 = 0.83
where
T = number of p.m. peak-hour trips; and
X = number of gaming positions.

Figures 1 and 2 illustrate these regression equations as well as the average trip rates, for the a.m. and p.m. peak-hour "best" equations, respectively. Likewise, Figure 3 is shown to provide estimation of trip generation for gaming positions during the a.m. peak hour. Other figures may be obtained by requesting them from the authors.

Determining Most Appropriate Equation

Similar to the resort casinos, for practical use, there are occasions where certain independent variables are not available for estimating the trip generation of a hotel/casino facility. Typically prior to the construction of a hotel/casino, the number of employees and gaming positions is not known. Likewise, the number of employees may be an estimate that may not be accurate to the actual number of employees after completion of the project. Therefore, the equation relating the casino floor area to peak-hour trips is believed to be acceptable for estimating trip generation. However, if certain variables are known, the following list provides the order to use the independent-variable regression equations to determine the best trip generation estimation for a local hotel/casino during each peak hour:

a.m. peak hour (T = peak-hour trips)
– 57% entering and 43% exiting

1 Employees (X)
Ln(T) = 0.710 Ln(X) + 1.506
R^2 = 0.77
$T = 4.509 X^{0.710}$

2 Gaming Positions (X)
Ln(T) = 0.604 Ln(X) + 2.147
R^2 = 0.72
$T = 8.559 X^{0.604}$

3 Casino Floor Area (X)
Ln(T) = 0.433 Ln(X) + 4.848
R^2 = 0.71
$T = 127.485 X^{0.433}$

p.m. peak hour (T = peak-hour trips)
– 52% entering and 48% exiting

1 Gaming Positions (X)
Ln(T) = 0.794 Ln(X) + 1.278
R^2 = 0.83
$T = 3.589 X^{0.794}$

2 Casino Floor Area (X)
Ln(T) = 0.527 Ln(X) + 4.999
R^2 = 0.72
$T = 148.265 X^{0.527}$

3 Employees (X)
Ln(T) = 0.847 Ln(X) + 1.086
R^2 = 0.72
$T = 2.962 X^{0.847}$

Instead of using regression equations, average trip rates may also be used. These rates are as follows:

a.m. peak hour

Trips per gaming position:	0.470
Trips per employee:	0.566
Trips per hotel room:	2.538
Trips per 1,000 square feet (sf) of casino floor area:	14.076

p.m. peak hour

Trips per gaming position:	0.788
Trips per employee:	1.021

Trips per hotel room:	5.067
Trips per 1,000 sf of casino floor area:	22.342

CONCLUSIONS

From this analysis, it was found that the addition of gaming positions as an independent variable was a significant improvement over previous developed equations. It is important to recognize that these trip generation equations were developed using data from Las Vegas hotel/casinos. As previously described, the trip-making characteristics of the resort corridor Las Vegas hotel/casinos are unique based on facility size and proximity to each other. Caution should be used when applying these equations to hotel/casinos outside of Las Vegas. However, the local hotel/casino equations developed may have applications to other gaming establishments throughout the United States. It is recommended that further study be conducted comparing these equations to other regional gaming facilities for the various independent variables. ■

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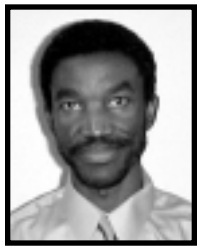

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Trip Generation Characteristics of Small to Medium Sized Casinos

Michael Trueblood, Tara Gude

OVERVIEW

This paper focuses on trip generation for small to medium sized casinos that are not part of a cluster of casinos. The data collection for this paper included three casinos located in Council Bluffs, Iowa. Two of the casinos are riverboat casinos and are located along the Missouri River, while the other casino includes an existing dog racetrack that later added slot machines.

In addition to the casinos located in Council Bluffs, the calculated trip generation rates were compared to rates included in a March 1998 ITE Journal article entitled *Gaming Casino Traffic*. The article calculated trip generation rates for two casinos in the St. Louis metropolitan area, the Casino Queen and the St. Charles Casino.

There is not an overwhelming amount of trip generation information available for casinos located outside of the typical Las Vegas or Atlantic City stereotype. The trip generation characteristics of casinos found in large clusters, like those in Las Vegas for example, are not similar to the casinos that will be covered in this article. For comparison purposes the MGM Grand Casino in Las Vegas has over 5,000 hotel rooms with over 3,500 slot machines, while the Treasure Island Casino has over 2,900 hotel rooms with over 2,000 slot machines. The trip generation characteristics of these casinos are quite different than the five covered in this paper due to their immense size and popularity. Another reason these casinos have different trip generation characteristics is because they are accessible by foot. In Las Vegas people tend to walk to and from the casinos or drive to one and then walk to several others throughout the course of a day.

It should be noted that each state has different rules and regulations that govern the actual type of establishment that can be used for gambling. Recent regulations have changed or have been modified in order to allow gambling facilities to be established beyond the typical riverboat casinos. Examples of these casinos are those operated by Indian Tribes. There are several casinos operated by Indian Tribes across the country. These casinos range in size, but they are good examples of the types of casinos this paper addresses.

LOCATION OF CASINOS

This section will provide a brief overview of the location of the three Council Bluffs casinos and the two casinos located in the St. Louis metropolitan area. The casino locations are shown in Figure 1. The three casinos in Council Bluffs, Iowa are located near the Missouri River in the Omaha metropolitan area. The Ameristar Casino and Harvey's Casino are located along the river within one mile of each other in the northwest quadrant of the I-29/I-80 interchange. Bluffs Run Casino is located about two miles east of these casinos along I-80. For comparison purposes to other casino locations, the 1998 average daily traffic (ADT) along I-29 was 40,500 vehicles, while the 1998 ADT along I-80 was 67,400 vehicles. The estimated 1999 population is 1,040,000 people within a 50-mile radius of the casinos.

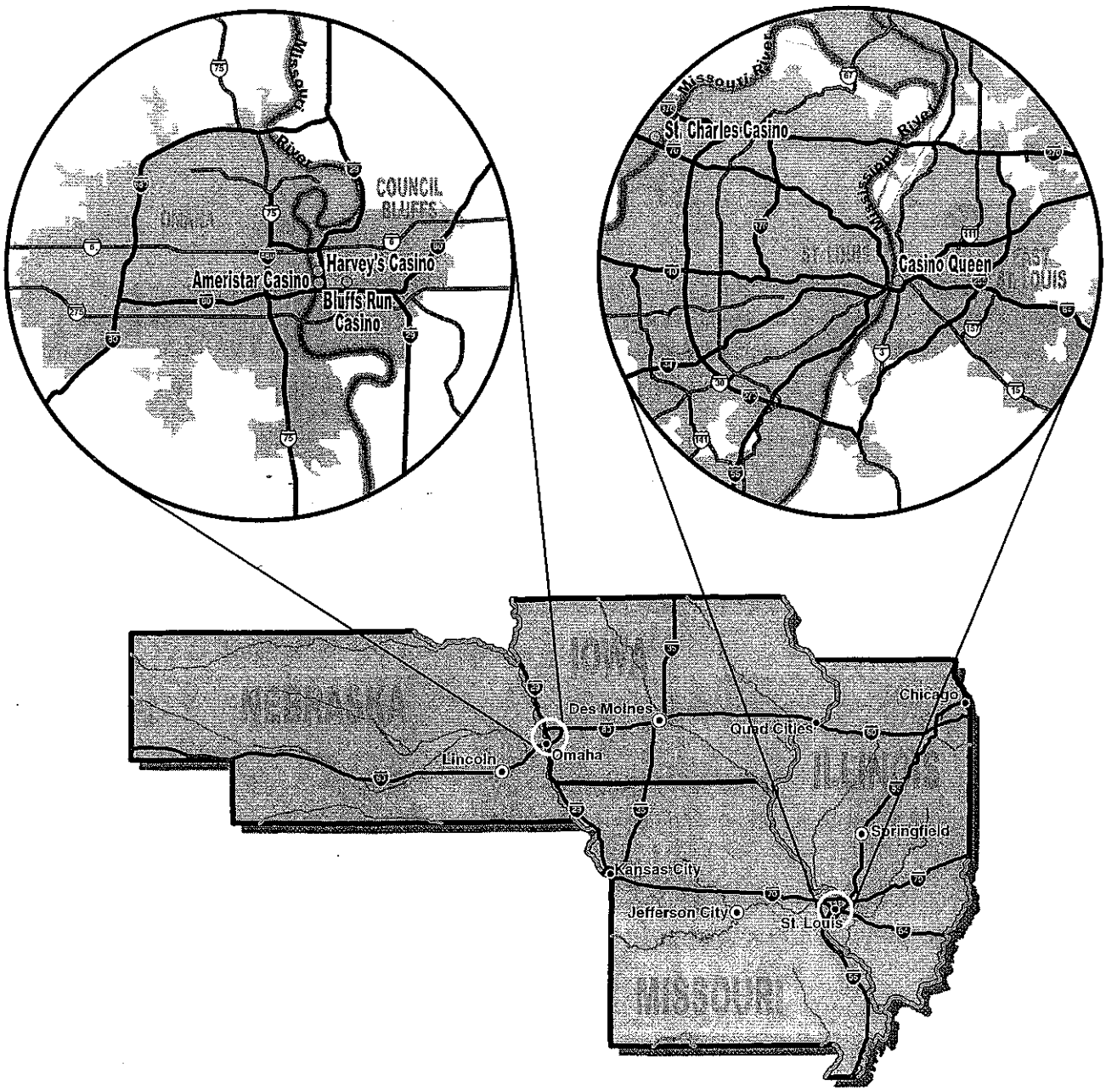

Figure 1 – Casino Location Map

The two St. Louis area casinos are also depicted in Figure 1. The St. Charles Casino is located along the Missouri River immediately north of I-70/Missouri River junction and about five miles to the west of I-270/I-70 junction in the City of St. Charles. The 1998 ADT along I-70 was 188,000 vehicles. The Casino Queen is located along the Mississippi River immediately east of the Gateway Arch and immediately north of the I-70/I-64/I-55 junction in the City of East St. Louis, Illinois. The ADT of these three interstates are 117,300 vehicles. The estimated 1999 population is 2,637,000 people within a 50-mile radius of the St. Louis area casinos.

GAMING REVENUES OF STUDY CASINOS

This section discusses the gaming revenues of the tri-state region where the five casinos presented in this paper are located. Between the years 1994-1999, St. Charles Casino had the second highest attendance of the eleven riverboat casinos within the state of Missouri. During the fiscal year 2000 the eleven riverboat casinos made over $1.0 billion in adjusted gross revenues (AGRs). In Illinois, the nine riverboat casinos made over $1.66 billion AGRs in 2000, with the Casino Queen ranked fifth out of the nine riverboats. In Iowa, Harvey's Casino and Ameristar Casino ranked one and two of out ten casinos in AGRs, respectively. The ten casinos in Iowa combined for over $575 million in AGRs. Casinos within the State of Iowa that also have pari-mutuel wagering are accounted for separately in terms of their AGRs. Bluffs Run Casino was ranked two out of three casinos in AGRs. The three racetrack casinos, as they are called in Iowa, combined for over $300 million in AGRs in 2000.

TRIP GENERATION CHARACTERISTICS OF STUDY CASINOS

Most of the available information concerning trip generation of casinos is related to large casinos or clusters of several casinos, such as those in Las Vegas. In order to determine the trip generation characteristics of small to medium sized casinos, HDR collected traffic information at three casinos in Council Bluffs, Iowa. Once the trip generation rates were computed, they were compared to trip generation rates of two St. Louis area casinos documented in a March 1998 issue of the ITE Journal.

Table 1 documents the five casinos' characteristics. It should be noted that the information for the Council Bluffs casinos is for the year 2000, while the information for the St. Louis casinos was collected in 1998.

Table 1 – General Casino Information

Amenities	Council Bluffs, Iowa			St. Louis Metro Area	
	Harvey's	Ameristar	Bluffs Run	St. Charles	Casino Queen
Slots	1169	1446	1479	1847	1020
Total Tables	53	51	0	90	51
Gaming sq. ft.	28,250	38,000	34,280	50,000	27,500
Hotel Rooms	251	356	0	*Not Applicable*	*Not Applicable*
Employees	1257	1329	1046	*Not Available*	1079
Pari-mutuel Wagering	No	No	Yes	No	No
Convention Center (seats)	900	170	No	*Not Available*	*Not Available*

The data collection for the Council Bluffs casinos was conducted during the following times:

- Ameristar – Saturday, July 15th to Tuesday, July 25th, 2000.
- Harvey's – Thursday, July 20th to Sunday, July 30th, 2000.
- Bluffs Run – Wednesday, July 19th to Saturday, July 29th and Saturday August 19th to Monday August 28th, 2000.

Automatic tube recorders were placed at all entrances and exits to the casinos. Data was collected in fifteen-minute intervals, 24-hours a day for each of the casinos. All five casinos operated on a 24-hour basis. As will be discussed later, the hourly information was unique when compared to other land uses. The following sections provide detailed information on the trip generation characteristics of the three Council Bluffs casinos. These rates were compared to the two St. Louis casinos and since the rates for all five casinos were similar, an average trip generation rate was computed.

Peak Hour Trip Generation Rates

A trip generation rate was calculated based on the number of slot machines that were located at each casino. Generation rates were calculated for both weekdays and weekends. Weekday trip generation rates were calculated for both the peak of facility and peak of adjacent street traffic. Traffic studies for new developments generally analyze the weekday peak hour of adjacent street traffic. However, several types of developments generate higher traffic levels during times other than the adjacent street traffic peak hour. Data from the casinos indicate that their peak trip generation rates are different than the peak hour of adjacent street traffic. Table 2 depicts the average PM peak hour trip generation rates of the five casinos for the peak hour of facility, while Table 3 depicts the average PM peak hour trip generation rate for the adjacent street traffic. The PM peak hour was chosen for purposes of calculating trip generation rates because they were generally higher than the AM peak hour. Tables A1, A2, and A3 located at the end of the paper document the three Iowa casinos daily raw peak hour and time of day data.

Table 2 – Facility Peak Hour Trip Generation

	PM Peak Hour										Average PM Peak Hour Trips	
	Harvey's		Ameristar		Bluffs Run		St. Charles		Casino Queen			
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Monday - Friday	502	380	423	477	537	491	725	625	348	336	**507**	**462**
Saturday/Sunday	482	375	624	471	553	579	850	750	*Not Available*		**627**	**544**
	PM Peak Hour Per Slot										Average PM Peak Hour Trips Per Slot	
	Harvey's		Ameristar		Bluffs Run		St. Charles		Casino Queen			
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Monday - Friday	0.43	0.33	0.29	0.33	0.36	0.33	0.39	0.34	0.34	0.33	**0.36**	**0.33**
Saturday/Sunday	0.41	0.32	0.43	0.33	0.37	0.39	0.46	0.41	*Not Available*		**0.42**	**0.36**

Note: St. Charles weekday rate is for Friday only.

Table 3 – Adjacent Street Peak Hour Trip Generation

	PM Peak Hour										Average PM Peak Hour Trips	
	Harvey's		Ameristar		Bluffs Run		St. Charles		Casino Queen			
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Monday - Friday	453	340	427	378	442	373	475	600	*Not Available*		449	423
Saturday/Sunday	423	334	491	413	490	467	*Not Available*		*Not Available*		468	404
	PM Peak Hour Per Slot										Average PM Peak Hour Trips Per Slot	
	Harvey's		Ameristar		Bluffs Run		St. Charles		Casino Queen			
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Monday - Friday	0.39	0.29	0.29	0.26	0.30	0.25	0.26	0.32	*Not Available*		0.31	0.28
Saturday/Sunday	0.36	0.29	0.34	0.29	0.33	0.32	*Not Available*		*Not Available*		0.34	0.30

Note: St. Charles weekday rate is for Friday only.

The PM peak hour trip generation rates were similar for each of the three Council Bluffs casinos. These rates were found to be comparable to the two St. Louis area casinos' trip generation rates. As shown above in Table 3, there is a correlation between the number of slot machines and the traffic generated by the casinos. For example, the two St. Louis area casinos have a difference in the number of trips generated by the facility. However when the trip generation rates were developed on a per slot machine basis, the rates are quite similar. Even though the St. Charles Casino has 800 slot machines more than the Casino Queen, their trip generation rates are comparable.

HDR's analysis of the five casinos in St. Louis and Council Bluffs found that their average weekday PM peak hour of adjacent street traffic trip generation rate was 0.59 trips per slot machine, while the average weekend PM peak hour trip generation rate was 0.64 trips per slot machine. These rates were close to the weekday and weekend PM peak hour of generator, which were 0.69 trips and 0.78 trips per slot machine, respectively.

The original trip generation rates calculated for the St. Louis area casinos were based on gaming positions. For purposes of this paper the rates provided in the March ITE Journal article were converted to trips per slot machine. This was done in order to directly compare the Council Bluffs and St. Louis trip generation rates. Gaming positions are calculated based on each type of game and are a percentage of the number of slot machines. Thus, calculating the number of gaming positions can get cumbersome. The other reason slot machines were used to calculate trip generation rates was because Bluffs Run Casino does not have table games.

Daily Trip Generation Rates

Table 4 shows the ADTs that were collected for the three Iowa casinos. An average daily trip rate was developed based on information from the three Iowa casinos and from the St. Charles Casino. Not enough information was available in order to include the Casino Queen in these calculations. Table 5 shows the weekday and weekend daily trip rates for each of the four casinos in addition to an average daily trip rate.

Table 4 – Average Daily Traffic (ADT)

Day	*Harvey's Daily Volume*			*Ameristar Daily Volume*			*Bluffs Run Daily Volume*		
	Inbound Volume	Outbound Volume	ADT	Inbound Volume	Outbound Volume	ADT	Inbound Volume	Outbound Volume	ADT
Sunday	7,038	6,749	13,787	7,438	8,175	15,613	8,871	8,887	17,758
Monday	5,402	4,745	10,147	5,378	5,394	10,771	6,665	6,741	13,406
Tuesday	9,334	8,496	17,830	6,903	6,761	13,663	7,702	7,180	14,882
Wednesday	6,401	5,221	11,622	5,823	5,730	11,553	7,499	6,827	14,326
Thursday	6,944	5,462	12,406	5,845	5,703	11,548	8,494	7,867	16,361
Friday	8,230	5,938	14,168	8,043	7,460	15,503	9,211	8,441	17,652
Saturday	8,075	7,025	15,100	8,311	8,129	16,440	9,957	9,392	19,349

Table 5 – Average Daily Traffic Rates

	ADT				ADT per slot				**Average**
	Harvey's	Ameristar	Bluffs Run	St. Charles	Harvey's	Ameristar	Bluffs Run	St. Charles	**ADT per slot**
Monday - Friday	13,249	12,496	15,325	17,362	11.33	8.64	10.36	9.40	**9.93**
Saturday/Sunday	14,443	16,026	18,554	19,959	12.36	11.08	12.54	10.81	**11.70**

Note: St. Charles weekday rate is for Friday only.

The ADT was higher on weekend days compared to weekdays. As shown in Table 4 there was more than a 50% increase in the ADT on weekends at some of the casinos. Another interesting factor that made relatively large increases in ADT was the special promotions that the casinos offer. For example, Harvey's Casino had double points for slot club members on Tuesdays, which generated more traffic than a typical weekend day. Double points allow slot club members to earn extra points that can be redeemed for cash.

Another finding of interest was the amount of traffic that occurs during the late night hours. It was assumed that this was related to the fact that all five casinos evaluated in this paper were located within a metropolitan area and relatively close to an interstate. Table 6 documents the time variation of trips at the three Council Bluffs casinos and the St. Charles Casino. Again, data was not available for Casino Queen.

Table 6 – Casino Related Time Variations of Trips

	Percentage of Traffic during each time period									
	Harvey's		Ameristar		Bluffs Run		St. Charles		Average	
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
9 AM - 9 PM	64.6	58.4	69.0	61.9	66.1	59.5	65.7	69.5	66.3	62.3
9 PM - 9 AM	35.4	41.6	31.0	38.1	33.9	40.5	34.3	30.5	33.6	37.7
12 AM - 6 AM	10.9	17.9	9.2	16.2	10.9	17.4	13.8	9.0	11.2	15.1
6 AM - 12 PM	21.0	19.6	20.7	17.3	23.1	20.8	15.8	19.0	20.1	19.2
12 PM - 6 PM	34.3	31.2	37.9	32.3	34.7	31.7	34.6	33.6	35.4	32.2
6 PM - 12 AM	33.8	31.3	32.3	34.1	31.3	30.1	35.8	38.4	33.3	33.5

Generally, most land uses do not operate on a 24-hour basis. As a result, roadways located near these casinos tend to have more traffic on them during the late night hours. The daily trip information is important because it captures some of the impacts related to off-peak traffic levels. This could lead to potential concerns of nearby residents or business owners. If the location of a potential casino was proposed near a neighborhood, the future casino could cause lighting, noise, or other environmental concerns. Our data shows some justification to these concerns over late-night traffic. Typically between the hours of 12:00 AM and 6:00 AM most land uses are not in operation and thus do not generate trips. These four casinos, on the other hand, averaged over 15% of their daily trips during these same hours. This could lead to potential complaints by nearby residents or businesses.

SUMMARY

This paper included the trip generation rates of three Iowa casinos and compared their rates to that of two St. Louis casinos included in a March 1998 ITE Journal article. In general, the five casinos had comparable trip generation rates for both weekdays and weekends. These rates could be used when determining the viability of a proposed casino or the expansion of an existing casino. As always, data collected at or near the actual casino site should be used, but if this is not possible, these rates could provide for a relative comparison of whether the nearby roadways could handle the increase in traffic due to the casino.

HDR's analysis of the five casinos found that their average weekday PM peak hour of adjacent street traffic trip generation rate was 0.59 trips per slot machine, while the average weekend PM peak hour trip generation rate was 0.64 trips per slot machine. These rates were close to the weekday and weekend PM peak hour of generator, which were 0.69 trips and 0.78 trips per slot machine, respectively. The average weekday ADT was 9.93 trips per slot, while the weekend average ADT was 11.70 trips per slot.

It should also be noted that these casinos could be considered isolated in terms of walking from one to another. The generation rates of casinos that are found in clusters (Las Vegas) have different characteristics than the casinos studied in this paper. This can be related to the large number and size of casinos located within the clusters and the fact that they are generally located very close to each other. Another important piece of information that should be reviewed is a market analysis. A market analysis could give an estimate of the daily admissions expected at the casino. This could give an indication if these rates are applicable to the proposed casino. As with all land uses, variations in trip generation rates will exist, but knowing what the potential traffic impact could be is better than not having any comparative information.

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Table A1 – Harvey's Peak Hour Raw Data

Day	Date	AM Peak Hour			PM Peak Hour		
		Time	Inbound Volume	Outbound Volume	Time	Inbound Volume	Outbound Volume
Thursday	7/20/00	11:00	358	209	6:00	458	317
Friday	7/21/00	10:45	323	252	5:00	548	387
Saturday	7/22/00	10:00	285	273	5:30	591	380
Sunday	7/23/00	11:00	433	265	3:30	409	462
Monday	7/24/00	10:45	280	208	4:30	347	279
Tuesday	7/25/00	11:00	562	469	6:00	715	606
Wednesday	7/26/00	10:45	320	203	5:00	440	352
Thursday	7/27/00	11:00	362	263	6:00	493	319
Friday	7/28/00	10:45	412	179	5:30	512	403
Saturday	7/29/00	11:00	304	256	5:00	518	317
Sunday	7/30/00	11:00	345	271	3:15	410	342

Table A2 – Ameristar Peak Hour Raw Data

Day	Date	AM Peak Hour			PM Peak Hour		
		Time	Inbound Volume	Outbound Volume	Time	Inbound Volume	Outbound Volume
Saturday	7/15/00	10:30	363	240	5:30	596	420
Sunday	7/16/00	11:00	379	388	6:00	609	543
Monday	7/17/00	10:45	248	282	3:15	314	435
Tuesday	7/18/00	11:00	430	287	3:00	463	637
Wednesday	7/19/00	10:45	340	230	5:30	429	334
Thursday	7/20/00	10:45	356	228	3:00	349	471
Friday	7/21/00	11:00	364	283	5:45	662	441
Saturday	7/22/00	11:00	370	265	5:45	700	461
Sunday	7/23/00	11:00	409	351	5:45	592	461
Monday	7/24/00	10:45	299	289	3:15	319	462
Tuesday	7/25/00	11:00	458	343	3:00	427	557

Table A3 – Bluffs Run Peak Hour Raw Data

Day	AM Peak Hour			PM Peak Hour		
	Time	Inbound Volume	Outbound Volume	Time	Inbound Volume	Outbound Volume
Monday	11:00	348	420	15:00	443	416
Tuesday	10:45	436	393	15:00	549	513
Wednesday	11:00	417	310	15:00	542	474
Thursday	10:45	425	370	15:30	571	507
Friday	11:00	406	379	15:30	580	544
Saturday	11:00	478	361	16:00	486	635
Sunday	10:15	423	378	15:00	620	523

Trip Generation Rates for Las Vegas Area Hotel-Casinos

KENNETH W. ACKERET AND ROBERT C. HOSEA III

The hotel-casinos of Las Vegas are known throughout the world. From the standpoint of size (number of rooms and casino square footage) and recreational attraction, this sort of development represents a unique land use for which trip generation rates have not been established or published. Thus, the evaluations of site traffic impacts for either new hotel-casinos or expansions to existing properties have been faced with the challenge of accurately predicting the number of vehicle trips that will be generated.

The goal of this study was to compile existing driveway count data obtained and documented in various traffic impact reports prepared within the Las Vegas area (Clark County, Nevada) and to use this information to prepare data plots and trip generation equations similar to those found in the ITE trip generation report.[1] To accomplish this task, the following independent variable characteristics were correlated to driveway count data from 1985 through 1990 for various hotel properties:

- Number of hotel rooms in the property
- Casino floor square footage
- Average number of employees

Data Collection

Manual driveway traffic counts and site characteristics shown in Table 1 were collected with the cooperation of the Clark County Department of Public Works, Traffic Management Division; the University of Nevada Las Vegas, Transportation Research Center; and from the records of SEA Consulting Engineers, as well as other traffic consultants in the Las Vegas area.[2-22]

The compiled count data and property characteristics in Table 1 were divided into three groups. Properties were segregated into the following groups in an effort to identify any unique characteristics that may exist resulting from their location within the Las Vegas area.

Strip Hotels and Casinos (S). This category represents all properties located along the Las Vegas "strip," which is defined as that area along Las Vegas Boulevard (a total length of 5.2 miles or 8.4 km) between Sahara Avenue and Sunset Road. All of these properties are located within the unincorporated Las Vegas urban area. These properties are primarily an attraction for typical Las Vegas gaming tourists.

Outlying Areas (O). This category includes relatively small, rural hotel-casinos located outside of the Las Vegas metropolitan area, chiefly along Interstate 15, which links the Southern California area to Las Vegas.

Local Casinos (L). Off-strip hotel-casinos with approximately 200 to 300 rooms are included in this group. These properties are generally located along arterial roadways within the Las Vegas urban area, and they primarily attract Las Vegas residents.

Conversion Factors

To convert from	to	multiply by
sq ft	m^2	0.0929
mi	km	1.609

Data Evaluation

The data in Table 1 represent manual vehicle counts reported for access driveways to each hotel-casino property. The count observations were made during 15-minute intervals on weekdays during peak hour traffic (7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.). The average weekday morning and afternoon peak hour used for these counts was that determined for the street traffic adjacent to each respective hotel-casino. Therefore, it is important to realize that the following evaluations do not necessarily reflect the peak-hour rates of the hotel-casino traffic generator.

In order to account for seasonal variations in the count data, the peak-hour volumes in Table 1 were adjusted to reflect a 100 percent room occupancy. This adjustment was made by dividing the driveway counts by the hotel occupancy rate on the day of the count. While these occupancy rates vary throughout holiday seasons, and especially during holiday periods, the average mid-week Las Vegas hotel occupancy rates have been relatively constant from year to year (81.4 percent for the 1988[23] calendar year and 81.6 percent for 1989[24]).

The evaluated vehicle trip data in Table 1 represent 17 different hotel-casinos. However, in order to increase the number of data points for evaluation, counts from two properties (the Stardust and Riviera hotel-casinos) that have undergone major casino floor expansions or room additions were used. With this latter data included, a total of 21 afternoon peak-hour observations were available for comparison to the independent variables referred to previously (casino floor space, number of hotel rooms, and average number of employees).

The information contained in Table 1 was evaluated using a spreadsheet program to plot the data, determine directional distributions, and perform linear regression analysis. The linear regression analysis was calculated using the following three formulas found in ITE's *Trip Generation*[1]:

$$T = C_1 X + C_2 \quad (1)$$

$$1/T = C_1\ 1/X + C_2 \quad (2)$$

$$\text{Ln}\ (T) = C_1\ \text{Ln}\ (X) + C_2 \quad (3)$$

where:

T = Average vehicle trip ends (dependent variable),
X = Number of hotel rooms, average number of employees, or casino square footage (independent variables), and
C_1, C_2 = Coefficients (determined from regression analysis).

Because of the limited number of hotel-casino counts available for the local and outlying hotel-casino categories, the data were evaluated for either "all hotels" or "strip hotels." The best-fit relationship was found for each independent variable by comparing the coefficients of determination, R^2. As the value of R^2 approaches 1.0, the relationship between the number of trips and the independent variable(s) becomes more favorable. The resulting best-fit relationships are given in Table 2 for the single-variant relationships. The single-variant equations, directional distribution, and data plots for all hotels are presented in Figures 1 through 6 in a format similar to that found in the ITE trip generation report.[1] In addition, multi-variant regression analysis was performed on the data set for various combinations of independent variables. The best-fit relationship was found for the four combinations of the three independent variables. These equations and associated R^2 values are presented in Table 3 for the multi-variant relationships.

To further supplement the single-variant regression analysis, an average trip rate was determined for the three independent variables. For comparison purposes, the rate equation was also plotted on Figures 1 through 6.

Conclusions

Based upon the available hotel-casino vehicle trip data, the analyses of the vehicle volumes, and the resulting single-variant and multi-variant trip generation equations, the following conclusions can be drawn concerning the trip generation rates for Las Vegas area hotel-casinos.

The single-variant relationships of the form $T = C_1 X + C_2$ had the best correlations. The variable incorporating the average number of employees was found to have the strongest correlation between the three independent variables evaluated. For general planning purposes, when the number of employees is known from social and economic projections for a given hotel-casino land use

Table 1. Hotel-casino trip and site characteristics.

Type	Hotel	Hotel Occupancy[a] (%)	Count	AM Peak Hour[b] In	AM Peak Hour[b] Out	AM Peak Hour[b] Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Number of Hotel Rooms	Casino Floor Sq Ft	Avg. No. of Emp.
S	Caesars Palace[2]	95	1989	724	361	1,085	876	857	1,733	1,500	93,000	3,000
S	Circus-Circus[3]	100	1988	568	599	1,167	883	915	1,798	3,154	110,979	3,500
S	El Rancho[4]	79	1987	—	—	—	171	154	325	438	31,794	250
S	Excalibur[5,c]	96	1990	—	—	—	859	1,527	2,386	4,032	105,540	4,000
S	Frontier[6]	93	1989	225	160	385	263	230	493	176	53,825	1,500
L	Gold Coast[7]	93	1988	404	227	631	961	716	1,677	297	71,000	2,030
O	Goldstrike[8]	79	1990	—	—	—	157	126	283	300	27,608	500
S	Hacienda[9]	91	1990	142	125	267	280	253	533	780	17,500	800
S	Imperial Palace[10]	92	1985	231	173	404	257	362	619	1,492	35,788	1,400
L	King 8[11]	61	1988	107	92	199	134	125	259	298	4,138	300
O	Nevada Landing[12]	79	1990	—	—	—	161	139	300	300	35,700	600
S	Riviera[13]	100	1985	—	—	—	275	223	498	1,196	40,000	1,615
S	Riviera[14]	100	1986	—	—	—	229	241	470	1,196	75,350	1,100
S	Riviera[15]	100	1988	508	322	830	495	437	932	2,136	75,350	2,000
S	Riviera[16]	98	1990	427	213	640	491	512	1,003	2,136	75,350	2,000
S	Sahara[17]	82	1990	—	—	—	403	325	728	1,500	26,956	1,600
L	Sam's Town[18]	80	1987	—	—	—	704	699	1,403	204	62,884	1,150
S	Sands[19]	92	1989	238	144	382	274	324	598	720	26,000	1,500
S	Stardust[20]	90	1986	355	299	654	448	524	972	1,365	18,500	1,900
S	Stardust[21]	97	1989	392	344	736	533	578	1,111	1,302	49,993	2,000
S	Westward Ho[22]	99	1987	140	164	304	172	203	375	780	34,457	900

S = Strip Hotel & Casino; O = Outlying Area Hotel & Casino; L = Local Hotel & Casino.

Note: Numbers appearing after hotel name refer to reference citations.

[a]Hotel room occupancy at time of driveway counts as reported by owner.
[b]Adjusted counts to 100 percent room occupancy.
[c]PM peak hour from Monday, Labor Day 1990.

area, Figures 3 and 4 may be used in a manner similar to the methods applied in *Trip Generation* to determine the anticipated number of vehicle trip ends. In using Figures 3 and 4 it is important to recognize that the results are based upon 100 percent room occupancy and should therefore be adjusted to reflect the average room occupancy rate for the hotel-casino land use area being evaluated.

The evaluation of directional split data shows that the morning peak hour has a greater number of vehicles arriving than departing (58 percent enter, 42 percent exit), while during the afternoon peak hour the directional split is almost equal (49 percent enter, 51 percent exit).

Multi-variant relationships, including all three independent variables, resulted in the strongest correlations. The strip hotel data had the best overall relationships, with R^2 values of 0.949 (morning peak hour) and 0.929 (afternoon peak hour) for the three independent variables. Of all the relationships analyzed, those incorporating the independent variable of the average number of employees demonstrated the strongest correlations with respect to the anticipated number of vehicle trip ends. However, it is important to recognize that even though the average number of employees will result in the best single-variant and multi-variant correlations to the number of vehicle trip ends, this variable may be difficult to precisely determine from an owner during the early development stages of a hotel-casino project when a site impact report needs to be

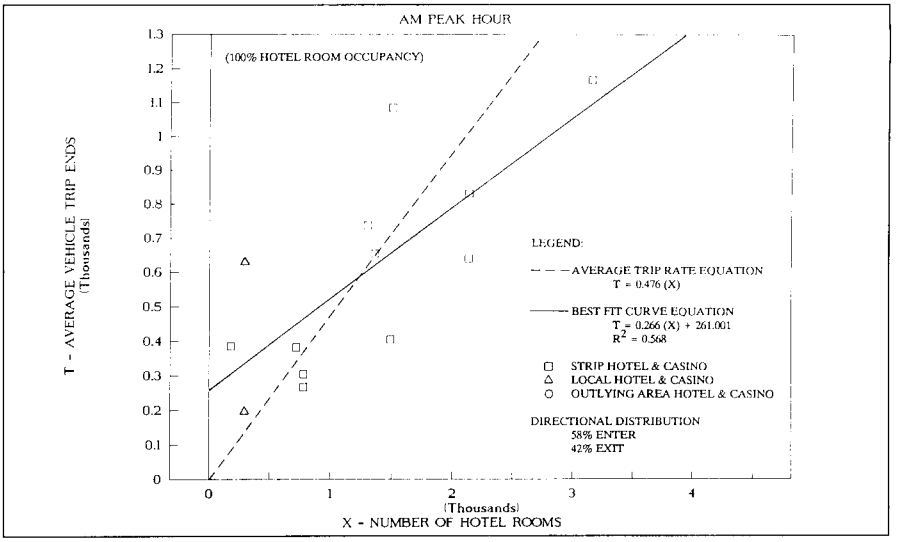

Figure 1. Average vehicle trip ends per hotel room, morning peak hour.

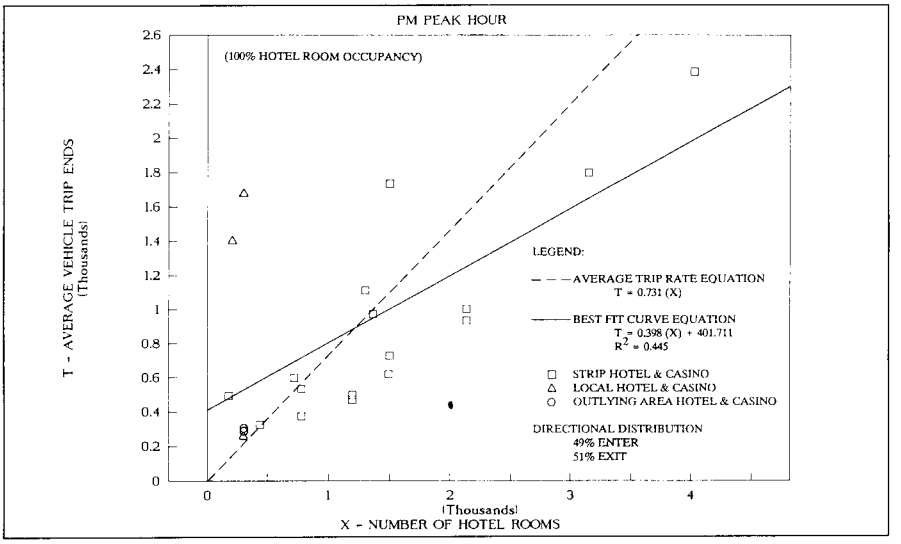

Figure 2. Average vehicle trip ends per hotel room, afternoon peak hour.

Table 2. Trip generation equations single variant relationships (100 percent hotel room occupancy).

	All Hotel-Casinos Average Vehicle Trip Ends (*T*)		Strip Hotel/Casinos Average Vehicle Trip Ends (*T*)	
Independent Variable	AM	PM	AM	PM
Trips Per Hotel Room (*X*)				
Rate Equation	*T* = 0.476 (*X*)	*T* = 0.731 (*X*)	*T* = 0.441 (*X*)	*T* = 0.610 (*X*)
Fitted Curve Equation	*T* = 0.266 (*X*) + 261.001	*T* = 0.398 (*X*) + 401.711	*T* = 0.290 (*X*) + 213.221	*T* = 0.514 (*X*) + 143.206
Coefficient of Determination (R^2)	0.568	0.445	0.608	0.745
Trips Per Employees (*X*)				
Rate Equation	*T* = 0.337 (*X*)	*T* = 0.550 (*X*)	*T* = 0.334 (*X*)	*T* = 0.501 (*X*)
Fitted Curve Equation	*T* = 0.342 (*X*) − 10.334	*T* = 0.545 (*X*) + 9.205	*T* = 0.369 (*X*) − 64.984	*T* = 0.578 (*X*) − 139.629
Coefficient of Determination (R^2)	0.927	0.799	0.935	0.923
Trips Per 1,000 square feet of Casino (*X*)				
Rate Equation	*T* = 11.540 (*X*)	*T* = 17.258 (*X*)	*T* = 11.602 (*X*)	*T* = 16.744 (*X*)
Fitted Curve Equation	*T* = 8.216 (*X*) + 170.239	*T* = 15.905 (*X*) + 69.054	*T* = 8.406 (*X*) + 171.646	*T* = 14.727 (*X*) + 109.757
Coefficient of Determination (R^2)	0.748	0.631	0.722	0.595

T = Trip ends at 100 percent room occupancy

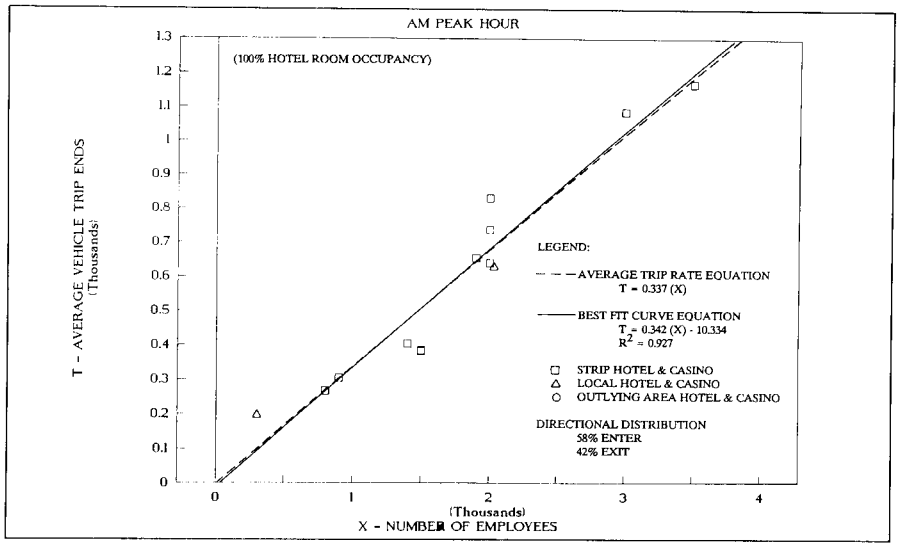

Figure 3. Average vehicle trip ends per hotel employee, morning peak hour.

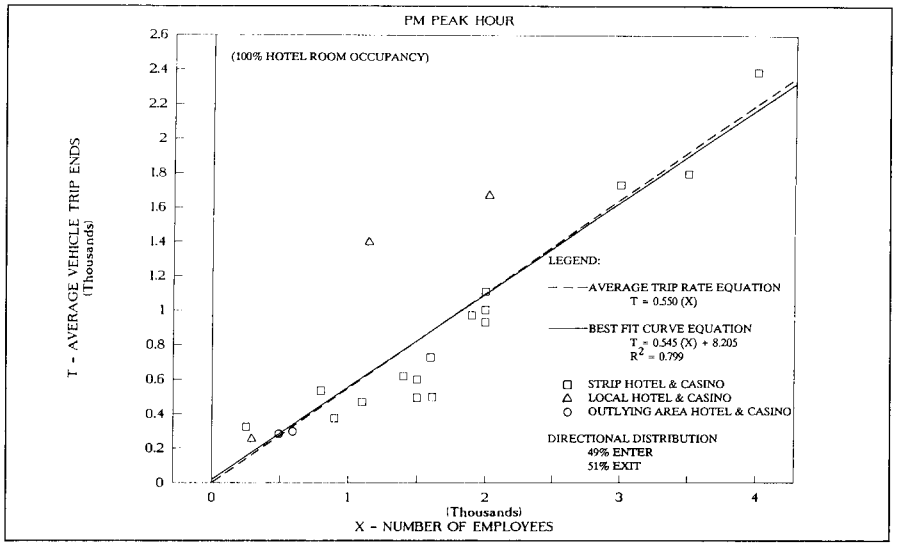

Figure 4. Average vehicle trip ends per hotel employee, afternoon peak hour.

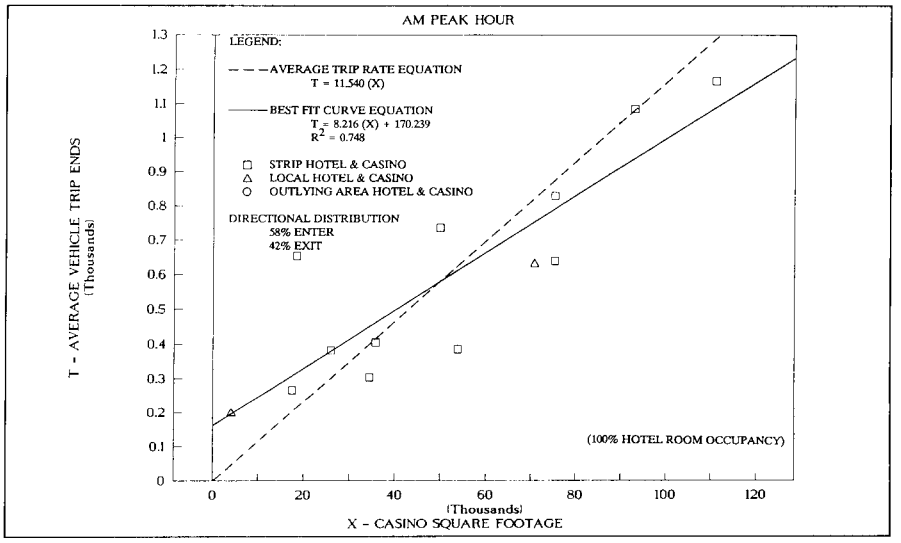

Figure 5. Average vehicle trip ends per 1,000 sq ft of casino floor area, a.m. peak hour.

prepared. Since the number of proposed hotel rooms and the casino floor space is more precisely known during the planning stages of either a new project or property expansion, it is recommended that vehicle trip-end projections for site impact reports be made based on these two more readily known variables, as given in Table 3. In using the equations contained in Table 3, it is important to recognize that the results are based on 100 percent room occupancy for the facility and must be adjusted to reflect the appropriate room occupancy rate for the project being evaluated.

Since the number of employees correlates so well with the number of trip ends for individual hotel-casinos, further study of this relationship is recommended as it relates to seasonal variations, hotel occupancy rates, and regional hotel-casino land use zones.

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Table 3. Trip generation equations Multi-variant Relationships (100 percent hotel room occupancy).

Independent Variables	All Hotel/Casinos Average Vehicle Trip Ends (*T*)		Strip Hotel/Casinos Average Vehicle Trip Ends (*T*)	
	AM	PM	AM	PM
	Trips Per Hotel Rooms (X), 1,000 square feet of Casino (Y)			
Fitted Curve Equation	$T = 0.115 (X) + 6.181 (T) + 131.216$	$T = 0.147 (X) + 12.607 (Y) + 60.405$	$T = 0.128 (X) + 5.937 (Y) + 123.909$	$T = 0.386 (X) + 5.529 (Y) + 33.990$
Coefficient of Determination (R^2)	0.809	0.665	0.778	0.782
	Trips Per Hotel Rooms (X), Employees (Y)			
Fitted Curve Equation	$T = 0.047 (X) + 0.308 (Y) - 9.282$	$T = -0.160 (X) + 0.681 (Y) - 18.313$	$Ln(T) = 0.131 Ln(X) + 0.966 Ln(Y) - 1.791$	$T = 0.087 (X) + 0.503 (Y) - 132.538$
Coefficient of Determination (R^2)	0.936	0.820	0.948	0.929
	Trips Per Employees (X), 1,000 square feet of Casino (Y)			
Fitted Curve Equation	$T = 0.325 (X) + 0.529 (Y) - 6.618$	$T = 0.439 (X) + 4.326 (Y) - 43.152$	$T = 0.346 (X) + 0.707 (Y) - 59.229$	$T = 0.562 (X) + 0.656 (Y) - 145.676$
Coefficient of Determination (R^2)	0.928	0.815	0.936	0.924
	Trips Per Hotel Rooms (X), Employees (Y), 1,000 square feet of Casino (Z)			
Fitted Curve Equation	$T = 0.047 (X) + 0.296 (Y) + 0.396 (Z) - 6.511$	$T = 0.158 (X) + 0.576 (Y) + 4.271 (Z) - 68.771$	$Ln(T) = 0.132 Ln(X) + 0.913 Ln(Y) + 0.048 Ln(Z) - 1.591$	$T = 0.085 (X) + 0.500 (Y) + 0.175 (Z) - 134.264$
Coefficient of Determination (R^2)	0.937	0.836	0.949	0.929

T = Trip ends at 100 percent room occupancy.

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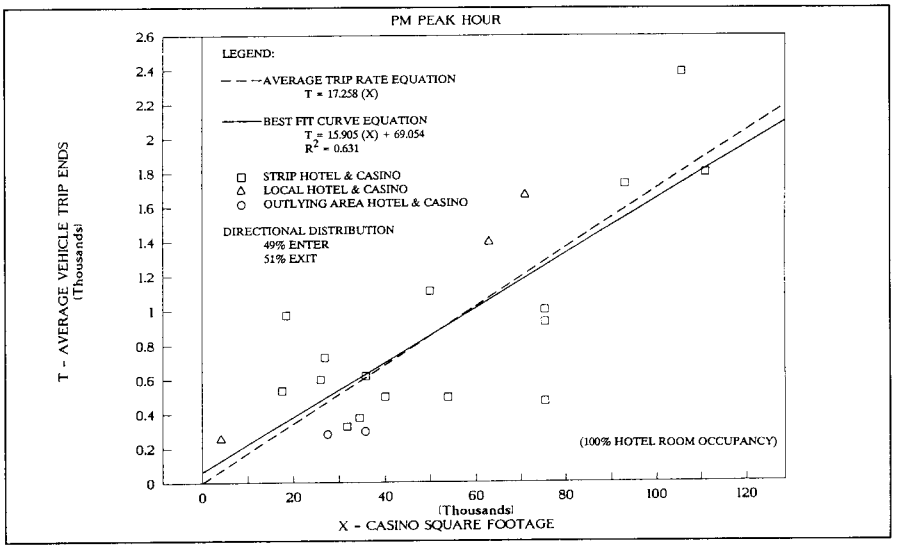

Figure 6. Average vehicle trip ends per 1,000 sq ft of casino floor area, afternoon peak hour.

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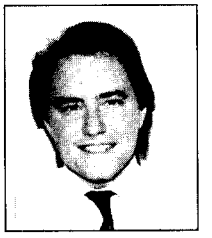

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