

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



MATCH H

RETAIL /APARTMENT DRIVEWAY

WHITE BLUFF CONNECTOR

TRUMAN PARKWAY

SR 204

687
(1078)

1000
(1190)

616
(987)

82
(94)

128
(173)

180
(181)

46
(79)

918
(1096)

109
(90)

662
(1066)

1027
(1186)

646
(1025)

16
(41)

78
(139)

38
(49)

779
(1023)

110
(24)

218
(303)

388
(327)

1210
(1528)

1235
(1089)

822
(1201)

869
(696)

1145
(1416)

779
(1023)

366
(393)

LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

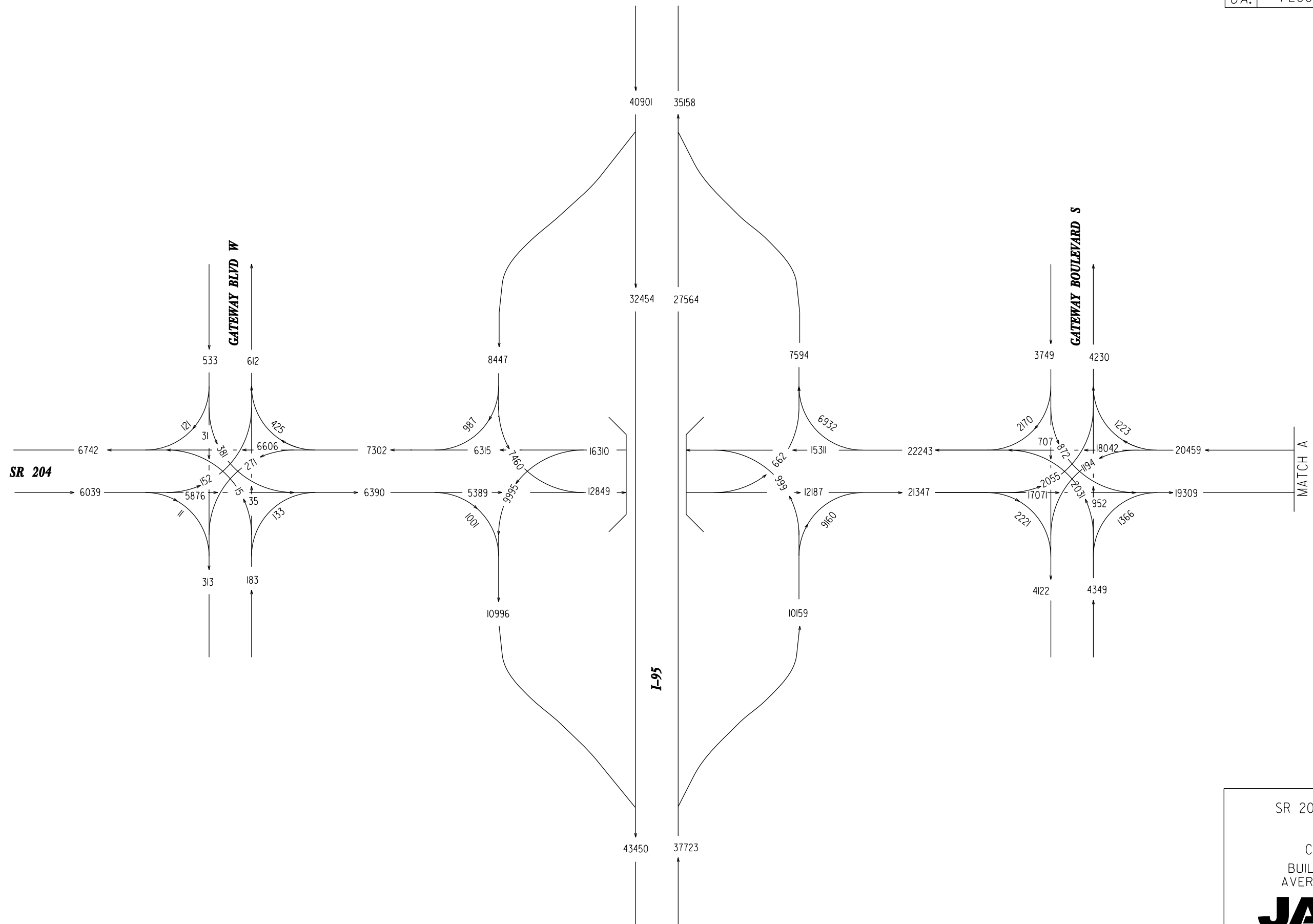
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
PEAK HOUR VOLUMES

JACOBS™

FIGURE 37

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
AVERAGE DAILY VOLUMES

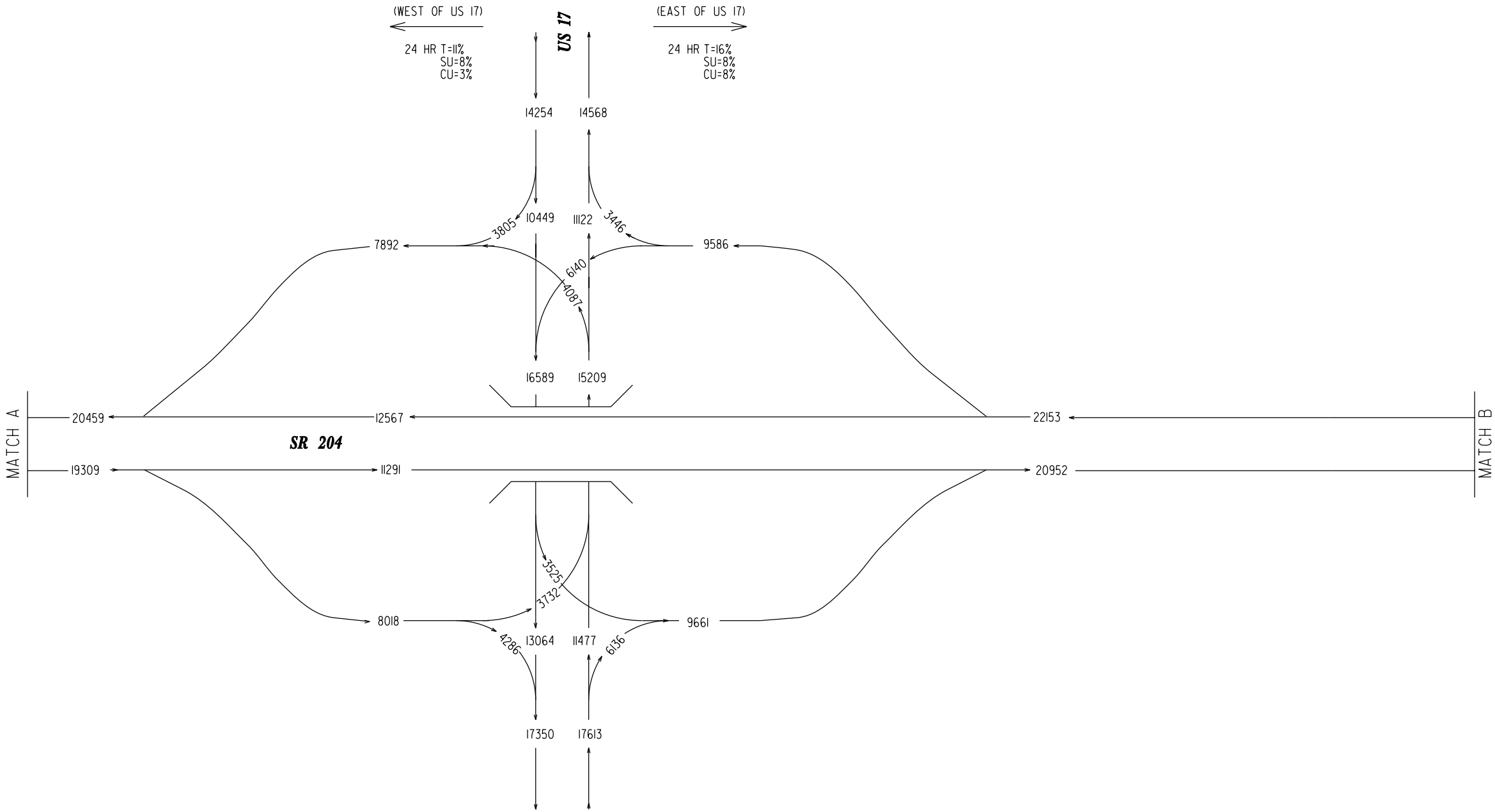
JACOBS™

FIGURE 38

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
AVERAGE DAILY VOLUMES

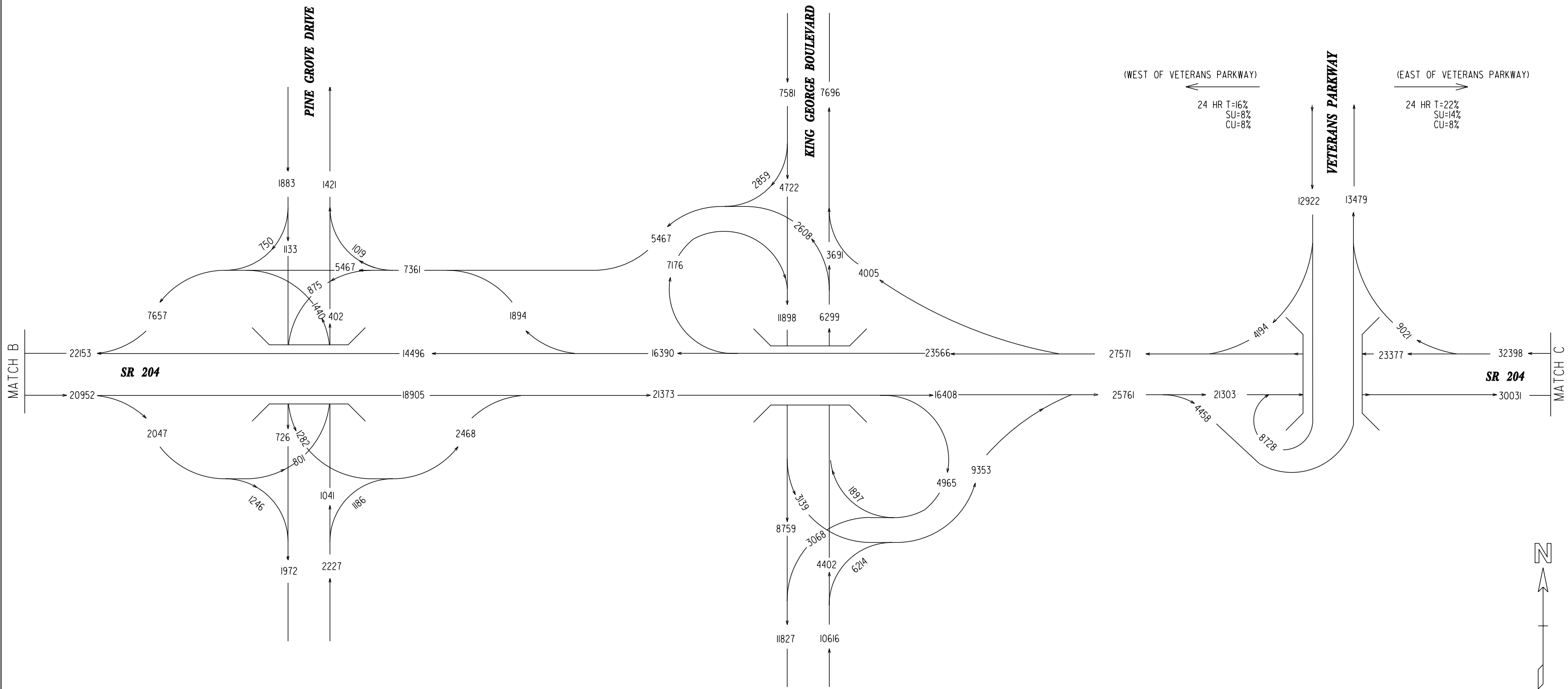
JACOBS™

FIGURE 39

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



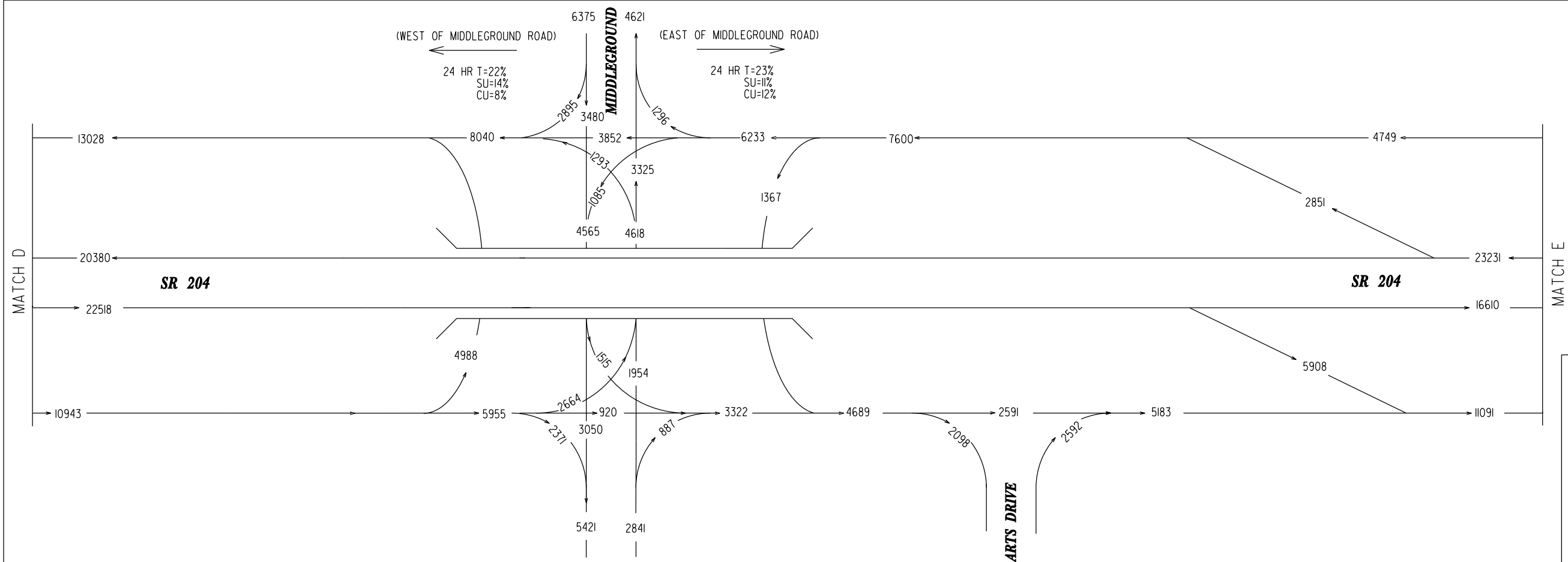
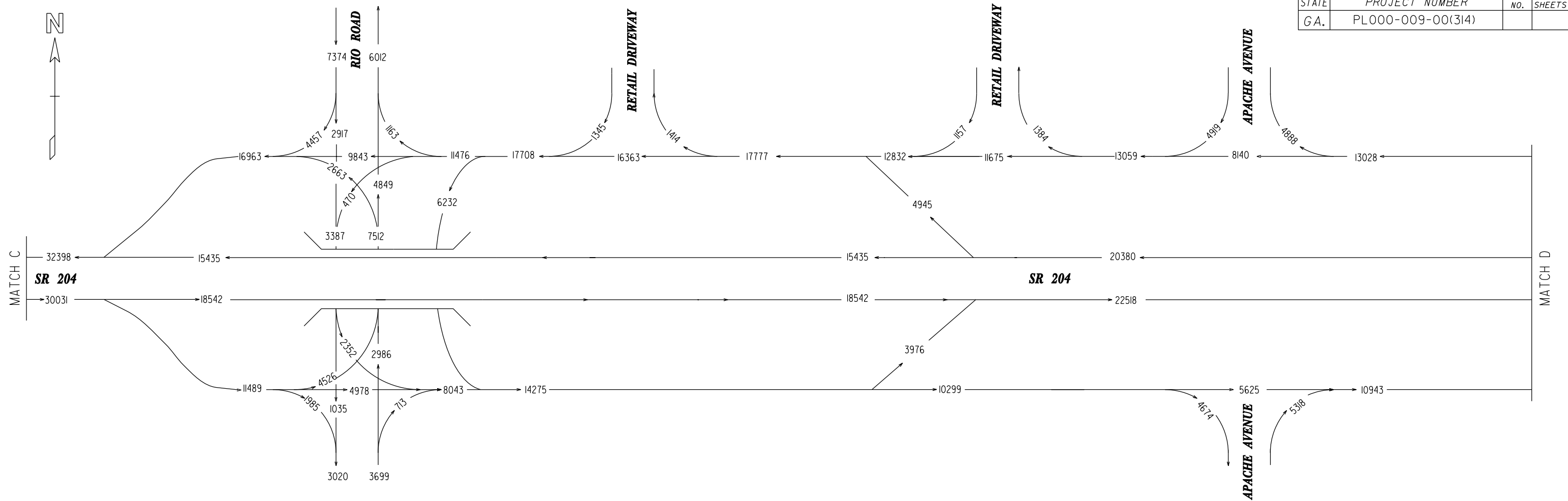
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
AVERAGE DAILY VOLUMES

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FIGURE 40

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PIN0.0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
AVERAGE DAILY VOLUMES

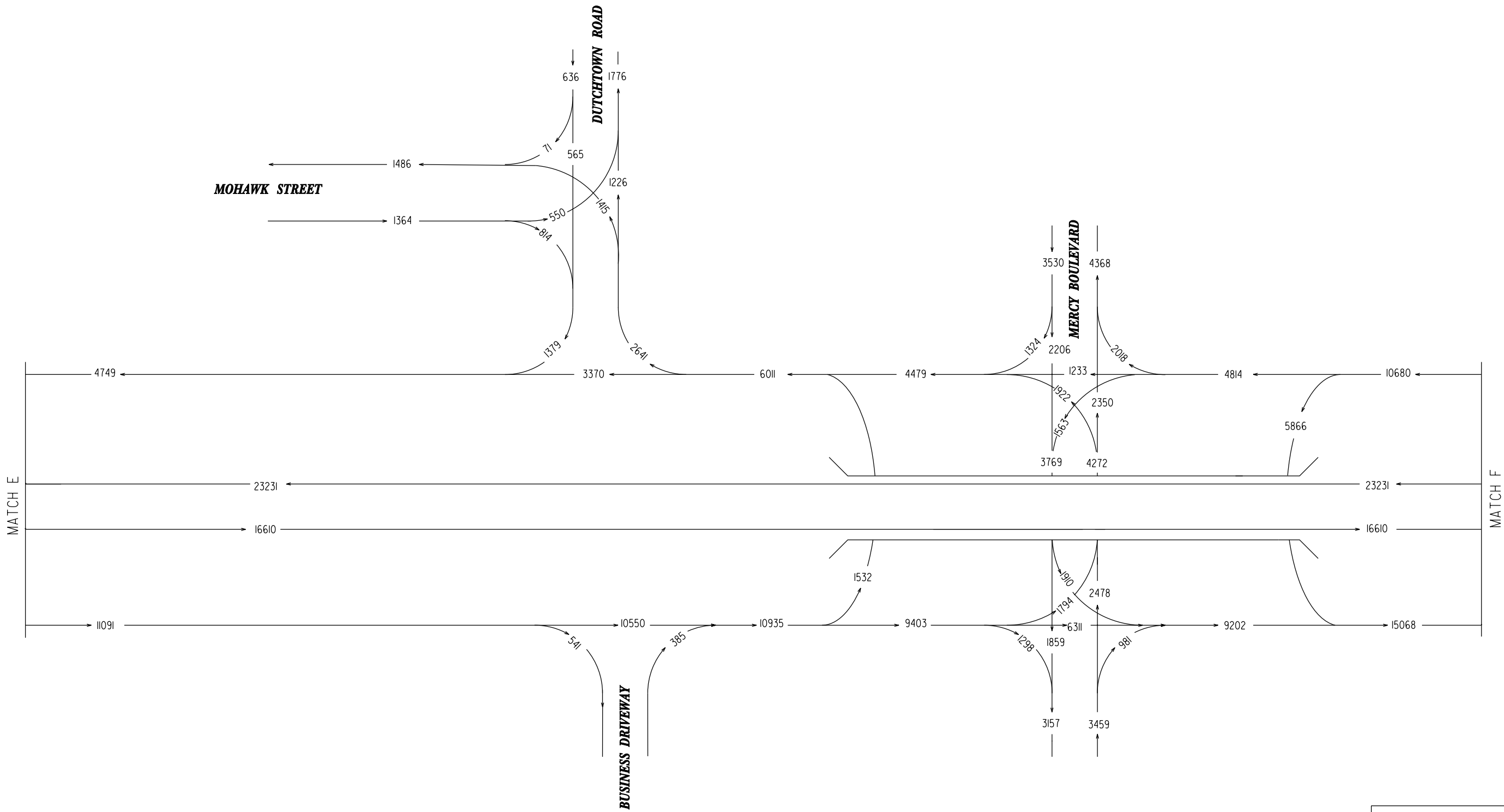
JACOBS™

FIGURE 41

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



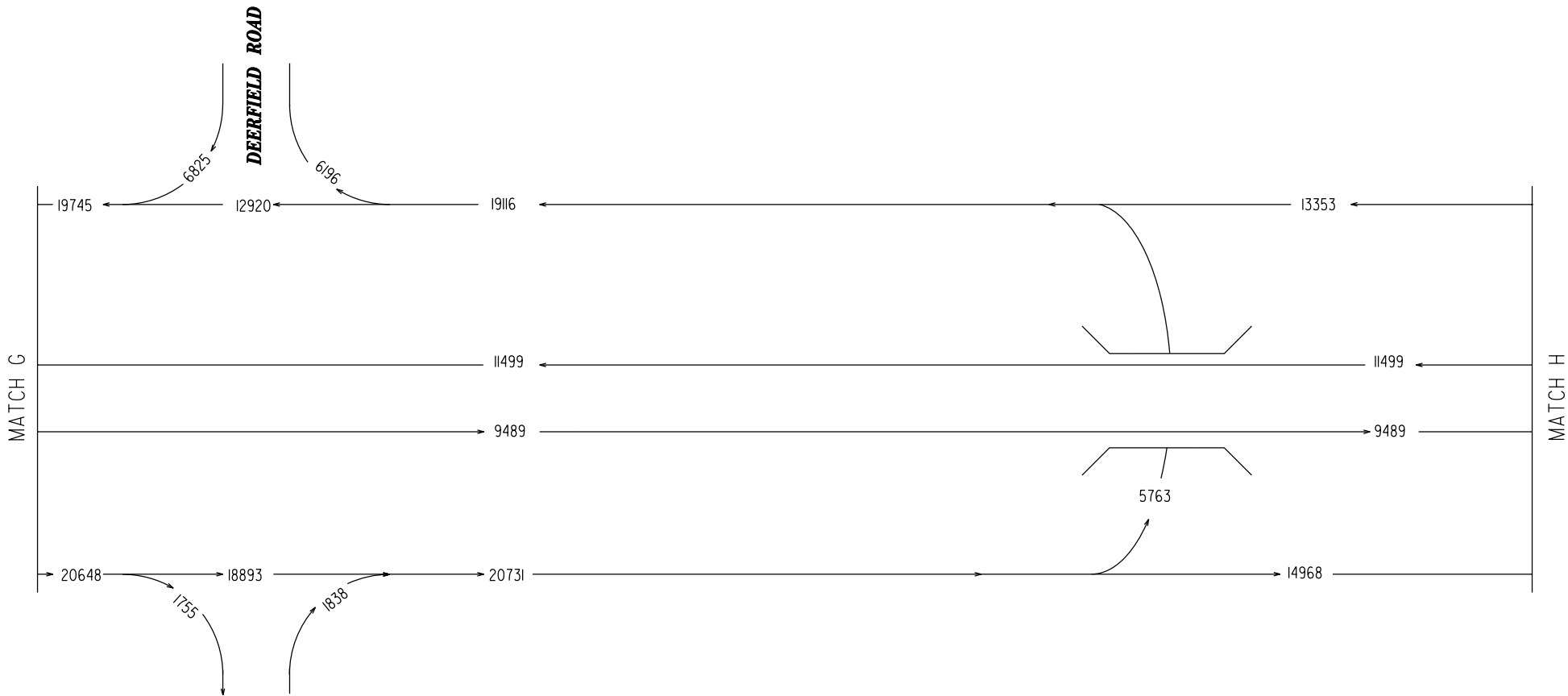
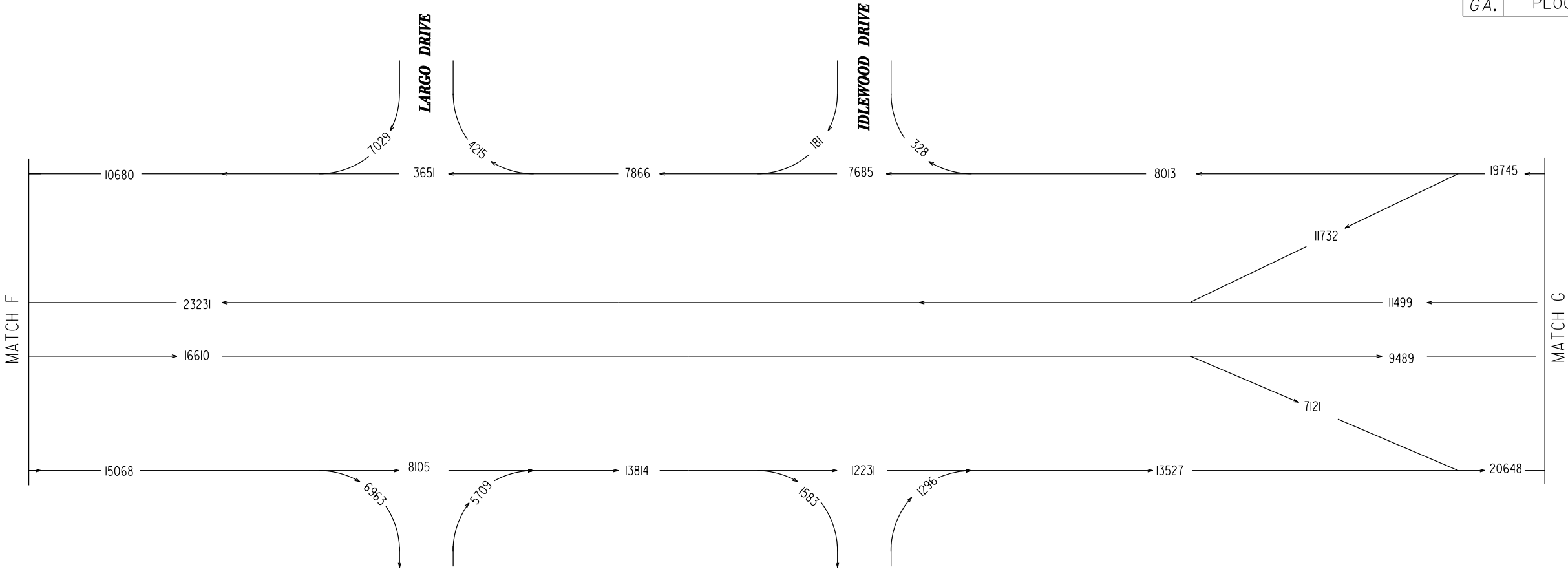
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PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
AVERAGE DAILY VOLUMES

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FIGURE 42

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
AVERAGE DAILY VOLUMES

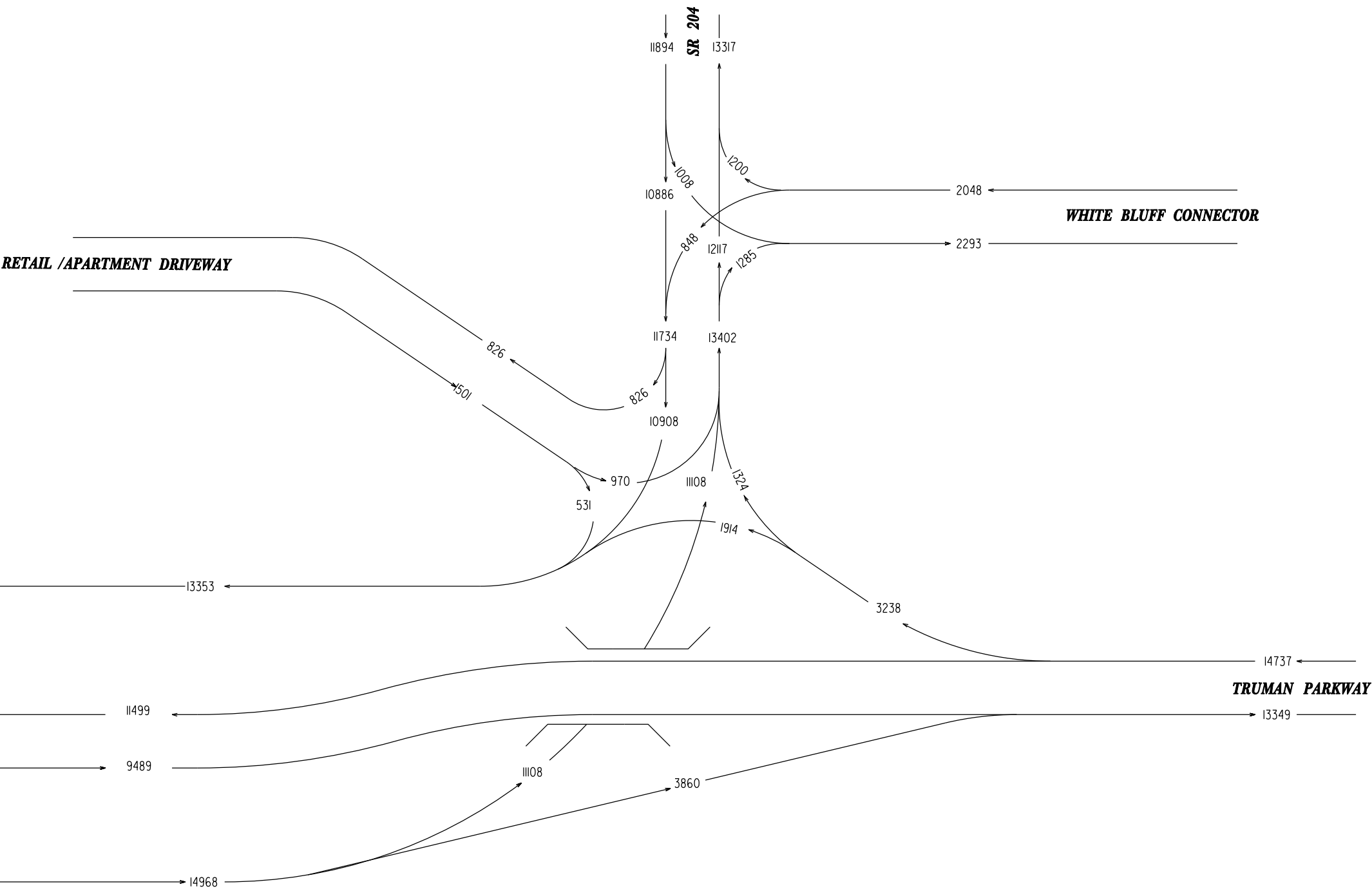
JACOBS™
FIGURE 43

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



MATCH H



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2015
AVERAGE DAILY VOLUMES

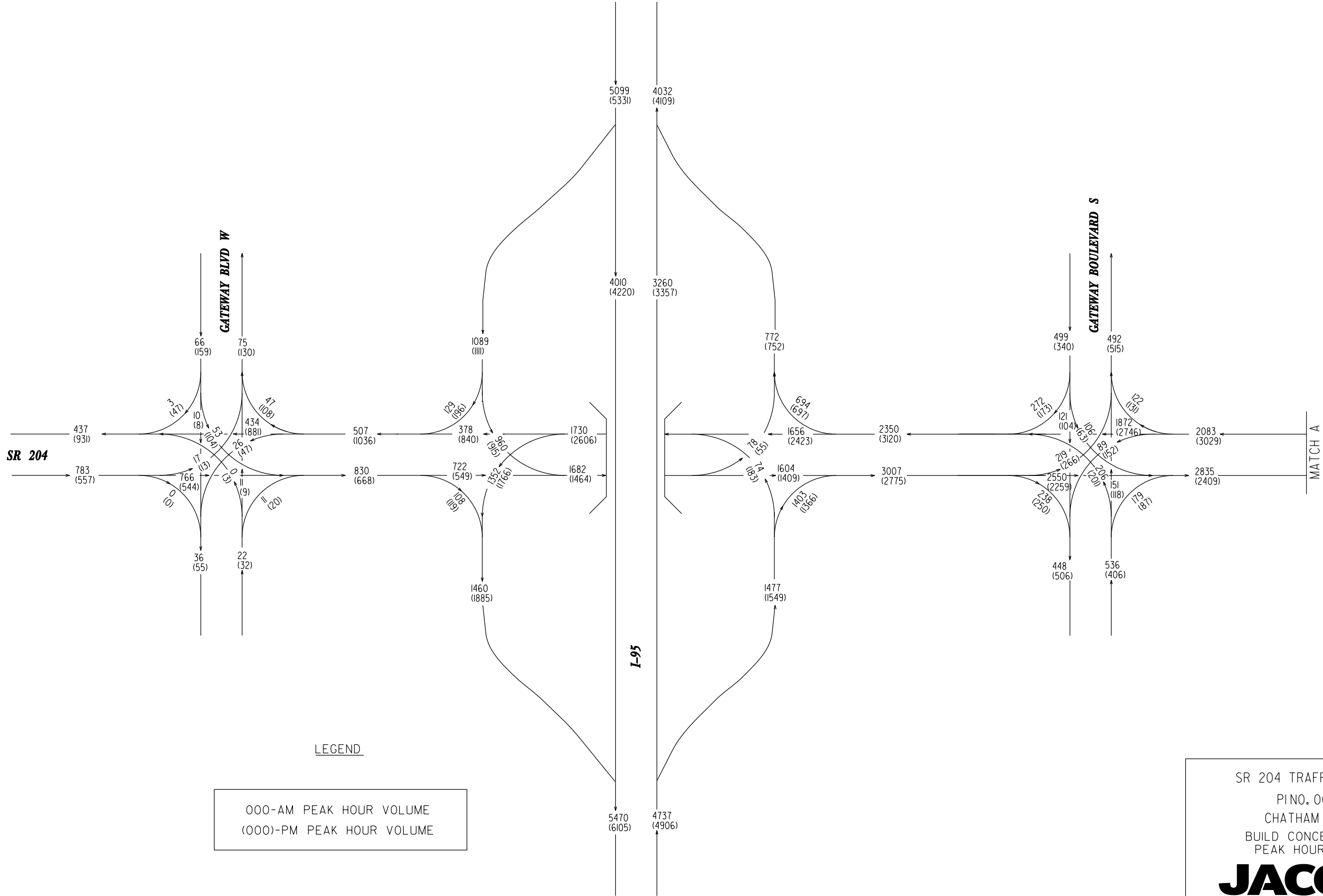
JACOBS™

FIGURE 44

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
PEAK HOUR VOLUMES

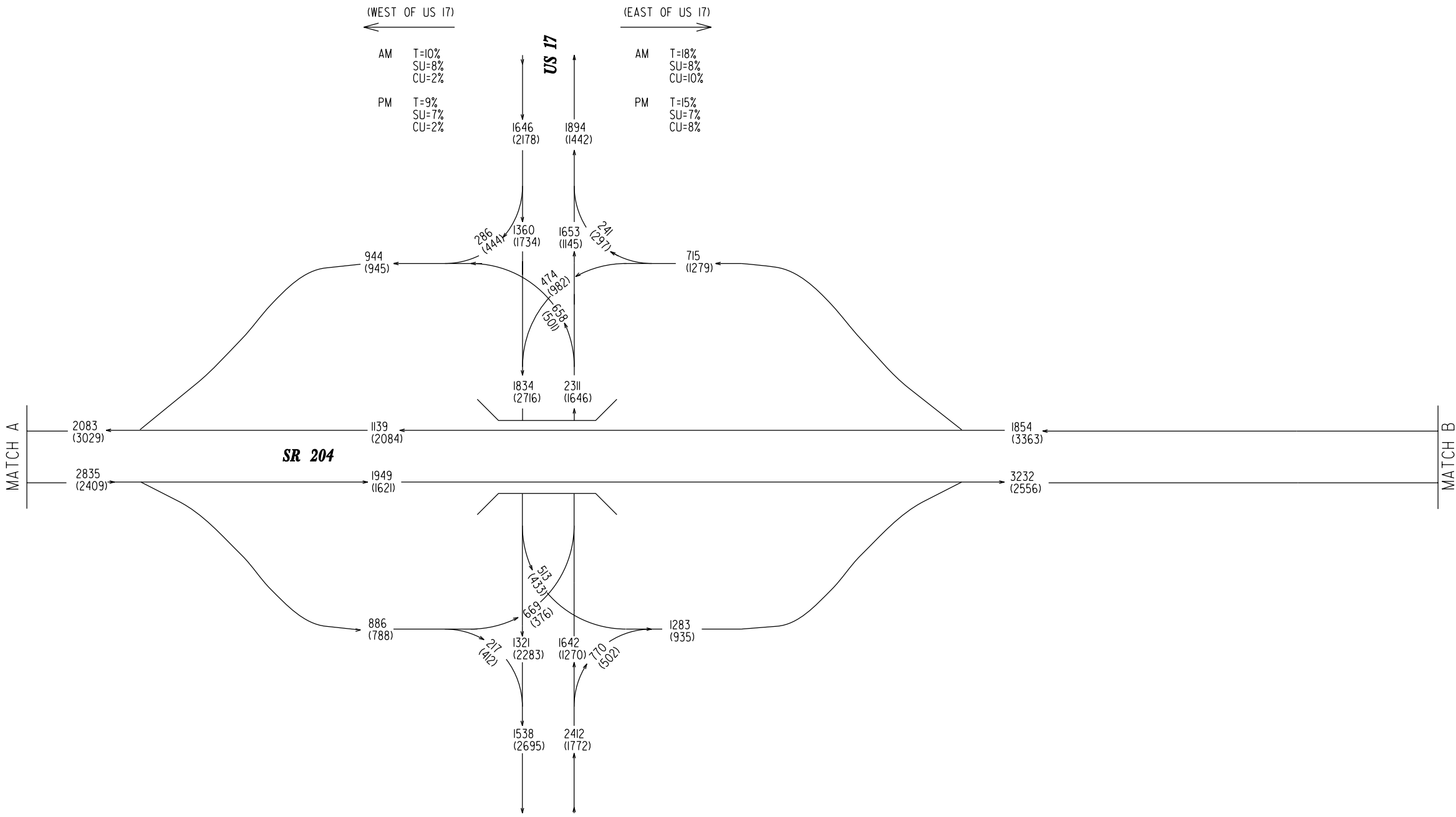
JACOBS™

FIGURE 45

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

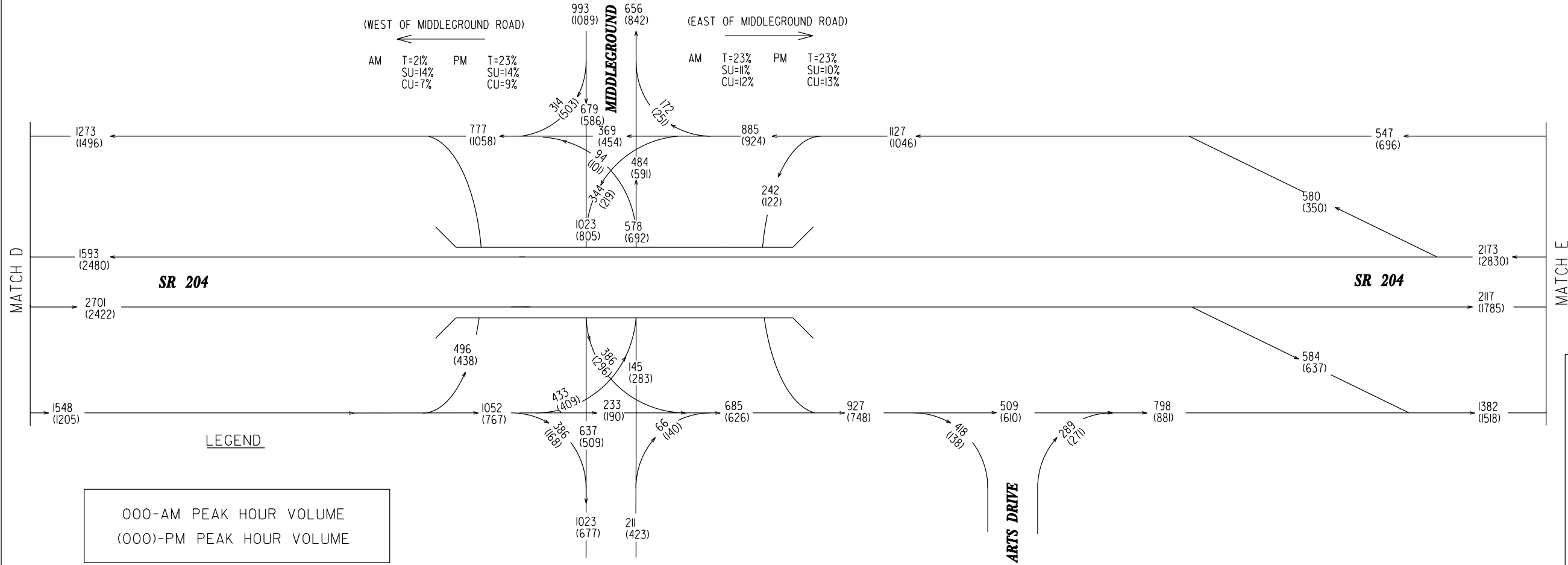
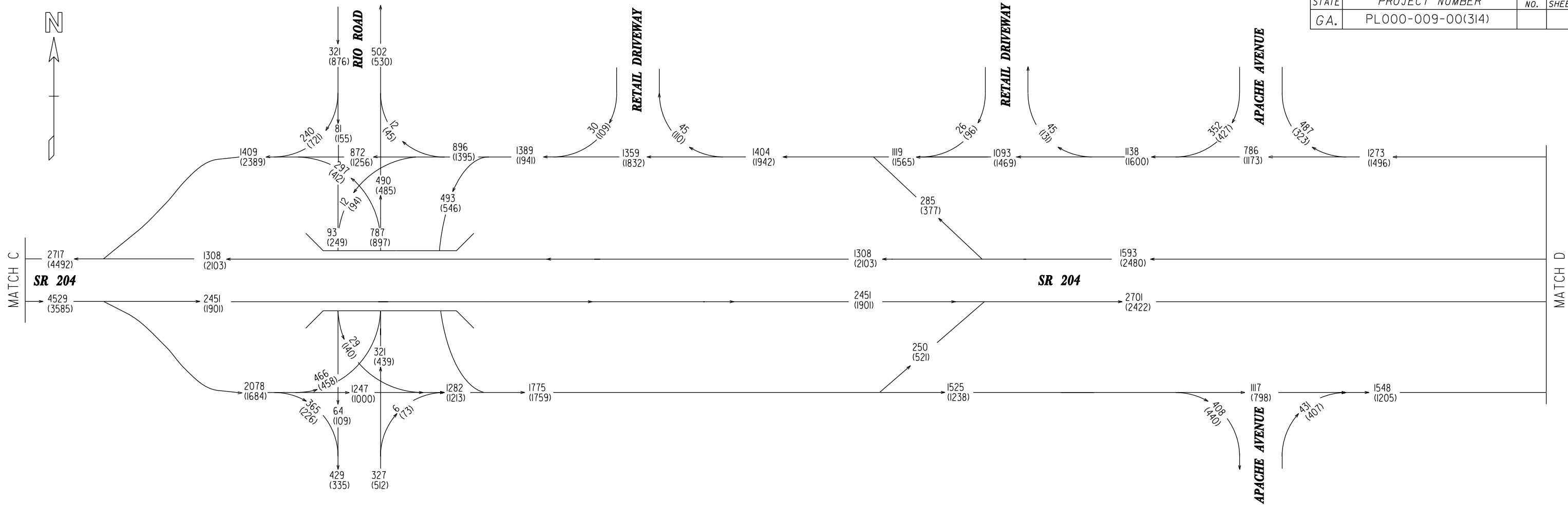
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
PEAK HOUR VOLUMES

JACOBS™

FIGURE 46

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
G.A.	PL000-009-00(314)		



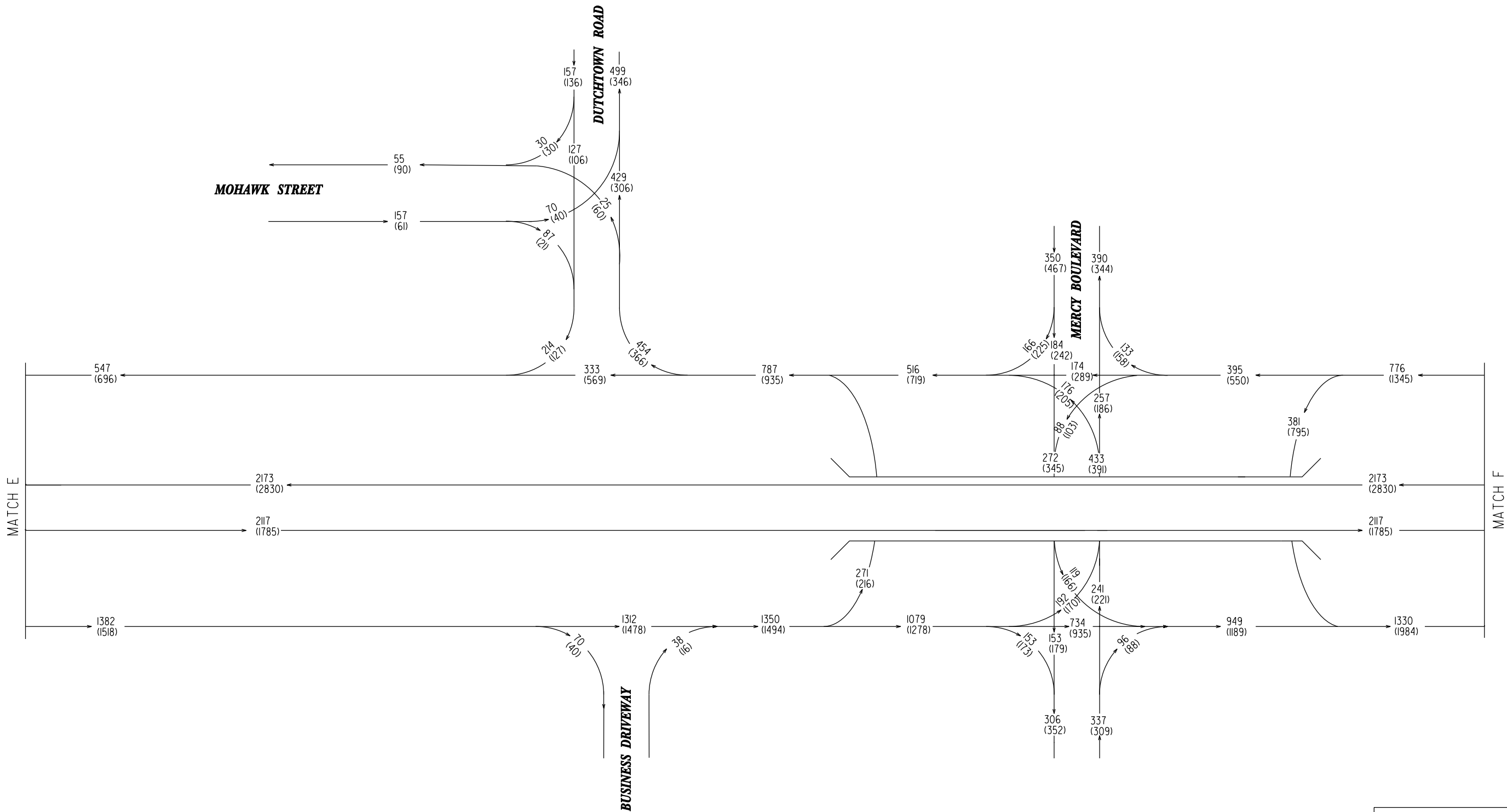
SR 204 TRAFFIC ANALYSIS
PINO.0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
PEAK HOUR VOLUMES

JACOBS™

FIGURE 48

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
PEAK HOUR VOLUMES

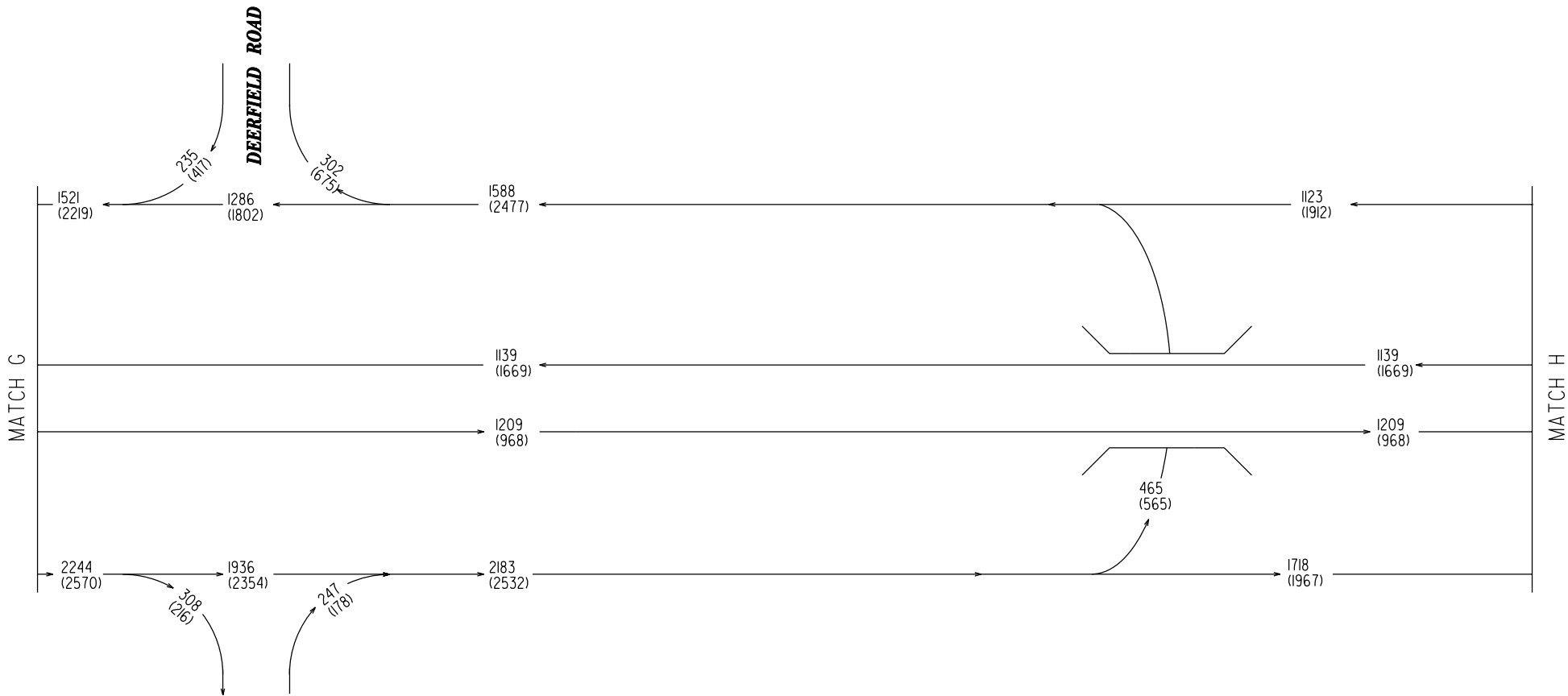
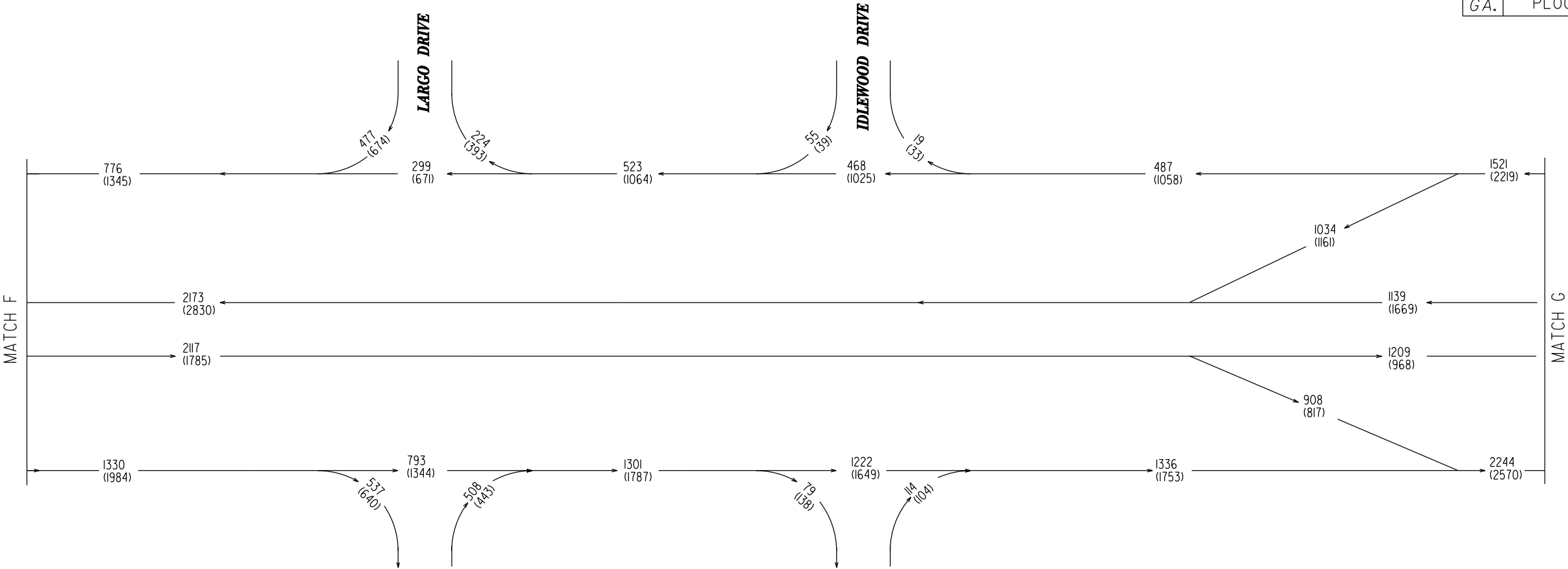
JACOBS™

FIGURE 49

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
PEAK HOUR VOLUMES

JACOBS™

FIGURE 50

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



MATCH H

RETAIL /APARTMENT DRIVEWAY

WHITE BLUFF CONNECTOR

TRUMAN PARKWAY

SR 204

830
(1502)

1460
(1608)

732
(1376)

1347
(1520)

176
(199)

249
(251)

795
(1487)

1498
(1645)

768
(1425)

147
(192)

1210
(1421)

303
(420)

52
(67)

1432
(1645)

444
(452)

1583
(2121)

1717
(1514)

1139
(1669)

1209
(968)

1718
(1967)

1210
(1421)

508
(546)

LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
PEAK HOUR VOLUMES

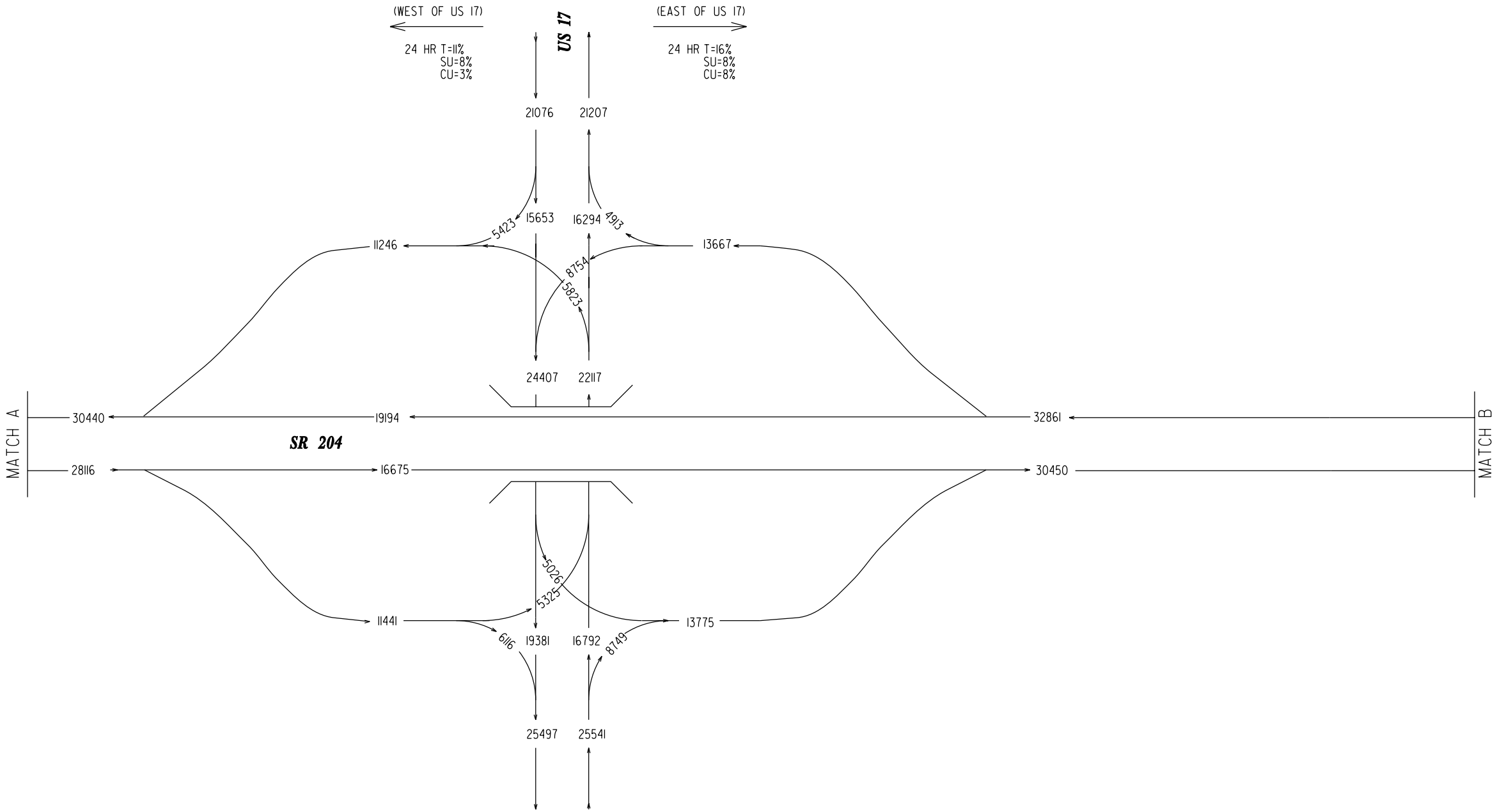
JACOBS™

FIGURE 5I

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
AVERAGE DAILY VOLUMES

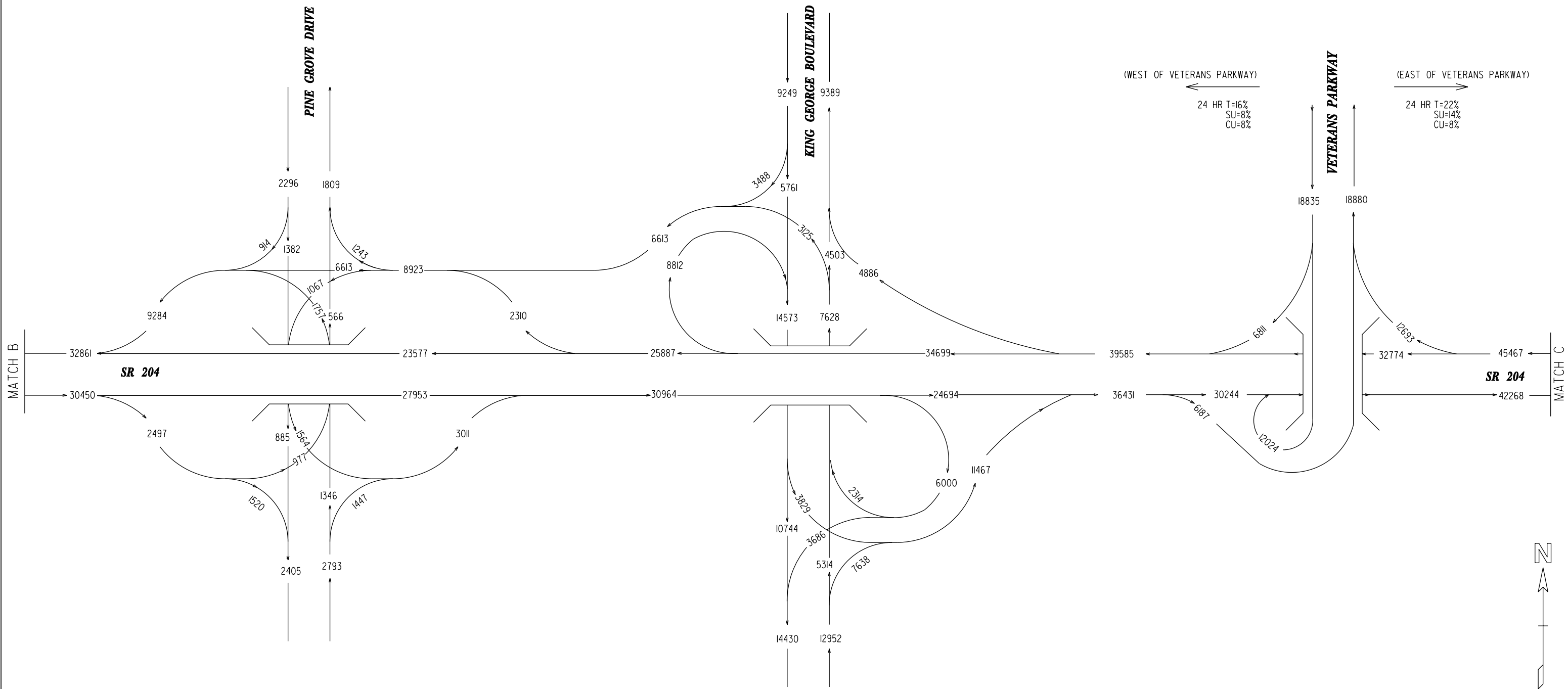
JACOBS™

FIGURE 53

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



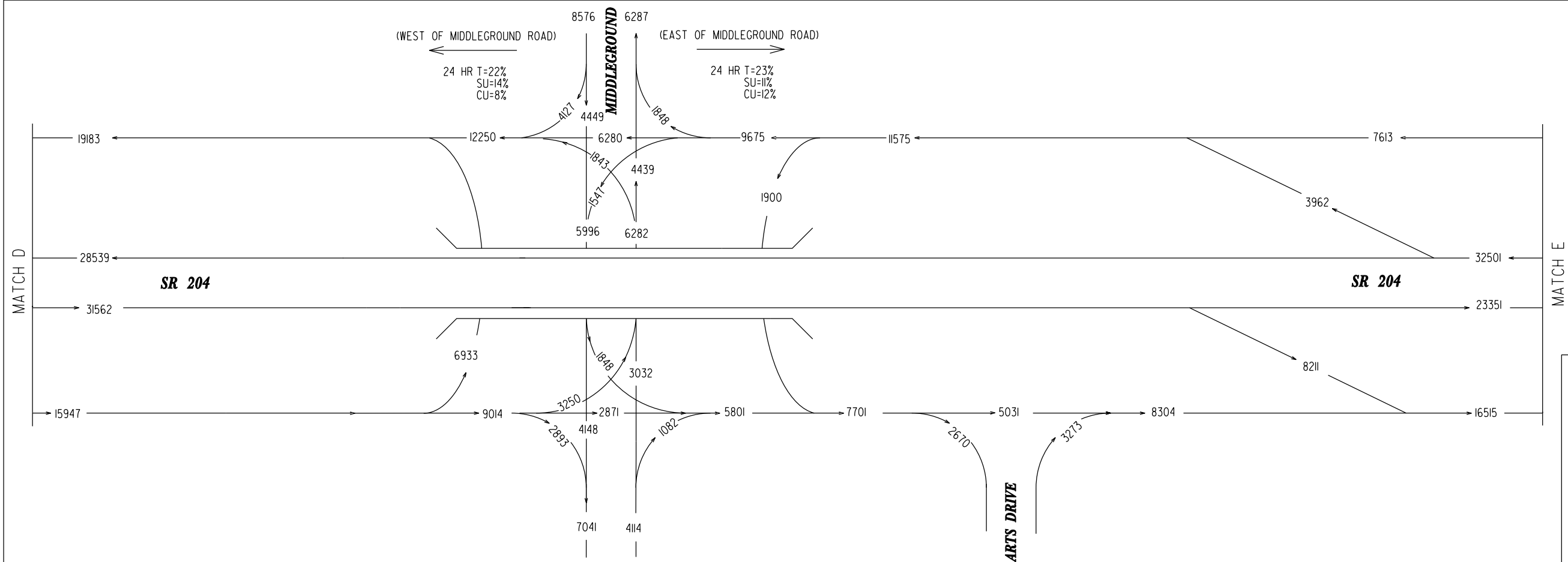
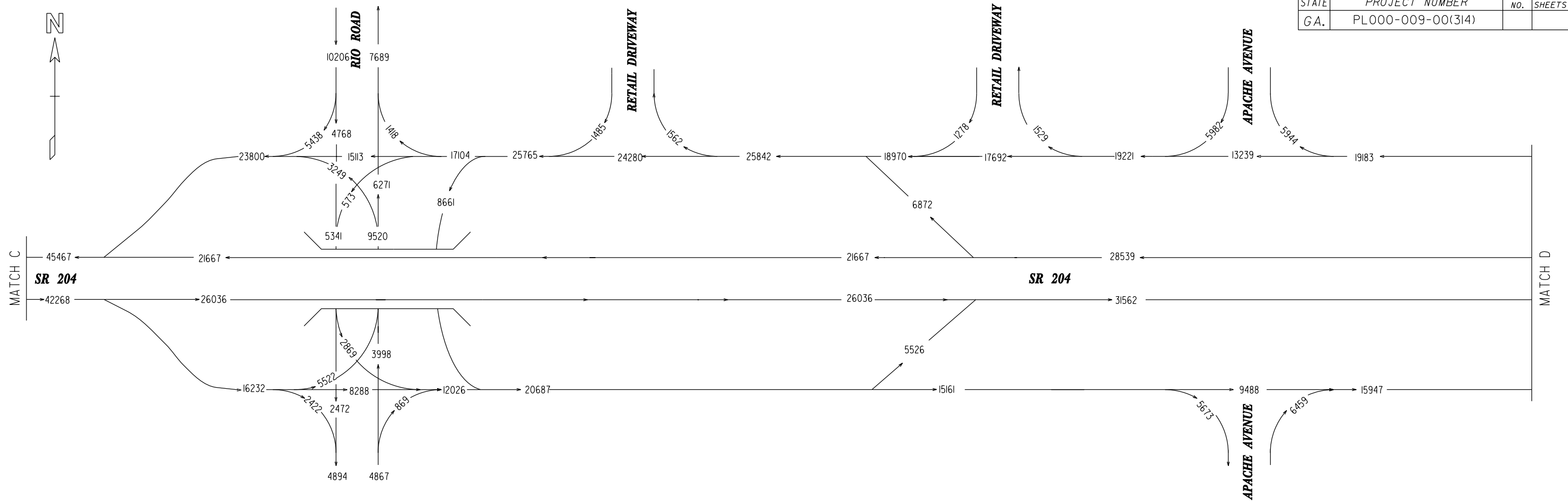
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
AVERAGE DAILY VOLUMES

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FIGURE 54

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



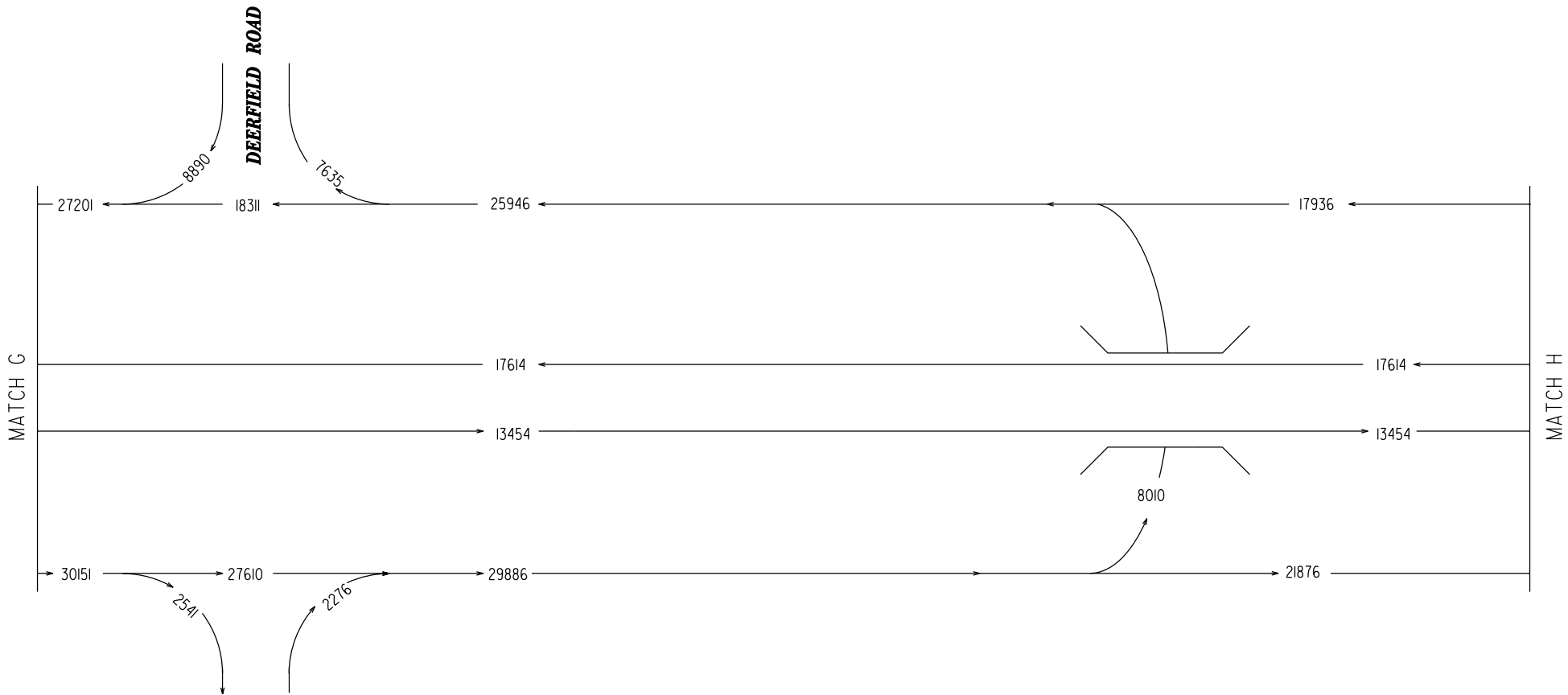
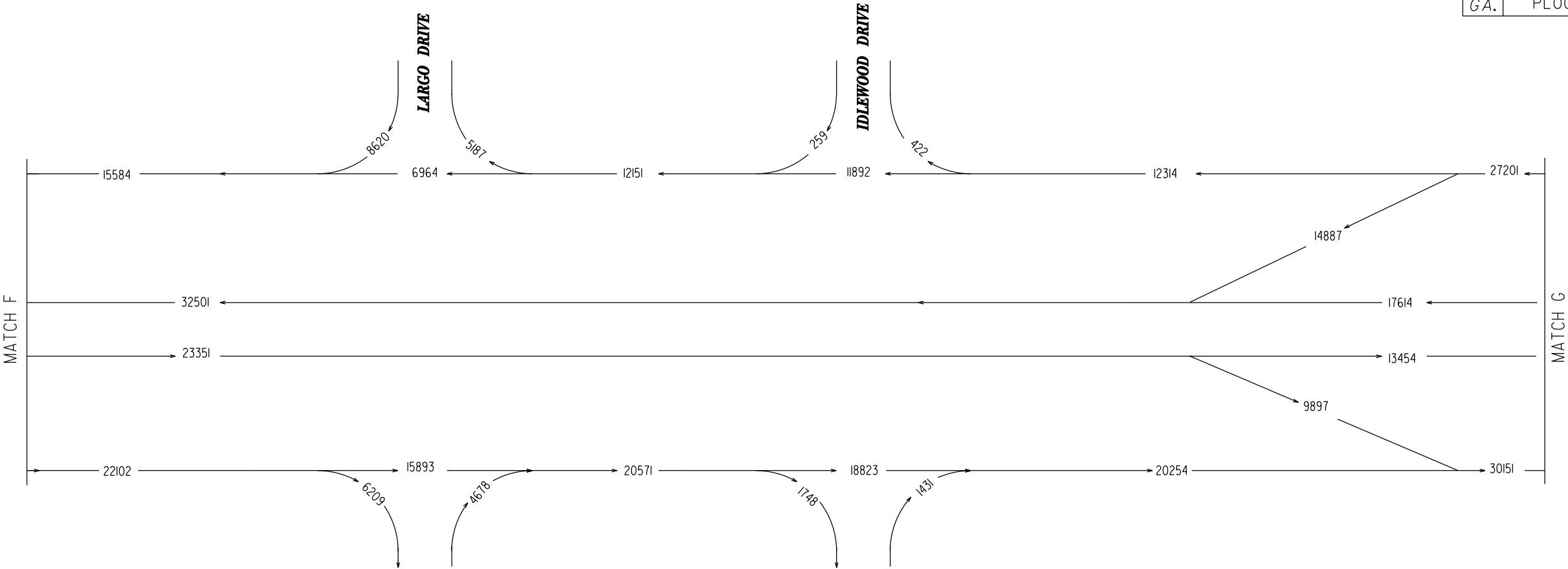
SR 204 TRAFFIC ANALYSIS
PIN0.0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
AVERAGE DAILY VOLUMES

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FIGURE 55

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



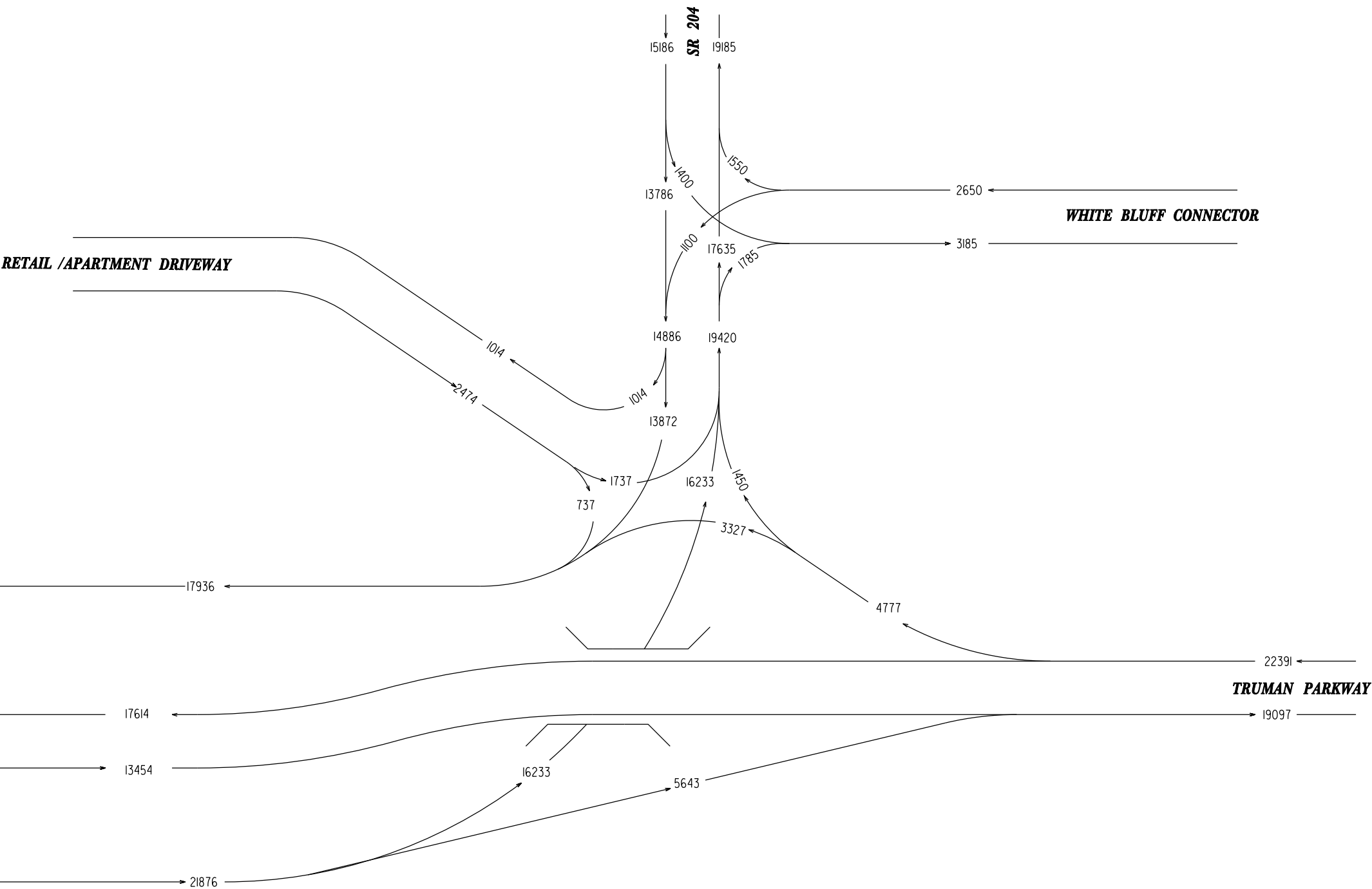
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PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
AVERAGE DAILY VOLUMES

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FIGURE 57

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT A 2035
AVERAGE DAILY VOLUMES

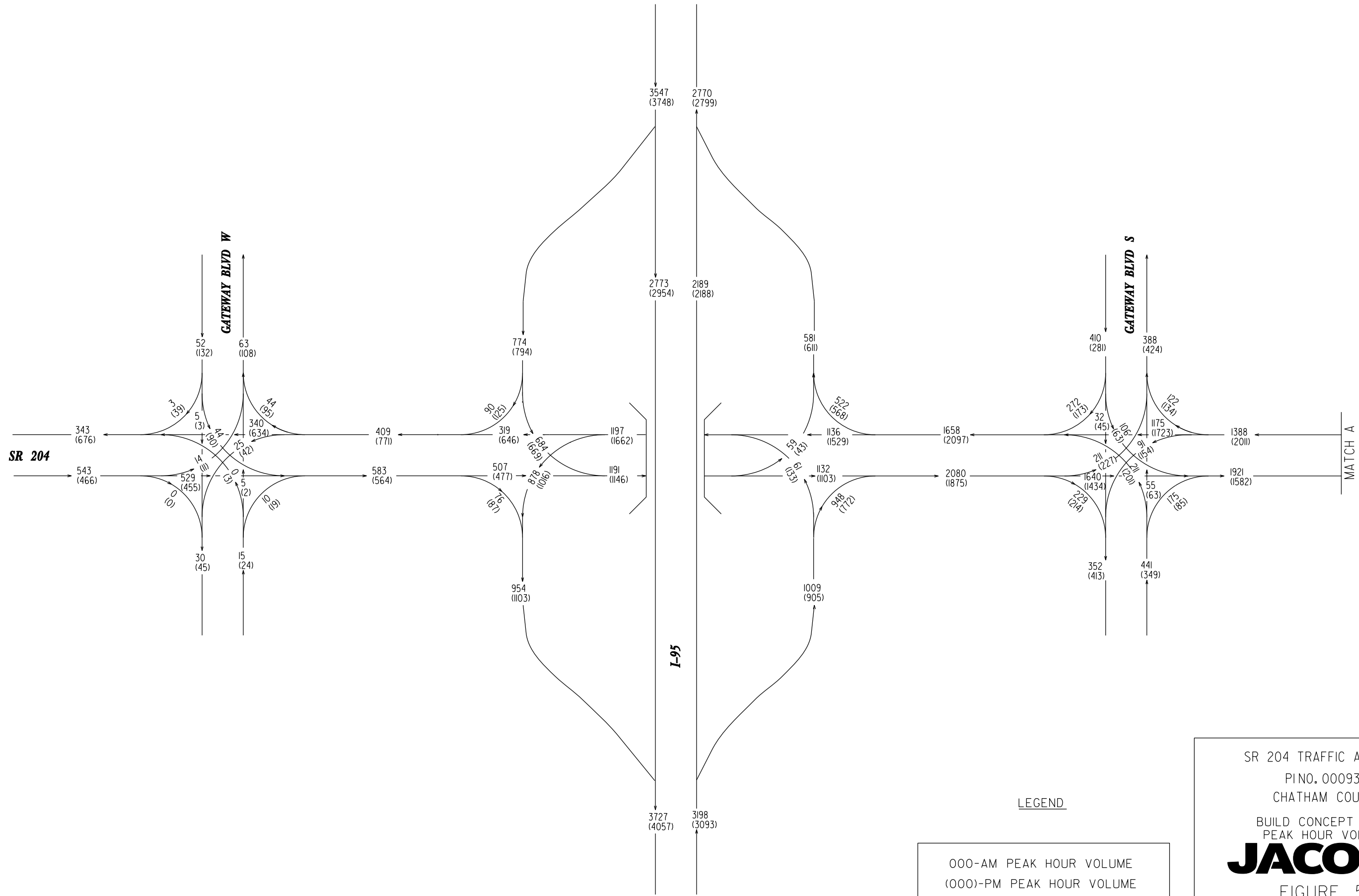
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FIGURE 58

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS

PINO.0009314

CHATHAM COUNTY

BUILD CONCEPT B 2015
PEAK HOUR VOLUMES

JACOBS

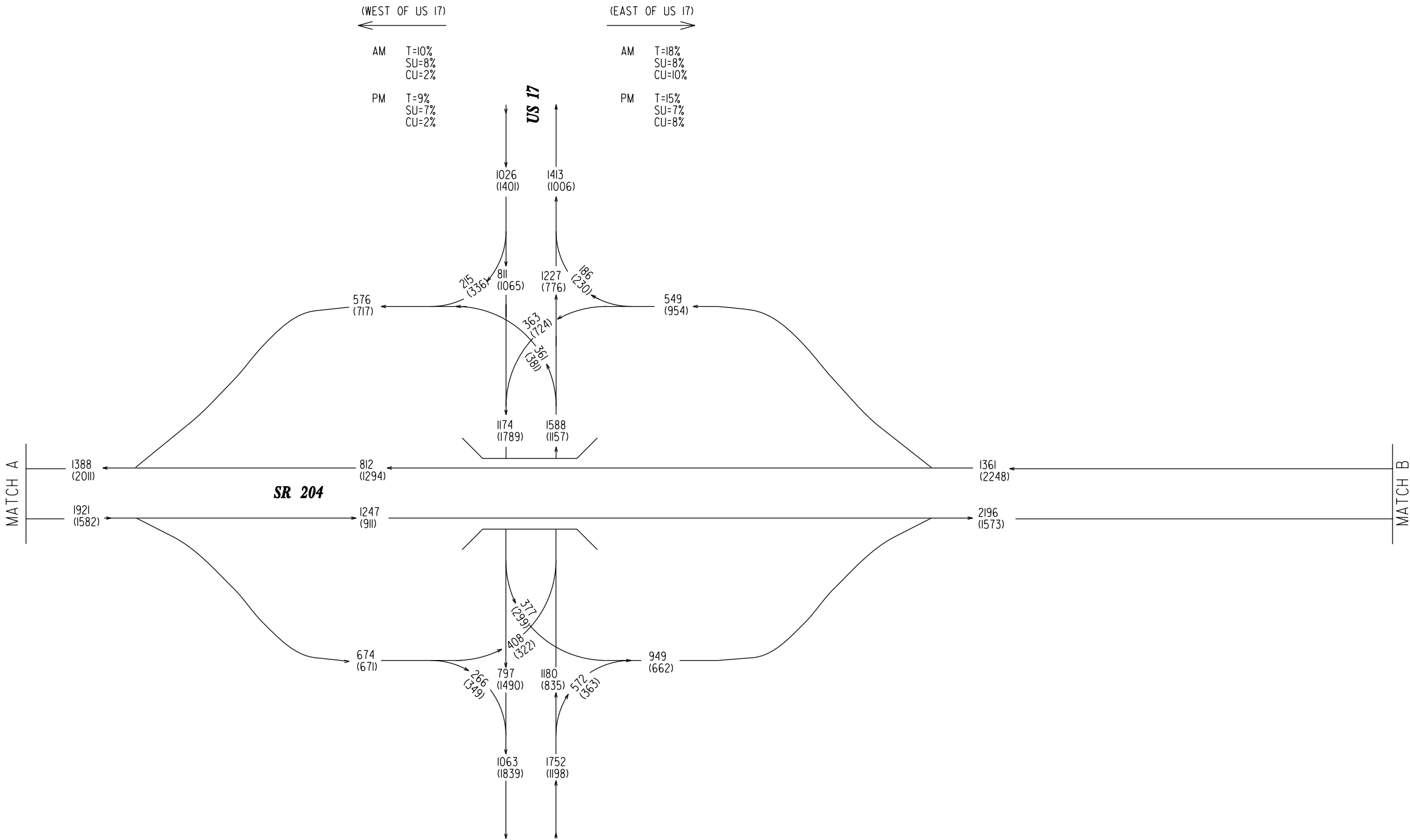
FIGURE 59

SCALE: N.T.S.

AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

SR 204 TRAFFIC ANALYSIS

PINO. 0009314

CHATHAM COUNTY

BUILD CONCEPT B 2015
PEAK HOUR VOLUMES

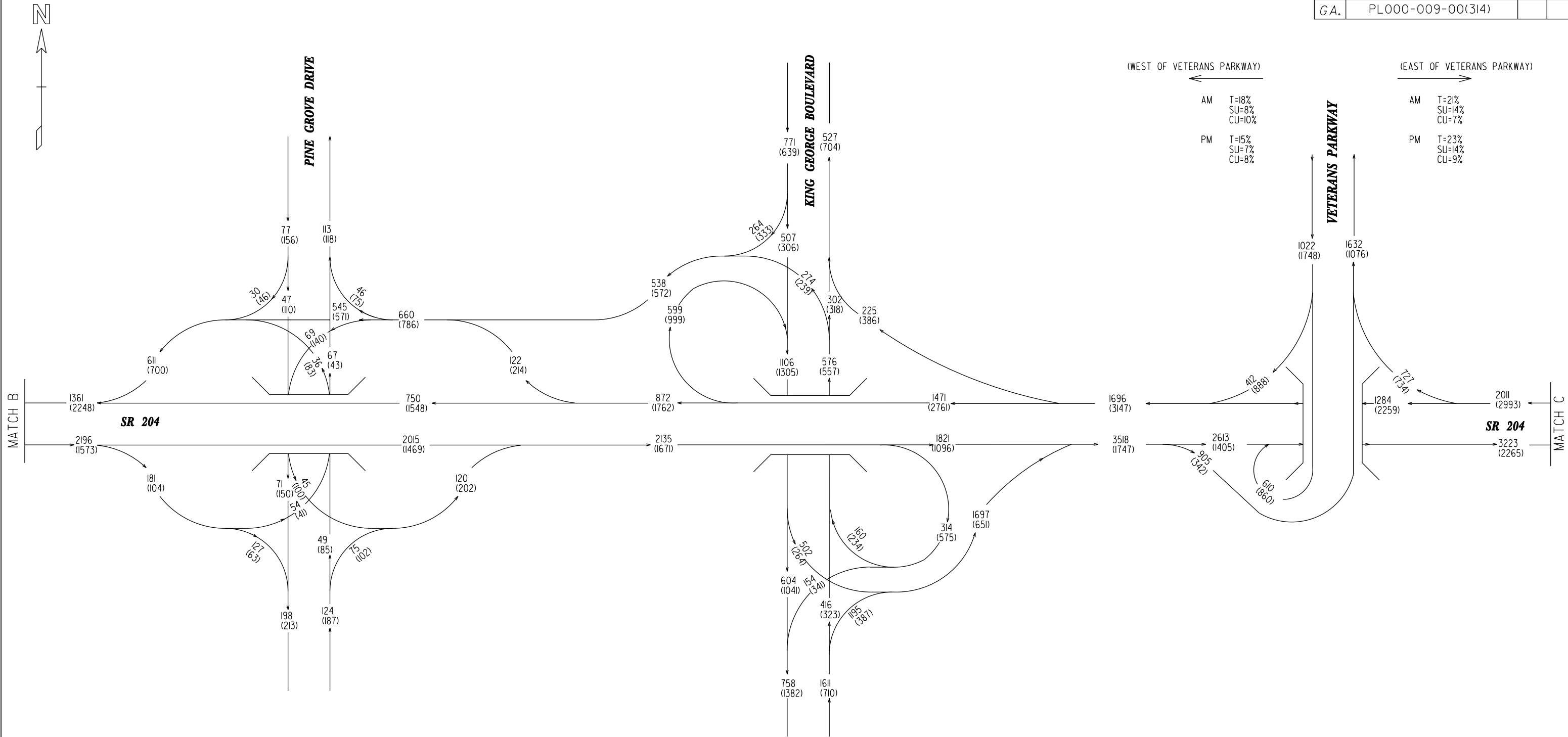
JACOBS

FIGURE 60

SCALE: N.T.S.

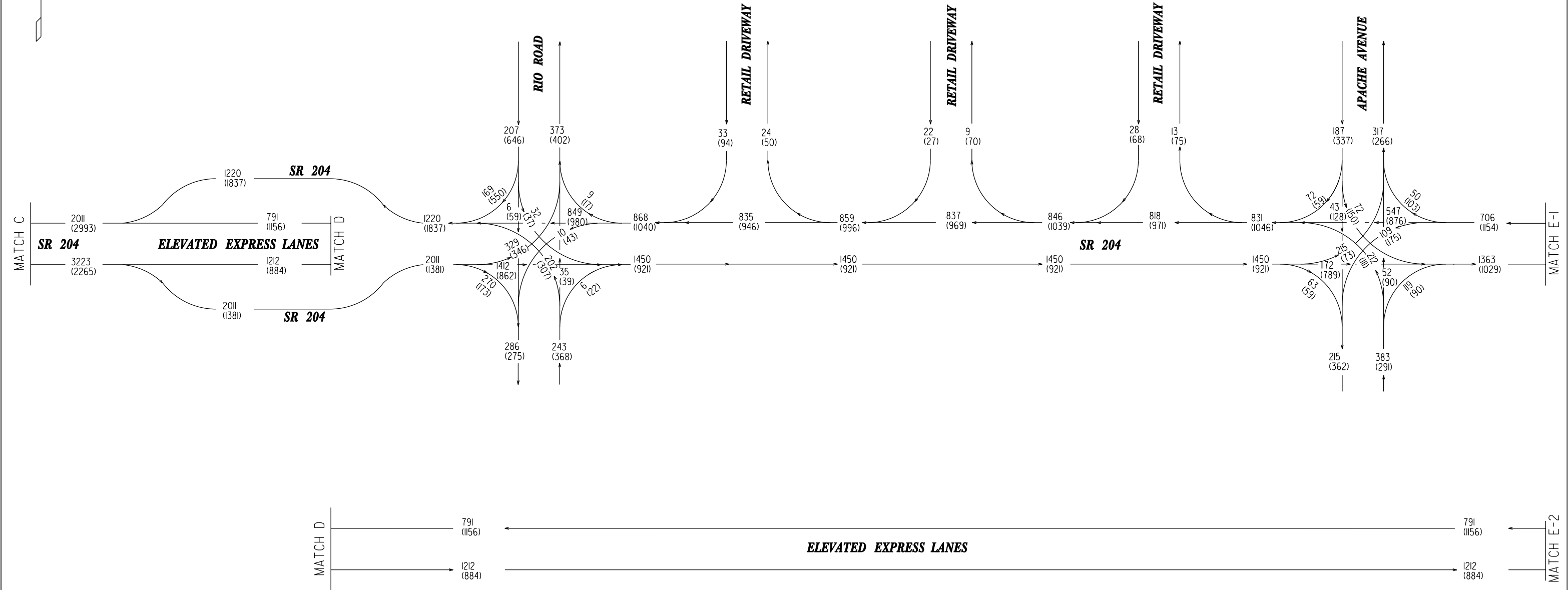
AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		





STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

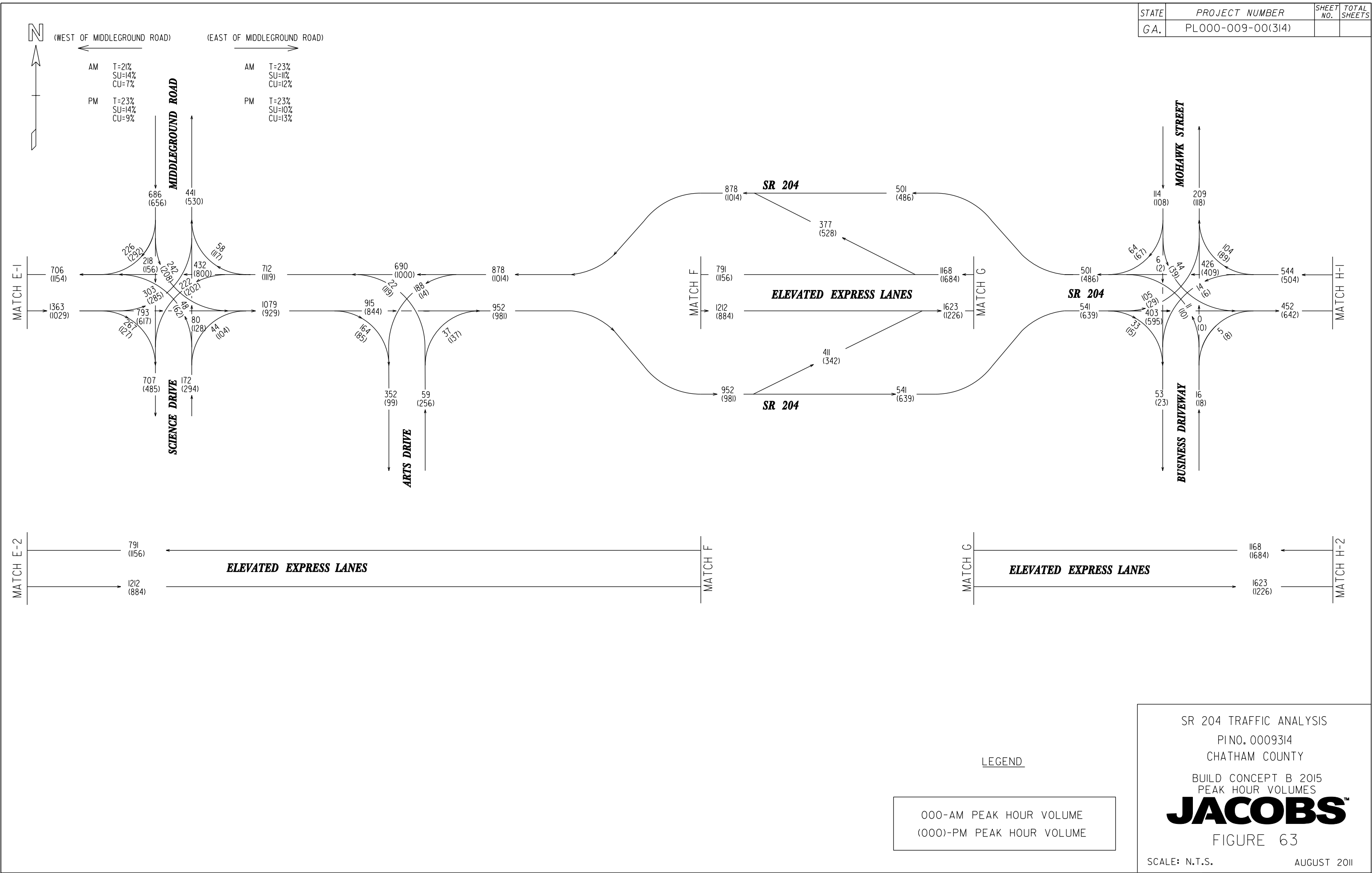
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT B 2015
PEAK HOUR VOLUMES

JACOBS™

FIGURE 62

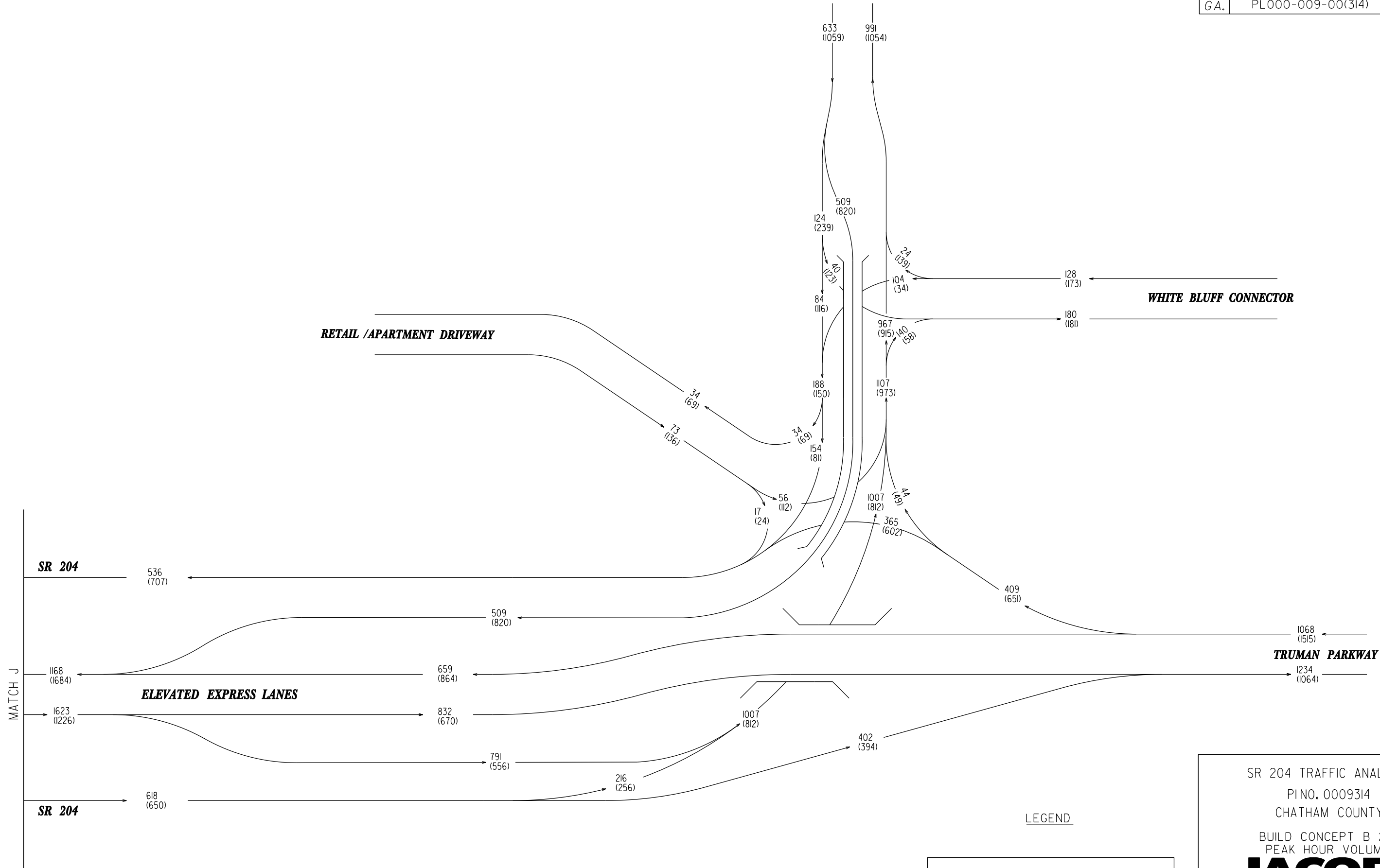
SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		





STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



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PINO. 0009314

CHATHAM COUNTY

BUILD CONCEPT B 2015
PEAK HOUR VOLUMES

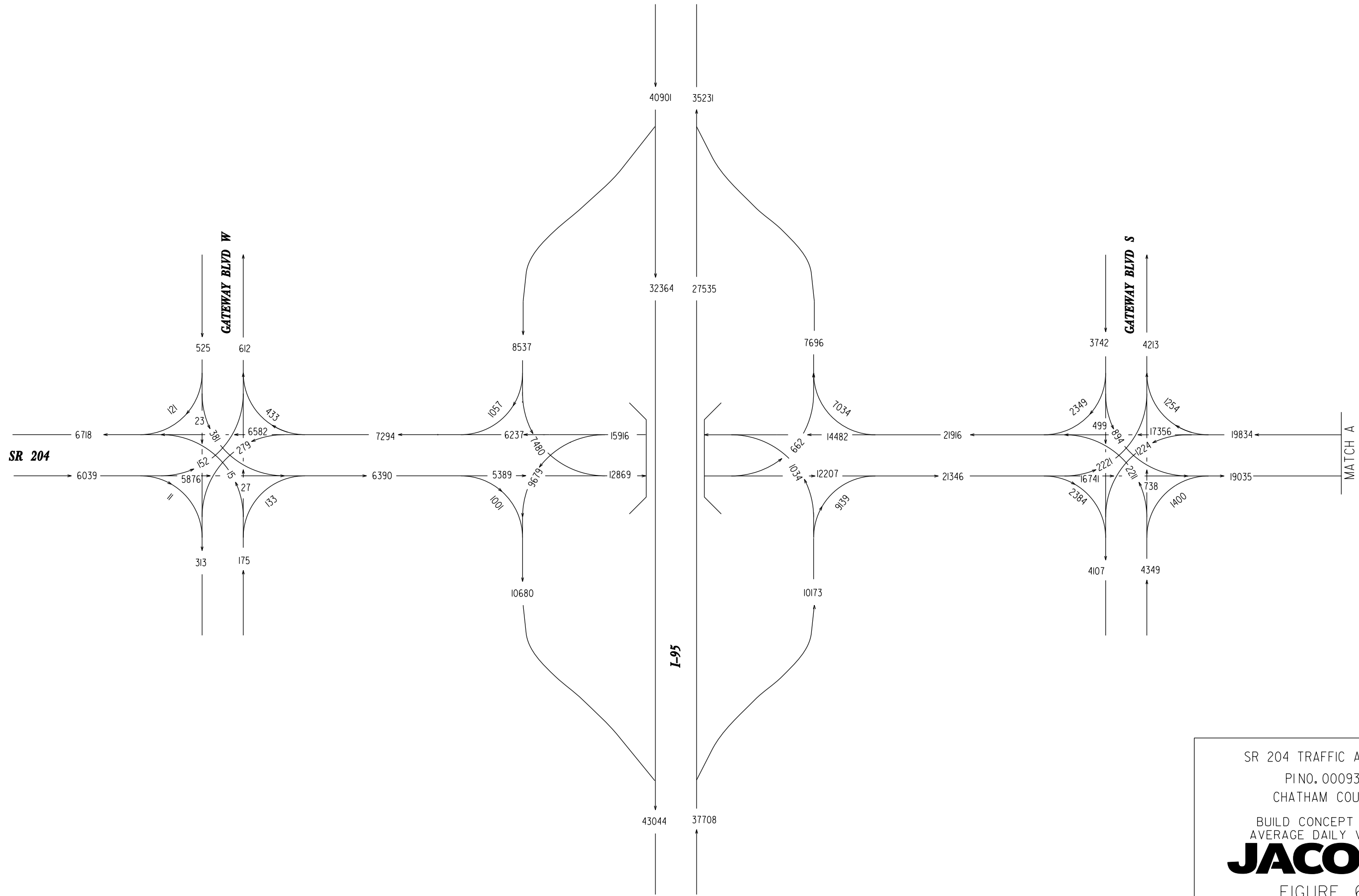
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FIGURE 65

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



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PINO. 0009314

CHATHAM COUNTY

BUILD CONCEPT B 2015
AVERAGE DAILY VOLUMES

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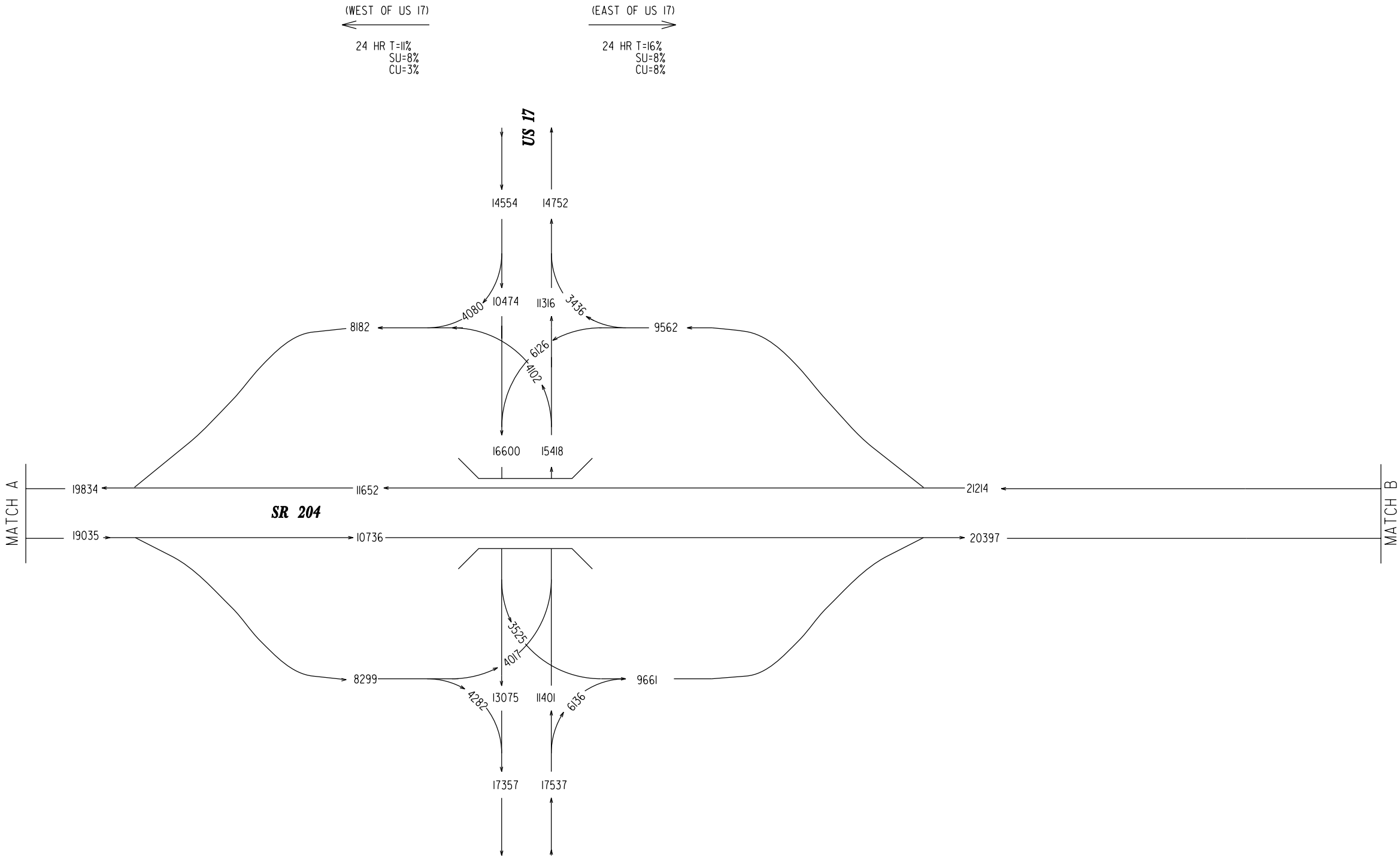
FIGURE 66

SCALE: N.T.S.

AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS

PINO. 0009314

CHATHAM COUNTY

BUILD CONCEPT B 2015
AVERAGE DAILY VOLUMES

JACOBS

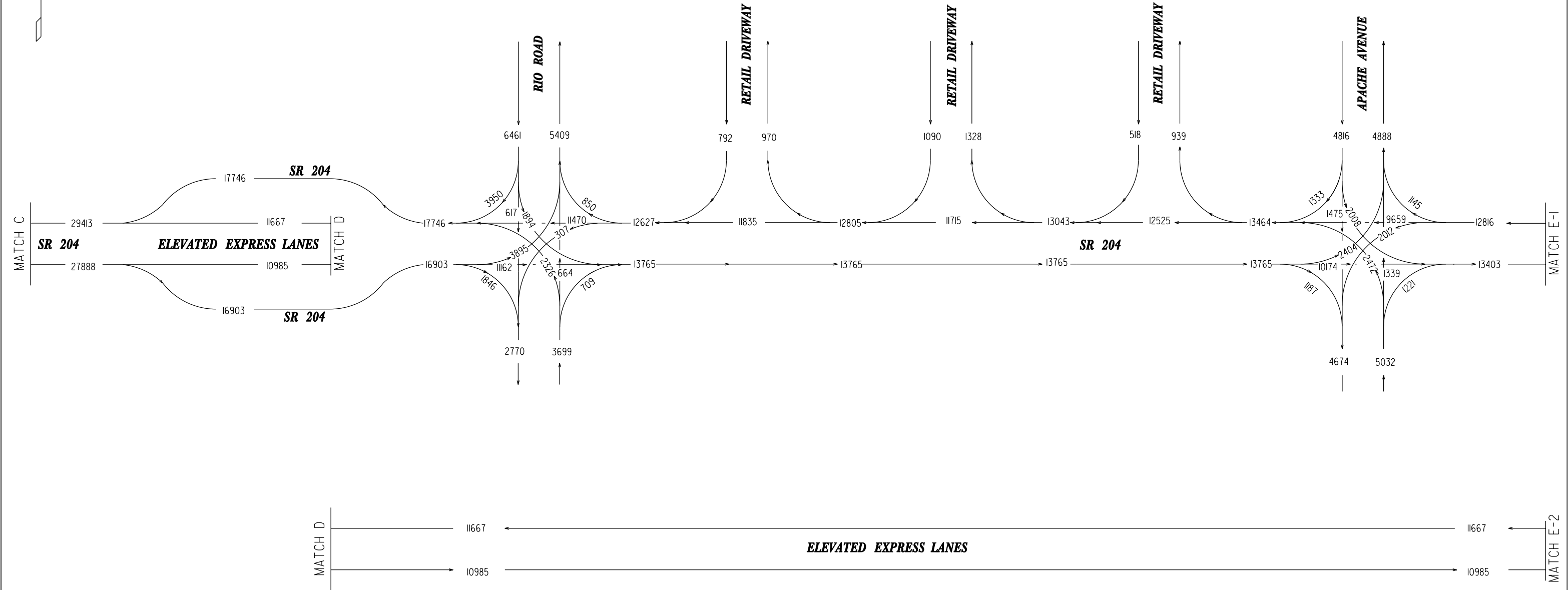
FIGURE 67

SCALE: N.T.S.

AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



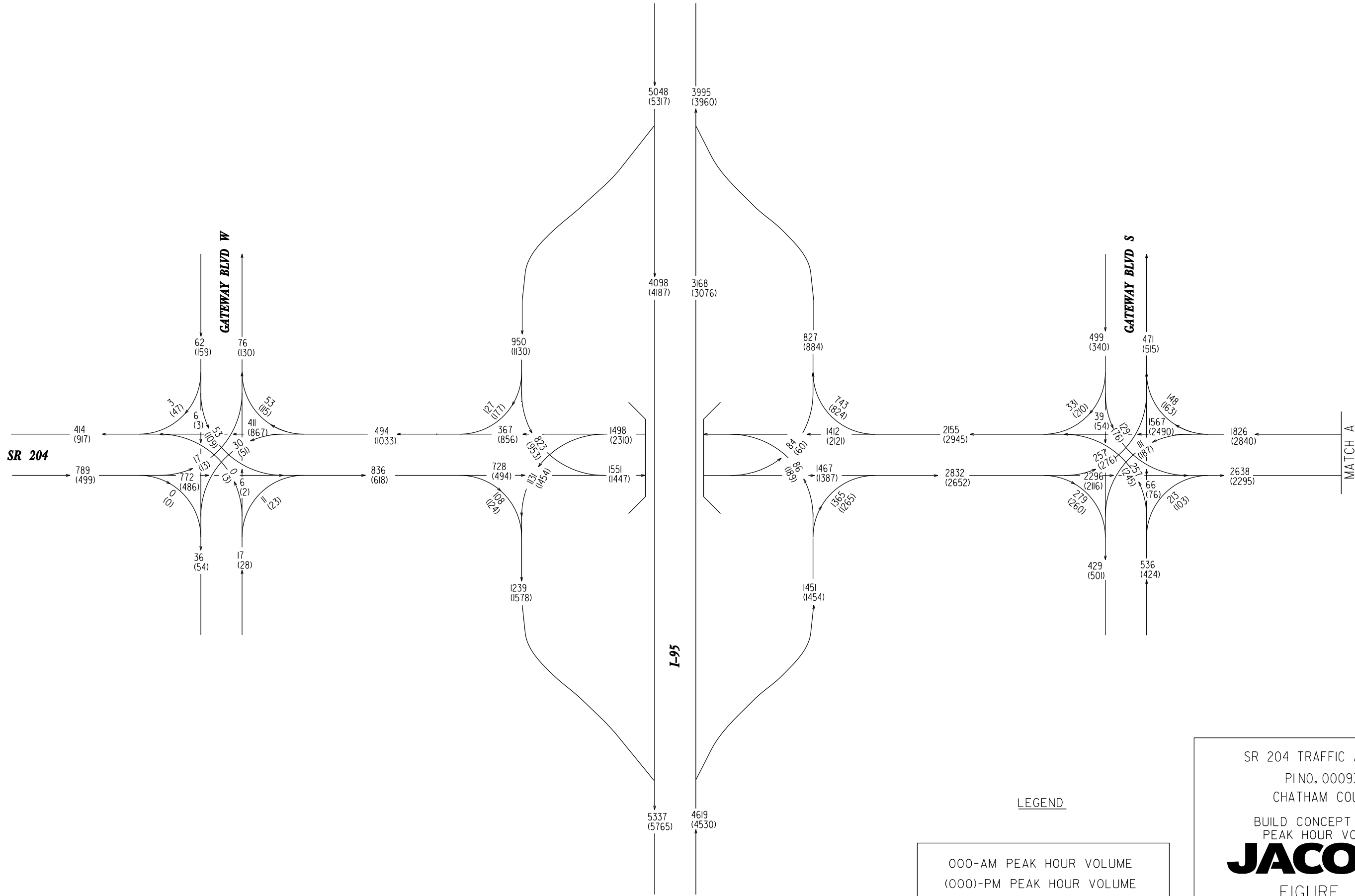
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT B 2015
AVERAGE DAILY VOLUMES

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FIGURE 69

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



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PINO.0009314

CHATHAM COUNTY

BUILD CONCEPT B 2035
PEAK HOUR VOLUMES

JACOBS

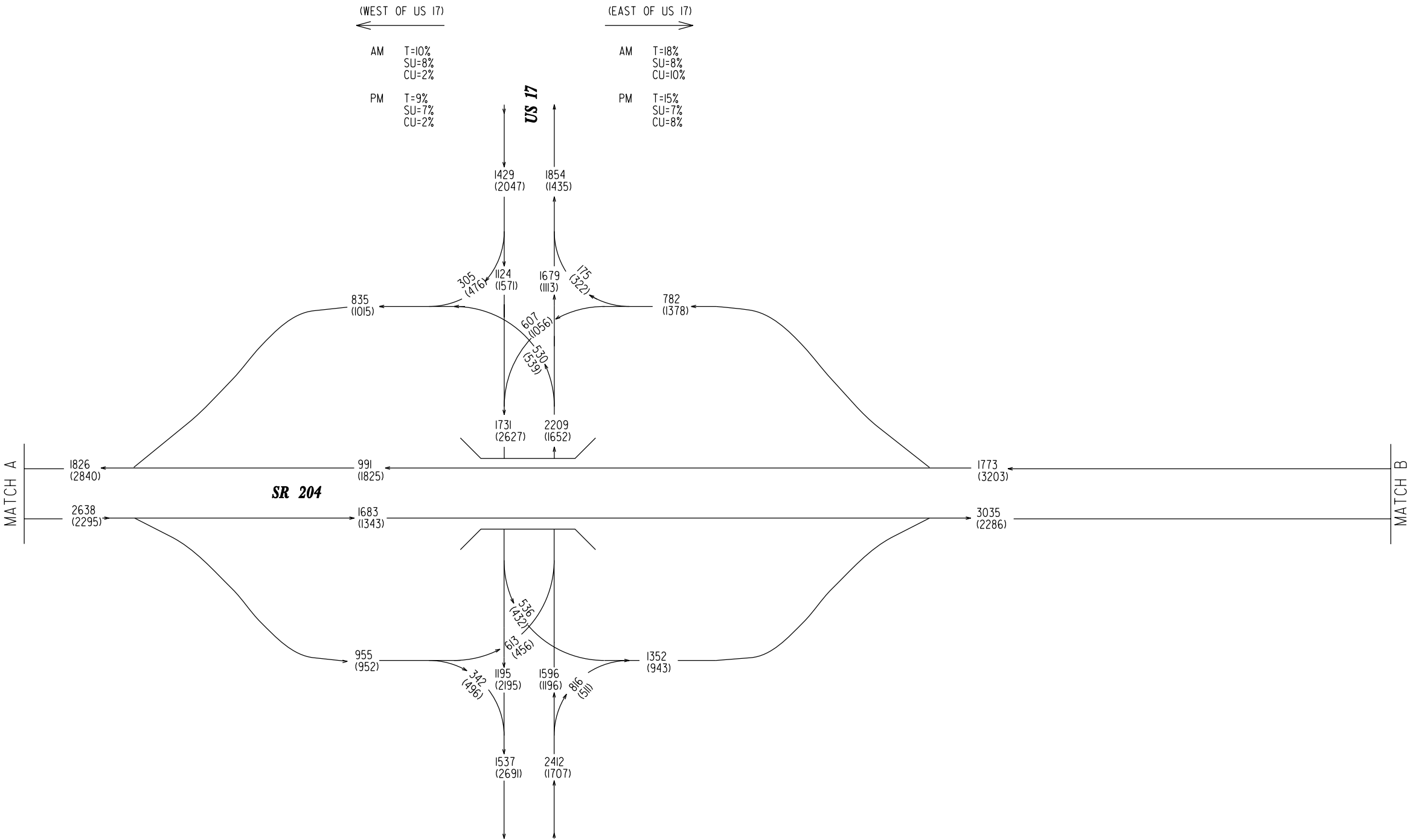
FIGURE 73

SCALE: N.T.S.

AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

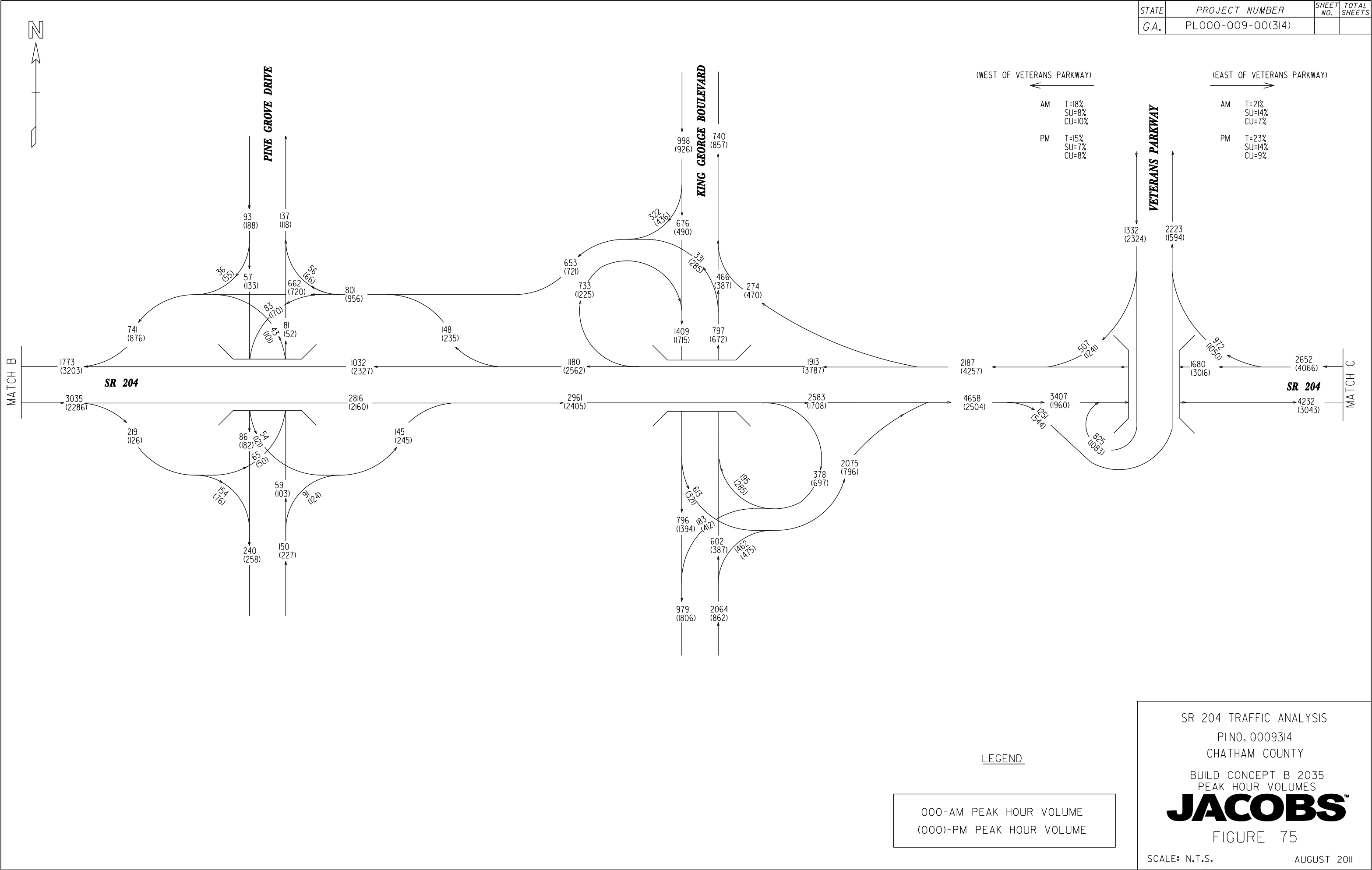
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT B 2035
PEAK HOUR VOLUMES

JACOBS™

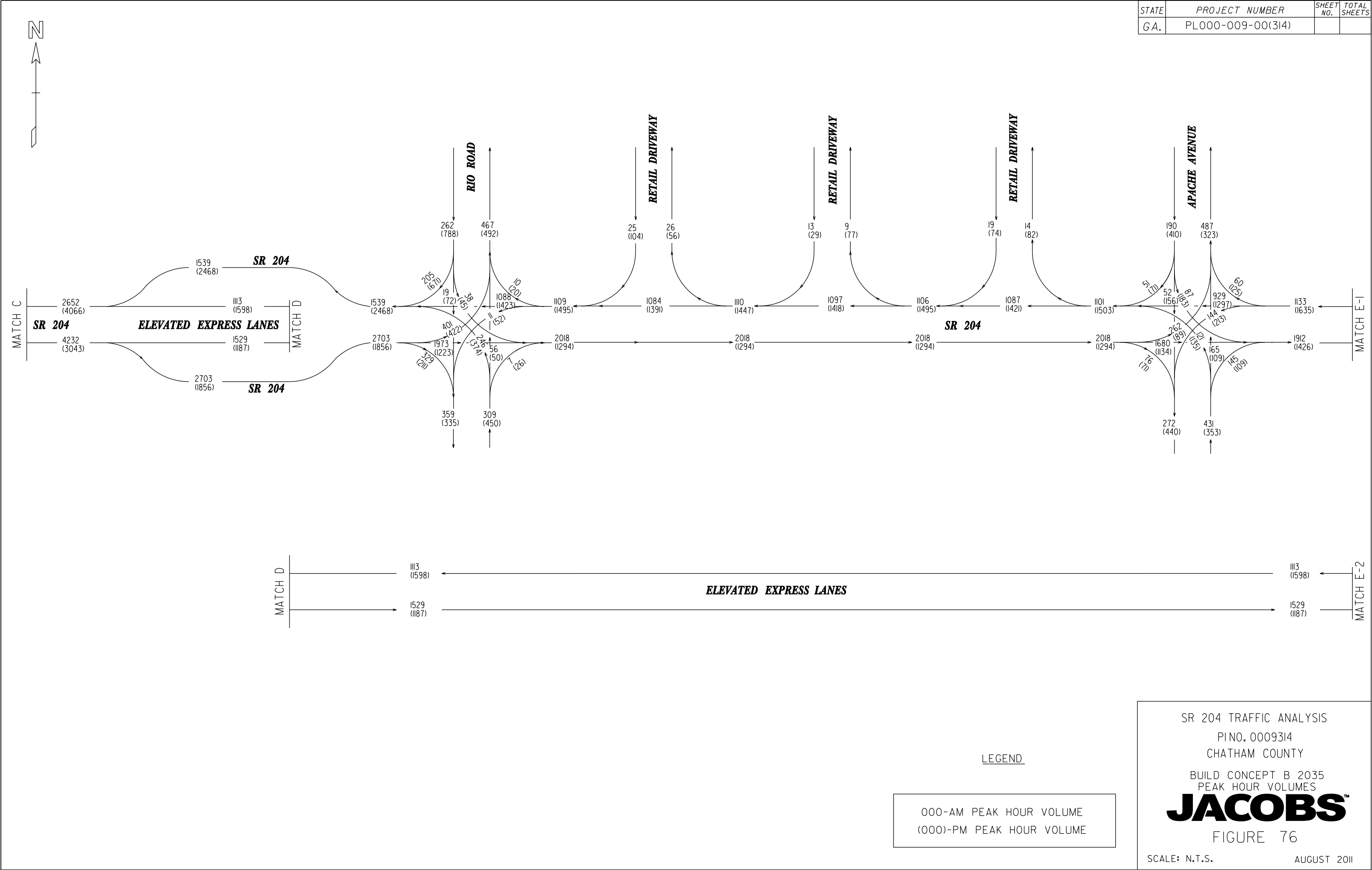
FIGURE 74

SCALE: N.T.S. AUGUST 2011

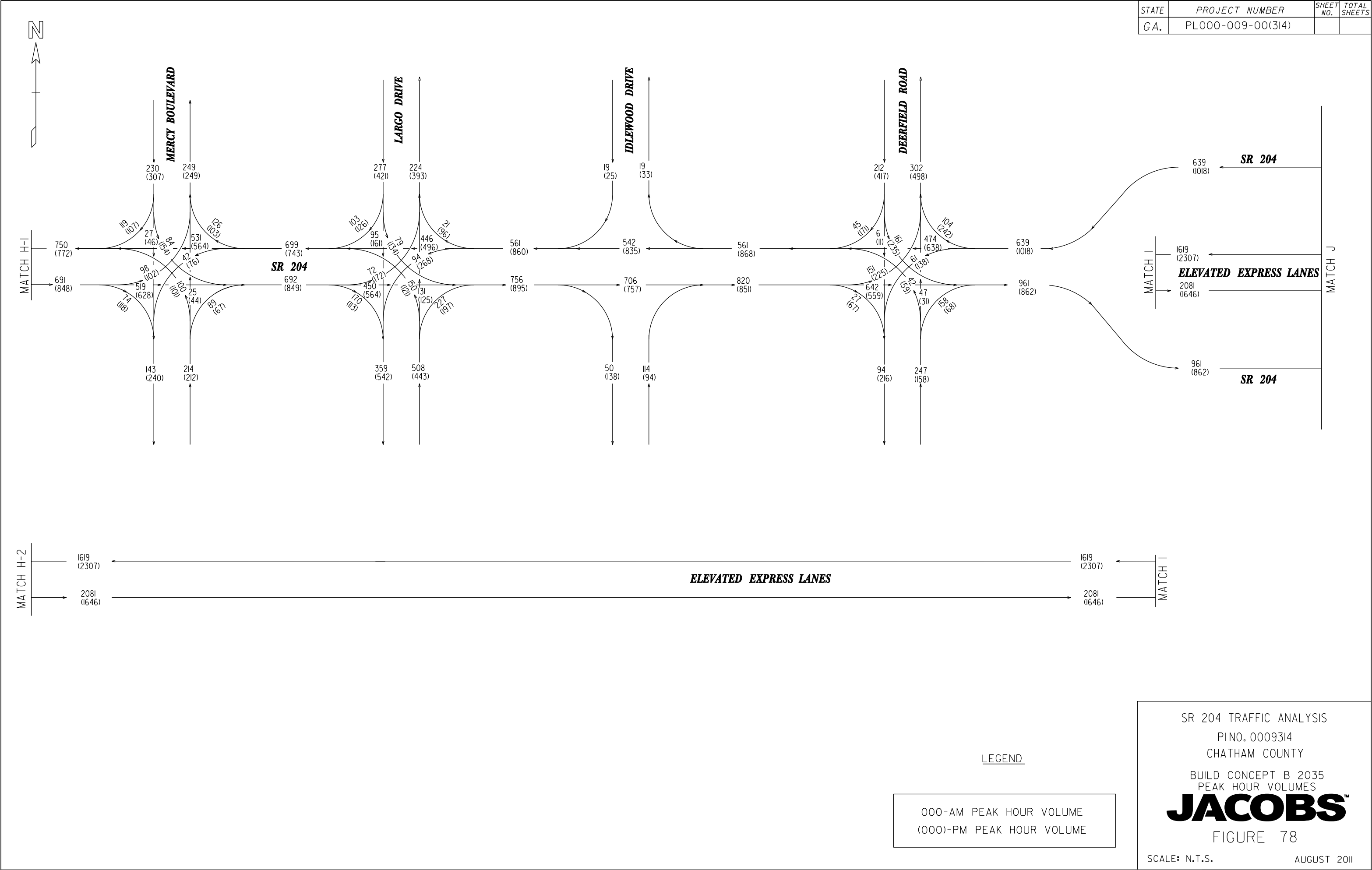
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



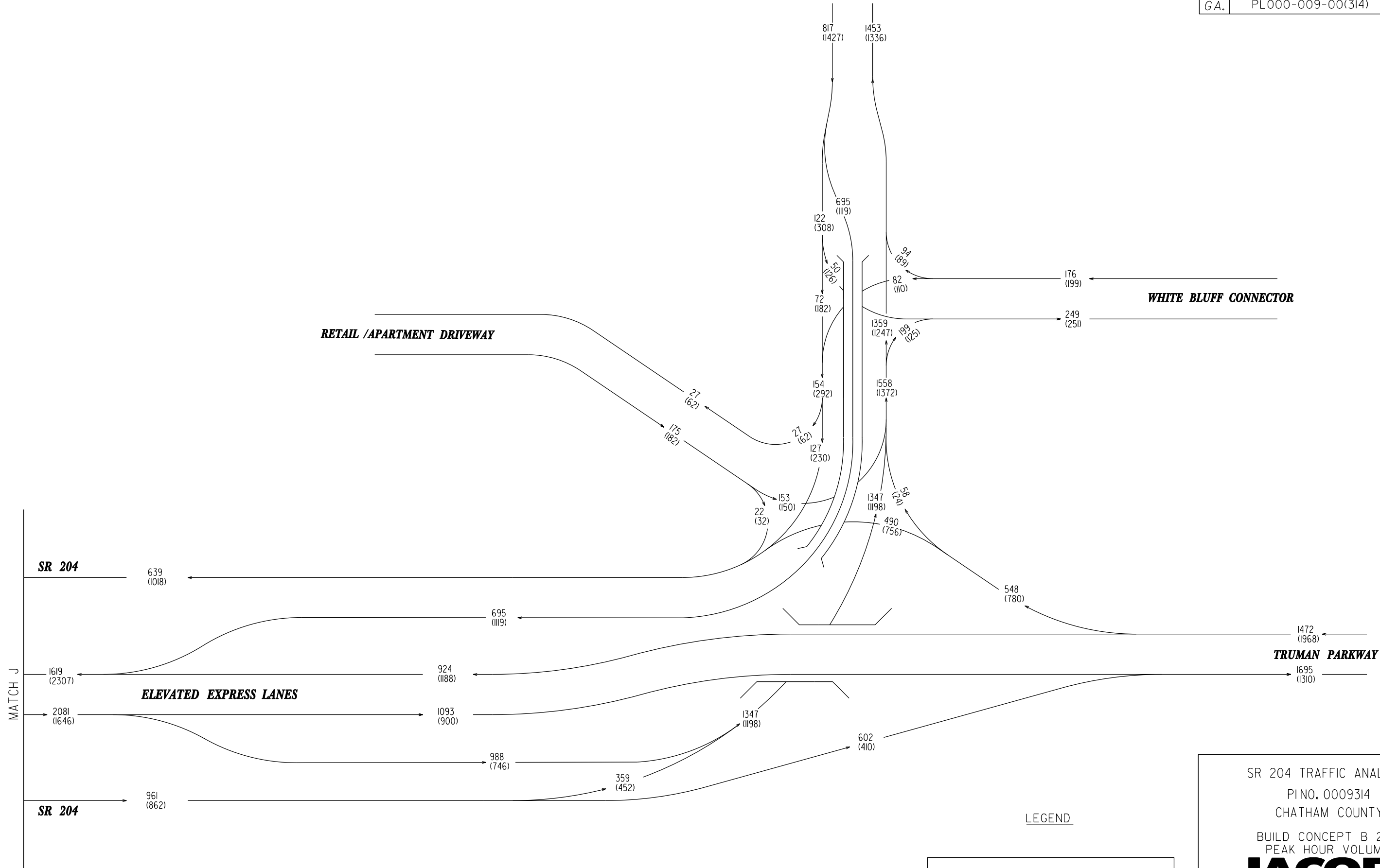
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		

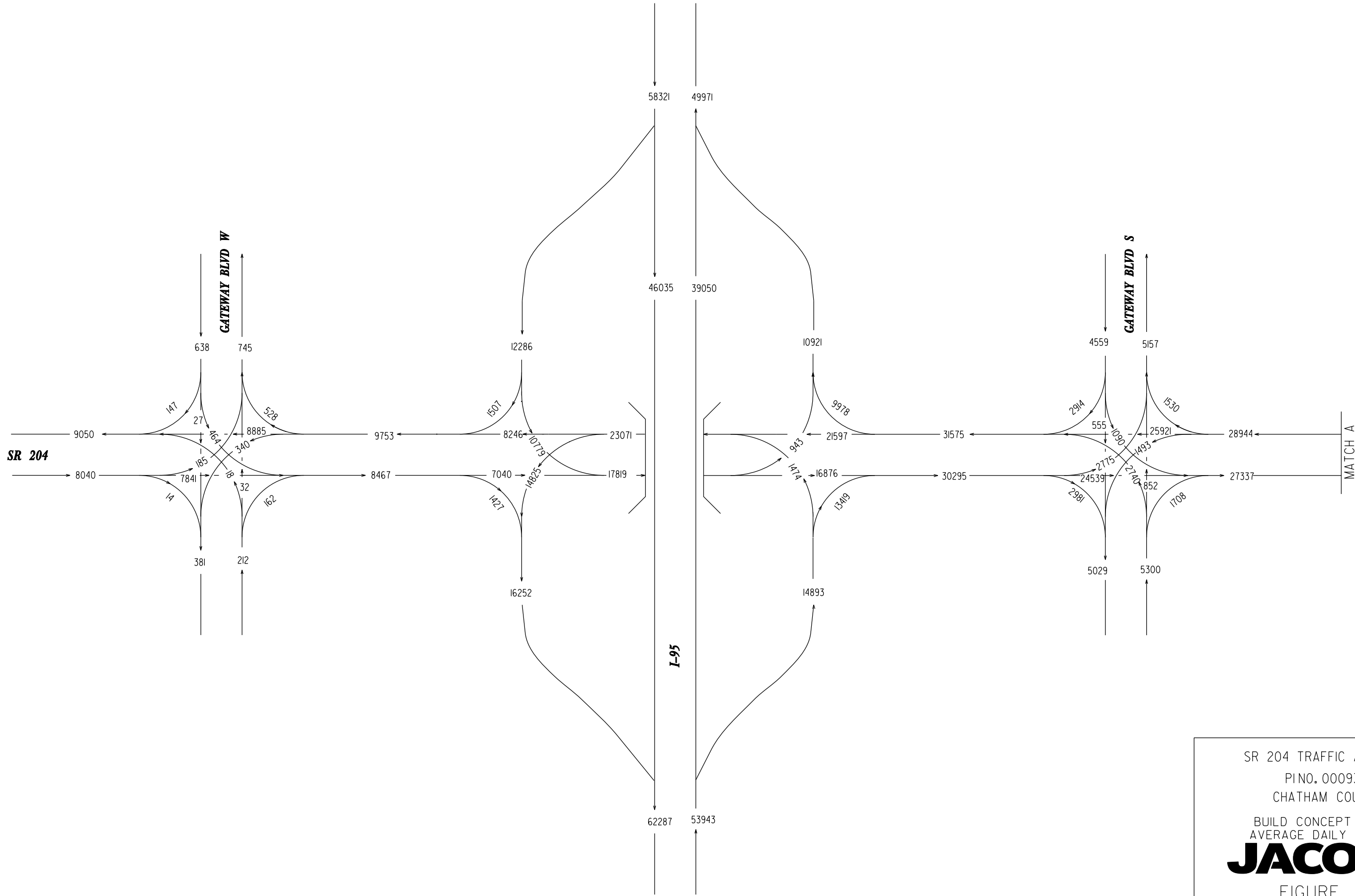


STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT B 2035
PEAK HOUR VOLUMES
JACOBS™
FIGURE 79
SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY

BUILD CONCEPT B 2035
AVERAGE DAILY VOLUMES

JACOBS

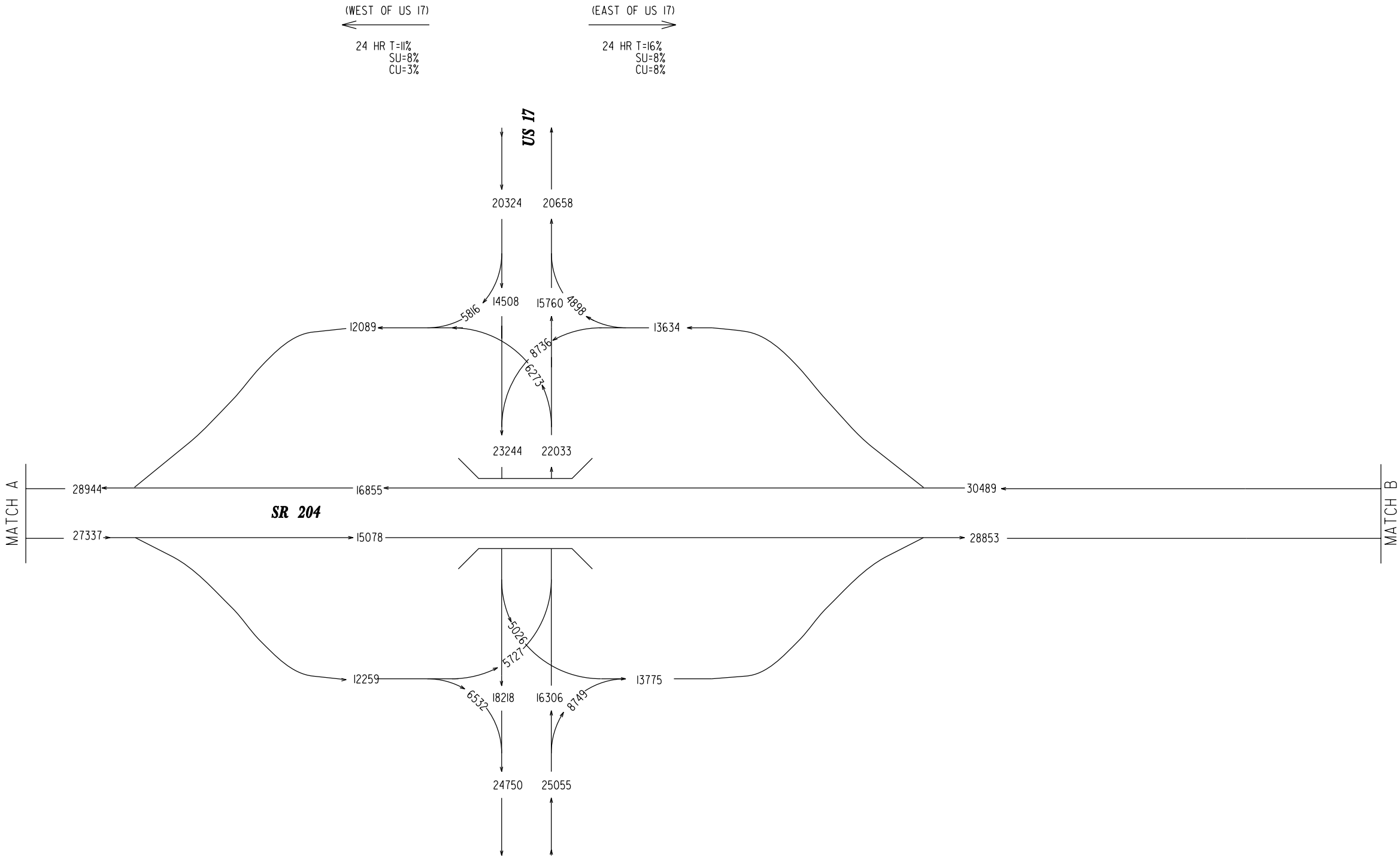
FIGURE 80

SCALE: N.T.S.

AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY

BUILD CONCEPT B 2035
AVERAGE DAILY VOLUMES

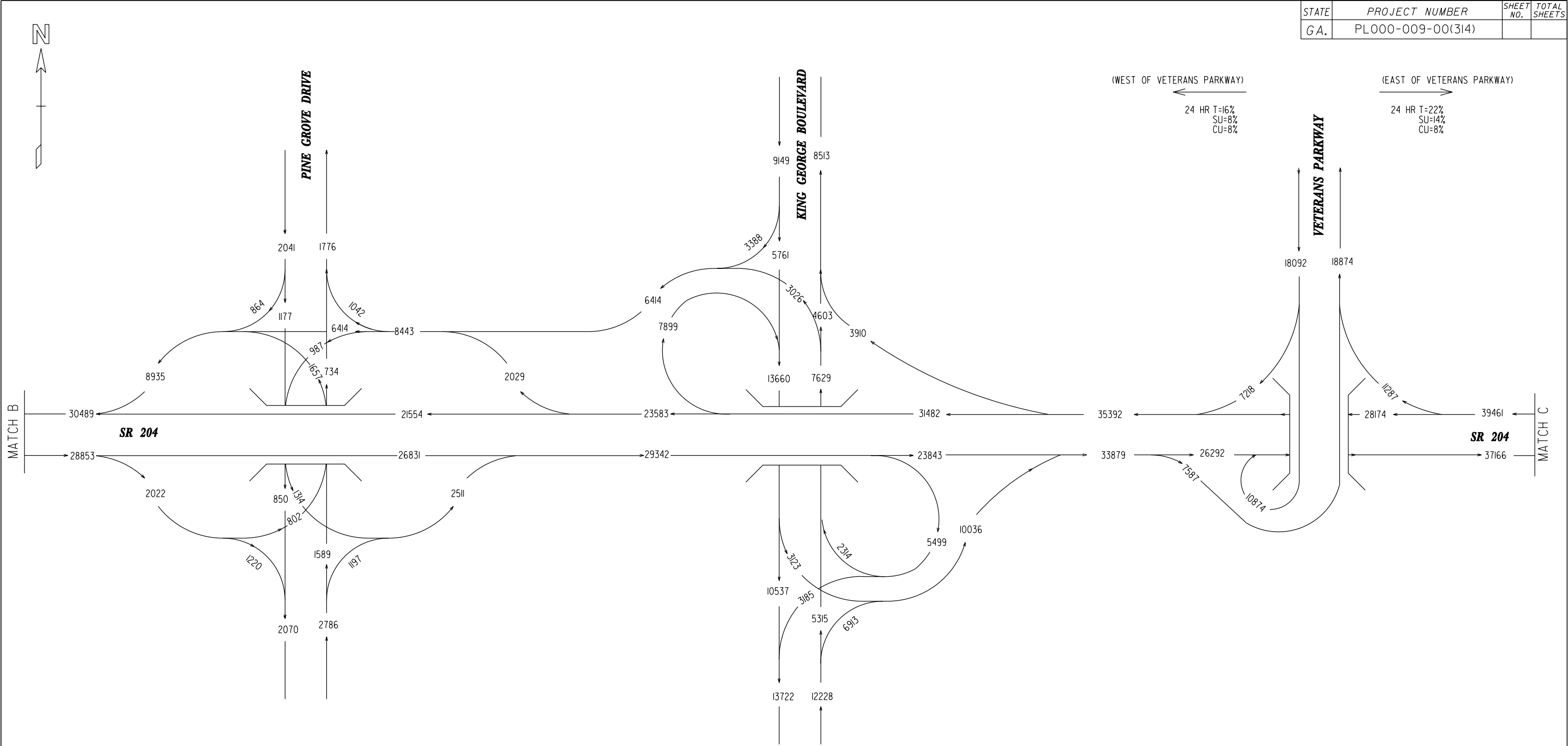
JACOBS™

FIGURE 8I

SCALE: N.T.S.

AUGUST 2011

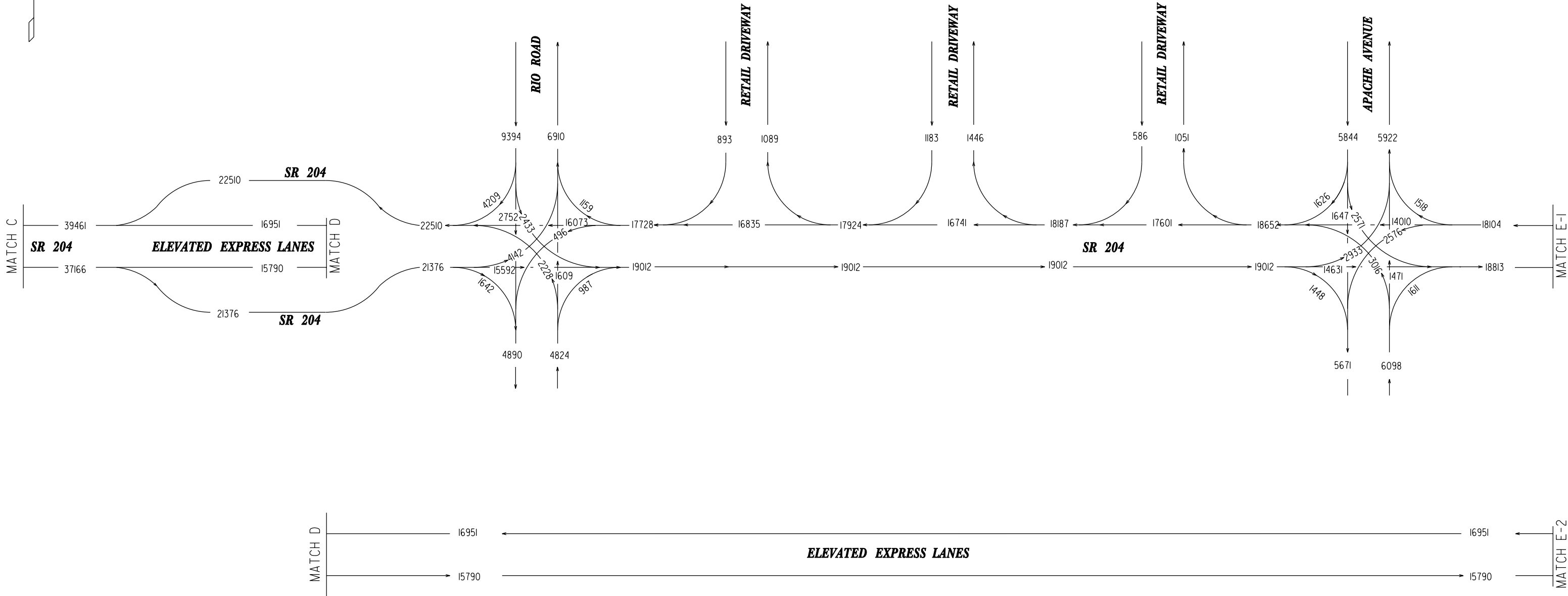
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT B 2035
AVERAGE DAILY VOLUMES
JACOBS
FIGURE 82
SCALE: N.T.S. AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT B 2035
AVERAGE DAILY VOLUMES

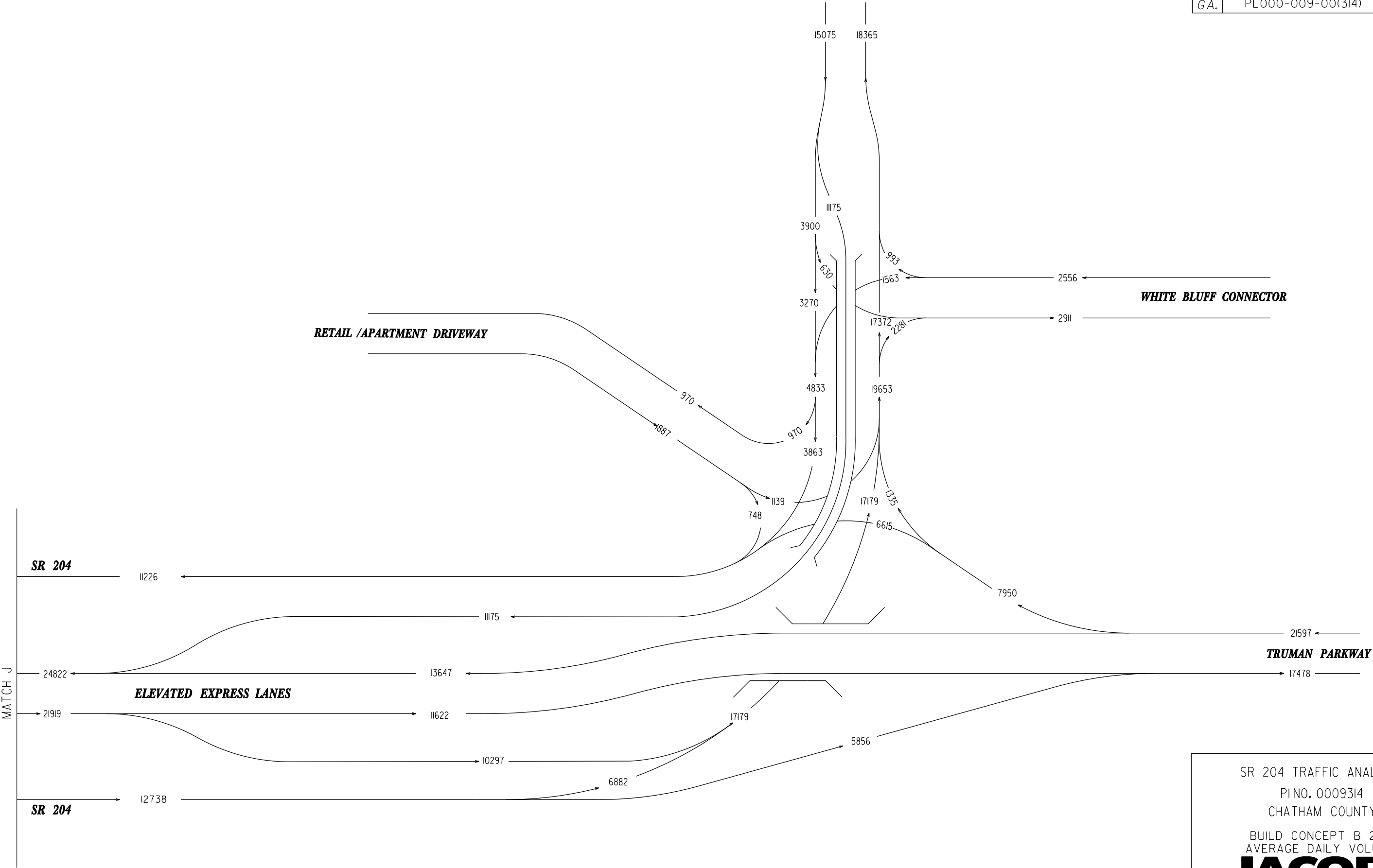
JACOBS™

FIGURE 83

SCALE: N.T.S. AUGUST 2011

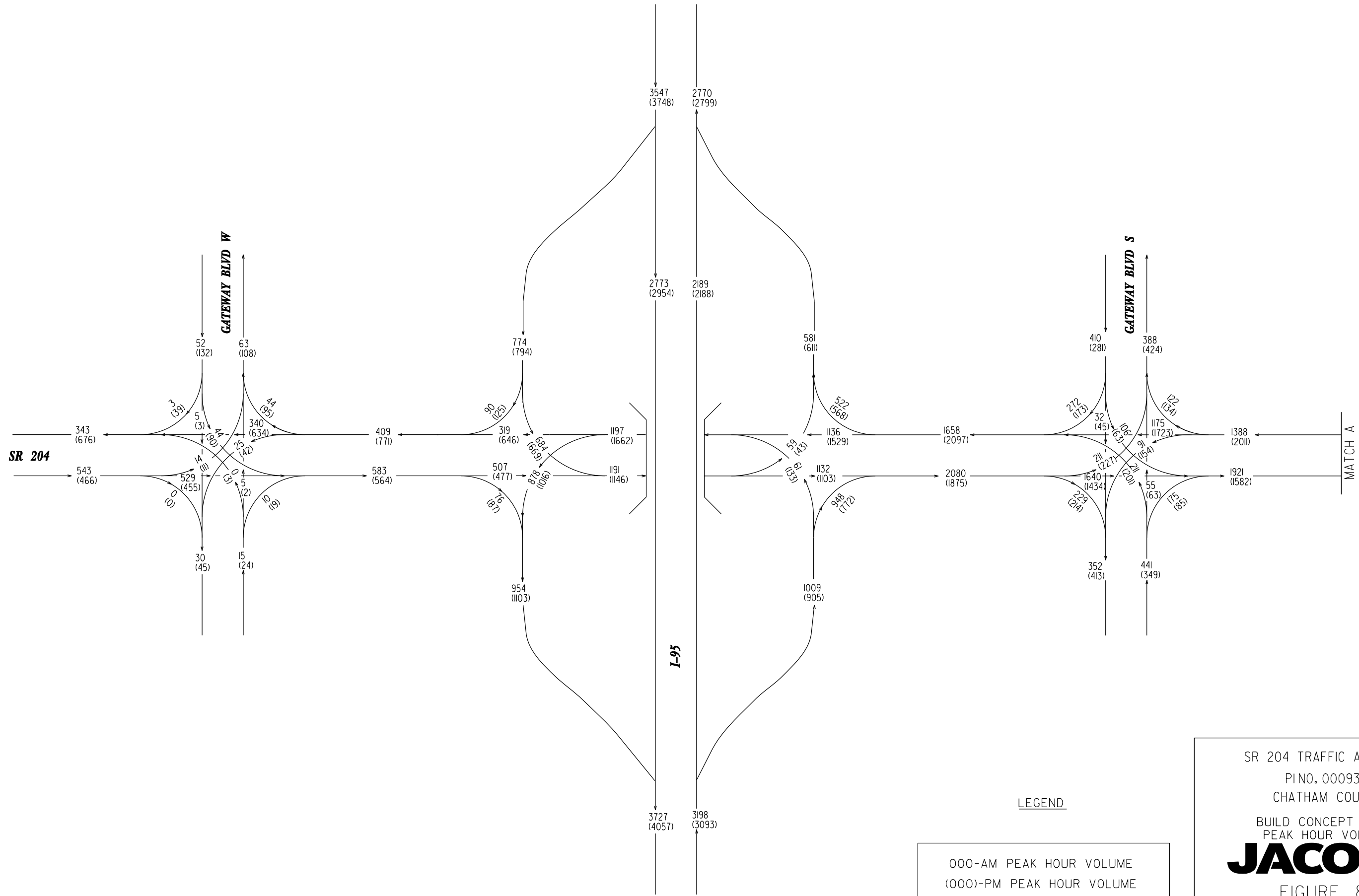


STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT B 2035
AVERAGE DAILY VOLUMES
JACOBS
FIGURE 86

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS

PINO.0009314

CHATHAM COUNTY

BUILD CONCEPT C 2015
PEAK HOUR VOLUMES

JACOBS

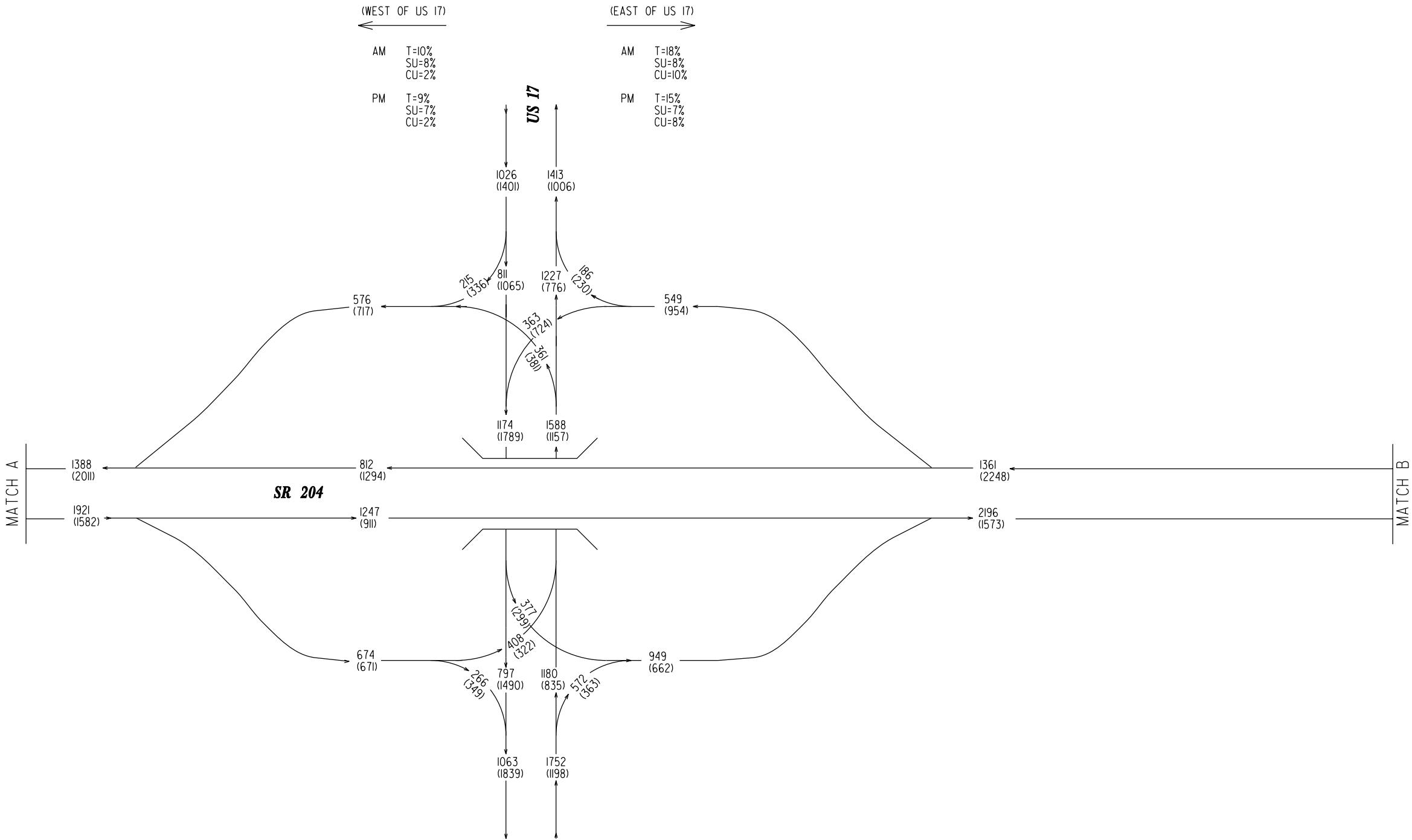
FIGURE 87

SCALE: N.T.S.

AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY

BUILD CONCEPT C 2015
PEAK HOUR VOLUMES

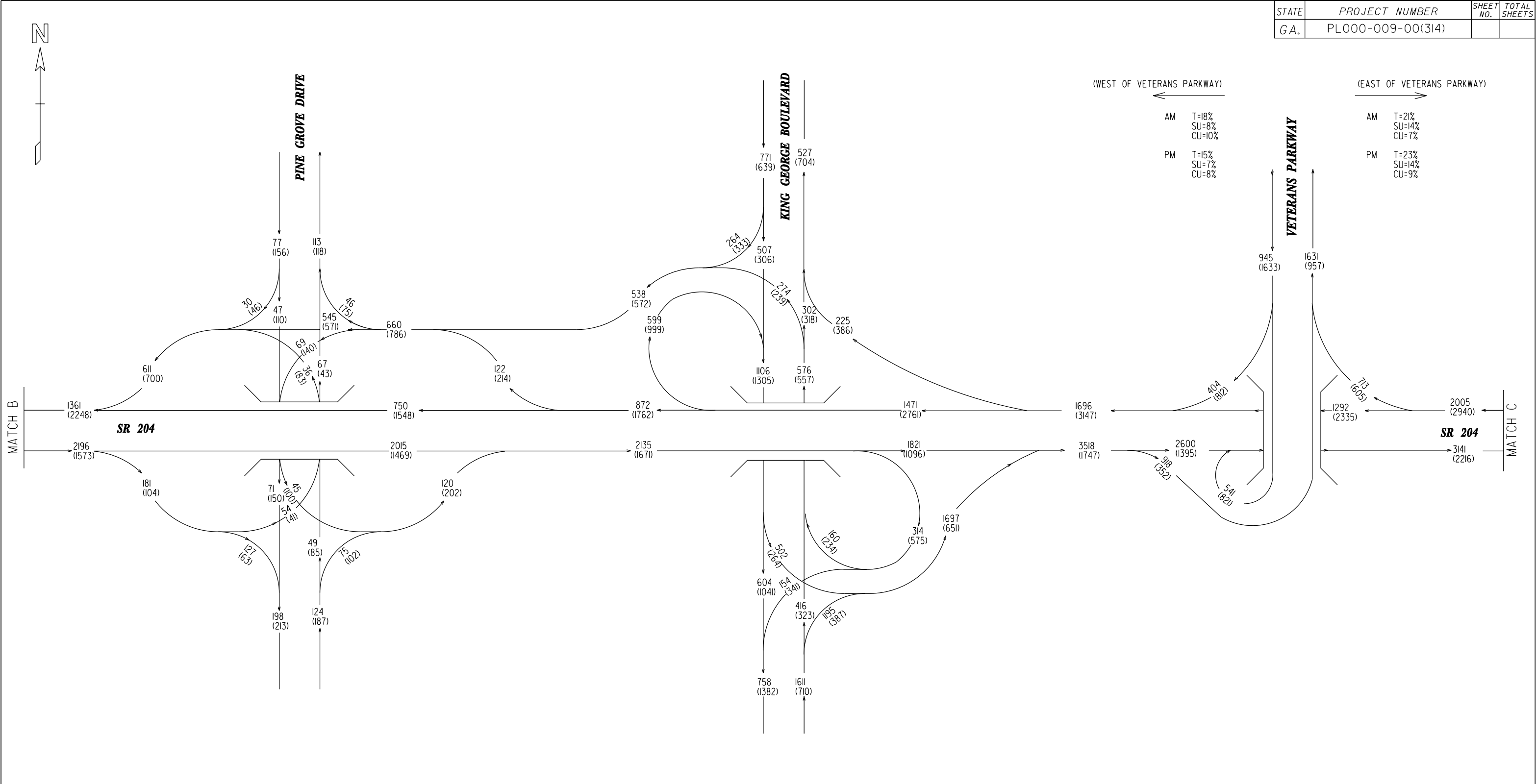
JACOBS

FIGURE 88

SCALE: N.T.S.

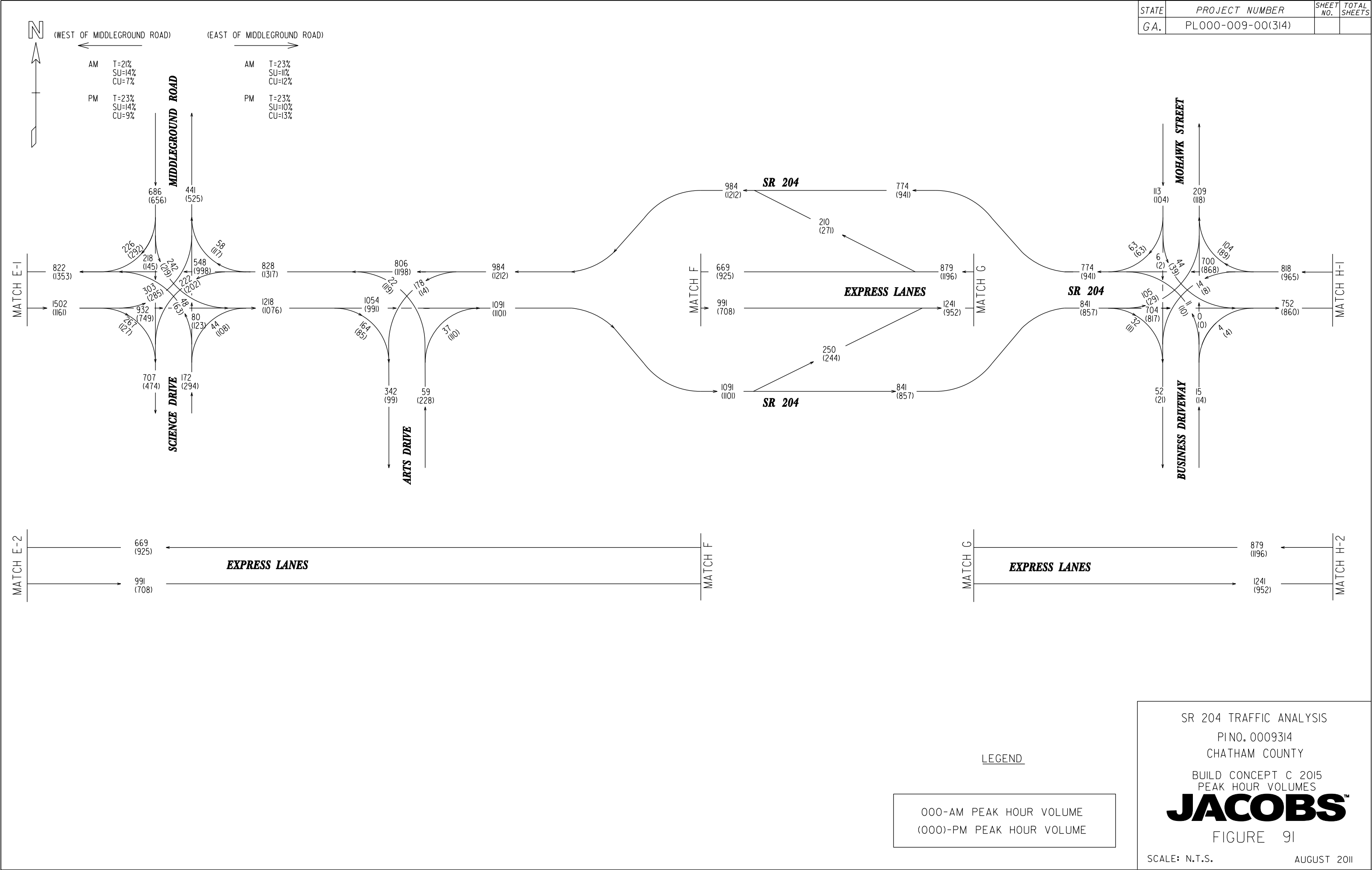
AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2015
PEAK HOUR VOLUMES
JACOBS
FIGURE 89
SCALE: N.T.S. AUGUST 2011

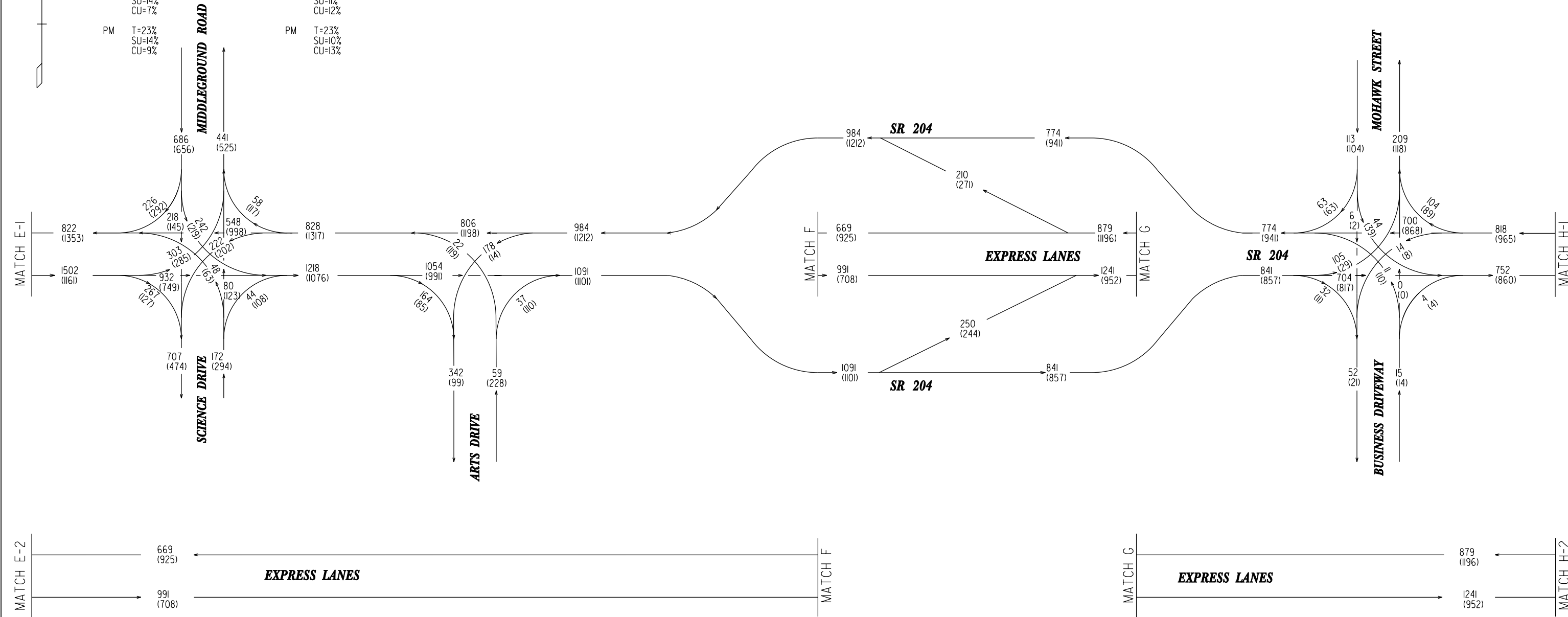
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



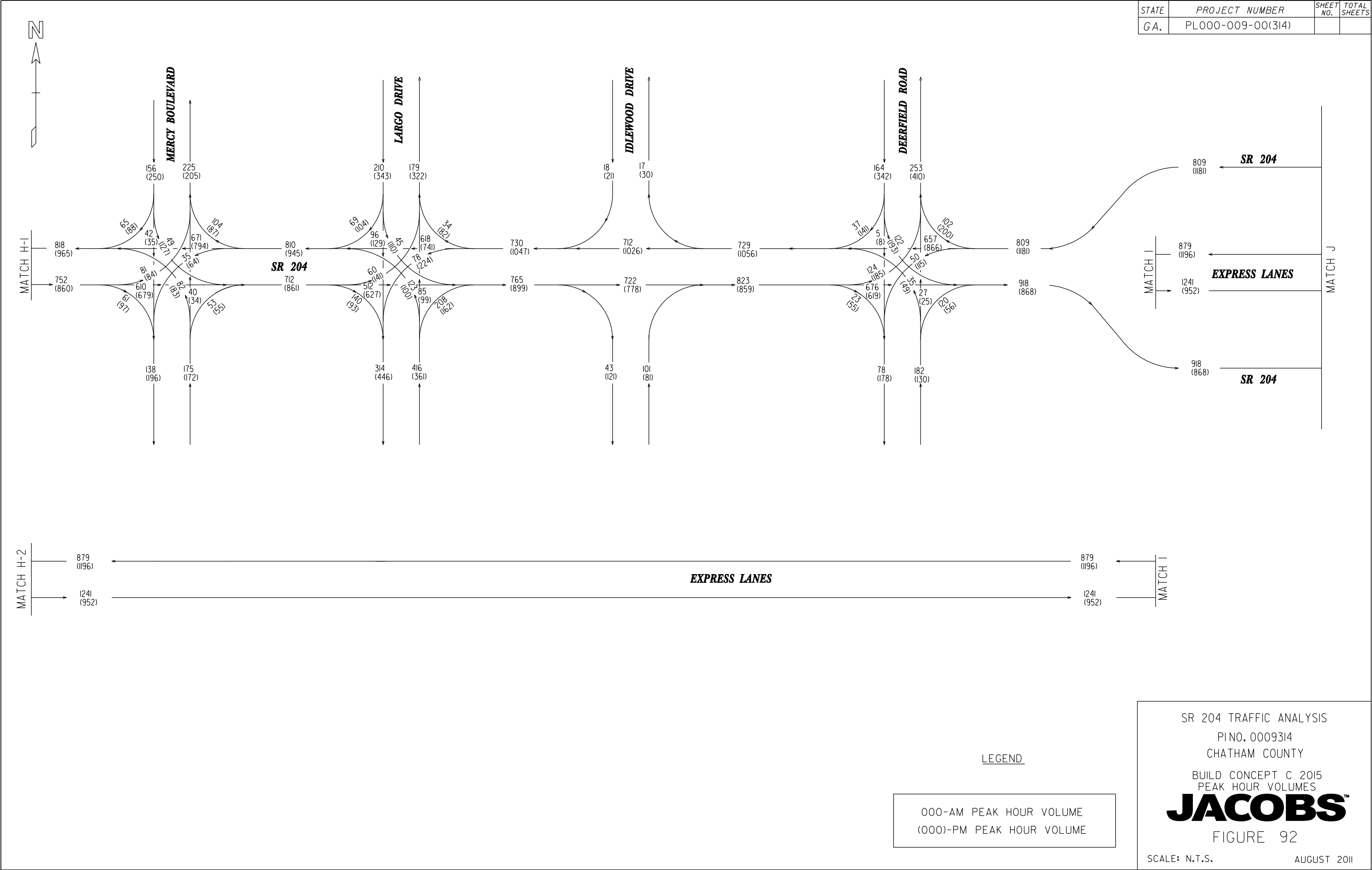
(WEST OF MIDDLEGROUND ROAD) (EAST OF MIDDLEGROUND ROAD)

AM T=21%
SU=14%
CU=7%
PM T=23%
SU=14%
CU=9%

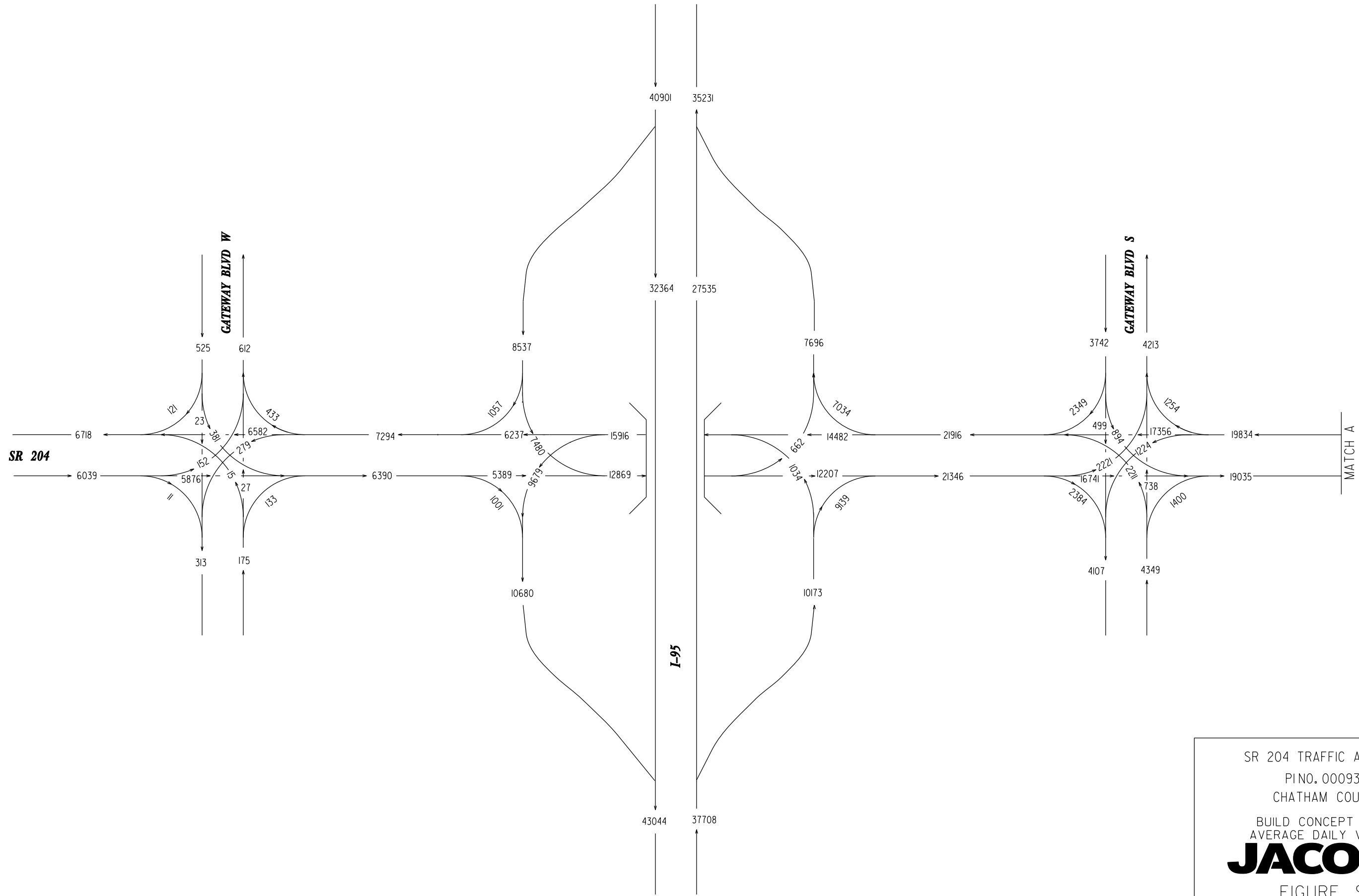
AM T=23%
SU=11%
CU=12%
PM T=23%
SU=10%
CU=13%



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PIN0.0009314
CHATHAM COUNTY

BUILD CONCEPT C 2015
AVERAGE DAILY VOLUMES

JACOBS

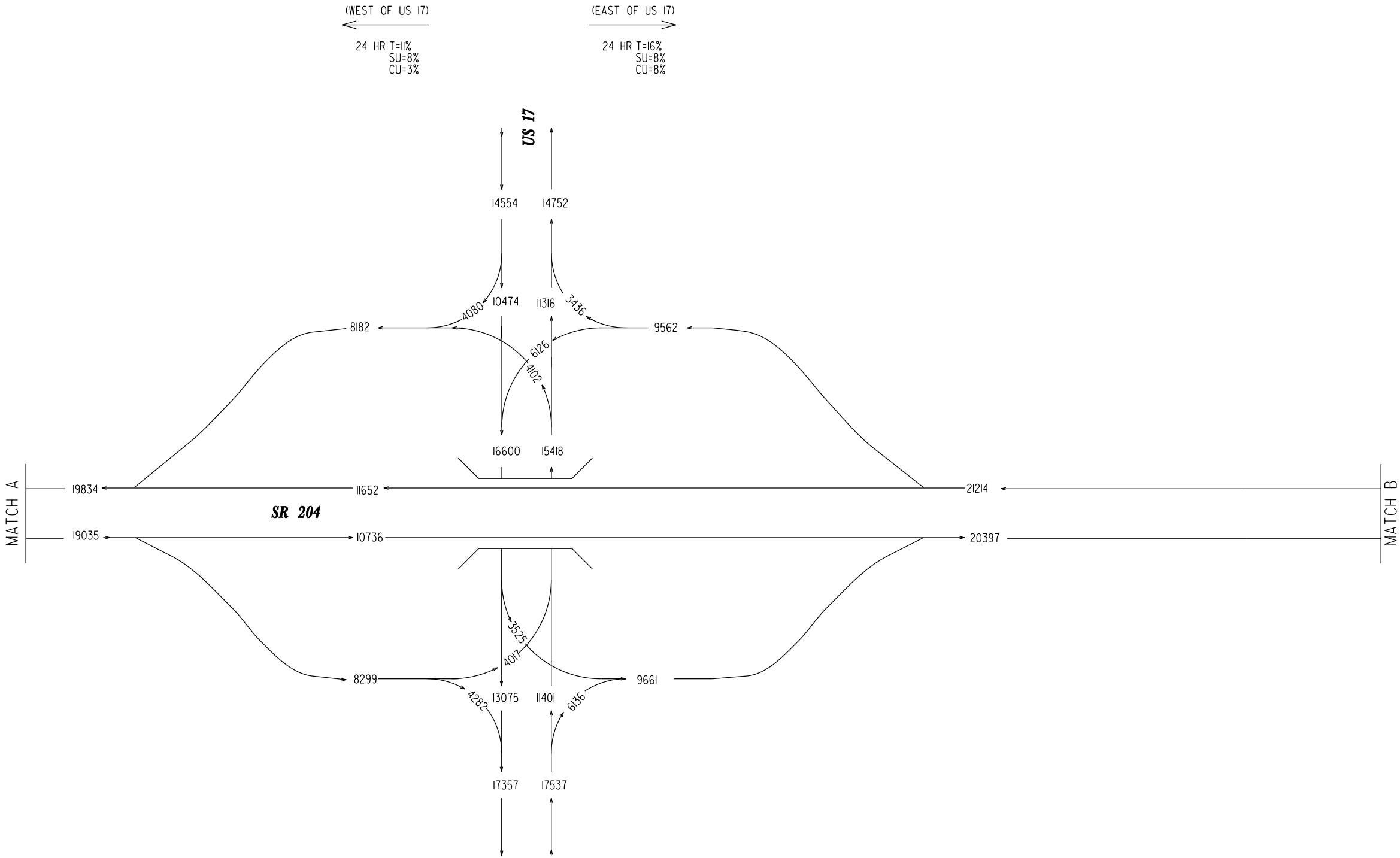
FIGURE 94

SCALE: N.T.S.

AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS

PINO. 0009314

CHATHAM COUNTY

BUILD CONCEPT C 2015
AVERAGE DAILY VOLUMES

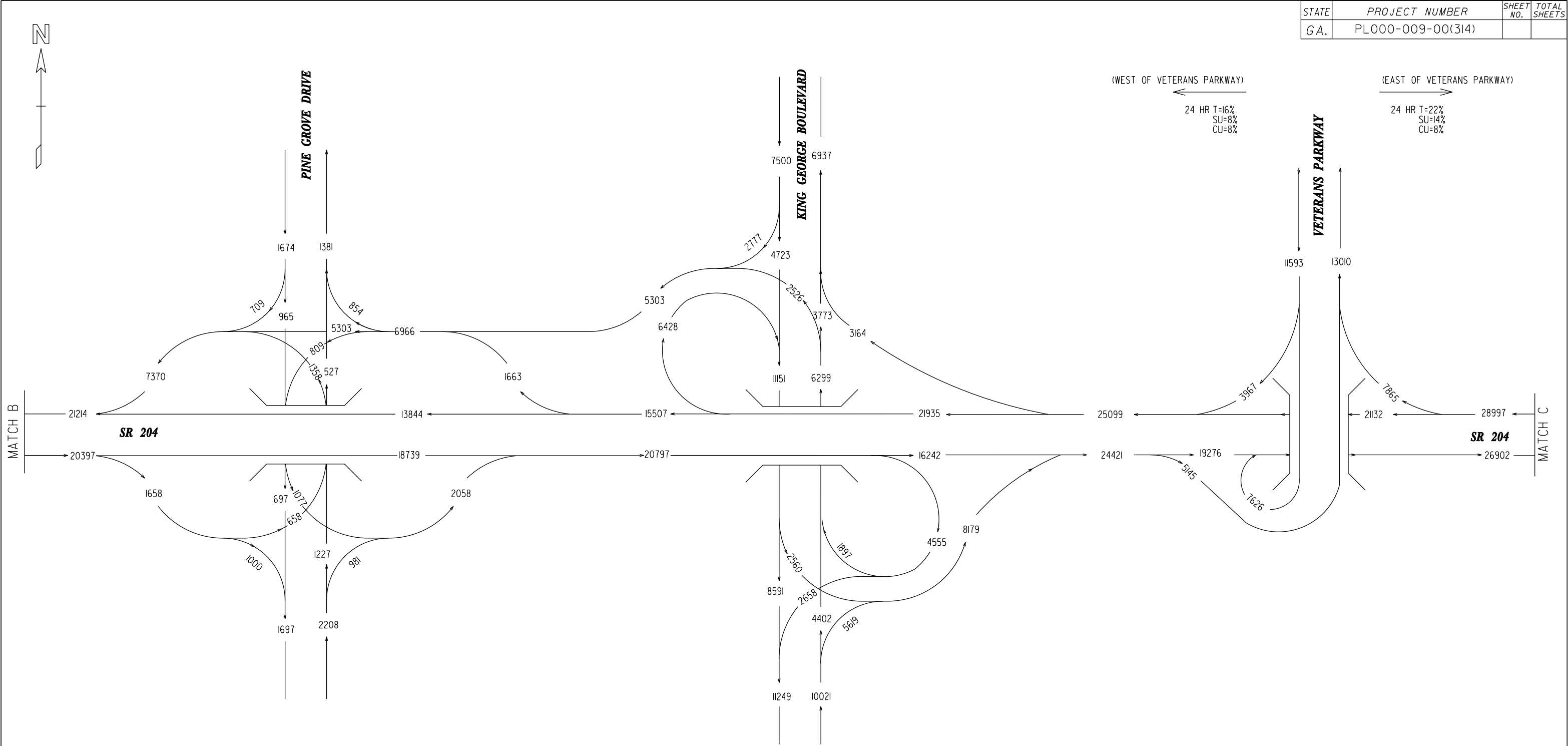
JACOBS

FIGURE 95

SCALE: N.T.S.

AUGUST 2011

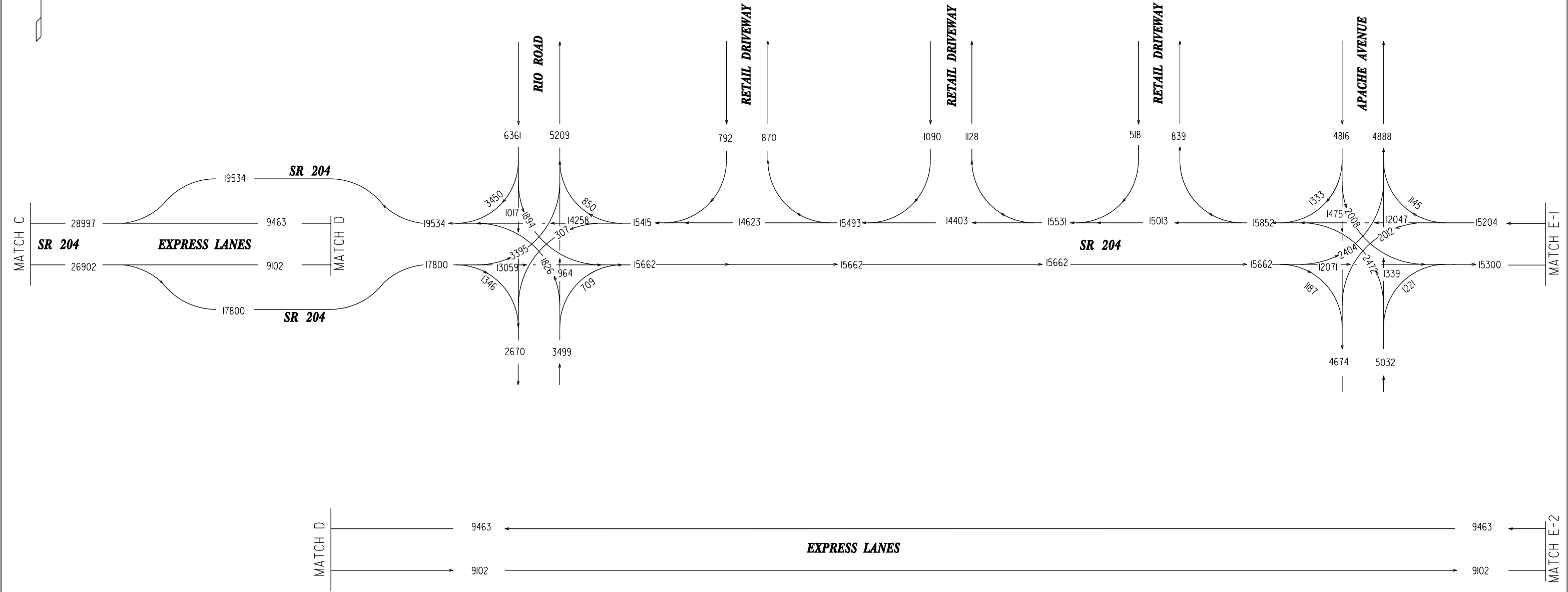
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2015
AVERAGE DAILY VOLUMES
JACOBS
FIGURE 96
SCALE: N.T.S. AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



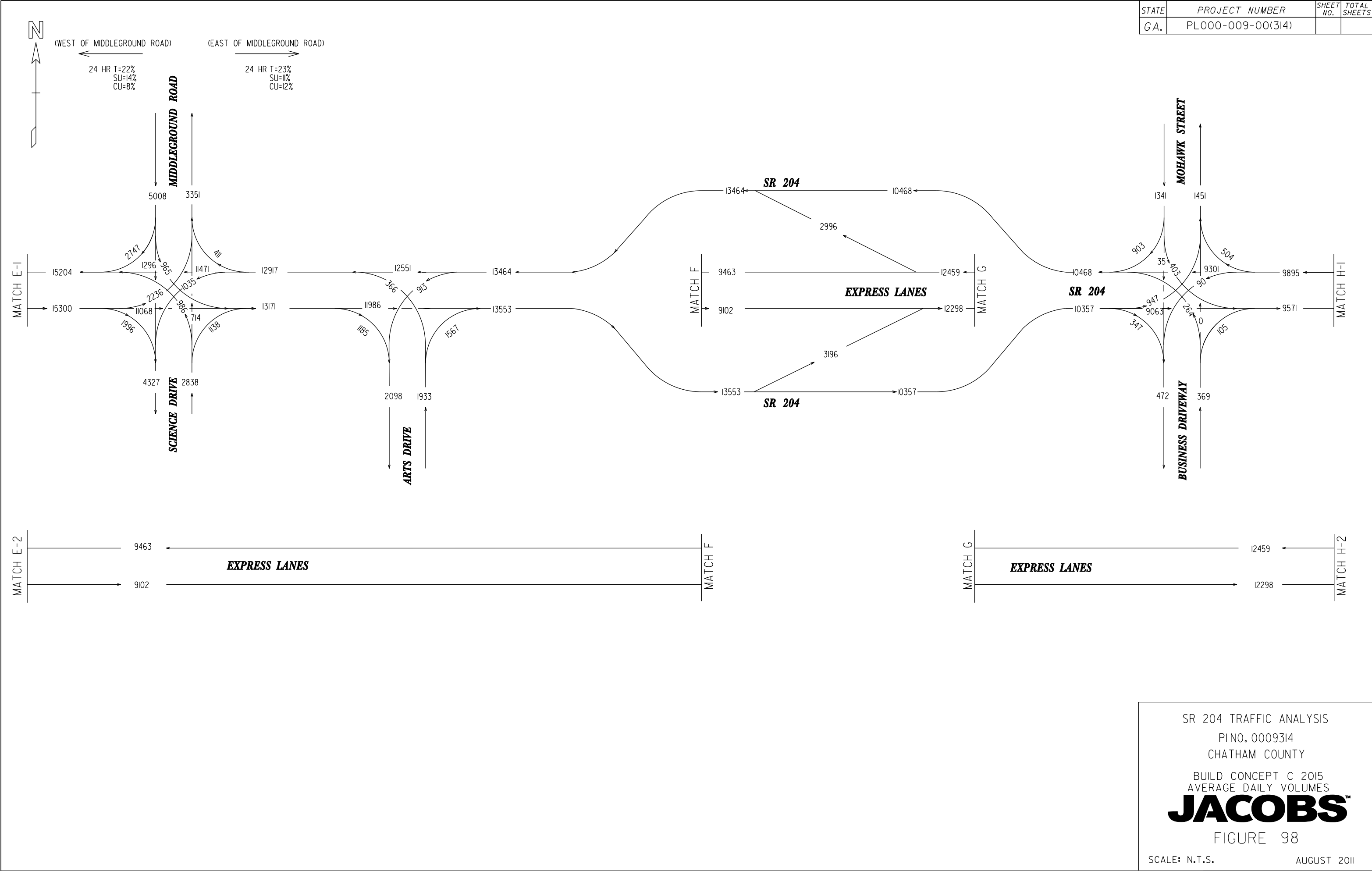
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PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2015
AVERAGE DAILY VOLUMES

JACOBS[™]

FIGURE 97

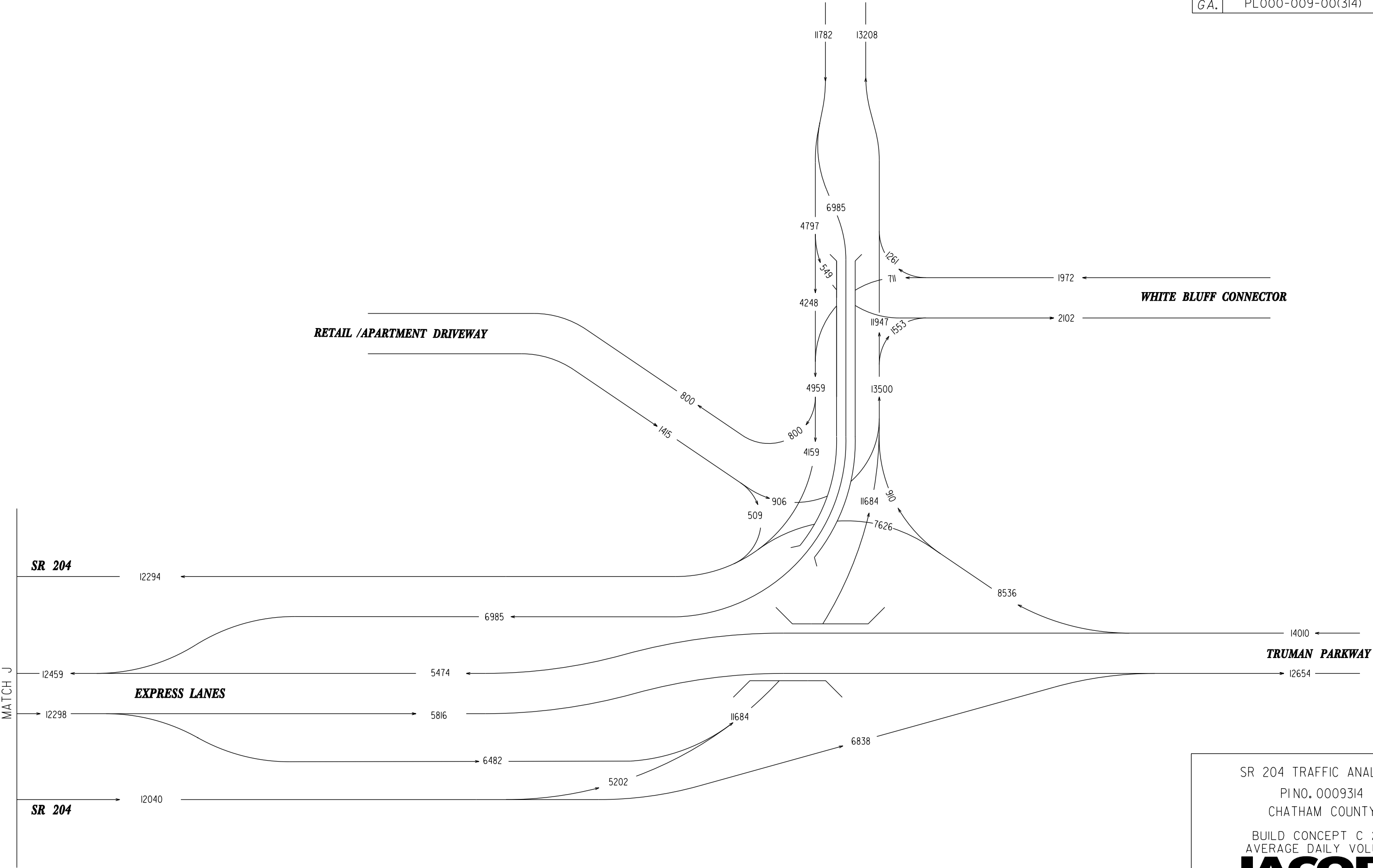
SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		





STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		

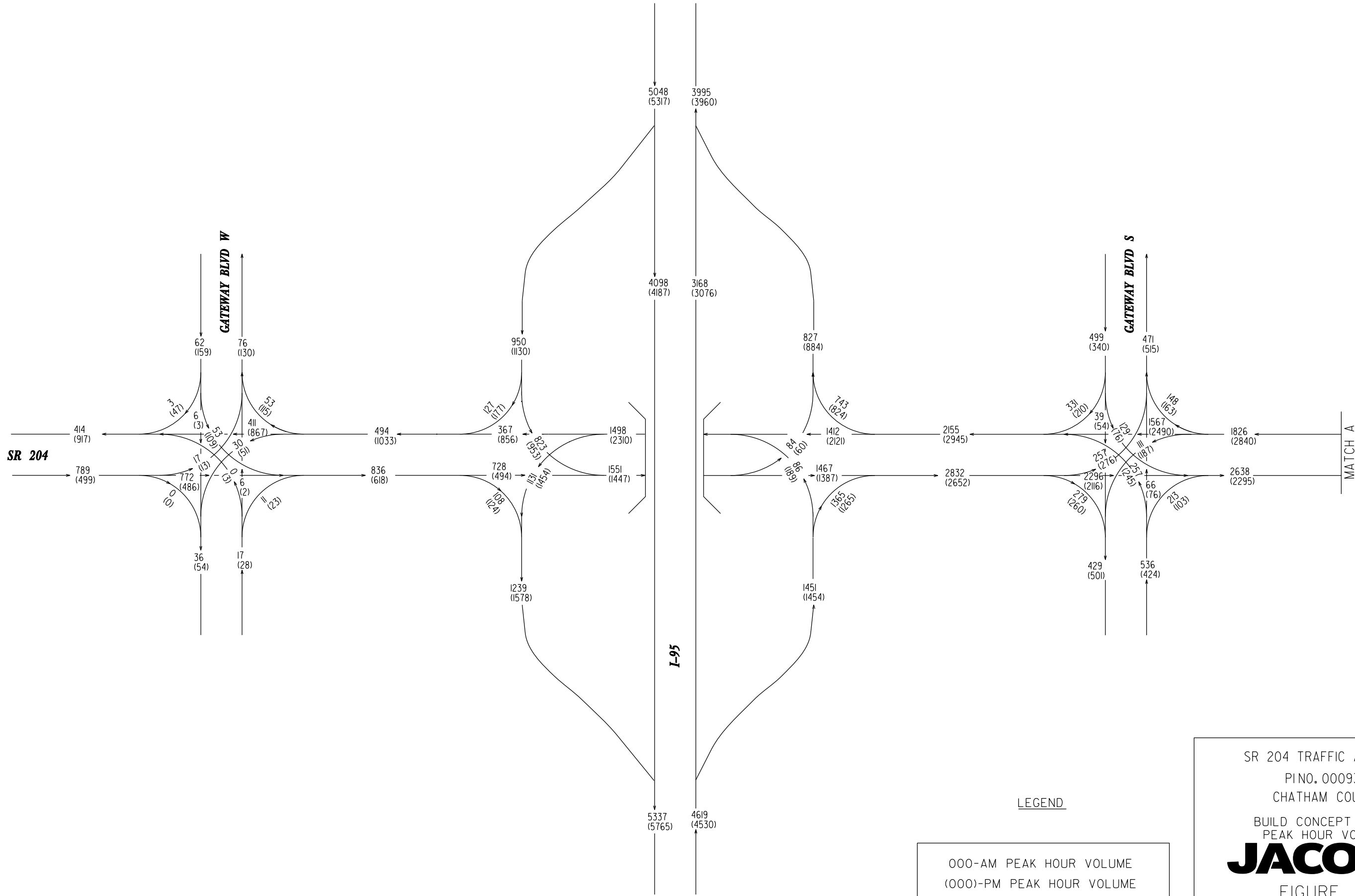


SR 204 TRAFFIC ANALYSIS
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CHATHAM COUNTY
BUILD CONCEPT C 2015
AVERAGE DAILY VOLUMES

JACOBSTM
FIGURE 100

SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2035
PEAK HOUR VOLUMES

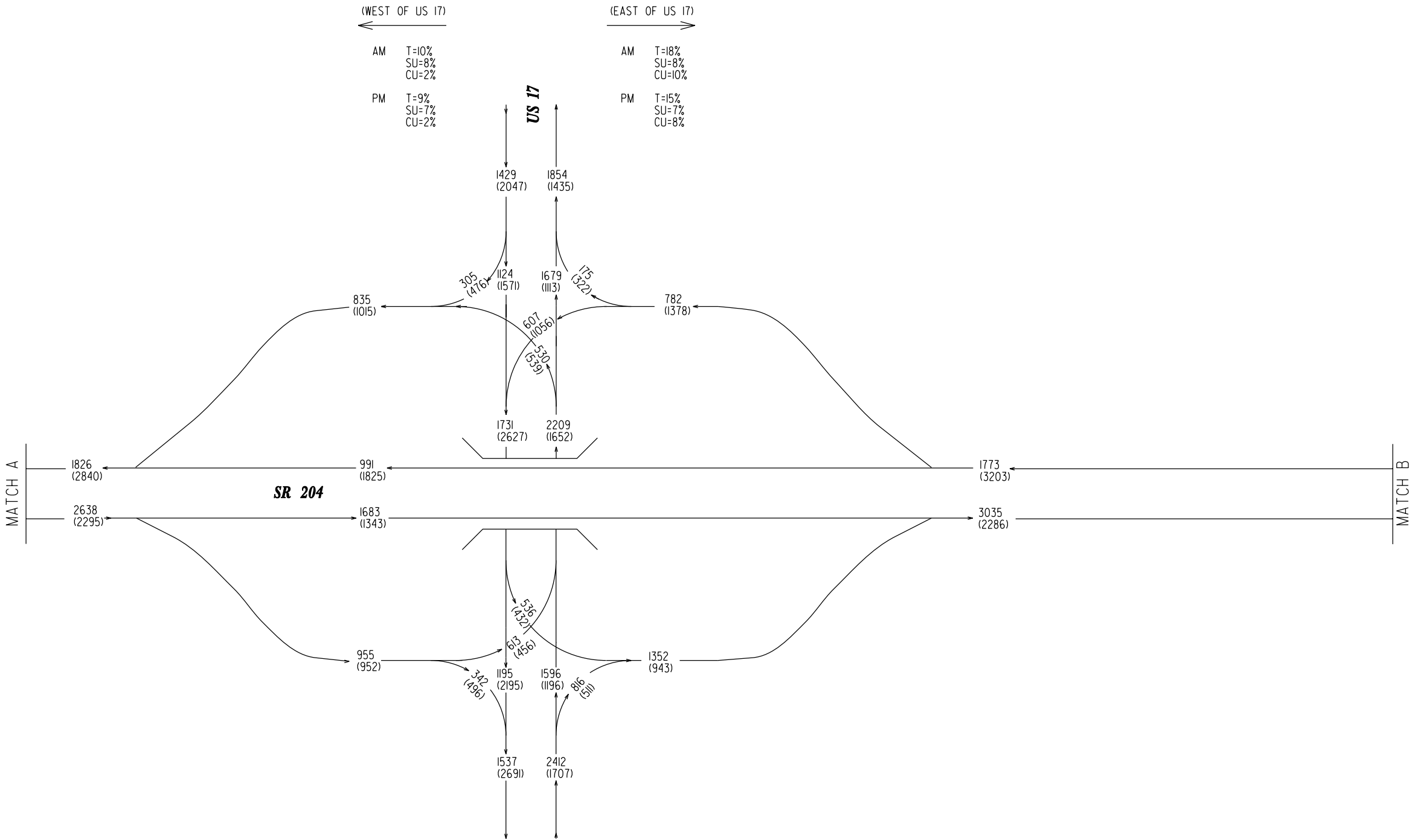
JACOBS™

FIGURE 101

SCALE: N.T.S. AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY

BUILD CONCEPT C 2035
PEAK HOUR VOLUMES

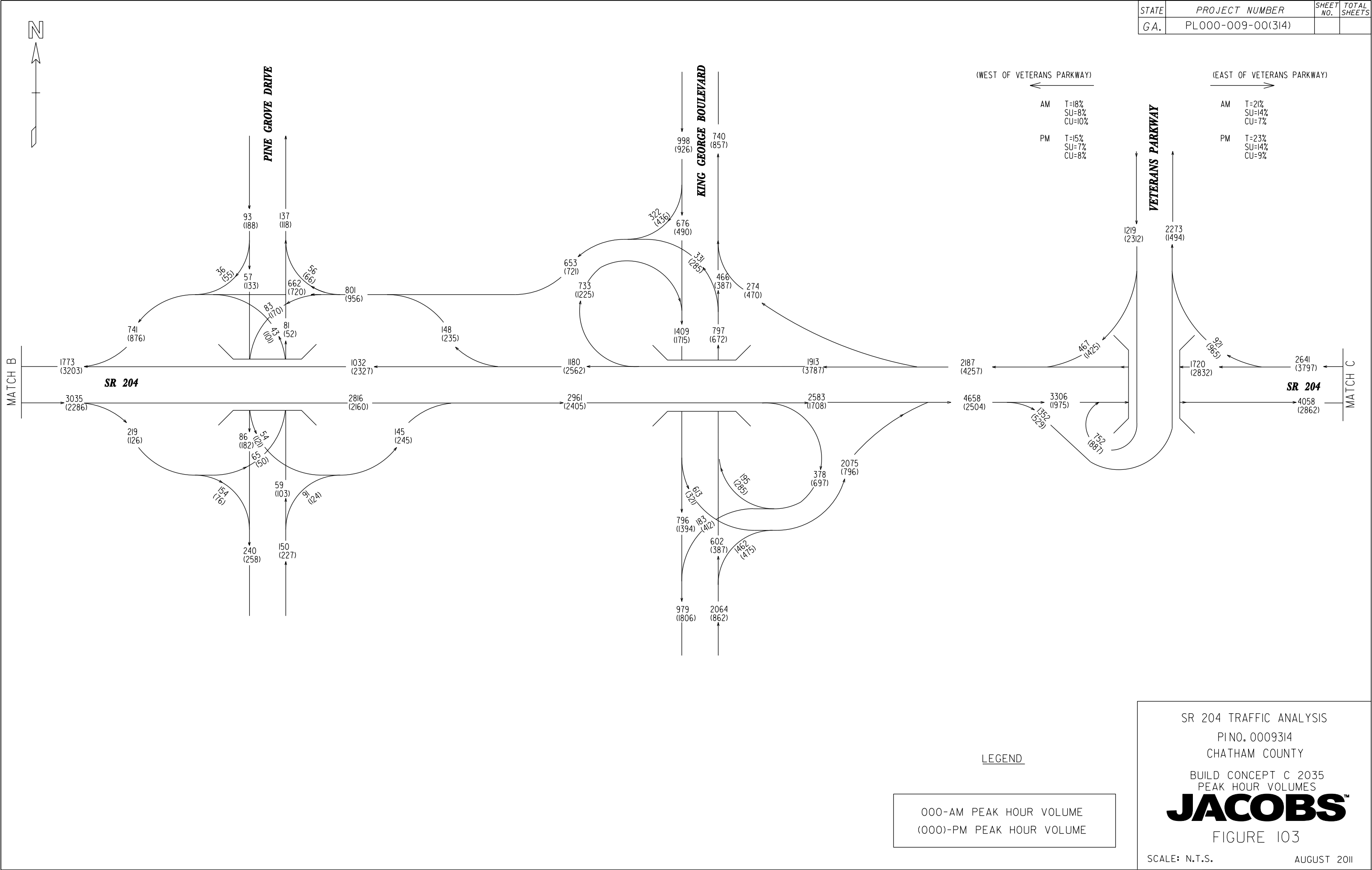
JACOBS™

FIGURE 102

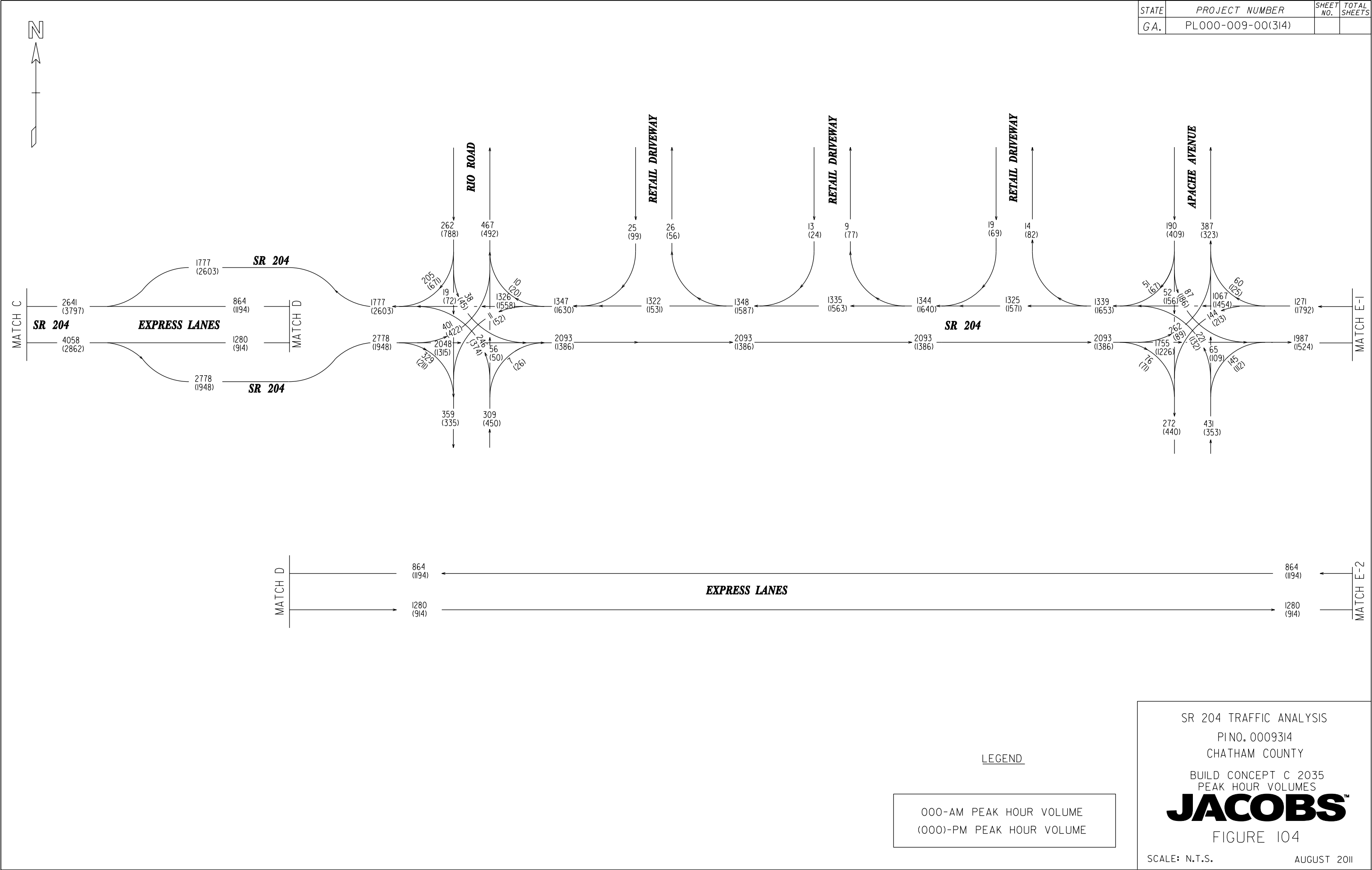
SCALE: N.T.S.

AUGUST 2011

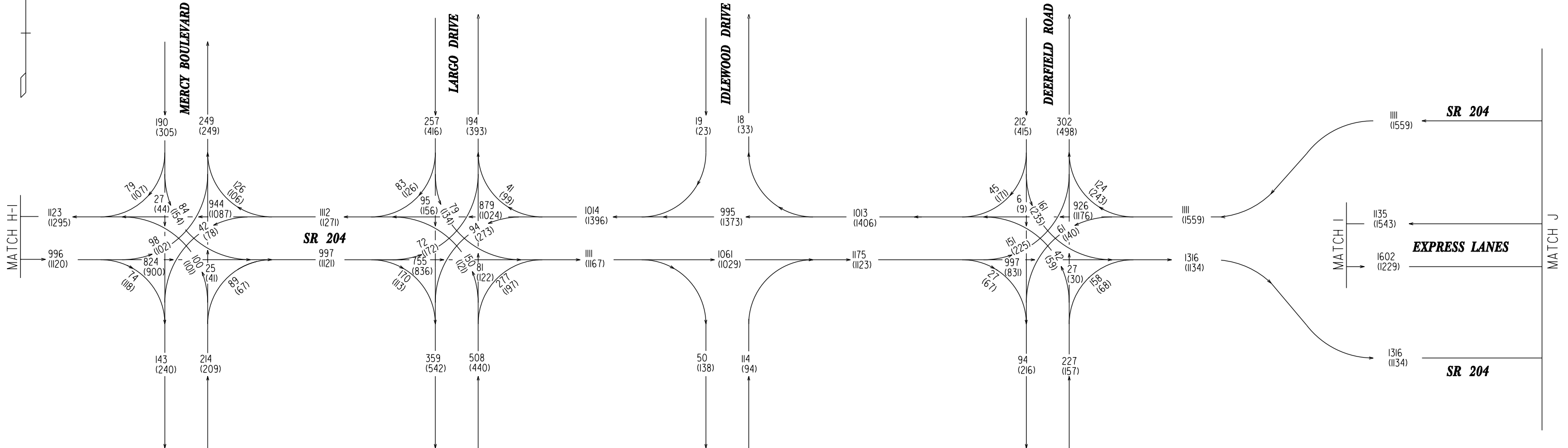
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		

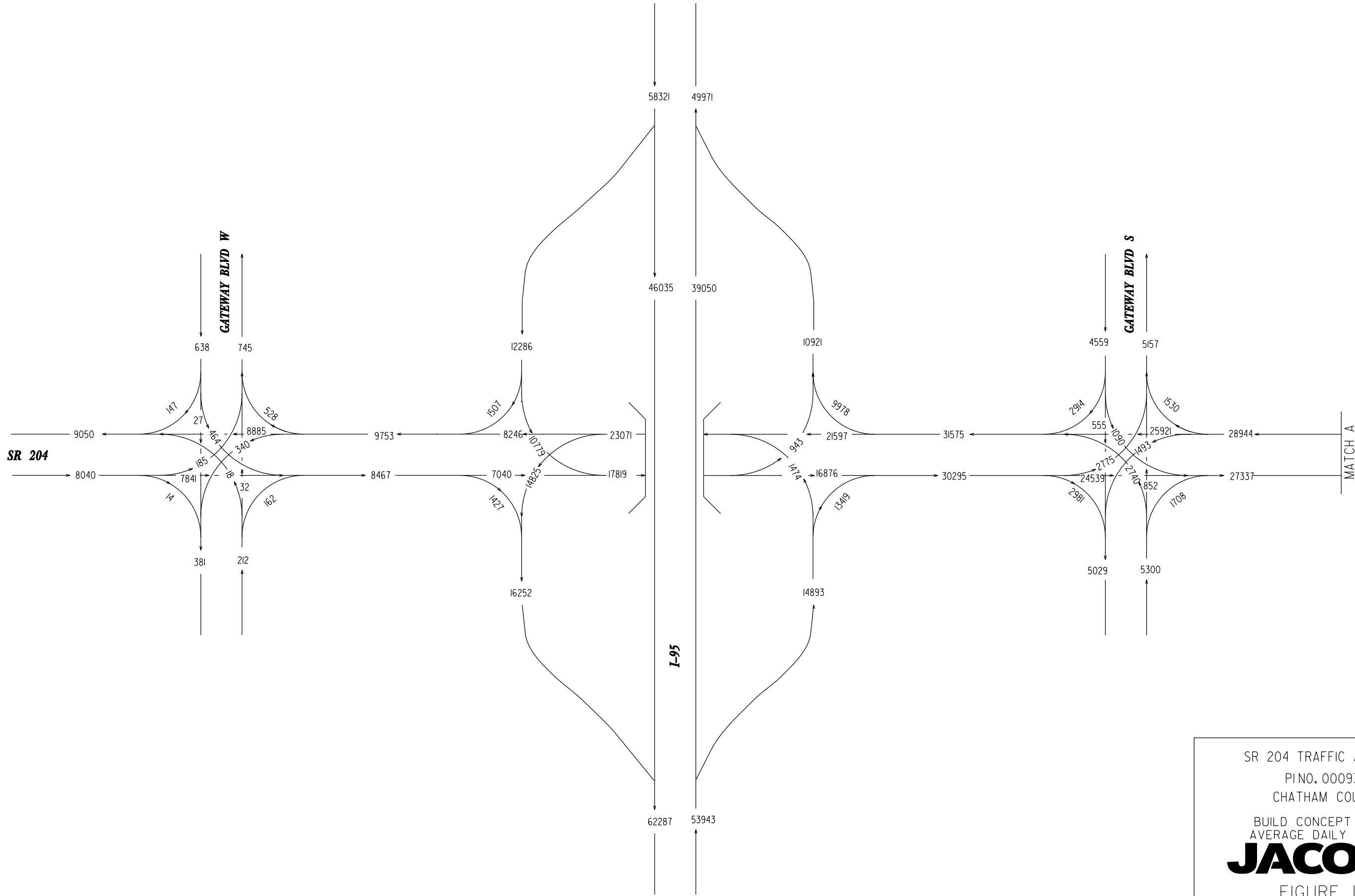


LEGEND

000-AM PEAK HOUR VOLUME
(000)-PM PEAK HOUR VOLUME

SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2035
PEAK HOUR VOLUMES
JACOBS™
FIGURE 106
SCALE: N.T.S. AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2035
AVERAGE DAILY VOLUMES

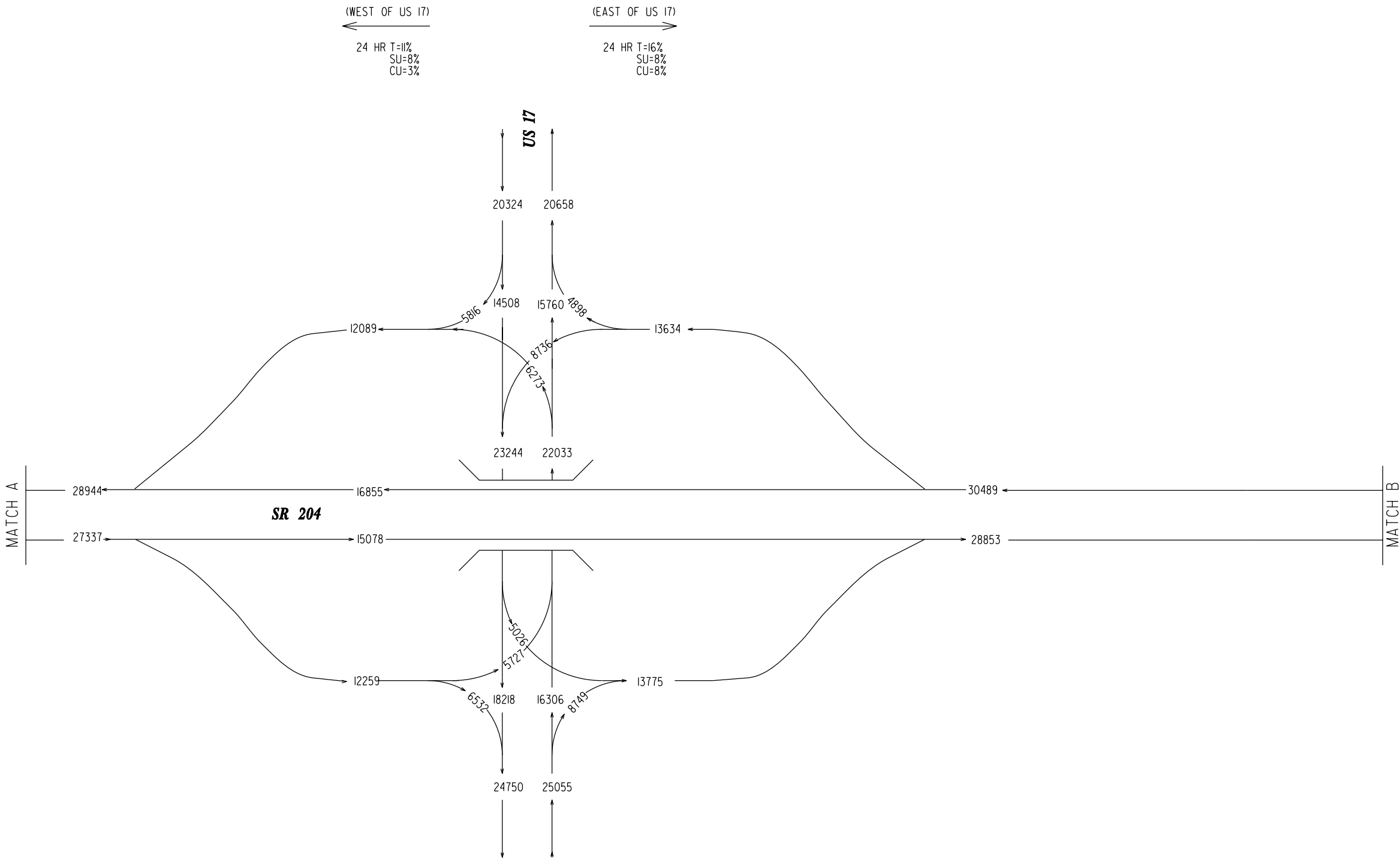
JACOBS[™]

FIGURE 108

SCALE: N.T.S. AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY

BUILD CONCEPT C 2035
AVERAGE DAILY VOLUMES

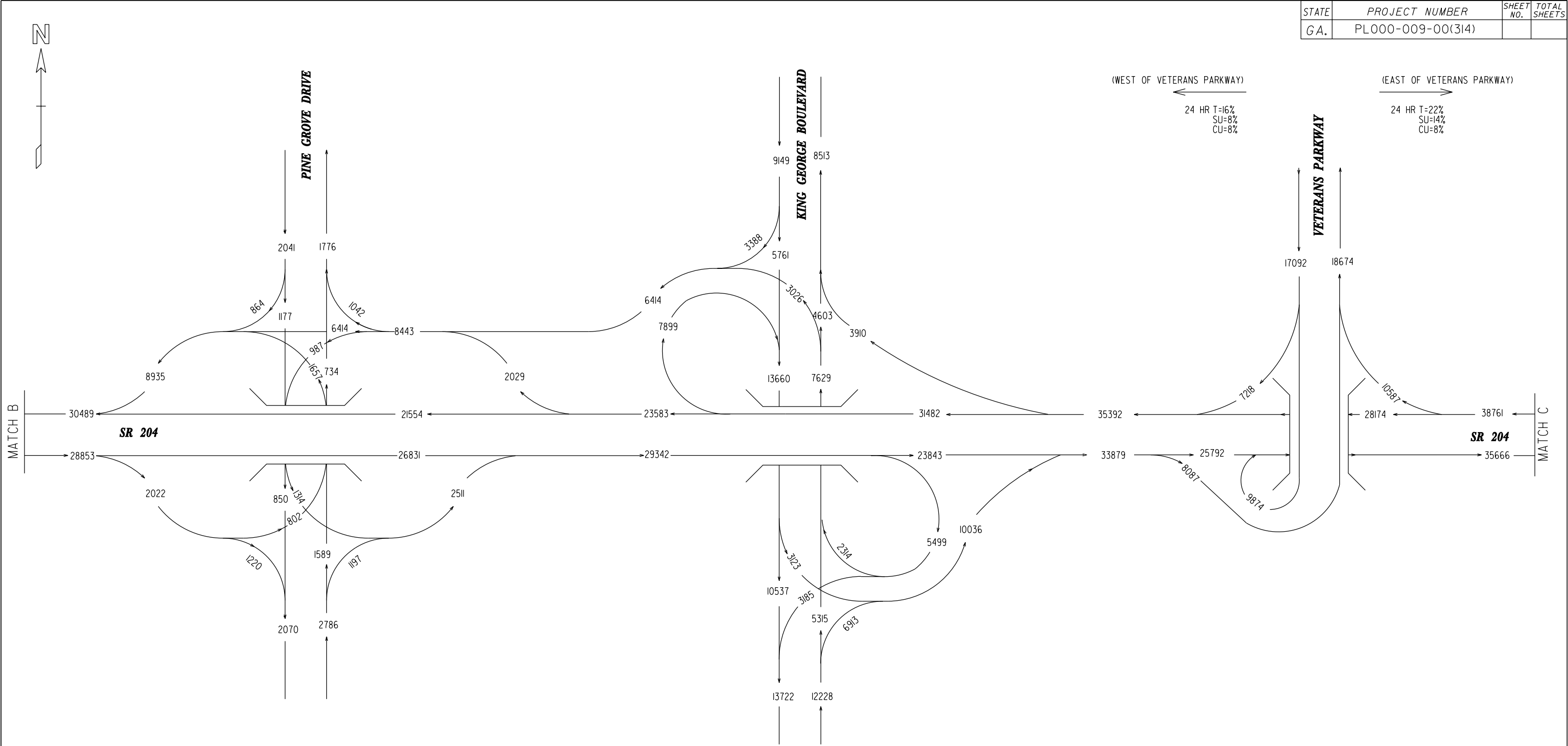
JACOBS™

FIGURE 109

SCALE: N.T.S.

AUGUST 2011

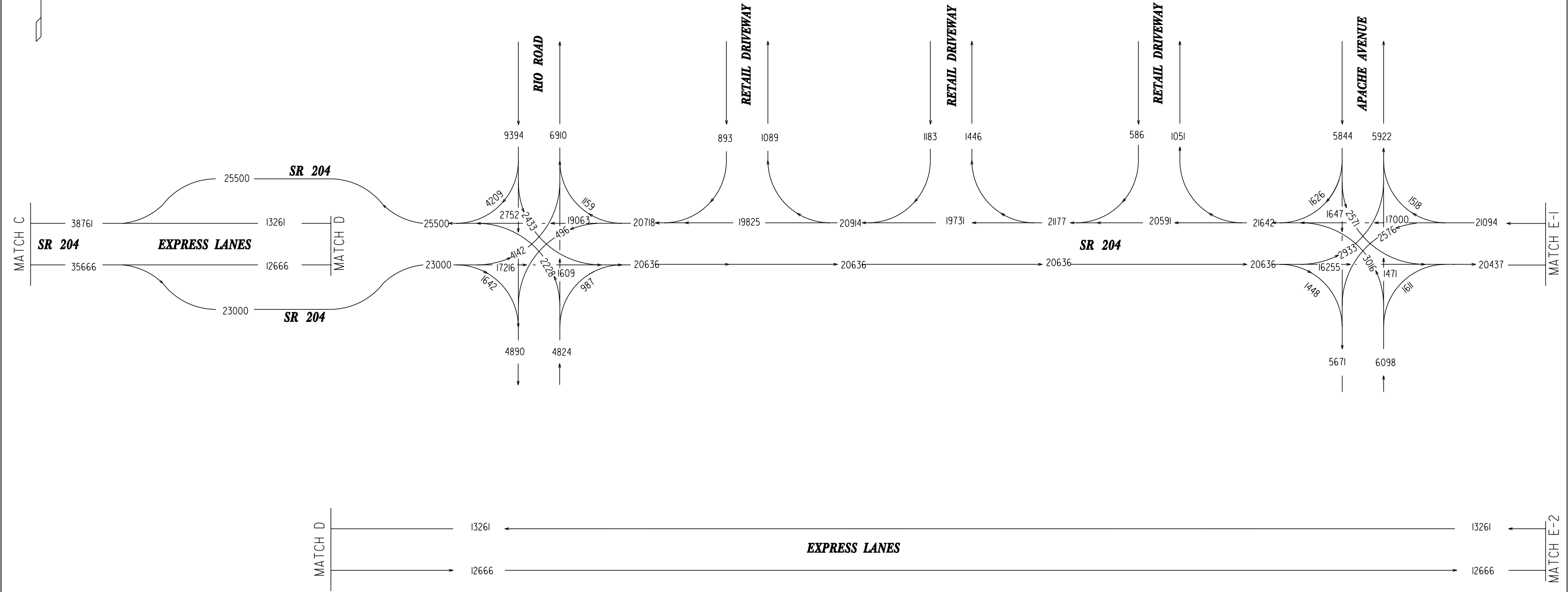
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2035
AVERAGE DAILY VOLUMES
JACOBS
FIGURE 110
SCALE: N.T.S. AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY

BUILD CONCEPT C 2035
AVERAGE DAILY VOLUMES

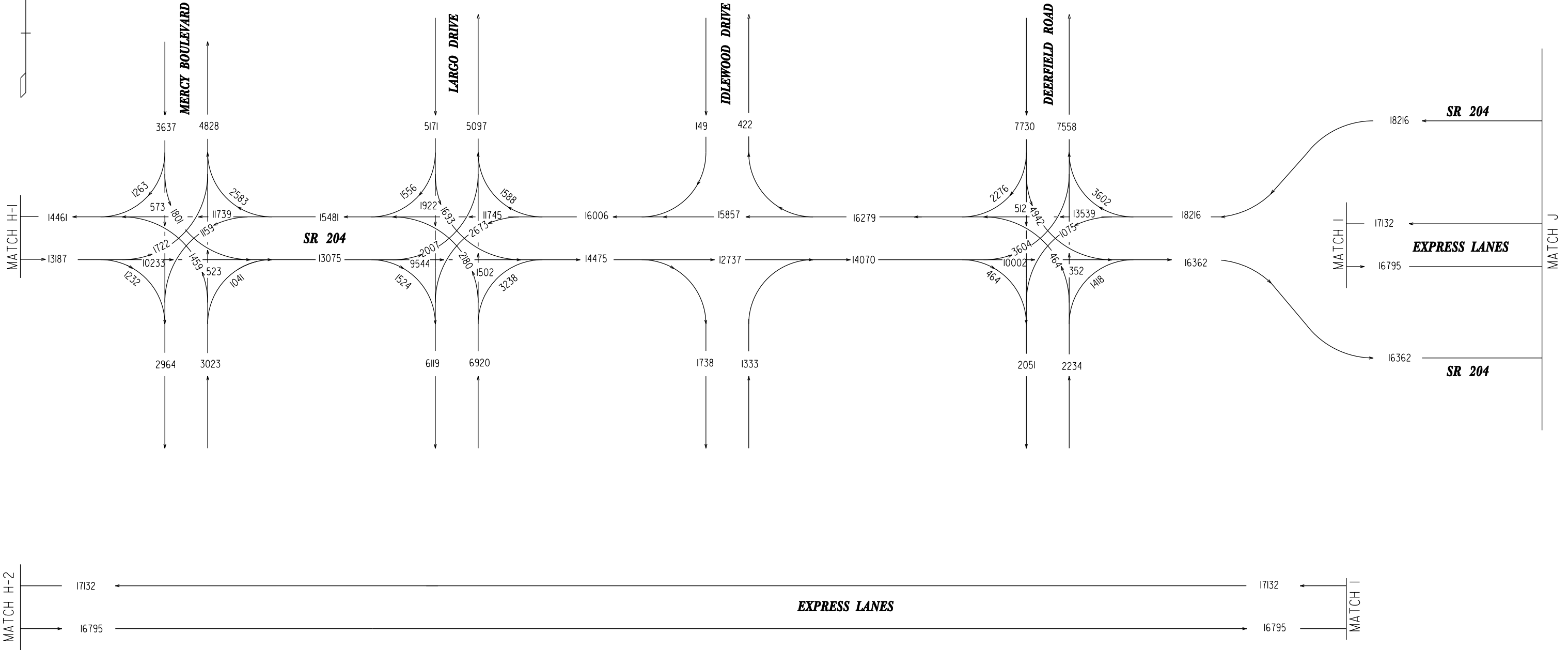
JACOBS

FIGURE III

SCALE: N.T.S.

AUGUST 2011

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



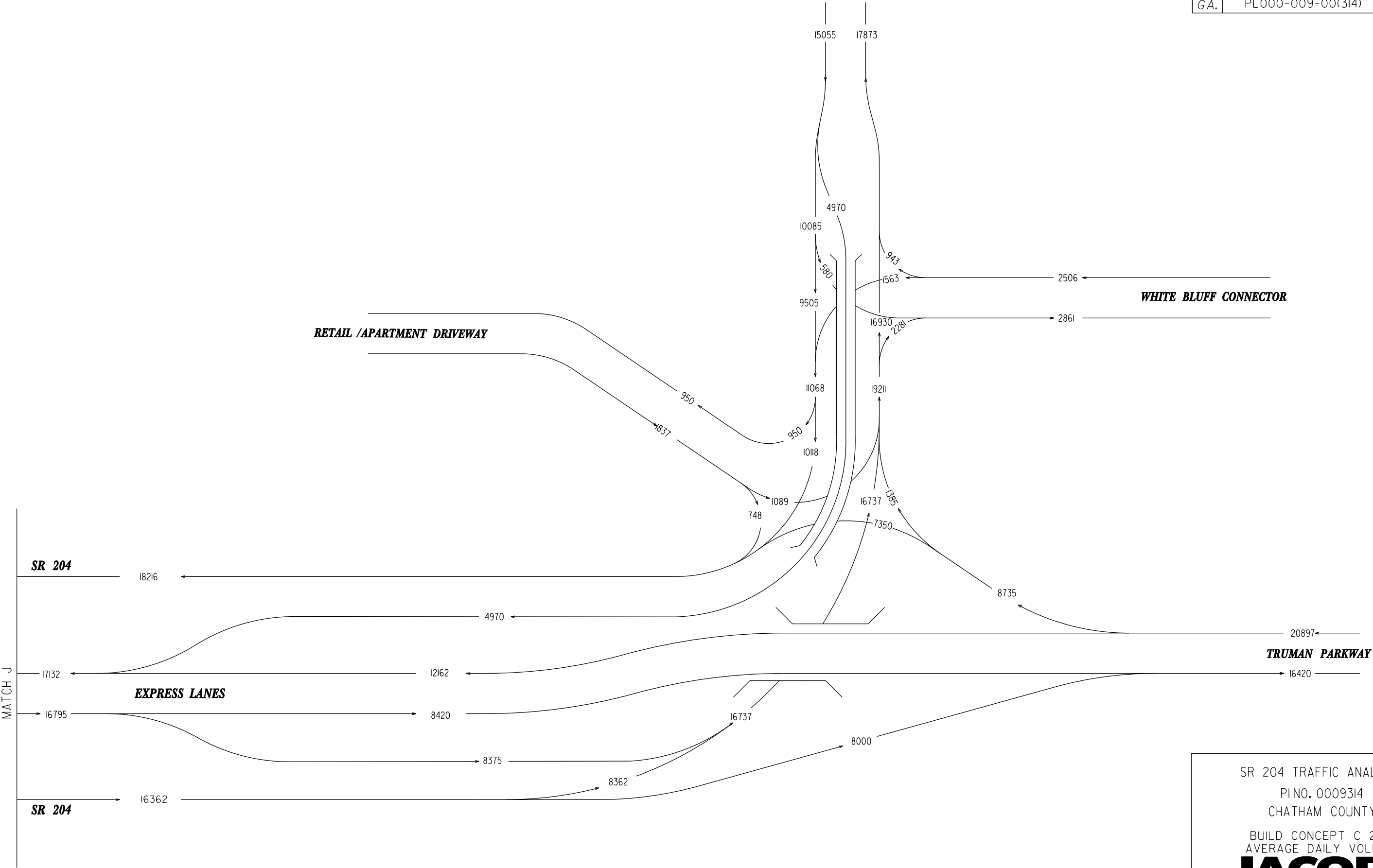
SR 204 TRAFFIC ANALYSIS
PINO. 0009314
CHATHAM COUNTY
BUILD CONCEPT C 2035
AVERAGE DAILY VOLUMES

JACOBSTM
FIGURE 113

SCALE: N.T.S. AUGUST 2011



STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	PL000-009-00(314)		



SR 204 TRAFFIC ANALYSIS

PINO. 0009314

CHATHAM COUNTY

BUILD CONCEPT C 2035
AVERAGE DAILY VOLUMES

JACOBS

FIGURE 114

SCALE: N.T.S.

AUGUST 2011

Appendix F – Synchro Analysis Reports

HCM Unsignalized Intersection Capacity Analysis

2010 AM - Existing

1000: SR 204 & Gateway Blvd W

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	466	0	20	256	36	0	4	8	41	4	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	15	548	0	23	298	42	0	9	17	58	6	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage veh												
Upstream signal (ft)	708											
pX, platoon unblocked												
vC, conflicting volume	298			548			777	923	274	671	923	149
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298			548			777	923	274	671	923	149
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			98			100	97	98	82	98	100
cM capacity (veh/h)	1253			1010			272	257	720	315	257	868
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	289	274	23	149	149	42	26	66				
Volume Left	15	0	23	0	0	0	0	58				
Volume Right	0	0	0	0	0	42	17	3				
cSH	1253	1700	1010	1700	1700	1700	450	324				
Volume to Capacity	0.01	0.16	0.02	0.09	0.09	0.02	0.06	0.20				
Queue Length 95th (ft)	1	0	2	0	0	0	5	19				
Control Delay (s)	0.5	0.0	8.6	0.0	0.0	0.0	13.5	19.1				
Lane LOS	A		A				B	C				
Approach Delay (s)	0.3		0.6				13.5	19.1				
Approach LOS							B	C				
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			38.1%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2010 AM - Existing

1001: SR 204 & I-95 SB Off-Ramp

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations												
Volume (vph)	0	446	69	600	236	0	0	0	616	0	76	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.7	5.7	6.4	5.7					6.1		
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		
Frt		1.00	0.85	1.00	1.00					0.99		
Flt Protected		1.00	1.00	0.95	1.00					0.96		
Satd. Flow (prot)		3282	1442	1612	3282					1600		
Flt Permitted		1.00	1.00	0.28	1.00					0.96		
Satd. Flow (perm)		3282	1442	479	3282					1600		
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.84	0.84	0.84	
Adj. Flow (vph)	0	519	80	645	254	0	0	0	733	0	90	
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	0	4	0	
Lane Group Flow (vph)	0	519	23	645	254	0	0	0	0	819	0	
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%	
Turn Type			Perm	pm+pt						Perm		
Protected Phases	2			1	6						4	
Permitted Phases			2	6						4		
Actuated Green, G (s)	33.3		33.3	65.3	65.3						37.9	
Effective Green, g (s)	33.3		33.3	65.3	65.3						37.9	
Actuated g/C Ratio	0.29		0.29	0.57	0.57						0.33	
Clearance Time (s)	5.7		5.7	6.4	5.7						6.1	
Vehicle Extension (s)	5.5		5.5	3.0	5.5						3.0	
Lane Grp Cap (vph)	950		418	524	1864						527	
v/s Ratio Prot	0.16			c0.27	0.08							
v/s Ratio Perm			0.02	c0.42							0.51	
v/c Ratio	0.55		0.06	1.23	0.14						1.55	
Uniform Delay, d1	34.5		29.5	21.1	11.6						38.6	
Progression Factor	1.00		1.00	2.12	1.73						1.00	
Incremental Delay, d2	2.3		0.3	112.0	0.1						258.6	
Delay (s)	36.7		29.7	156.7	20.3						297.1	
Level of Service	D		C	F	C						F	
Approach Delay (s)	35.8				118.1		0.0				297.1	
Approach LOS	D				F		A				F	
Intersection Summary												
HCM Average Control Delay			160.3		HCM Level of Service		F					
HCM Volume to Capacity ratio			1.33									
Actuated Cycle Length (s)			115.0		Sum of lost time (s)		12.5					
Intersection Capacity Utilization			99.5%		ICU Level of Service		F					
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

1002: SR 204 & I-95 NB On-Ramp

2010 AM - Existing

7/26/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (veh/h)	50	1012	0	0	789	445	0	0	47	0	639
Sign Control	Free			Free			Stop		Stop		
Grade	0%			0%			0%		0%		
Peak Hour Factor	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	52	1054	0	0	813	459	0	0	59	0	799
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None			None							
Median storage veh											
Upstream signal (ft)	738			421							
pX, platoon unblocked	0.71			0.91			0.75	0.75	0.75	0.75	0.91
vC, conflicting volume	813			1054			1674	2201	1565	1972	527
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	0			862			700	1401	555	1096	283
tC, single (s)	4.3			4.3			7.7	6.7	7.7	6.7	7.1
tC, 2 stage (s)											
tF (s)	2.3			2.3			3.6	4.1	3.6	4.1	3.4
p0 queue free %	95			100			0	100	79	100	0
cM capacity (veh/h)	1098			651			0	91	285	141	623
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NE 1					
Volume Total	52	527	527	542	730	858					
Volume Left	52	0	0	0	0	59					
Volume Right	0	0	0	0	459	799					
cSH	1098	1700	1700	1700	1700	576					
Volume to Capacity	0.05	0.31	0.31	0.32	0.43	1.49					
Queue Length 95th (ft)	4	0	0	0	0	1067					
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	248.2					
Lane LOS	A					F					
Approach Delay (s)	0.4			0.0		248.2					
Approach LOS						F					
Intersection Summary											
Average Delay	65.9										
Intersection Capacity Utilization	99.5%			ICU Level of Service			F				
Analysis Period (min)	15										

HCM Signalized Intersection Capacity Analysis

1003: SR 204 & Gateway Blvd S

2010 AM - Existing

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	1248	210	78	813	107	181	51	158	93	30	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1547	2954	1384	1547	2954	1384	1547	1444		1547	1412	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.24	1.00		0.30	1.00	
Satd. Flow (perm)	1547	2954	1384	1547	2954	1384	388	1444		488	1412	
Peak-hour factor, PHF	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Adj. Flow (vph)	208	1342	226	92	956	126	218	61	190	98	32	253
RTOR Reduction (vph)	0	0	96	0	0	59	0	106	0	0	217	0
Lane Group Flow (vph)	208	1342	130	92	956	67	218	145	0	98	68	0
Heavy Vehicles (%)	5%	10%	5%	5%	10%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	19.7	48.3	48.3	10.7	39.3	39.3	25.9	16.8		24.9	16.3	
Effective Green, g (s)	19.7	48.3	48.3	10.7	39.3	39.3	25.9	16.8		24.9	16.3	
Actuated g/C Ratio	0.17	0.42	0.42	0.09	0.34	0.34	0.23	0.15		0.22	0.14	
Clearance Time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	265	1241	581	144	1009	473	179	211		185	200	
v/s Ratio Prot	c0.13	c0.45		0.06	0.32		c0.10	0.10		0.04	0.05	
v/s Ratio Perm			0.09			0.05	c0.18			0.08		
v/c Ratio	0.78	1.08	0.22	0.64	0.95	0.14	1.22	0.69		0.53	0.34	
Uniform Delay, d1	45.6	33.4	21.4	50.3	36.8	26.2	42.1	46.6		38.0	44.5	
Progression Factor	1.11	1.17	1.53	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.5	47.7	0.7	7.9	18.2	0.6	138.0	9.0		2.1	1.0	
Delay (s)	61.2	86.7	33.4	58.2	55.0	26.8	180.1	55.6		40.1	45.5	
Level of Service	E	F	C	E	E	C	F	E		D	D	
Approach Delay (s)	76.9			52.3			113.5			44.1		
Approach LOS	E			D			F			D		
Intersection Summary												
HCM Average Control Delay	70.5			HCM Level of Service			E					
HCM Volume to Capacity ratio	1.05											
Actuated Cycle Length (s)	115.0			Sum of lost time (s)			23.4					
Intersection Capacity Utilization	98.2%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

											
Movement	EBL	EBR	EBR2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	376	0	262	0	0	0	1046	494	329	736	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0				5.0	5.0	5.0	5.0	
Lane Util. Factor	0.97		1.00				0.95	1.00	1.00	0.95	
Frt	1.00		0.85				1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00				1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303		1524				3406	1524	1703	3406	
Flt Permitted	0.95		1.00				1.00	1.00	0.09	1.00	
Satd. Flow (perm)	3303		1524				3406	1524	153	3406	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	453	0	316	0	0	0	1260	595	354	791	0
RTOR Reduction (vph)	0	0	141	0	0	0	0	318	0	0	0
Lane Group Flow (vph)	453	0	175	0	0	0	1260	277	354	791	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom						Perm		pm+pt		
Protected Phases							2		1		
Permitted Phases	4			4					2		
Actuated Green, G (s)	23.0			23.0			55.9		55.9		
Effective Green, g (s)	23.0			23.0			55.9		55.9		
Actuated g/C Ratio	0.19			0.19			0.47		0.47		
Clearance Time (s)	5.0			5.0			5.0		5.0		
Vehicle Extension (s)	3.0			3.0			3.0		3.0		
Lane Grp Cap (vph)	633			292			1587		710		
v/s Ratio Prot							0.37		c0.17		
v/s Ratio Perm	c0.14			0.11					0.18		
v/c Ratio	0.72			0.60			0.79		0.39		
Uniform Delay, d1	45.4			44.3			27.2		20.9		
Progression Factor	1.00			1.00			1.00		1.00		
Incremental Delay, d2	3.8			3.3			4.2		1.6		
Delay (s)	49.3			47.6			31.3		22.5		
Level of Service	D			D			C		C		
Approach Delay (s)	48.6			0.0			28.5		17.0		
Approach LOS	D			A			C		B		
Intersection Summary											
HCM Average Control Delay				29.1			HCM Level of Service		C		
HCM Volume to Capacity ratio				0.76							
Actuated Cycle Length (s)				120.0			Sum of lost time (s)		10.0		
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	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	305	0	154	369	1053	0	0	760	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0		5.0	5.0	5.0			5.0	5.0
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3213		1482	1656	3312			3312	1482
Flt Permitted				0.95		1.00	0.23	1.00			1.00	1.00
Satd. Flow (perm)				3213		1482	409	3312			3312	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	339	0	171	405	1157	0	0	835	200
RTOR Reduction (vph)	0	0	0	0	0	74	0	0	0	0	0	102
Lane Group Flow (vph)	0	0	0	339	0	97	405	1157	0	0	835	98
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type				custom		custom	pm+pt		Perm			
Protected Phases							5		2		6	
Permitted Phases				8		8	2					
Actuated Green, G (s)				16.1		16.1	73.9		73.9		49.0	
Effective Green, g (s)				16.1		16.1	73.9		73.9		49.0	
Actuated g/C Ratio				0.16		0.16	0.74		0.74		0.49	
Clearance Time (s)				5.0		5.0	5.0		5.0		5.0	
Vehicle Extension (s)				3.0		3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)				517		239	550		2448		1623	
v/s Ratio Prot							c0.15		0.35		0.25	
v/s Ratio Perm				c0.11		0.07	c0.40					
v/c Ratio				0.66		0.41	0.74		0.47		0.51	
Uniform Delay, d1				39.4		37.7	8.9		5.2		17.4	
Progression Factor				1.00		1.00	1.00		1.00		1.00	
Incremental Delay, d2				3.0		1.1	5.1		0.7		1.2	
Delay (s)				42.3		38.8	14.0		5.9		18.6	
Level of Service				D		D	B		A		B	
Approach Delay (s)				0.0		41.2			8.0		17.7	
Approach LOS				A		D			A		B	
Intersection Summary												
HCM Average Control Delay				16.7		HCM Level of Service				B		
HCM Volume to Capacity ratio				0.71								
Actuated Cycle Length (s)				100.0		Sum of lost time (s)				10.0		
Intersection Capacity Utilization				72.0%		ICU Level of Service				C		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1006: SR 204 & Grove Point Road

2010 AM - Existing

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1663	21	18	901	0	5	0	10	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.41	0.41	0.41	0.92	0.92	0.92
Hourly flow rate (vph)	0	1788	23	20	990	0	12	0	24	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	990			1811			2323	2818	894	1948	2840	495
vC1, stage 1 conf vol							1788	1788		1030	1030	
vC2, stage 2 conf vol							535	1030		918	1811	
vCu, unblocked vol	990			1811			2323	2818	894	1948	2840	495
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			82	100	91	100	100	100
cM capacity (veh/h)	688			331			68	88	282	124	77	517
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	0	894	894	23	20	495	495	0	37	0		
Volume Left	0	0	0	0	20	0	0	0	12	0		
Volume Right	0	0	0	23	0	0	0	0	24	0		
cSH	1700	1700	1700	1700	331	1700	1700	1700	138	1700		
Volume to Capacity	0.00	0.53	0.53	0.01	0.06	0.29	0.29	0.00	0.26	0.00		
Queue Length 95th (ft)	0	0	0	0	5	0	0	0	25	0		
Control Delay (s)	0.0	0.0	0.0	0.0	16.6	0.0	0.0	0.0	40.1	0.0		
Lane LOS					C				E	A		
Approach Delay (s)	0.0				0.3				40.1	0.0		
Approach LOS									E	A		
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			56.0%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1007: Pine Grove Road & SR 204

2010 AM - Existing

5/4/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	1564	70	36	885	14	18	0	53	27	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.5	7.5	6.0	7.5	7.5		7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.90			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.97	
Satd. Flow (prot)	1752	3059	1568	1752	3059	1568		1637			1699	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.91			0.55	
Satd. Flow (perm)	1752	3059	1568	1752	3059	1568		1506			963	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73
Growth Factor (vph)	100%	153%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	46	2815	82	40	994	16	26	0	78	37	0	22
RTOR Reduction (vph)	0	0	8	0	0	4	0	46	0	0	13	0
Lane Group Flow (vph)	46	2815	74	40	994	12	0	58	0	0	46	0
Heavy Vehicles (%)	3%	18%	3%	3%	18%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	8.8	132.8	132.8	4.9	128.9	128.9		11.8			11.8	
Effective Green, g (s)	8.8	132.8	132.8	4.9	128.9	128.9		11.8			11.8	
Actuated g/C Ratio	0.05	0.78	0.78	0.03	0.76	0.76		0.07			0.07	
Clearance Time (s)	6.0	7.5	7.5	6.0	7.5	7.5		7.0			7.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0		3.0			3.0	
Lane Grp Cap (vph)	91	2390	1225	50	2319	1189		105			67	
v/s Ratio Prot	0.03	c0.92		c0.02	0.32							
v/s Ratio Perm			0.05			0.01		0.04			c0.05	
v/c Ratio	0.51	1.18	0.06	0.80	0.43	0.01		0.56			0.69	
Uniform Delay, d1	78.5	18.6	4.3	82.1	7.4	5.0		76.6			77.3	
Progression Factor	1.00	1.00	1.00	0.88	1.41	0.95		1.00			1.00	
Incremental Delay, d2	4.4	84.7	0.1	53.4	0.5	0.0		6.2			25.3	
Delay (s)	82.8	103.3	4.4	125.5	10.9	4.8		82.8			102.6	
Level of Service	F	F	A	F	B	A		F			F	
Approach Delay (s)		100.3			15.1			82.8			102.6	
Approach LOS		F			B			F			F	
Intersection Summary												
HCM Average Control Delay			78.3		HCM Level of Service				E			
HCM Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			170.0		Sum of lost time (s)				20.5			
Intersection Capacity Utilization			84.9%		ICU Level of Service				E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1008: King George Boulevard & SR 204

2010 AM - Existing
5/4/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	177	1393	74	362	620	169	149	68	990	392	78	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.1	7.1	7.0	7.1	4.0	6.2	6.6	4.0	6.2	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3059	1529	3367	3059	1553	1736	1827	1553	3367	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3059	1529	3367	3059	1553	1736	1827	1553	3367	1827	1532
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Growth Factor (vph)	100%	125%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	192	1893	80	411	705	192	169	77	1125	422	84	178
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	0	162
Lane Group Flow (vph)	192	1893	61	411	705	192	169	77	1125	422	84	16
Confl. Peds. (#/hr)	6									1		
Heavy Vehicles (%)	4%	18%	4%	4%	18%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			Free			Free			4
Actuated Green, G (s)	20.6	87.9	87.9	19.4	86.7	170.0	20.5	10.1	170.0	25.7	15.3	15.3
Effective Green, g (s)	20.6	87.9	87.9	19.4	86.7	170.0	20.5	10.1	170.0	25.7	15.3	15.3
Actuated g/C Ratio	0.12	0.52	0.52	0.11	0.51	1.00	0.12	0.06	1.00	0.15	0.09	0.09
Clearance Time (s)	7.0	7.1	7.1	7.0	7.1		6.2	6.6		6.2	6.6	6.6
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	210	1582	791	384	1560	1553	209	109	1553	509	164	138
v/s Ratio Prot	0.11	c0.62		c0.12	0.23		0.10	0.04		c0.13	0.05	
v/s Ratio Perm			0.04			0.12			c0.72			0.01
v/c Ratio	0.91	1.20	0.08	1.07	0.45	0.12	0.81	0.71	0.72	0.83	0.51	0.12
Uniform Delay, d1	73.8	41.0	20.7	75.3	26.5	0.0	72.8	78.5	0.0	70.0	73.8	71.1
Progression Factor	1.08	0.74	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.1	89.1	0.0	65.9	0.9	0.2	20.1	18.8	3.0	10.7	2.7	0.4
Delay (s)	85.5	119.5	10.3	141.2	27.5	0.2	92.9	97.3	3.0	80.7	76.5	71.5
Level of Service	F	F	B	F	C	A	F	F	A	F	E	E
Approach Delay (s)	112.5			59.2			19.4			77.8		
Approach LOS	F			E			B			E		
Intersection Summary												
HCM Average Control Delay	72.5			HCM Level of Service				E				
HCM Volume to Capacity ratio	1.04											
Actuated Cycle Length (s)	170.0			Sum of lost time (s)				13.2				
Intersection Capacity Utilization	94.0%			ICU Level of Service				F				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1009: SR 204 & Rio Road

2010 AM - Existing
7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	312	2181	256	7	1187	7	204	24	1	21	5	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	325	2272	267	8	1334	8	276	32	1	26	6	206
RTOR Reduction (vph)	0	0	48	0	0	3	0	0	1	0	0	191
Lane Group Flow (vph)	325	2272	219	8	1334	5	276	32	0	26	6	15
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	34.4	95.8	95.8	1.5	62.9	62.9	17.6	23.2	23.2	5.4	11.0	11.0
Effective Green, g (s)	34.4	95.8	95.8	1.5	62.9	62.9	17.6	23.2	23.2	5.4	11.0	11.0
Actuated g/C Ratio	0.23	0.64	0.64	0.01	0.42	0.42	0.12	0.15	0.15	0.04	0.07	0.07
Clearance Time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	398	2738	992	17	1251	651	395	283	240	62	134	114
v/s Ratio Prot	c0.19	c0.53		0.00	c0.45		c0.08	c0.02		0.01	0.00	
v/s Ratio Perm			0.14			0.00			0.00			0.01
v/c Ratio	0.82	0.83	0.22	0.47	1.07	0.01	0.70	0.11	0.00	0.42	0.04	0.13
Uniform Delay, d1	54.8	20.8	11.4	73.9	43.5	25.4	63.7	54.5	53.6	70.8	64.6	65.0
Progression Factor	1.00	1.00	1.00	1.21	0.93	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.2	3.1	0.5	16.5	43.4	0.0	5.3	0.2	0.0	4.5	0.1	0.5
Delay (s)	67.0	23.9	11.9	105.6	84.0	20.8	69.0	54.7	53.6	75.3	64.8	65.6
Level of Service	E	C	B	F	F	C	E	D	D	E	E	E
Approach Delay (s)	27.7			83.7			67.5			66.6		
Approach LOS	C			F			E			E		
Intersection Summary												
HCM Average Control Delay	48.1			HCM Level of Service				D				
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)				23.3				
Intersection Capacity Utilization	77.5%			ICU Level of Service				D				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1010: SR 204 & West Mall Driveway

2010 AM - Existing

7/26/2011

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	2203	1183	20	0	18							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	2448	1314	22	0	31							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage (veh)													
Upstream signal (ft)	697												
pX, platoon unblocked					0.60								
vC, conflicting volume	1314				2130	438							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1314				534	438							
tC, single (s)	4.5				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	94							
cM capacity (veh/h)	431				281	561							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	816	816	816	438	438	438	22	31					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	22	31					
cSH	1700	1700	1700	1700	1700	1700	1700	561					
Volume to Capacity	0.48	0.48	0.48	0.26	0.26	0.26	0.01	0.06					
Queue Length 95th (ft)	0	0	0	0	0	0	0	4					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8					
Lane LOS	B												
Approach Delay (s)	0.0				0.0			11.8					
Approach LOS	B												
Intersection Summary													
Average Delay	0.1												
Intersection Capacity Utilization	45.9%			ICU Level of Service		A							
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

1011: SR 204 & Central Mall Driveway

2010 AM - Existing

7/26/2011

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑↑	↑↑↑↑	↗		↗		
Volume (veh/h)	0	2203	1194	7	0	9		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58		
Hourly flow rate (vph)	0	2448	1327	8	0	16		
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								
vC, conflicting volume	1327				2143	442		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1327				2143	442		
tC, single (s)	4.5				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.4				3.5	3.3		
p0 queue free %	100				100	97		
cM capacity (veh/h)	426				41	557		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	816	816	816	442	442	442	8	16
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	8	16
cSH	1700	1700	1700	1700	1700	1700	1700	557
Volume to Capacity	0.48	0.48	0.48	0.26	0.26	0.26	0.00	0.03
Queue Length 95th (ft)	0	0	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Lane LOS								B
Approach Delay (s)	0.0				0.0			11.6
Approach LOS								B
Intersection Summary								
Average Delay	0.0							
Intersection Capacity Utilization	45.9%			ICU Level of Service		A		
Analysis Period (min)	15							

HCM Unsignalized Intersection Capacity Analysis

1012: SR 204 & East Mall Driveway

2010 AM - Existing

7/26/2011

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	2203	1188	11	0	13							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	2448	1320	12	0	22							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage veh													
Upstream signal (ft)	545												
pX, platoon unblocked	0.83				0.83	0.83							
vC, conflicting volume	1320				2136	440							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	648				1636	0							
tC, single (s)	4.5				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	97							
cM capacity (veh/h)	674				74	890							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	816	816	816	440	440	440	12	22					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	12	22					
cSH	1700	1700	1700	1700	1700	1700	1700	890					
Volume to Capacity	0.48	0.48	0.48	0.26	0.26	0.26	0.01	0.03					
Queue Length 95th (ft)	0	0	0	0	0	0	0	2					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2					
Lane LOS	A												
Approach Delay (s)	0.0				0.0			9.2					
Approach LOS	A												
Intersection Summary													
Average Delay	0.1												
Intersection Capacity Utilization	45.9%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Signalized Intersection Capacity Analysis

1013: SR 204 & Apache Ave

2010 AM - Existing

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	1940	59	99	982	40	179	49	96	51	40	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4286		3367	4285		1736	1827	1553	3367	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4286		3367	4285		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	240	2282	69	109	1079	44	190	52	102	66	52	49
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	86	0	0	46
Lane Group Flow (vph)	240	2349	0	109	1120	0	190	52	16	66	52	3
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	27.1	85.1		10.2	68.2		20.2	23.1	23.1	7.1	10.0	10.0
Effective Green, g (s)	27.1	85.1		10.2	68.2		20.2	23.1	23.1	7.1	10.0	10.0
Actuated g/C Ratio	0.18	0.57		0.07	0.45		0.13	0.15	0.15	0.05	0.07	0.07
Clearance Time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	314	2432		229	1948		234	281	239	159	122	104
v/s Ratio Prot	c0.14	c0.55		0.03	0.26		c0.11	0.03		0.02	c0.03	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.76	0.97		0.48	0.58		0.81	0.19	0.07	0.42	0.43	0.03
Uniform Delay, d1	58.4	31.1		67.3	30.2		63.1	55.3	54.2	69.4	67.2	65.5
Progression Factor	0.89	1.15		1.08	0.61		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9	9.4		1.4	1.1		18.9	0.7	0.2	1.8	4.9	0.3
Delay (s)	59.7	45.3		74.1	19.5		82.0	55.9	54.5	71.2	72.2	65.7
Level of Service	E	D		E	B		F	E	D	E	E	E
Approach Delay (s)	46.6			24.4			69.9			69.9		
Approach LOS	D			C			E			E		
Intersection Summary												
HCM Average Control Delay	43.0			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.90											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			24.5					
Intersection Capacity Utilization	75.6%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1014: SR 204 & Middleground Road

2010 AM - Existing

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	335	1457	295	147	871	29	44	52	42	234	191	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	4287	1508	1736	4217	1532	1736	1692		1736	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.60	1.00		0.34	1.00	1.00
Satd. Flow (perm)	1736	4287	1508	1736	4217	1532	1097	1692		629	1827	1532
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	345	1502	304	175	1037	35	56	67	54	272	222	240
RTOR Reduction (vph)	0	0	95	0	0	19	0	19	0	0	0	200
Lane Group Flow (vph)	345	1502	209	175	1037	16	56	102	0	272	222	40
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	24.7	77.6	77.6	14.7	67.6	67.6	21.4	13.8		38.8	24.7	24.7
Effective Green, g (s)	24.7	77.6	77.6	14.7	67.6	67.6	21.4	13.8		38.8	24.7	24.7
Actuated g/C Ratio	0.16	0.52	0.52	0.10	0.45	0.45	0.14	0.09		0.26	0.16	0.16
Clearance Time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	286	2218	780	170	1900	690	189	156		299	301	252
v/s Ratio Prot	c0.20	c0.35		0.10	0.25		0.02	0.06		c0.11	0.12	
v/s Ratio Perm			0.14			0.01	0.03			c0.12		0.03
v/c Ratio	1.21	0.68	0.27	1.03	0.55	0.02	0.30	0.65		0.91	0.74	0.16
Uniform Delay, d1	62.6	26.9	20.3	67.7	30.0	22.9	57.0	65.8		50.3	59.6	53.7
Progression Factor	1.25	0.71	1.14	1.12	0.64	0.25	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	106.1	0.7	0.3	75.6	1.1	0.1	0.6	9.4		29.5	7.9	0.1
Delay (s)	184.2	19.8	23.6	151.4	20.4	5.9	57.6	75.2		79.9	67.4	53.8
Level of Service	F	B	C	F	C	A	E	E		E	E	D
Approach Delay (s)		46.7			38.4			69.7			67.6	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM Average Control Delay		48.8										
HCM Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		150.0										
Intersection Capacity Utilization		80.9%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1015: SR 204 & Arts Drive

2010 AM - Existing

7/26/2011

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1678	55	106	1027	20	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9		6.0	5.9	6.5	6.0
Lane Util. Factor		0.91		1.00	0.91	0.97	1.00
Frt		1.00		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4218		1736	4217	3367	1553
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4218		1736	4217	3367	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.78	0.78
Adj. Flow (vph)	0	1730	57	126	1223	26	44
RTOR Reduction (vph)	0	1	0	0	0	0	2
Lane Group Flow (vph)	0	1786	0	126	1223	26	42
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%
Turn Type	Prot			Prot		custom	
Protected Phases	5	2		1	6	3	1 3
Permitted Phases							8
Actuated Green, G (s)		107.9		16.1	130.0	7.6	26.2
Effective Green, g (s)		107.9		16.1	130.0	7.6	26.2
Actuated g/C Ratio		0.72		0.11	0.87	0.05	0.17
Clearance Time (s)		5.9		6.0	5.9	6.5	
Vehicle Extension (s)		5.0		3.0	5.0	3.0	
Lane Grp Cap (vph)		3034		186	3655	171	271
v/s Ratio Prot		c0.42		c0.07	0.29	0.01	c0.02
v/s Ratio Perm							0.00
v/c Ratio		0.59		0.68	0.33	0.15	0.15
Uniform Delay, d1		10.2		64.5	1.9	68.1	52.5
Progression Factor		2.01		0.79	1.58	1.00	1.00
Incremental Delay, d2		0.6		8.9	0.2	0.4	0.3
Delay (s)		21.2		59.8	3.2	68.5	52.8
Level of Service		C		E	A	E	D
Approach Delay (s)		21.2			8.5	58.6	
Approach LOS		C			A	E	
Intersection Summary							
HCM Average Control Delay		16.6				HCM Level of Service	B
HCM Volume to Capacity ratio		0.57					
Actuated Cycle Length (s)		150.0				Sum of lost time (s)	17.9
Intersection Capacity Utilization		58.2%				ICU Level of Service	B
Analysis Period (min)		15					
c Critical Lane Group							

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	99	1613	1074	0	0	0							
Sign Control	Free		Free			Stop							
Grade	0%		0%			0%							
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76							
Hourly flow rate (vph)	112	1833	1207	0	0	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)			1257										
pX, platoon unblocked	0.94				0.94	0.94							
vC, conflicting volume	1207				2043	402							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	998				1887	142							
tC, single (s)	4.2				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.2				3.5	3.3							
p0 queue free %	82				100	100							
cM capacity (veh/h)	637				47	821							
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3						
Volume Total	112	611	611	611	402	402	402						
Volume Left	112	0	0	0	0	0	0						
Volume Right	0	0	0	0	0	0	0						
cSH	637	1700	1700	1700	1700	1700	1700						
Volume to Capacity	0.18	0.36	0.36	0.36	0.24	0.24	0.24						
Queue Length 95th (ft)	16	0	0	0	0	0	0						
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	0.0						
Lane LOS	B												
Approach Delay (s)	0.7				0.0								
Approach LOS													
Intersection Summary													
Average Delay			0.4										
Intersection Capacity Utilization			36.4%	ICU Level of Service		A							
Analysis Period (min)			15										

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Volume (veh/h)	0	1583	30	8	1064	0	10	0	3	41	5	0						
Sign Control	Free			Free				Stop			Stop							
Grade	0%			0%				0%			0%							
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.62	0.62	0.62	0.76	0.76	0.76						
Hourly flow rate (vph)	0	1799	34	9	1196	0	16	0	5	54	7	0						
Pedestrians																		
Lane Width (ft)																		
Walking Speed (ft/s)																		
Percent Blockage																		
Right turn flare (veh)																		
Median type	Raised			Raised														
Median storage veh	1			1														
Upstream signal (ft)				1072														
pX, platoon unblocked	0.92						0.92	0.92		0.92	0.92	0.92						
vC, conflicting volume	1196			1833			2236	3029	617	1818	3046	399						
vC1, stage 1 conf vol							1816	1816		1213	1213							
vC2, stage 2 conf vol							420	1213		604	1833							
vCu, unblocked vol	907			1833			2038	2901	617	1584	2919	40						
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0						
tC, 2 stage (s)							6.6	5.6		6.6	5.6							
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3						
p0 queue free %	100			97			77	100	99	69	92	100						
cM capacity (veh/h)	675			321			69	86	428	173	80	934						
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1									
Volume Total	720	720	394	9	399	399	399	21	61									
Volume Left	0	0	0	9	0	0	0	16	54									
Volume Right	0	0	34	0	0	0	0	5	0									
cSH	1700	1700	1700	321	1700	1700	1700	86	154									
Volume to Capacity	0.42	0.42	0.23	0.03	0.23	0.23	0.23	0.24	0.39									
Queue Length 95th (ft)	0	0	0	2	0	0	0	22	43									
Control Delay (s)	0.0	0.0	0.0	16.5	0.0	0.0	0.0	60.1	42.9									
Lane LOS				C				F	E									
Approach Delay (s)	0.0			0.1				60.1	42.9									
Approach LOS								F	E									
Intersection Summary																		
Average Delay			1.3															
Intersection Capacity Utilization			41.3%	ICU Level of Service		A												
Analysis Period (min)			15															

HCM Signalized Intersection Capacity Analysis

1020: SR 204 & Mercy Blvd

2010 AM - Existing

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	1494	57	26	1004	87	90	9	68	64	13	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91	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	0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1585		1736	1595	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.61	1.00		0.65	1.00	
Satd. Flow (perm)	1736	4218		1736	4217	1553	1108	1585		1185	1595	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	83	1624	62	30	1167	101	122	12	92	89	18	99
RTOR Reduction (vph)	0	2	0	0	0	34	0	79	0	0	85	0
Lane Group Flow (vph)	83	1684	0	30	1167	67	122	25	0	89	32	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm		Perm		Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6		4		8		
Actuated Green, G (s)	12.5	105.3		5.6	98.4	98.4	20.7	20.7		20.7	20.7	
Effective Green, g (s)	12.5	105.3		5.6	98.4	98.4	20.7	20.7		20.7	20.7	
Actuated g/C Ratio	0.08	0.70		0.04	0.66	0.66	0.14	0.14		0.14	0.14	
Clearance Time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	145	2961		65	2766	1019	153	219		164	220	
v/s Ratio Prot	c0.05	c0.40		0.02	0.28			0.02			0.02	
v/s Ratio Perm						0.04		c0.11		0.08		
v/c Ratio	0.57	0.57		0.46	0.42	0.07	0.80	0.11		0.54	0.14	
Uniform Delay, d1	66.2	11.1		70.7	12.3	9.3	62.6	56.6		60.2	56.9	
Progression Factor	1.22	0.17		1.02	0.56	0.28	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.7	0.7		4.7	0.4	0.1	24.3	0.2		3.6	0.3	
Delay (s)	85.4	2.5		76.6	7.3	2.7	87.0	56.8		63.9	57.2	
Level of Service	F	A		E	A	A	F	E		E	E	
Approach Delay (s)		6.4			8.6			73.1			60.1	
Approach LOS		A			A			E			E	
Intersection Summary												
HCM Average Control Delay			14.7	HCM Level of Service				B				
HCM Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				18.4				
Intersection Capacity Utilization			62.1%	ICU Level of Service				B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1021: SR 204 & Largo Blvd

2010 AM - Existing

7/26/2011

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Volume (vph)	56	1438	132	64	917	24	127	53	216	61	66	73				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Total Lost time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7				
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00				
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00				
Satd. Flow (prot)	1736	4219		1736	4218		1736	1827	1553	1736	1827	1553				
Flt Permitted	0.95	1.00		0.95	1.00		0.46	1.00	1.00	0.71	1.00	1.00				
Satd. Flow (perm)	1736	4219		1736	4218		833	1827	1553	1289	1827	1553				
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82				
Adj. Flow (vph)	64	1653	152	69	986	26	190	79	322	74	80	89				
RTOR Reduction (vph)	0	6	0	0	1	0	0	0	278	0	0	82				
Lane Group Flow (vph)	64	1799	0	69	1011	0	190	79	44	74	80	7				
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%				
Turn Type	Prot			Prot			pm+pt			Perm		pm+pt			Perm	
Protected Phases	5	2		1	6		3	8		8	4	7		4		
Permitted Phases							8			8		4				4
Actuated Green, G (s)	9.6	84.4		9.9	84.2		37.2	20.3	20.3	22.3	11.9	11.9				11.9
Effective Green, g (s)	9.6	84.4		9.9	84.2		37.2	20.3	20.3	22.3	11.9	11.9				11.9
Actuated g/C Ratio	0.06	0.56		0.07	0.56		0.25	0.14	0.14	0.15	0.08	0.08				0.08
Clearance Time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7				6.7
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0				3.0
Lane Grp Cap (vph)	111	2374		115	2368		320	247	210	223	145	123				123
v/s Ratio Prot	0.04	c0.43		c0.04	0.24		c0.07	0.04		0.02	0.04					0.04
v/s Ratio Perm							c0.07		0.03	0.03						0.00
v/c Ratio	0.58	0.76		0.60	0.43		0.59	0.32	0.21	0.33	0.55	0.06				0.06
Uniform Delay, d1	68.2	25.0		68.1	19.0		47.8	58.6	57.7	56.8	66.5	63.9				63.9
Progression Factor	0.94	0.92		1.14	0.64		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Incremental Delay, d2	6.2	2.0		7.8	0.5		2.9	0.8	0.5	0.9	4.5	0.2				0.2
Delay (s)	70.4	25.0		85.2	12.8		50.7	59.4	58.2	57.7	71.0	64.1				64.1
Level of Service	E	C		F	B		D	E	E	E	E	E				E
Approach Delay (s)		26.5			17.4			55.9			64.4					
Approach LOS		C			B			E			E					
Intersection Summary																
HCM Average Control Delay			31.0	HCM Level of Service				C								
HCM Volume to Capacity ratio			0.66													
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				12.4								
Intersection Capacity Utilization			64.8%	ICU Level of Service				C								
Analysis Period (min)			15													
c Critical Lane Group																

HCM Unsignalized Intersection Capacity Analysis

1022: SR 204 & Idlewood Drive

2010 AM - Existing

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗		↑↑↑↗				↗			↗
Volume (veh/h)	0	1674	41	0	989	10	0	0	98	0	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Hourly flow rate (vph)	0	1924	47	0	1063	11	0	0	146	0	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)	651			1109								
pX, platoon unblocked	0.91			0.71			0.75	0.75	0.71	0.75	0.75	0.91
vC, conflicting volume	1074			1924			2298	2998	641	1710	2993	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	755			861			799	1732	0	16	1725	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	81	100	100	98
cM capacity (veh/h)	767			541			201	64	763	601	65	986
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	641	641	641	47	425	425	223	146	20			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	47	0	0	11	146	20			
cSH	1700	1700	1700	1700	1700	1700	1700	763	986			
Volume to Capacity	0.38	0.38	0.38	0.03	0.25	0.25	0.13	0.19	0.02			
Queue Length 95th (ft)	0	0	0	0	0	0	0	18	2			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	8.7			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			10.8	8.7			
Approach LOS								B	A			
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			45.1%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1023: SR 204 & Deerfield Road

2010 AM - Existing

7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	117	1634	21	39	929	90	32	21	120	122	4	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	4217		1736	4217	1553	1736	1593		1649	1658	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	4217		1736	4217	1553	1736	1593		1649	1658	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	124	1738	22	40	948	92	36	23	133	142	5	44
RTOR Reduction (vph)	0	0	0	0	0	38	0	125	0	0	0	40
Lane Group Flow (vph)	124	1760	0	40	948	54	36	31	0	74	73	4
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	16.0	96.4		7.7	88.1	88.1	9.3	9.3		12.1	12.1	12.1
Effective Green, g (s)	16.0	96.4		7.7	88.1	88.1	9.3	9.3		12.1	12.1	12.1
Actuated g/C Ratio	0.11	0.64		0.05	0.59	0.59	0.06	0.06		0.08	0.08	0.08
Clearance Time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	185	2710		89	2477	912	108	99		133	134	125
v/s Ratio Prot	c0.07	c0.42		0.02	0.22		c0.02	0.02		c0.04	0.04	
v/s Ratio Perm						0.03						0.00
v/c Ratio	0.67	0.65		0.45	0.38	0.06	0.33	0.32		0.56	0.54	0.03
Uniform Delay, d1	64.5	16.4		69.1	16.5	13.2	67.4	67.3		66.4	66.3	63.5
Progression Factor	1.02	0.83		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.9	0.9		3.6	0.4	0.1	1.8	1.8		5.0	4.5	0.1
Delay (s)	72.5	14.5		72.7	16.9	13.4	69.2	69.1		71.3	70.8	63.6
Level of Service	E	B		E	B	B	E	E		E	E	E
Approach Delay (s)		18.3			18.7			69.2			69.3	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM Average Control Delay			24.3		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				24.5			
Intersection Capacity Utilization			71.0%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1024: SR 204 & Apartment Driveway

2010 AM - Existing

7/26/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR	
Lane Configurations		↑↑↑↓			↑↑↑↑	↑		↑			
Volume (veh/h)	0	1726	150	0	1015	21	0	43	0	0	
Sign Control		Free			Free		Stop		Stop		
Grade		0%			0%		0%		0%		
Peak Hour Factor	0.93	0.93	0.93	0.77	0.77	0.77	0.72	0.72	0.90	0.90	
Hourly flow rate (vph)	0	1856	161	0	1318	27	0	60	0	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)	1291										
pX, platoon unblocked				0.77			0.77		0.77	0.77	
vC, conflicting volume	1345			2017			3335	439	2436	3282	
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1345			1290			2994	439	1831	2925	
tC, single (s)	4.5			4.5			6.6	7.0	7.6	6.6	
tC, 2 stage (s)											
tF (s)	2.4			2.4			4.0	3.3	3.5	4.0	
p0 queue free %	100			100			100	89	100	100	
cM capacity (veh/h)	431			352			10	560	32	11	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1			
Volume Total	742	742	532	439	439	439	27	60			
Volume Left	0	0	0	0	0	0	0	0			
Volume Right	0	0	161	0	0	0	27	60			
cSH	1700	1700	1700	1700	1700	1700	1700	560			
Volume to Capacity	0.44	0.44	0.31	0.26	0.26	0.26	0.02	0.11			
Queue Length 95th (ft)	0	0	0	0	0	0	0	9			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2			
Lane LOS								B			
Approach Delay (s)	0.0			0.0				12.2			
Approach LOS								B			
Intersection Summary											
Average Delay	0.2										
Intersection Capacity Utilization	40.0%			ICU Level of Service				A			
Analysis Period (min)	15										

HCM Unsignalized Intersection Capacity Analysis

1025: SR 204 & Holland Drive 1

2010 AM - Existing

7/26/2011

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑	↱		
Volume (veh/h)	1726	0	0	986	50	0	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.93	0.93	0.77	0.77	0.90	0.90	
Hourly flow rate (vph)	1856	0	0	1281	56	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	Raised		Raised				
Median storage veh)	1		1				
Upstream signal (ft)							
pX, platoon unblocked					2283	619	
vC, conflicting volume			1856		1856		
vC1, stage 1 conf vol					427		
vC2, stage 2 conf vol							
vCu, unblocked vol			1856		2283	619	
tC, single (s)			4.6		6.9	7.0	
tC, 2 stage (s)					5.9		
tF (s)			2.4		3.5	3.3	
p0 queue free %			100		38	100	
cM capacity (veh/h)			248		90	427	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	619	619	619	427	427	427	56
Volume Left	0	0	0	0	0	0	56
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	90
Volume to Capacity	0.36	0.36	0.36	0.25	0.25	0.25	0.62
Queue Length 95th (ft)	0	0	0	0	0	0	72
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	95.3
Lane LOS							F
Approach Delay (s)	0.0			0.0			95.3
Approach LOS							F
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utilization			43.3%	ICU Level of Service		A	
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

1026: SR 204 & Holland Drive 2

2010 AM - Existing

7/26/2011

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑↑		↱	↑↑↑↑			
Volume (veh/h)	1726	0	34	986	0	0	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.93	0.93	0.77	0.77	0.90	0.90	
Hourly flow rate (vph)	1856	0	44	1281	0	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							
vC, conflicting volume			1856		2371	619	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1856		2371	619	
tC, single (s)			4.2		6.9	7.0	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			86		100	100	
cM capacity (veh/h)			314		24	427	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4
Volume Total	619	619	619	44	427	427	427
Volume Left	0	0	0	44	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	314	1700	1700	1700
Volume to Capacity	0.36	0.36	0.36	0.14	0.25	0.25	0.25
Queue Length 95th (ft)	0	0	0	12	0	0	0
Control Delay (s)	0.0	0.0	0.0	18.3	0.0	0.0	0.0
Lane LOS				C			
Approach Delay (s)	0.0			0.6			
Approach LOS							
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization			45.8%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

1000: SR 204 & Gateway Blvd W

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	331	0	36	519	84	2	1	15	81	2	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	11	360	0	41	590	95	3	1	20	104	3	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	708											
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	590			360			760	1053	180	894	1053	295
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	420			360			602	916	180	746	916	104
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			97			99	99	98	61	99	95
cM capacity (veh/h)	1054			1188			323	240	829	263	240	866
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	191	180	41	295	295	95	24	153				
Volume Left	11	0	41	0	0	0	3	104				
Volume Right	0	0	0	0	0	95	20	46				
cSH	1054	1700	1188	1700	1700	1700	633	377				
Volume to Capacity	0.01	0.11	0.03	0.17	0.17	0.06	0.04	0.40				
Queue Length 95th (ft)	1	0	3	0	0	0	3	48				
Control Delay (s)	0.6	0.0	8.1	0.0	0.0	0.0	10.9	22.2				
Lane LOS	A		A				B	C				
Approach Delay (s)	0.3		0.5				10.9	22.2				
Approach LOS							B	C				
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			45.0%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1001: SR 204 & I-95 SB Off-Ramp

2010 PM - Existing

7/27/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Volume (vph)	0	351	76	649	533	0	0	0	587	0	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	5.7	6.4	5.7					6.1	
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00	
Frt		1.00	0.85	1.00	1.00					0.98	
Flt Protected		1.00	1.00	0.95	1.00					0.96	
Satd. Flow (prot)		3312	1442	1612	3312					1594	
Flt Permitted		1.00	1.00	0.29	1.00					0.96	
Satd. Flow (perm)		3312	1442	484	3312					1594	
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.92	0.92	0.85	0.85	0.85
Growth Factor (vph)	300%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	444	96	713	586	0	0	0	691	0	125
RTOR Reduction (vph)	0	0	73	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	444	23	713	586	0	0	0	0	812	0
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type		Perm		pm+pt					Perm		
Protected Phases		2		1	6					4	
Permitted Phases			2	6					4		
Actuated Green, G (s)		34.3	34.3	81.3	81.3					51.9	
Effective Green, g (s)		34.3	34.3	81.3	81.3					51.9	
Actuated g/C Ratio		0.24	0.24	0.56	0.56					0.36	
Clearance Time (s)		5.7	5.7	6.4	5.7					6.1	
Vehicle Extension (s)		5.5	5.5	3.0	5.5					3.0	
Lane Grp Cap (vph)		783	341	587	1857					571	
v/s Ratio Prot		0.13		c0.34	0.18						
v/s Ratio Perm			0.02	c0.34						0.51	
v/c Ratio		0.57	0.07	1.21	0.32					1.42	
Uniform Delay, d1		48.8	42.9	30.0	17.0					46.5	
Progression Factor		1.00	1.00	1.46	1.40					1.00	
Incremental Delay, d2		3.0	0.4	101.0	0.3					199.6	
Delay (s)		51.8	43.3	144.7	24.1					246.2	
Level of Service		D	D	F	C					F	
Approach Delay (s)		50.3			90.3		0.0			246.2	
Approach LOS		D			F		A			F	
Intersection Summary											
HCM Average Control Delay		130.1				HCM Level of Service				F	
HCM Volume to Capacity ratio		1.28									
Actuated Cycle Length (s)		145.0				Sum of lost time (s)			12.5		
Intersection Capacity Utilization		100.1%				ICU Level of Service			G		
Analysis Period (min)		15									
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

1002: SR 204 & I-95 NB On-Ramp

2010 PM - Existing

7/27/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (veh/h)	35	903	0	0	1065	447	0	0	117	0	592
Sign Control		Free			Free		Stop			Stop	
Grade		0%			0%		0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	38	992	0	0	1224	514	0	0	138	0	696
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)		738			421						
pX, platoon unblocked	0.62			0.91			0.67	0.67	0.67	0.67	0.91
vC, conflicting volume	1224			992			2054	2550	1681	2293	496
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	144			791			969	1713	410	1327	246
tC, single (s)	4.3			4.3			7.7	6.7	7.7	6.7	7.1
tC, 2 stage (s)											
tF (s)	2.3			2.3			3.6	4.1	3.6	4.1	3.4
p0 queue free %	95			100			0	100	57	100	0
cM capacity (veh/h)	849			694			0	51	324	90	659
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NE 1					
Volume Total	38	496	496	816	922	834					
Volume Left	38	0	0	0	0	138					
Volume Right	0	0	0	0	514	696					
cSH	849	1700	1700	1700	1700	563					
Volume to Capacity	0.05	0.29	0.29	0.48	0.54	1.48					
Queue Length 95th (ft)	4	0	0	0	0	1036					
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	246.4					
Lane LOS	A					F					
Approach Delay (s)	0.4			0.0		246.4					
Approach LOS						F					
Intersection Summary											
Average Delay		57.1									
Intersection Capacity Utilization		100.1%			ICU Level of Service				G		
Analysis Period (min)		15									

HCM Signalized Intersection Capacity Analysis

1003: SR 204 & Gateway Blvd S

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	1107	189	134	1183	115	177	59	76	55	42	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1547	2981	1384	1547	2981	1384	1547	1492		1547	1437	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.21	1.00		0.66	1.00	
Satd. Flow (perm)	1547	2981	1384	1547	2981	1384	337	1492		1071	1437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	216	1203	205	147	1300	126	206	69	88	59	45	162
RTOR Reduction (vph)	0	0	82	0	0	35	0	31	0	0	95	0
Lane Group Flow (vph)	216	1203	123	147	1300	91	206	126	0	59	112	0
Heavy Vehicles (%)	5%	9%	5%	5%	9%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	24.1	63.2	63.2	17.6	56.7	56.7	41.5	25.7		25.7	17.8	
Effective Green, g (s)	24.1	63.2	63.2	17.6	56.7	56.7	41.5	25.7		25.7	17.8	
Actuated g/C Ratio	0.17	0.44	0.44	0.12	0.39	0.39	0.29	0.18		0.18	0.12	
Clearance Time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	257	1299	603	188	1166	541	228	264		216	176	
v/s Ratio Prot	c0.14	c0.40		0.10	c0.44		c0.10	0.08		0.01	0.08	
v/s Ratio Perm			0.09			0.07	c0.16			0.03		
v/c Ratio	0.84	0.93	0.20	0.78	1.11	0.17	0.90	0.48		0.27	0.64	
Uniform Delay, d1	58.6	38.7	25.3	61.8	44.1	28.8	44.0	53.6		51.0	60.5	
Progression Factor	1.15	0.86	0.72	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.6	10.1	0.6	18.2	63.8	0.7	34.6	1.4		0.5	7.4	
Delay (s)	84.1	43.4	18.8	80.0	108.0	29.5	78.6	55.0		51.5	67.9	
Level of Service	F	D	B	F	F	C	E	D		D	E	
Approach Delay (s)		45.7			99.1			68.4			64.3	
Approach LOS		D			F			E			E	
Intersection Summary												
HCM Average Control Delay			71.1			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)				31.1		
Intersection Capacity Utilization			97.3%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: SR 204 EB On Ramp & US-17

2010 PM - Existing

7/27/2011

														
Movement	EBL	EBR	EBR2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR			
Lane Configurations	 						 			 				
Volume (vph)	241	0	264	0	0	0	766	322	278	1359	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Total Lost time (s)	5.0		5.0				5.0	5.0	5.0	4.5				
Lane Util. Factor	0.97		1.00				0.95	1.00	1.00	0.95				
Frt	1.00		0.85				1.00	0.85	1.00	1.00				
Flt Protected	0.95		1.00				1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3303		1524				3406	1524	1703	3406				
Flt Permitted	0.95		1.00				1.00	1.00	0.26	1.00				
Satd. Flow (perm)	3303		1524				3406	1524	474	3406				
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.93	0.93	0.93	0.91	0.91	0.91			
Adj. Flow (vph)	274	0	300	0	0	0	824	346	305	1493	0			
RTOR Reduction (vph)	0	0	61	0	0	0	0	151	0	0	0			
Lane Group Flow (vph)	274	0	239	0	0	0	824	195	305	1493	0			
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%			
Turn Type	custom						Perm		pm+pt					
Protected Phases							2	1		6				
Permitted Phases	4	4								2	6			
Actuated Green, G (s)	16.8	16.8								56.3	73.7			
Effective Green, g (s)	16.8	16.8								56.3	73.7			
Actuated g/C Ratio	0.17	0.17								0.56	0.74			
Clearance Time (s)	5.0	5.0								5.0	4.5			
Vehicle Extension (s)	3.0	3.0								3.0	3.0			
Lane Grp Cap (vph)	555	256								1918	858			
v/s Ratio Prot							0.24	0.07		c0.44				
v/s Ratio Perm	0.08	c0.16								0.13	c0.38			
v/c Ratio	0.49	0.93								0.43	0.23			
Uniform Delay, d1	37.7	41.1								12.6	10.9			
Progression Factor	1.00	1.00								1.00	1.00			
Incremental Delay, d2	0.7	38.6								0.7	1.7			
Delay (s)	38.4	79.7								13.3	11.6			
Level of Service	D	E								B	B			
Approach Delay (s)	60.0			0.0								12.8		
Approach LOS	E			A								B		
Intersection Summary														
HCM Average Control Delay			19.9	HCM Level of Service						B				
HCM Volume to Capacity ratio			0.67											
Actuated Cycle Length (s)			100.0	Sum of lost time (s)						9.5				
Intersection Capacity Utilization			76.0%	ICU Level of Service						D				
Analysis Period (min)			15											
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis

1005: SR 204 WB On Ramp & US-17

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	630	0	190	320	687	0	0	1007	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0		5.0	5.0	5.0			5.0	5.0
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3213		1482	1656	3312			3312	1482
Flt Permitted				0.95		1.00	0.15	1.00			1.00	1.00
Satd. Flow (perm)				3213		1482	257	3312			3312	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	663	0	200	348	747	0	0	1171	330
RTOR Reduction (vph)	0	0	0	0	0	152	0	0	0	0	0	149
Lane Group Flow (vph)	0	0	0	663	0	48	348	747	0	0	1171	182
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type	custom			custom			pm+pt			Perm		
Protected Phases							5	2	6			
Permitted Phases				8	8		2	6				
Actuated Green, G (s)				23.9	23.9		66.1	66.1	55.0			
Effective Green, g (s)				23.9	23.9		66.1	66.1	55.0			
Actuated g/C Ratio				0.24	0.24		0.66	0.66	0.55			
Clearance Time (s)				5.0	5.0		5.0	5.0	5.0			
Vehicle Extension (s)				3.0	3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)				768	354		255	2189	1822			
v/s Ratio Prot							c0.08	0.23	0.35			
v/s Ratio Perm				c0.21	0.03		c0.82	0.12				
v/c Ratio				0.86	0.14		1.36	0.34	0.64			
Uniform Delay, d1				36.5	29.9		14.0	7.4	15.7			
Progression Factor				1.00	1.00		4.63	0.79	1.00			
Incremental Delay, d2				9.9	0.2		185.6	0.4	1.8			
Delay (s)				46.4	30.1		250.3	6.2	17.4			
Level of Service				D	C		F	A	B			
Approach Delay (s)	0.0			42.6			83.8			16.3		
Approach LOS	A			D			F			B		
Intersection Summary												
HCM Average Control Delay	44.2			HCM Level of Service			D					
HCM Volume to Capacity ratio	1.20											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			10.0					
Intersection Capacity Utilization	76.0%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1006: SR 204 & Grove Point Road

2010 PM - Existing

7/27/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	0	1329	4	13	1639	0	9	0	22	0	0	0		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.66	0.66	0.66	0.25	0.25	0.25		
Hourly flow rate (vph)	0	1477	4	14	1762	0	14	0	33	0	0	0		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type	Raised			Raised										
Median storage veh	1			1										
Upstream signal (ft)														
pX, platoon unblocked														
vC, conflicting volume	1762				1481				2386	3267	738	2562	3271	881
vC1, stage 1 conf vol										1477	1477	1790	1790	
vC2, stage 2 conf vol										909	1790	772	1481	
vCu, unblocked vol	1762				1481				2386	3267	738	2562	3271	881
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)										6.6	5.6	6.6	5.6	
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				97				85	100	91	100	100	100
cM capacity (veh/h)	346				445				89	72	358	61	70	288
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	0	738	738	4	14	881	881	0	47	0				
Volume Left	0	0	0	0	14	0	0	0	14	0				
Volume Right	0	0	0	4	0	0	0	0	33	0				
cSH	1700	1700	1700	1700	445	1700	1700	1700	190	1700				
Volume to Capacity	0.00	0.43	0.43	0.00	0.03	0.52	0.52	0.00	0.25	0.00				
Queue Length 95th (ft)	0	0	0	0	2	0	0	0	23	0				
Control Delay (s)	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	30.0	0.0				
Lane LOS				B						D	A			
Approach Delay (s)	0.0			0.1						30.0	0.0			
Approach LOS										D	A			
Intersection Summary														
Average Delay				0.5										
Intersection Capacity Utilization				55.3%			ICU Level of Service			B				
Analysis Period (min)				15										

HCM Signalized Intersection Capacity Analysis

1007: SR 204 & Pine Grove Road

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	1288	43	108	1611	28	28	1	31	38	1	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.5	7.5	6.0	7.5	7.5		7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85		0.93			0.97	
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98			0.96	
Satd. Flow (prot)	1752	3139	1568	1752	3139	1568		1676			1719	
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.84			0.68	
Satd. Flow (perm)	1752	3139	1568	1752	3139	1568		1445			1210	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	22	1415	47	115	1714	30	38	1	42	47	1	16
RTOR Reduction (vph)	0	0	8	0	0	4	0	22	0	0	7	0
Lane Group Flow (vph)	22	1415	39	115	1714	26	0	59	0	0	57	0
Heavy Vehicles (%)	3%	15%	3%	3%	15%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	5.3	126.0	126.0	16.4	137.1	137.1		12.1			12.1	
Effective Green, g (s)	5.3	126.0	126.0	16.4	137.1	137.1		12.1			12.1	
Actuated g/C Ratio	0.03	0.72	0.72	0.09	0.78	0.78		0.07			0.07	
Clearance Time (s)	6.0	7.5	7.5	6.0	7.5	7.5		7.0			7.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0		3.0			3.0	
Lane Grp Cap (vph)	53	2260	1129	164	2459	1228		100			84	
v/s Ratio Prot	0.01	0.45		c0.07	c0.55							
v/s Ratio Perm			0.02			0.02		0.04			c0.05	
v/c Ratio	0.42	0.63	0.03	0.70	0.70	0.02		0.59			0.68	
Uniform Delay, d ₁	83.3	12.5	7.0	76.9	9.0	4.2		79.0			79.6	
Progression Factor	1.00	1.00	1.00	0.87	0.63	0.88		1.00			1.00	
Incremental Delay, d ₂	5.2	1.3	0.1	6.7	0.8	0.0		8.5			20.6	
Delay (s)	88.5	13.8	7.1	73.6	6.6	3.7		87.5			100.2	
Level of Service	F	B	A	E	A	A		F			F	
Approach Delay (s)		14.7			10.7			87.5			100.2	
Approach LOS		B			B			F			F	
Intersection Summary												
HCM Average Control Delay			15.8				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			175.0				Sum of lost time (s)				20.5	
Intersection Capacity Utilization			72.4%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1008: King George Boulevard & SR 204

2010 PM - Existing

5/4/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	162	956	239	923	1374	272	148	97	383	219	143	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.1	7.1	7.0	7.1	4.0	6.2	6.6	4.0	6.2	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Fr _{pb} , ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Fl _{pb} , ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3139	1527	3367	3139	1553	1736	1827	1553	3367	1827	1532
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3139	1527	3367	3139	1553	1736	1827	1553	3367	1827	1532
Peak-hour factor, PHF	0.99	0.99	0.99	0.98	0.98	0.98	0.85	0.85	0.85	0.77	0.77	0.77
Growth Factor (vph)	100%	100%	100%	100%	171%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	164	966	241	942	2397	278	174	114	451	284	186	292
RTOR Reduction (vph)	0	0	106	0	0	0	0	0	0	0	0	182
Lane Group Flow (vph)	164	966	135	942	2397	278	174	114	451	284	186	110
Confl. Peds. (#/hr)			6									1
Heavy Vehicles (%)	4%	15%	4%	4%	15%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			Free			Free			4
Actuated Green, G (s)	19.5	62.2	62.2	51.7	94.4	175.0	17.8	15.3	175.0	18.9	16.4	16.4
Effective Green, g (s)	19.5	62.2	62.2	51.7	94.4	175.0	17.8	15.3	175.0	18.9	16.4	16.4
Actuated g/C Ratio	0.11	0.36	0.36	0.30	0.54	1.00	0.10	0.09	1.00	0.11	0.09	0.09
Clearance Time (s)	7.0	7.1	7.1	7.0	7.1		6.2	6.6		6.2	6.6	6.6
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	193	1116	543	995	1693	1553	177	160	1553	364	171	144
v/s Ratio Prot	0.09	0.31		c0.28	c0.76		c0.10	0.06		0.08	c0.10	
v/s Ratio Perm			0.09			0.18			c0.29			0.07
v/c Ratio	0.85	0.87	0.25	0.95	1.42	0.18	0.98	0.71	0.29	0.78	1.09	0.76
Uniform Delay, d ₁	76.3	52.5	39.9	60.3	40.3	0.0	78.4	77.7	0.0	76.0	79.3	77.4
Progression Factor	0.91	0.81	0.72	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	22.9	7.2	0.8	17.0	190.7	0.3	62.3	13.9	0.5	10.4	94.2	21.0
Delay (s)	92.5	49.7	29.7	77.3	231.0	0.3	140.7	91.7	0.5	86.4	173.5	98.4
Level of Service	F	D	C	E	F	A	F	F	A	F	F	F
Approach Delay (s)		51.3			173.2			47.6			112.2	
Approach LOS		D			F			D			F	
Intersection Summary												
HCM Average Control Delay			126.0				HCM Level of Service				F	
HCM Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			175.0				Sum of lost time (s)				20.3	
Intersection Capacity Utilization			112.8%				ICU Level of Service				H	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1009: SR 204 & Rio Road

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	329	1554	164	28	1786	12	317	18	15	30	23	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	350	1653	174	30	1941	13	391	22	19	32	25	602
RTOR Reduction (vph)	0	0	58	0	0	3	0	0	14	0	0	246
Lane Group Flow (vph)	350	1653	116	30	1941	10	391	22	5	32	25	356
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	31.6	74.4	74.4	5.6	48.4	48.4	22.4	40.1	40.1	5.8	23.5	23.5
Effective Green, g (s)	31.6	74.4	74.4	5.6	48.4	48.4	22.4	40.1	40.1	5.8	23.5	23.5
Actuated g/C Ratio	0.21	0.50	0.50	0.04	0.32	0.32	0.15	0.27	0.27	0.04	0.16	0.16
Clearance Time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	366	2092	770	65	947	501	503	488	415	67	286	243
v/s Ratio Prot	c0.20	0.39		0.02	c0.66		c0.12	0.01		0.02	0.01	
v/s Ratio Perm			0.07			0.01			0.00			c0.23
v/c Ratio	0.96	0.79	0.15	0.46	2.05	0.02	0.78	0.05	0.01	0.48	0.09	1.46
Uniform Delay, d1	58.5	31.3	20.6	70.7	50.8	34.6	61.4	40.8	40.4	70.6	54.1	63.2
Progression Factor	1.00	1.00	1.00	1.19	0.85	0.59	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	35.4	3.1	0.4	3.6	474.9	0.0	7.4	0.0	0.0	5.3	0.1	230.0
Delay (s)	93.9	34.5	21.0	87.5	518.3	20.5	68.8	40.8	40.4	75.9	54.2	293.3
Level of Service	F	C	C	F	F	C	E	D	D	E	D	F
Approach Delay (s)		42.9			508.5			66.1			273.6	
Approach LOS		D			F			E			F	
Intersection Summary												
HCM Average Control Delay		249.7										F
HCM Volume to Capacity ratio		1.44										
Actuated Cycle Length (s)		150.0						24.1				
Intersection Capacity Utilization		108.3%										G
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1010: SR 204 & West Mall Driveway

2010 PM - Existing

7/27/2011

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑↑	↑↑↑↑	↗		↗		
Volume (veh/h)	0	1599	1739	42	0	87		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	1701	1793	43	0	113		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh)								
Upstream signal (ft)		697						
pX, platoon unblocked					0.69			
vC, conflicting volume	1793				2360	598		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1793				1404	598		
tC, single (s)	4.6				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.4				3.5	3.3		
p0 queue free %	100				100	74		
cM capacity (veh/h)	264				89	441		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	567	567	567	598	598	598	43	113
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	43	113
cSH	1700	1700	1700	1700	1700	1700	1700	441
Volume to Capacity	0.33	0.33	0.33	0.35	0.35	0.35	0.03	0.26
Queue Length 95th (ft)	0	0	0	0	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0
Lane LOS								C
Approach Delay (s)	0.0			0.0				16.0
Approach LOS								C
Intersection Summary								
Average Delay			0.5					
Intersection Capacity Utilization			45.7%		ICU Level of Service			A
Analysis Period (min)			15					

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1599	1760	62	0	21		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	1701	1814	64	0	27		
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								
vC, conflicting volume	1814					2381	605	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1814					2381	605	
tC, single (s)	4.6					6.9	7.0	
tC, 2 stage (s)								
tF (s)	2.4					3.5	3.3	
p0 queue free %	100					100	94	
cM capacity (veh/h)	258					28	436	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	567	567	567	605	605	605	64	27
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	64	27
cSH	1700	1700	1700	1700	1700	1700	1700	436
Volume to Capacity	0.33	0.33	0.33	0.36	0.36	0.36	0.04	0.06
Queue Length 95th (ft)	0	0	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8
Lane LOS	B							
Approach Delay (s)	0.0			0.0				13.8
Approach LOS	B							
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			44.0%		ICU Level of Service		A	
Analysis Period (min)			15					

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑↑	↑↑↑↑	↗		↗		
Volume (veh/h)	0	1599	1761	63	0	61		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	1701	1815	65	0	79		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (ft)			545					
pX, platoon unblocked	0.64					0.64	0.64	
vC, conflicting volume	1815					2382	605	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	294					1182	0	
tC, single (s)	4.6					6.9	7.0	
tC, 2 stage (s)								
tF (s)	2.4					3.5	3.3	
p0 queue free %	100					100	88	
cM capacity (veh/h)	718					115	688	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	567	567	567	605	605	605	65	79
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	65	79
cSH	1700	1700	1700	1700	1700	1700	1700	688
Volume to Capacity	0.33	0.33	0.33	0.36	0.36	0.36	0.04	0.12
Queue Length 95th (ft)	0	0	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9
Lane LOS	B							
Approach Delay (s)	0.0			0.0				10.9
Approach LOS	B							
Intersection Summary								
Average Delay			0.2					
Intersection Capacity Utilization			44.5%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

1013: SR 204 & Apache Ave

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	1475	55	143	1660	84	109	85	80	136	121	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4218		3367	4218		1736	1827	1553	3367	1827	1553
Fl _t Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4218		3367	4218		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	79	1695	63	157	1824	92	136	106	100	146	130	59
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	85	0	0	52
Lane Group Flow (vph)	79	1756	0	157	1913	0	136	106	15	146	130	7
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	12.2	79.6		11.9	79.3		17.0	22.1	22.1	11.9	17.0	17.0
Effective Green, g (s)	12.2	79.6		11.9	79.3		17.0	22.1	22.1	11.9	17.0	17.0
Actuated g/C Ratio	0.08	0.53		0.08	0.53		0.11	0.15	0.15	0.08	0.11	0.11
Clearance Time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	141	2238		267	2230		197	269	229	267	207	176
v/s Ratio Prot	0.05	0.42		c0.05	c0.45		c0.08	c0.06		0.04	c0.07	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.56	0.78		0.59	0.86		0.69	0.39	0.06	0.55	0.63	0.04
Uniform Delay, d ₁	66.3	28.3		66.7	30.5		64.0	57.9	55.0	66.5	63.5	59.2
Progression Factor	1.05	1.00		1.04	0.59		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	3.7	2.1		1.8	2.5		10.0	2.0	0.2	2.3	8.2	0.2
Delay (s)	73.3	30.4		71.3	20.5		73.9	59.9	55.3	68.7	71.7	59.4
Level of Service	E	C		E	C		E	E	E	E	E	E
Approach Delay (s)		32.2			24.4			64.1			68.2	
Approach LOS		C			C			E			E	
Intersection Summary												
HCM Average Control Delay			33.7			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				30.9		
Intersection Capacity Utilization			71.8%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1014: SR 204 & Middleground Road

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	1316	115	156	1541	106	61	112	98	199	124	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Fr _{pb} , ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Fl _{pb} , ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	4217	1508	1736	4217	1532	1736	1686		1736	1827	1532
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.65	1.00		0.15	1.00	1.00
Satd. Flow (perm)	1736	4217	1508	1736	4217	1532	1182	1686		279	1827	1532
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	286	1446	126	164	1622	112	77	142	124	280	175	401
RTOR Reduction (vph)	0	0	40	0	0	53	0	21	0	0	0	236
Lane Group Flow (vph)	286	1446	86	164	1622	59	77	245	0	280	175	165
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8		4			4
Actuated Green, G (s)	18.5	70.9	70.9	13.5	65.9	65.9	29.5	19.7		46.7	30.4	30.4
Effective Green, g (s)	18.5	70.9	70.9	13.5	65.9	65.9	29.5	19.7		46.7	30.4	30.4
Actuated g/C Ratio	0.12	0.47	0.47	0.09	0.44	0.44	0.20	0.13		0.31	0.20	0.20
Clearance Time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	214	1993	713	156	1853	673	269	221		286	370	310
v/s Ratio Prot	c0.16	c0.34		0.09	c0.38		0.02	c0.15		c0.13	0.10	
v/s Ratio Perm			0.06			0.04	0.04			0.17		0.11
v/c Ratio	1.34	0.73	0.12	1.05	0.88	0.09	0.29	1.11		0.98	0.47	0.53
Uniform Delay, d ₁	65.8	31.7	22.1	68.2	38.3	24.5	50.6	65.2		44.4	52.7	53.4
Progression Factor	1.29	0.57	0.97	1.14	0.63	0.29	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d ₂	171.5	1.6	0.2	81.7	5.5	0.2	0.4	92.9		46.9	0.3	0.9
Delay (s)	256.2	19.5	21.6	159.8	29.5	7.4	51.1	158.1		91.3	53.1	54.3
Level of Service	F	B	C	F	C	A	D	F		F	D	D
Approach Delay (s)		56.1			39.4			134.1			66.2	
Approach LOS		E			D			F			E	
Intersection Summary												
HCM Average Control Delay			56.9			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				31.5		
Intersection Capacity Utilization			89.7%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1015: SR 204 & Arts Drive

2010 PM - Existing

7/27/2011

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1558	55	37	1691	112	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9		6.0	5.9	6.5	6.0
Lane Util. Factor		0.91		1.00	0.91	0.97	1.00
Frt		0.99		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4218		1736	4217	3367	1553
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4218		1736	4217	3367	1553
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.79	0.79
Adj. Flow (vph)	0	1712	60	39	1780	142	120
RTOR Reduction (vph)	0	1	0	0	0	0	1
Lane Group Flow (vph)	0	1771	0	39	1780	142	119
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%
Turn Type	Prot			Prot		custom	
Protected Phases	5	2		1	6	3	13
Permitted Phases							8
Actuated Green, G (s)		107.1		8.8	121.9	15.7	27.0
Effective Green, g (s)		107.1		8.8	121.9	15.7	27.0
Actuated g/C Ratio		0.71		0.06	0.81	0.10	0.18
Clearance Time (s)		5.9		6.0	5.9	6.5	
Vehicle Extension (s)		5.0		3.0	5.0	3.0	
Lane Grp Cap (vph)		3012		102	3427	352	280
v/s Ratio Prot		c0.42		0.02	c0.42	0.04	c0.07
v/s Ratio Perm							0.01
v/c Ratio		0.59		0.38	0.52	0.40	0.43
Uniform Delay, d1		10.6		68.0	4.6	62.8	54.6
Progression Factor		1.04		1.25	0.19	1.00	1.00
Incremental Delay, d2		0.5		2.0	0.5	0.8	1.0
Delay (s)		11.5		87.0	1.3	63.5	55.7
Level of Service		B		F	A	E	E
Approach Delay (s)		11.5			3.2	59.9	
Approach LOS		B			A	E	
Intersection Summary							
HCM Average Control Delay			10.9		HCM Level of Service		B
HCM Volume to Capacity ratio			0.58				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		17.8
Intersection Capacity Utilization			47.1%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

1017: SR 204 & Mohawk Street 2

2010 PM - Existing

7/27/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	22	1631	1669	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80	
Hourly flow rate (vph)	24	1773	1814	0	0	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)			1257				
pX, platoon unblocked	0.82				0.82	0.82	
vC, conflicting volume	1814				2453	605	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1214				1996	0	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	95				100	100	
cM capacity (veh/h)	457				40	881	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	24	591	591	591	605	605	605
Volume Left	24	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	457	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.35	0.35	0.35	0.36	0.36	0.36
Queue Length 95th (ft)	4	0	0	0	0	0	0
Control Delay (s)	13.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	0.2				0.0		
Approach LOS							
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			42.6%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

1018: SR 204 & Mohawk Street 3

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↱		↱	↑↑↑			↕			↱	
Volume (veh/h)	0	1626	5	5	1660	0	9	0	3	36	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	0	1767	5	5	1804	0	12	0	4	45	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)					1072							
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81
vC, conflicting volume	1804			1773			2383	3585	592	2408	3588	601
vC1, stage 1 conf vol							1770	1770		1815	1815	
vC2, stage 2 conf vol							613	1815		593	1773	
vCu, unblocked vol	1160			1773			1877	3367	592	1908	3370	0
tC, single (s)	4.6			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			84	100	99	62	98	100
cM capacity (veh/h)	397			339			74	76	445	118	74	870
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	707	707	359	5	601	601	601	16	46			
Volume Left	0	0	0	5	0	0	0	12	45			
Volume Right	0	0	5	0	0	0	0	4	0			
cSH	1700	1700	1700	339	1700	1700	1700	94	116			
Volume to Capacity	0.42	0.42	0.21	0.02	0.35	0.35	0.35	0.17	0.40			
Queue Length 95th (ft)	0	0	0	1	0	0	0	15	42			
Control Delay (s)	0.0	0.0	0.0	15.8	0.0	0.0	0.0	51.1	55.1			
Lane LOS				C				F	F			
Approach Delay (s)	0.0			0.0				51.1	55.1			
Approach LOS								F	F			
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			42.1%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1020: SR 204 & Mercy Blvd

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑↑↑		↵	↑↑↑	↵	↵	↕		↵	↕	
Volume (vph)	79	1494	92	54	1558	74	91	21	51	118	24	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.89		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1632		1736	1607	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.53	1.00		0.70	1.00	
Satd. Flow (perm)	1736	4218		1736	4217	1553	973	1632		1284	1607	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	86	1624	100	57	1640	78	106	24	59	139	28	113
RTOR Reduction (vph)	0	3	0	0	0	20	0	51	0	0	97	0
Lane Group Flow (vph)	86	1721	0	57	1640	58	106	32	0	139	44	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4				8	
Actuated Green, G (s)	12.8	101.5		9.0	97.7	97.7	21.1	21.1		21.1	21.1	
Effective Green, g (s)	12.8	101.5		9.0	97.7	97.7	21.1	21.1		21.1	21.1	
Actuated g/C Ratio	0.09	0.68		0.06	0.65	0.65	0.14	0.14		0.14	0.14	
Clearance Time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	148	2854		104	2747	1012	137	230		181	226	
v/s Ratio Prot	c0.05	c0.41		0.03	0.39			0.02			0.03	
v/s Ratio Perm						0.04	c0.11			0.11		
v/c Ratio	0.58	0.60		0.55	0.60	0.06	0.77	0.14		0.77	0.19	
Uniform Delay, d1	66.0	13.2		68.5	14.9	9.5	62.1	56.5		62.1	56.9	
Progression Factor	1.12	1.59		0.99	0.44	0.39	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.8	0.8		4.0	0.7	0.1	23.3	0.3		17.6	0.4	
Delay (s)	78.6	21.8		71.8	7.2	3.8	85.5	56.8		79.7	57.4	
Level of Service	E	C		E	A	A	F	E		E	E	
Approach Delay (s)		24.5			9.1			72.9			68.4	
Approach LOS		C			A			E			E	
Intersection Summary												
HCM Average Control Delay			23.1			HCM Level of Service		C				
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)		18.4				
Intersection Capacity Utilization			64.5%			ICU Level of Service		C				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1021: SR 204 & Largo Blvd

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	134	1441	88	193	1473	65	103	87	153	104	111	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4218		1736	4218		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.50	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	1736	4218		1736	4218		919	1827	1553	1079	1827	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	138	1486	91	212	1619	71	113	96	168	139	148	147
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	151	0	0	122
Lane Group Flow (vph)	138	1573	0	212	1687	0	113	96	17	139	148	25
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	16.1	71.9		23.1	78.4		28.4	15.1	15.1	31.6	16.7	16.7
Effective Green, g (s)	16.1	71.9		23.1	78.4		28.4	15.1	15.1	31.6	16.7	16.7
Actuated g/C Ratio	0.11	0.48		0.15	0.52		0.19	0.10	0.10	0.21	0.11	0.11
Clearance Time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	186	2022		267	2205		246	184	156	293	203	173
v/s Ratio Prot	0.08	0.37		c0.12	c0.40		0.04	0.05		c0.05	c0.08	
v/s Ratio Perm							0.05		0.01	0.05		0.02
v/c Ratio	0.74	0.78		0.79	0.77		0.46	0.52	0.11	0.47	0.73	0.15
Uniform Delay, d1	64.9	32.4		61.2	28.5		52.8	64.0	61.3	50.8	64.5	60.2
Progression Factor	1.21	0.42		1.21	0.67		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.3	2.5		12.1	2.1		1.4	2.7	0.3	1.2	12.3	0.4
Delay (s)	90.6	16.2		86.0	21.1		54.1	66.7	61.6	52.0	76.8	60.6
Level of Service	F	B		F	C		D	E	E	D	E	E
Approach Delay (s)		22.2			28.3			60.7			63.4	
Approach LOS		C			C			E			E	
Intersection Summary												
HCM Average Control Delay			32.1	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				18.3				
Intersection Capacity Utilization			68.3%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1022: SR 204 & Idlewood Drive

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗		↑↑↑↗				↗			↗
Volume (veh/h)	0	1581	117	0	1711	24	0	0	78	0	0	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Hourly flow rate (vph)	0	1630	121	0	1880	26	0	0	86	0	0	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		651			1109							
pX, platoon unblocked	0.75			0.73			0.85	0.85	0.73	0.85	0.85	0.75
vC, conflicting volume	1907			1630			2283	3536	543	2437	3523	640
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1026			545			0	1363	0	73	1347	0
tC, single (s)	4.6			4.6			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.4			2.4			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	89	100	100	97
cM capacity (veh/h)	418			644			838	123	782	686	126	805
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	543	543	543	121	752	752	402	86	27			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	121	0	0	26	86	27			
cSH	1700	1700	1700	1700	1700	1700	1700	782	805			
Volume to Capacity	0.32	0.32	0.32	0.07	0.44	0.44	0.24	0.11	0.03			
Queue Length 95th (ft)	0	0	0	0	0	0	0	9	3			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	9.6			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			10.2	9.6			
Approach LOS								B	A			
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			43.6%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1023: SR 204 & Deerfield Road

2010 PM - Existing

7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	1432	52	95	1544	180	46	23	53	183	7	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1635		1649	1658	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	4218		1736	4217	1553	1736	1635		1649	1658	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	188	1540	56	97	1576	184	50	25	58	195	7	154
RTOR Reduction (vph)	0	2	0	0	0	86	0	54	0	0	0	139
Lane Group Flow (vph)	188	1594	0	97	1576	98	50	29	0	101	101	15
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	21.4	87.6		13.7	79.9	79.9	9.7	9.7		14.5	14.5	14.5
Effective Green, g (s)	21.4	87.6		13.7	79.9	79.9	9.7	9.7		14.5	14.5	14.5
Actuated g/C Ratio	0.14	0.58		0.09	0.53	0.53	0.06	0.06		0.10	0.10	0.10
Clearance Time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	248	2463		159	2246	827	112	106		159	160	150
v/s Ratio Prot	c0.11	c0.38		0.06	c0.37		c0.03	0.02		c0.06	0.06	
v/s Ratio Perm						0.06						0.01
v/c Ratio	0.76	0.65		0.61	0.70	0.12	0.45	0.27		0.64	0.63	0.10
Uniform Delay, d1	61.8	20.9		65.6	26.2	17.5	67.6	66.8		65.2	65.2	61.8
Progression Factor	1.00	0.86		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.5	1.0		6.8	1.9	0.3	2.8	1.4		8.0	7.9	0.3
Delay (s)	71.4	19.0		72.3	28.0	17.8	70.4	68.2		73.2	73.0	62.1
Level of Service	E	B		E	C	B	E	E		E	E	E
Approach Delay (s)		24.5			29.3			69.0			68.4	
Approach LOS		C			C			E			E	
Intersection Summary												
HCM Average Control Delay			31.9	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				30.4				
Intersection Capacity Utilization			66.8%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1024: SR 204 & Apartment Driveway

2010 PM - Existing

7/27/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR	
Lane Configurations		  			  						
Volume (veh/h)	0	1403	265	0	1801	34	0	18	0	0	
Sign Control		Free			Free		Stop		Stop		
Grade		0%			0%		0%		0%		
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.50	0.50	0.81	0.81	
Hourly flow rate (vph)	0	1493	282	0	2001	38	0	36	0	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)		1291									
pX, platoon unblocked				0.79			0.79		0.79	0.79	
vC, conflicting volume	2039			1774			3776	667	2337	3672	
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	2039			1034			3579	667	1749	3447	
tC, single (s)	4.6			4.6			6.6	7.0	7.6	6.6	
tC, 2 stage (s)											
tF (s)	2.4			2.4			4.0	3.3	3.5	4.0	
p0 queue free %	100			100			100	91	100	100	
cM capacity (veh/h)	206			437			4	397	38	5	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1			
Volume Total	597	597	580	667	667	667	38	36			
Volume Left	0	0	0	0	0	0	0	0			
Volume Right	0	0	282	0	0	0	38	36			
cSH	1700	1700	1700	1700	1700	1700	1700	397			
Volume to Capacity	0.35	0.35	0.34	0.39	0.39	0.39	0.02	0.09			
Queue Length 95th (ft)	0	0	0	0	0	0	0	7			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0			
Lane LOS								B			
Approach Delay (s)	0.0			0.0				15.0			
Approach LOS								B			
Intersection Summary											
Average Delay			0.1								
Intersection Capacity Utilization			44.8%			ICU Level of Service		A			
Analysis Period (min)			15								

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑	↑		
Volume (veh/h)	1403	0	0	1820	15	0	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.94	0.94	0.90	0.90	0.81	0.81	
Hourly flow rate (vph)	1493	0	0	2022	19	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	Raised			Raised			
Median storage veh	1			1			
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume			1493		2167	498	
vC1, stage 1 conf vol					1493		
vC2, stage 2 conf vol					674		
vCu, unblocked vol			1493		2167	498	
tC, single (s)			4.6		6.9	7.0	
tC, 2 stage (s)					5.9		
tF (s)			2.4		3.5	3.3	
p0 queue free %			100		85	100	
cM capacity (veh/h)			355		127	513	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	498	498	498	674	674	674	19
Volume Left	0	0	0	0	0	0	19
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	127
Volume to Capacity	0.29	0.29	0.29	0.40	0.40	0.40	0.15
Queue Length 95th (ft)	0	0	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	38.2
Lane LOS							E
Approach Delay (s)	0.0			0.0			38.2
Approach LOS							E
Intersection Summary							
Average Delay			0.2				
Intersection Capacity Utilization			45.2%		ICU Level of Service		A
Analysis Period (min)			15				

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑↑		↱	↑↑↑↑			
Volume (veh/h)	1403	0	88	1820	0	0	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.94	0.94	0.90	0.90	0.81	0.81	
Hourly flow rate (vph)	1493	0	98	2022	0	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							
vC, conflicting volume			1493		2362	498	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1493		2362	498	
tC, single (s)			4.2		6.9	7.0	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			78		100	100	
cM capacity (veh/h)			436		22	513	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4
Volume Total	498	498	498	98	674	674	674
Volume Left	0	0	0	98	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	436	1700	1700	1700
Volume to Capacity	0.29	0.29	0.29	0.22	0.40	0.40	0.40
Queue Length 95th (ft)	0	0	0	21	0	0	0
Control Delay (s)	0.0	0.0	0.0	15.6	0.0	0.0	0.0
Lane LOS				C			
Approach Delay (s)	0.0			0.7			
Approach LOS							
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization			40.2%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

2015 AM - No Build

1000: SR 204 & Gateway Blvd W

7/28/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	14	522	0	21	324	38	0	4	8	43	4	2		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71		
Hourly flow rate (vph)	16	614	0	24	377	44	0	9	17	61	6	3		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage veh														
Upstream signal (ft)	708													
pX, platoon unblocked														
vC, conflicting volume	377				614				887	1073	307	787	1073	188
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	377				614				887	1073	307	787	1073	188
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0
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 %	99				97				100	96	97	76	97	100
cM capacity (veh/h)	1171				955				224	209	686	256	209	818
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1						
Volume Total	324	307	24	188	188	44	26	69						
Volume Left	16	0	24	0	0	0	0	61						
Volume Right	0	0	0	0	0	44	17	3						
cSH	1171	1700	955	1700	1700	1700	389	263						
Volume to Capacity	0.01	0.18	0.03	0.11	0.11	0.03	0.07	0.26						
Queue Length 95th (ft)	1	0	2	0	0	0	5	26						
Control Delay (s)	0.5	0.0	8.9	0.0	0.0	0.0	14.9	23.7						
Lane LOS	A		A				B	C						
Approach Delay (s)	0.3		0.5				14.9	23.7						
Approach LOS							B	C						
Intersection Summary														
Average Delay				2.1										
Intersection Capacity Utilization				40.4%	ICU Level of Service			A						
Analysis Period (min)				15										

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1001: SR 204 & I-95 SB Off-Ramp

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations												
Volume (vph)	0	498	75	655	300	0	0	0	639	0	83	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.7	5.7	6.4	5.7				6.1		6.1	
Lane Util. Factor		0.95	1.00	1.00	0.95				0.97		1.00	
Frt		1.00	0.85	1.00	1.00				1.00		0.85	
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (prot)		3282	1442	1612	3282				3127		1442	
Flt Permitted		1.00	1.00	0.17	1.00				0.95		1.00	
Satd. Flow (perm)		3282	1442	282	3282				3127		1442	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.84	0.84	0.84	
Adj. Flow (vph)	0	579	87	704	323	0	0	0	761	0	99	
RTOR Reduction (vph)	0	0	68	0	0	0	0	0	0	0	73	
Lane Group Flow (vph)	0	579	19	704	323	0	0	0	761	0	26	
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%	
Turn Type		Perm		pm+pt					custom		custom	
Protected Phases		2		1	6							
Permitted Phases			2	6					4		4	
Actuated Green, G (s)		28.3	28.3	83.7	83.7				34.5		34.5	
Effective Green, g (s)		28.3	28.3	83.7	83.7				34.5		34.5	
Actuated g/C Ratio		0.22	0.22	0.64	0.64				0.27		0.27	
Clearance Time (s)		5.7	5.7	6.4	5.7				6.1		6.1	
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0	
Lane Grp Cap (vph)		714	314	683	2113				830		383	
v/s Ratio Prot		0.18		c0.39	0.10							
v/s Ratio Perm			0.01	c0.28					c0.24		0.02	
v/c Ratio		0.81	0.06	1.03	0.15				0.92		0.07	
Uniform Delay, d1		48.3	40.3	32.0	9.1				46.4		35.7	
Progression Factor		1.00	1.00	0.69	0.55				1.00		1.00	
Incremental Delay, d2		9.7	0.4	39.7	0.1				14.7		0.1	
Delay (s)		58.0	40.7	61.7	5.1				61.1		35.8	
Level of Service		E	D	E	A				E		D	
Approach Delay (s)		55.7			43.9			0.0			58.1	
Approach LOS		E			D			A			E	
Intersection Summary												
HCM Average Control Delay				51.8	HCM Level of Service			D				
HCM Volume to Capacity ratio				0.98								
Actuated Cycle Length (s)				130.0	Sum of lost time (s)			12.5				
Intersection Capacity Utilization				64.5%	ICU Level of Service			C				
Analysis Period (min)				15								

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1002: SR 204 & I-95 NB On-Ramp

7/28/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations		 			 						 
Volume (vph)	55	1082	0	0	903	539	0	0	52	0	703
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Lane Util. Factor	1.00	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)	1612	3282			3282	1442			1612		2538
Flt Permitted	0.22	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	365	3282			3282	1442			1612		2538
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	57	1127	0	0	931	556	0	0	65	0	879
RTOR Reduction (vph)	0	0	0	0	0	261	0	0	0	0	70
Lane Group Flow (vph)	57	1127	0	0	931	295	0	0	65	0	809
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			Perm			custom			custom	
Protected Phases	5	2			6						
Permitted Phases	2					6			8		8
Actuated Green, G (s)	72.3	72.3			60.7	60.7			45.7		45.7
Effective Green, g (s)	72.3	72.3			60.7	60.7			45.7		45.7
Actuated g/C Ratio	0.56	0.56			0.47	0.47			0.35		0.35
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	257	1825			1532	673			567		892
v/s Ratio Prot	0.01	c0.34			0.28						
v/s Ratio Perm	0.11					0.20			0.04		c0.32
v/c Ratio	0.22	0.62			0.61	0.44			0.11		0.91
Uniform Delay, d1	26.0	19.5			25.8	23.2			28.5		40.1
Progression Factor	2.23	1.25			0.42	0.74			1.00		1.00
Incremental Delay, d2	0.2	0.8			0.2	0.2			0.1		12.7
Delay (s)	58.2	25.1			11.1	17.5			28.6		52.8
Level of Service	E	C			B	B			C		D
Approach Delay (s)		26.7			13.5		0.0			51.1	
Approach LOS		C			B		A			D	
Intersection Summary											
HCM Average Control Delay			27.6		HCM Level of Service				C		
HCM Volume to Capacity ratio			0.73								
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			64.5%		ICU Level of Service				C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1003: SR 204 & Gateway Blvd S

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	205	1357	223	82	994	112	193	54	166	98	32	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1547	2954	1384	1547	2954	1384	1547	1444		1547	1412	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.19	1.00		0.41	1.00	
Satd. Flow (perm)	1547	2954	1384	1547	2954	1384	303	1444		672	1412	
Peak-hour factor, PHF	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Adj. Flow (vph)	220	1459	240	96	1169	132	233	65	200	103	34	268
RTOR Reduction (vph)	0	0	88	0	0	44	0	86	0	0	224	0
Lane Group Flow (vph)	220	1459	152	96	1169	88	233	179	0	103	78	0
Heavy Vehicles (%)	5%	10%	5%	5%	10%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm		Prot		Perm		pm+pt		pm+pt	
Protected Phases	5	2			1	6			3	8	7	4
Permitted Phases			2				6	8			4	
Actuated Green, G (s)	21.9	55.0	55.0	11.5	44.6	44.6	40.0	21.5		25.8	14.4	
Effective Green, g (s)	21.9	55.0	55.0	11.5	44.6	44.6	40.0	21.5		25.8	14.4	
Actuated g/C Ratio	0.17	0.42	0.42	0.09	0.34	0.34	0.31	0.17		0.20	0.11	
Clearance Time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	261	1250	586	137	1013	475	270	239		210	156	
v/s Ratio Prot	c0.14	c0.49		0.06	0.40		c0.12	c0.12		0.04	0.06	
v/s Ratio Perm			0.11			0.06	c0.14			0.05		
v/c Ratio	0.84	1.17	0.26	0.70	1.15	0.19	0.86	0.75		0.49	0.50	
Uniform Delay, d1	52.4	37.5	24.3	57.6	42.7	30.0	38.1	51.7		44.8	54.4	
Progression Factor	1.10	0.81	1.01	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.2	81.6	0.7	13.9	80.7	0.9	23.4	12.1		1.3	2.5	
Delay (s)	73.0	111.9	25.3	71.5	123.4	30.8	61.4	63.8		46.1	56.9	
Level of Service	E	F	C	E	F	C	E	E		D	E	
Approach Delay (s)		96.6			111.1			62.7			54.2	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM Average Control Delay			93.3		HCM Level of Service				F			
HCM Volume to Capacity ratio			1.12									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				30.6			
Intersection Capacity Utilization			103.5%		ICU Level of Service				G			
Analysis Period (min)			15									
c Critical Lane Group												

												
Movement	EBL	EBR	EBR2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations												
Volume (vph)	431	0	204	0	0	0	1140	533	357	799	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0		5.0				5.0	5.0	5.0	5.0		
Lane Util. Factor	0.97		1.00				0.95	1.00	1.00	0.95		
Frt	1.00		0.85				1.00	0.85	1.00	1.00		
Flt Protected	0.95		1.00				1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3303		1524				3406	1524	1703	3406		
Flt Permitted	0.95		1.00				1.00	1.00	0.07	1.00		
Satd. Flow (perm)	3303		1524				3406	1524	131	3406		
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.83	0.83	0.83	0.93	0.93	0.93	
Adj. Flow (vph)	519	0	246	0	0	0	1373	642	384	859	0	
RTOR Reduction (vph)	0	0	117	0	0	0	0	376	0	0	0	
Lane Group Flow (vph)	519	0	129	0	0	0	1373	266	384	859	0	
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
Turn Type	custom						Perm		pm+pt			
Protected Phases							2		1			
Permitted Phases	4						4		2			
Actuated Green, G (s)	25.1						25.1		49.7			
Effective Green, g (s)	25.1						25.1		49.7			
Actuated g/C Ratio	0.21						0.21		0.41			
Clearance Time (s)	5.0						5.0		5.0			
Vehicle Extension (s)	3.0						3.0		3.0			
Lane Grp Cap (vph)	691						319		1411			
v/s Ratio Prot							c0.40		c0.20			
v/s Ratio Perm	c0.16						0.08		0.17			
v/c Ratio	0.75						0.40		0.97			
Uniform Delay, d1	44.5						41.0		34.5			
Progression Factor	1.00						1.00		1.00			
Incremental Delay, d2	4.6						0.8		18.3			
Delay (s)	49.1						41.8		52.8			
Level of Service	D						D		C			
Approach Delay (s)	46.8						0.0		44.6			
Approach LOS	D						A		D			
Intersection Summary												
HCM Average Control Delay	36.8						HCM Level of Service			D		
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	120.0						Sum of lost time (s)			15.0		
Intersection Capacity Utilization	77.6%						ICU Level of Service			D		
Analysis Period (min)	15											
c Critical Lane Group												

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Volume (vph)	0	0	0	328	0	167	390	1181	0	0	828	205	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				5.0		5.0	5.0	5.0			5.0	5.0	
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00	
Frt				1.00		0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				3213		1482	1656	3312			3312	1482	
Flt Permitted				0.95		1.00	0.21	1.00			1.00	1.00	
Satd. Flow (perm)				3213		1482	359	3312			3312	1482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	0	0	0	364	0	186	429	1298	0	0	910	225	
RTOR Reduction (vph)	0	0	0	0	0	53	0	0	0	0	0	115	
Lane Group Flow (vph)	0	0	0	364	0	133	429	1298	0	0	910	110	
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
Turn Type	custom						custom		pm+pt		Perm		
Protected Phases							5		2		6		
Permitted Phases	8						8		2		6		
Actuated Green, G (s)	16.8						16.8		73.2		49.0		
Effective Green, g (s)	16.8						16.8		73.2		49.0		
Actuated g/C Ratio	0.17						0.17		0.73		0.49		
Clearance Time (s)	5.0						5.0		5.0		5.0		
Vehicle Extension (s)	3.0						3.0		3.0		3.0		
Lane Grp Cap (vph)	540						249		512		2424		
v/s Ratio Prot							c0.16		0.39		0.27		
v/s Ratio Perm	c0.11						0.09		c0.45		0.07		
v/c Ratio	0.67						0.53		0.84		0.54		
Uniform Delay, d1	39.0						38.0		14.7		5.9		
Progression Factor	1.00						1.00		1.00		1.00		
Incremental Delay, d2	3.3						2.2		11.4		0.9		
Delay (s)	42.3						40.2		26.1		6.8		
Level of Service	D						D		C		A		
Approach Delay (s)	0.0						41.6		11.6		18.4		
Approach LOS	A						D		B		B		
Intersection Summary													
HCM Average Control Delay	18.7						HCM Level of Service						B
HCM Volume to Capacity ratio	0.79												
Actuated Cycle Length (s)	100.0						Sum of lost time (s)						10.0
Intersection Capacity Utilization	77.6%						ICU Level of Service						D
Analysis Period (min)	15												
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis

2015 AM - No Build

1006: SR 204 & Grove Point Road

7/28/2011

																					
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations																					
Volume (veh/h)	0	1854	22	19	1083	0	5	0	10	0	0	0									
Sign Control	Free			Free			Stop			Stop											
Grade	0%			0%			0%			0%											
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.41	0.41	0.41	0.92	0.92	0.92									
Hourly flow rate (vph)	0	1994	24	21	1190	0	12	0	24	0	0	0									
Pedestrians																					
Lane Width (ft)																					
Walking Speed (ft/s)																					
Percent Blockage																					
Right turn flare (veh)																					
Median type	Raised			Raised																	
Median storage veh	1			1																	
Upstream signal (ft)																					
pX, platoon unblocked																					
vC, conflicting volume	1190				2017				2630	3225	997	2253	3249	595							
vC1, stage 1 conf vol									1994	1994				1232							
vC2, stage 2 conf vol									637	1232				1021							
vCu, unblocked vol	1190				2017				2630	3225	997	2253	3249	595							
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0							
tC, 2 stage (s)									6.6	5.6				5.6							
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3							
p0 queue free %	100				92				76	100	90	100	100	100							
cM capacity (veh/h)	577				275				51	68	241	94	56	445							
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1											
Volume Total	0	997	997	24	21	595	595	0	37	0											
Volume Left	0	0	0	0	21	0	0	0	12	0											
Volume Right	0	0	0	24	0	0	0	0	24	0											
cSH	1700	1700	1700	1700	275	1700	1700	1700	107	1700											
Volume to Capacity	0.00	0.59	0.59	0.01	0.08	0.35	0.35	0.00	0.34	0.00											
Queue Length 95th (ft)	0	0	0	0	6	0	0	0	34	0											
Control Delay (s)	0.0	0.0	0.0	0.0	19.2	0.0	0.0	0.0	55.2	0.0											
Lane LOS					C				F		A										
Approach Delay (s)	0.0				0.3				55.2	0.0											
Approach LOS					F				A												
Intersection Summary																					
Average Delay				0.7																	
Intersection Capacity Utilization				61.2%							ICU Level of Service			B							
Analysis Period (min)				15																	

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1007: Pine Grove Road & SR 204

1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	1749	74	38	1066	15	19	0	56	28	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.5	7.5	6.0	7.5	7.5	7.0			7.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00			1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	0.90			0.95		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.99			0.97		
Satd. Flow (prot)	1752	3059	1568	1752	3059	1568	1638			1698		
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.91			0.50		
Satd. Flow (perm)	1752	3059	1568	1752	3059	1568	1502			876		
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73
Growth Factor (vph)	100%	153%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	48	3148	87	43	1198	17	28	0	82	38	0	23
RTOR Reduction (vph)	0	0	14	0	0	4	0	63	0	0	57	0
Lane Group Flow (vph)	48	3148	73	43	1198	13	0	47	0	0	4	0
Heavy Vehicles (%)	3%	18%	3%	3%	18%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	8.2	131.5	131.5	7.2	130.5	130.5		10.8			10.8	
Effective Green, g (s)	8.2	131.5	131.5	7.2	130.5	130.5		10.8			10.8	
Actuated g/C Ratio	0.05	0.77	0.77	0.04	0.77	0.77		0.06			0.06	
Clearance Time (s)	6.0	7.5	7.5	6.0	7.5	7.5		7.0			7.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0		3.0			3.0	
Lane Grp Cap (vph)	84	2366	1212	74	2348	1203		95			55	
v/s Ratio Prot	c0.03	c1.03		0.02	0.39							
v/s Ratio Perm			0.05			0.01		c0.03			0.00	
v/c Ratio	0.57	1.33	0.06	0.58	0.51	0.01		0.50			0.07	
Uniform Delay, d1	79.2	19.2	4.6	79.9	7.5	4.6		77.0			74.9	
Progression Factor	1.00	1.00	1.00	1.13	2.06	1.00		1.00			1.00	
Incremental Delay, d2	9.1	151.7	0.1	8.9	0.6	0.0		4.1			0.5	
Delay (s)	88.2	171.0	4.7	99.2	16.2	4.6		81.0			75.4	
Level of Service	F	F	A	F	B	A		F			E	
Approach Delay (s)		165.4			18.8			81.0			75.4	
Approach LOS		F			B			F			E	
Intersection Summary												
HCM 2000 Control Delay			123.1	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			170.0	Sum of lost time (s)				20.5				
Intersection Capacity Utilization			92.7%	ICU Level of Service				F				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1008: King George Boulevard & SR 204

2015 AM - No Build

1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	188	1566	79	381	783	178	159	71	1041	412	82	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.1	7.1	7.0	7.1	4.0	6.2	6.6	4.0	6.2	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3059	1529	3367	3059	1553	1736	1827	1553	3367	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3059	1529	3367	3059	1553	1736	1827	1553	3367	1827	1532
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Growth Factor (vph)	100%	125%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	204	2128	86	433	890	202	181	81	1183	443	88	190
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	0	0	0	173
Lane Group Flow (vph)	204	2128	44	433	890	202	181	81	1183	443	88	17
Confl. Peds. (#/hr)	6									1		
Heavy Vehicles (%)	4%	18%	4%	4%	18%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			Free			Free			4
Actuated Green, G (s)	21.3	87.9	87.9	18.8	85.4	170.0	21.3	10.1	170.0	26.3	15.1	15.1
Effective Green, g (s)	21.3	87.9	87.9	18.8	85.4	170.0	21.3	10.1	170.0	26.3	15.1	15.1
Actuated g/C Ratio	0.13	0.52	0.52	0.11	0.50	1.00	0.13	0.06	1.00	0.15	0.09	0.09
Clearance Time (s)	7.0	7.1	7.1	7.0	7.1		6.2	6.6		6.2	6.6	6.6
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	217	1581	790	372	1536	1553	217	108	1553	520	162	136
v/s Ratio Prot	0.12	c0.70		c0.13	0.29		0.10	0.04		c0.13	0.05	
v/s Ratio Perm			0.03			0.13			c0.76			0.01
v/c Ratio	0.94	1.35	0.06	1.16	0.58	0.13	0.83	0.75	0.76	0.85	0.54	0.12
Uniform Delay, d1	73.7	41.0	20.4	75.6	29.7	0.0	72.6	78.7	0.0	70.0	74.1	71.4
Progression Factor	1.06	0.80	1.36	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.1	156.1	0.0	99.3	1.6	0.2	23.2	25.0	3.6	12.7	3.7	0.4
Delay (s)	86.5	189.1	27.8	174.9	31.3	0.2	95.8	103.7	3.6	82.7	77.8	71.8
Level of Service	F	F	C	F	C	A	F	F	A	F	E	E
Approach Delay (s)	174.7			67.9			20.7			79.2		
Approach LOS	F			E			C			E		
Intersection Summary												
HCM 2000 Control Delay	100.4			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.26											
Actuated Cycle Length (s)	170.0			Sum of lost time (s)			26.9					
Intersection Capacity Utilization	101.1%			ICU Level of Service			G					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1009: SR 204 & Rio Road

2015 AM - No Build

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	332	2252	272	7	1232	7	217	25	1	22	5	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	346	2346	283	8	1384	8	293	34	1	27	6	220
RTOR Reduction (vph)	0	0	51	0	0	3	0	0	1	0	0	204
Lane Group Flow (vph)	346	2346	232	8	1384	5	293	34	0	27	6	16
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	38.0	95.0	95.0	1.5	58.5	58.5	18.3	24.0	24.0	5.4	11.1	11.1
Effective Green, g (s)	38.0	95.0	95.0	1.5	58.5	58.5	18.3	24.0	24.0	5.4	11.1	11.1
Actuated g/C Ratio	0.25	0.63	0.63	0.01	0.39	0.39	0.12	0.16	0.16	0.04	0.07	0.07
Clearance Time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	440	2715	984	17	1163	606	411	292	248	62	135	115
v/s Ratio Prot	c0.20	c0.55		0.00	c0.46		c0.09	c0.02		0.02	0.00	
v/s Ratio Perm			0.15			0.00			0.00			0.01
v/c Ratio	0.79	0.86	0.24	0.47	1.19	0.01	0.71	0.12	0.00	0.44	0.04	0.14
Uniform Delay, d1	52.2	22.3	11.9	73.9	45.8	28.0	63.3	53.9	52.9	70.8	64.5	65.0
Progression Factor	1.00	1.00	1.00	1.18	0.94	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.0	4.0	0.6	16.1	92.9	0.0	5.8	0.2	0.0	4.8	0.1	0.6
Delay (s)	61.2	26.2	12.4	103.4	135.8	23.1	69.1	54.1	52.9	75.6	64.7	65.6
Level of Service	E	C	B	F	F	C	E	D	D	E	E	E
Approach Delay (s)	29.0			134.9			67.5			66.6		
Approach LOS	C			F			E			E		
Intersection Summary												
HCM Average Control Delay	63.4			HCM Level of Service			E					
HCM Volume to Capacity ratio	0.93											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			23.3					
Intersection Capacity Utilization	80.2%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	2275	1227	21	0	19							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	2528	1363	23	0	33							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage (veh)													
Upstream signal (ft)	697												
pX, platoon unblocked					0.56								
vC, conflicting volume	1363				2206	454							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1363				403	454							
tC, single (s)	4.5				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	94							
cM capacity (veh/h)	411				319	547							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	843	843	843	454	454	454	23	33					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	23	33					
cSH	1700	1700	1700	1700	1700	1700	1700	547					
Volume to Capacity	0.50	0.50	0.50	0.27	0.27	0.27	0.01	0.06					
Queue Length 95th (ft)	0	0	0	0	0	0	0	5					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0					
Lane LOS	B												
Approach Delay (s)	0.0				0.0			12.0					
Approach LOS	B												
Intersection Summary													
Average Delay			0.1										
Intersection Capacity Utilization			47.3%		ICU Level of Service		A						
Analysis Period (min)			15										

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	2275	1238	7	0	10							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	2528	1376	8	0	17							
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							2218	459					
vC, conflicting volume	1376						2218	459					
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1376						2218	459					
tC, single (s)	4.5						6.9	7.0					
tC, 2 stage (s)													
tF (s)	2.4						3.5	3.3					
p0 queue free %	100						100	97					
cM capacity (veh/h)	406						36	544					
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	843	843	843	459	459	459	8	17					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	8	17					
cSH	1700	1700	1700	1700	1700	1700	1700	544					
Volume to Capacity	0.50	0.50	0.50	0.27	0.27	0.27	0.00	0.03					
Queue Length 95th (ft)	0	0	0	0	0	0	0	2					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8					
Lane LOS	B												
Approach Delay (s)	0.0				0.0			11.8					
Approach LOS	B												
Intersection Summary													
Average Delay			0.1										
Intersection Capacity Utilization			47.3%		ICU Level of Service		A						
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

2015 AM - No Build

1012: SR 204 & East Mall Driveway

7/28/2011

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	2275	1231	11	0	14							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	2528	1368	12	0	24							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage veh													
Upstream signal (ft)	545												
pX, platoon unblocked	0.81				0.81	0.81							
vC, conflicting volume	1368				2210	456							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	644				1681	0							
tC, single (s)	4.5				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	97							
cM capacity (veh/h)	665				68	876							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	843	843	843	456	456	456	12	24					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	12	24					
cSH	1700	1700	1700	1700	1700	1700	1700	876					
Volume to Capacity	0.50	0.50	0.50	0.27	0.27	0.27	0.01	0.03					
Queue Length 95th (ft)	0	0	0	0	0	0	0	2					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2					
Lane LOS	A												
Approach Delay (s)	0.0				0.0			9.2					
Approach LOS	A												
Intersection Summary													
Average Delay	0.1												
Intersection Capacity Utilization	47.3%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1013: SR 204 & Apache Ave

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	214	1999	62	104	1014	42	188	51	102	54	42	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4286		3367	4285		1736	1827	1553	3367	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4286		3367	4285		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	252	2352	73	114	1114	46	200	54	109	70	55	52
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	92	0	0	48
Lane Group Flow (vph)	252	2423	0	114	1157	0	200	54	17	70	55	4
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	28.1	84.2		10.4	66.5		20.7	23.6	23.6	7.3	10.2	10.2
Effective Green, g (s)	28.1	84.2		10.4	66.5		20.7	23.6	23.6	7.3	10.2	10.2
Actuated g/C Ratio	0.19	0.56		0.07	0.44		0.14	0.16	0.16	0.05	0.07	0.07
Clearance Time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	325	2406		233	1900		240	287	244	164	124	106
v/s Ratio Prot	c0.15	c0.57		0.03	0.27		c0.12	0.03		0.02	c0.03	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.78	1.01		0.49	0.61		0.83	0.19	0.07	0.43	0.44	0.03
Uniform Delay, d1	57.9	32.9		67.2	31.8		63.0	54.9	53.9	69.3	67.2	65.3
Progression Factor	0.90	1.12		1.08	0.63		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9	17.1		1.4	1.3		21.3	0.7	0.3	1.8	5.2	0.3
Delay (s)	59.8	53.9		73.8	21.4		84.2	55.5	54.1	71.1	72.4	65.6
Level of Service	E	D		E	C		F	E	D	E	E	E
Approach Delay (s)	54.4			26.1			70.9			69.9		
Approach LOS	D			C			E			E		
Intersection Summary												
HCM Average Control Delay	48.3			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.94											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			24.5					
Intersection Capacity Utilization	77.3%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1014: SR 204 & Middleground Road

2015 AM - No Build

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	353	1492	310	154	892	31	47	57	46	256	209	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	4287	1508	1736	4217	1532	1736	1692		1736	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.50	1.00		0.31	1.00	1.00
Satd. Flow (perm)	1736	4287	1508	1736	4217	1532	911	1692		575	1827	1532
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	364	1538	320	183	1062	37	60	73	59	298	243	257
RTOR Reduction (vph)	0	0	97	0	0	20	0	19	0	0	0	215
Lane Group Flow (vph)	364	1538	223	183	1062	17	60	113	0	298	243	42
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	24.3	77.7	77.7	14.3	67.7	67.7	21.9	14.1		39.1	24.8	24.8
Effective Green, g (s)	24.3	77.7	77.7	14.3	67.7	67.7	21.9	14.1		39.1	24.8	24.8
Actuated g/C Ratio	0.16	0.52	0.52	0.10	0.45	0.45	0.15	0.09		0.26	0.17	0.17
Clearance Time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	281	2221	781	165	1903	691	176	159		293	302	253
v/s Ratio Prot	c0.21	c0.36		0.11	0.25		0.02	0.07		c0.13	0.13	
v/s Ratio Perm			0.15			0.01	0.03			c0.14		0.03
v/c Ratio	1.30	0.69	0.29	1.11	0.56	0.02	0.34	0.71		1.02	0.80	0.17
Uniform Delay, d1	62.9	27.2	20.5	67.8	30.2	22.8	56.7	66.0		51.9	60.3	53.7
Progression Factor	1.24	0.73	1.16	1.12	0.64	0.25	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	141.9	0.6	0.3	100.9	1.1	0.1	0.8	13.9		57.0	13.6	0.1
Delay (s)	219.5	20.4	24.0	176.7	20.5	5.9	57.5	79.9		108.9	73.9	53.9
Level of Service	F	C	C	F	C	A	E	E		F	E	D
Approach Delay (s)		53.6			42.4			72.9			80.5	
Approach LOS		D			D			E			F	
Intersection Summary												
HCM Average Control Delay			56.0			HCM Level of Service				E		
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				13.0		
Intersection Capacity Utilization			83.6%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1015: SR 204 & Arts Drive

2015 AM - No Build

7/28/2011

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1735	59	111	1056	21	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9		6.0	5.9	6.5	6.0
Lane Util. Factor		0.91		1.00	0.91	0.97	1.00
Frt		1.00		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4218		1736	4217	3367	1553
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4218		1736	4217	3367	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.78	0.78
Adj. Flow (vph)	0	1789	61	132	1257	27	46
RTOR Reduction (vph)	0	1	0	0	0	0	2
Lane Group Flow (vph)	0	1849	0	132	1257	27	44
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%
Turn Type	Prot			Prot		custom	
Protected Phases	5	2		1	6	3	1 3
Permitted Phases							8
Actuated Green, G (s)		107.3		16.6	129.9	7.7	26.8
Effective Green, g (s)		107.3		16.6	129.9	7.7	26.8
Actuated g/C Ratio		0.72		0.11	0.87	0.05	0.18
Clearance Time (s)		5.9		6.0	5.9	6.5	
Vehicle Extension (s)		5.0		3.0	5.0	3.0	
Lane Grp Cap (vph)		3017		192	3652	173	277
v/s Ratio Prot		c0.44		c0.08	0.30	0.01	c0.03
v/s Ratio Perm							0.00
v/c Ratio		0.61		0.69	0.34	0.16	0.16
Uniform Delay, d1		10.8		64.2	1.9	68.0	52.1
Progression Factor		1.96		0.83	1.33	1.00	1.00
Incremental Delay, d2		0.6		9.2	0.2	0.4	0.3
Delay (s)		21.8		62.4	2.8	68.5	52.4
Level of Service		C		E	A	E	D
Approach Delay (s)		21.8			8.5	58.3	
Approach LOS		C			A	E	
Intersection Summary							
HCM Average Control Delay			17.0		HCM Level of Service		B
HCM Volume to Capacity ratio			0.60				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		17.9
Intersection Capacity Utilization			59.7%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	105	1666	1104	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76	
Hourly flow rate (vph)	119	1893	1240	0	0	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)			1257				
pX, platoon unblocked	0.93				0.93	0.93	
vC, conflicting volume	1240				2110	413	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1001				1935	113	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	81				100	100	
cM capacity (veh/h)	629				43	849	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	119	631	631	631	413	413	413
Volume Left	119	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	629	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.19	0.37	0.37	0.37	0.24	0.24	0.24
Queue Length 95th (ft)	17	0	0	0	0	0	0
Control Delay (s)	12.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	0.7				0.0		
Approach LOS							
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization			37.6%		ICU Level of Service		A
Analysis Period (min)			15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1634	32	8	1093	0	11	0	3	44	5	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.62	0.62	0.62	0.76	0.76	0.76
Hourly flow rate (vph)	0	1857	36	9	1228	0	18	0	5	58	7	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)					1072							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	1228				1893		2306	3121	637	1870	3139	409
vC1, stage 1 conf vol							1875	1875		1246	1246	
vC2, stage 2 conf vol							431	1246		624	1893	
vCu, unblocked vol	909				1893		2091	2986	637	1613	3006	10
tC, single (s)	4.6				4.2		7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.4				2.2		3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				97		72	100	99	66	91	100
cM capacity (veh/h)	571				304		64	81	415	169	75	967
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	743	743	408	9	409	409	409	23	64			
Volume Left	0	0	0	9	0	0	0	18	58			
Volume Right	0	0	36	0	0	0	0	5	0			
cSH	1700	1700	1700	304	1700	1700	1700	78	150			
Volume to Capacity	0.44	0.44	0.24	0.03	0.24	0.24	0.24	0.29	0.43			
Queue Length 95th (ft)	0	0	0	2	0	0	0	27	48			
Control Delay (s)	0.0	0.0	0.0	17.2	0.0	0.0	0.0	69.3	46.1			
Lane LOS				C				F	E			
Approach Delay (s)	0.0			0.1				69.3	46.1			
Approach LOS								F	E			
Intersection Summary												
Average Delay				1.5								
Intersection Capacity Utilization				42.3%				ICU Level of Service		A		
Analysis Period (min)				15								

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1020: SR 204 & Mercy Blvd

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	1539	61	27	1029	91	95	9	71	67	14	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91	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	0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1583		1736	1595	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.59	1.00		0.64	1.00	
Satd. Flow (perm)	1736	4218		1736	4217	1553	1085	1583		1170	1595	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	88	1673	66	31	1197	106	128	12	96	93	19	104
RTOR Reduction (vph)	0	2	0	0	0	36	0	82	0	0	89	0
Lane Group Flow (vph)	88	1737	0	31	1197	70	128	26	0	93	34	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	12.9	104.1		5.7	96.9	96.9	21.8	21.8		21.8	21.8	
Effective Green, g (s)	12.9	104.1		5.7	96.9	96.9	21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.09	0.69		0.04	0.65	0.65	0.15	0.15		0.15	0.15	
Clearance Time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	2927		66	2724	1003	158	230		170	232	
v/s Ratio Prot	c0.05	c0.41		0.02	0.28			0.02			0.02	
v/s Ratio Perm						0.05	c0.12			0.08		
v/c Ratio	0.59	0.59		0.47	0.44	0.07	0.81	0.11		0.55	0.15	
Uniform Delay, d1	66.0	11.9		70.7	13.1	9.8	62.1	55.7		59.5	56.0	
Progression Factor	1.21	0.22		0.96	0.57	0.35	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.3	0.8		4.8	0.5	0.1	25.9	0.2		3.6	0.3	
Delay (s)	85.5	3.3		72.7	7.9	3.6	88.0	55.9		63.1	56.3	
Level of Service	F	A		E	A	A	F	E		E	E	
Approach Delay (s)		7.3			9.1			73.3			59.2	
Approach LOS		A			A			E			E	
Intersection Summary												
HCM Average Control Delay		15.4			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)			18.4				
Intersection Capacity Utilization		63.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1021: SR 204 & Largo Blvd

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	1476	141	67	937	25	133	56	227	64	69	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4219		1736	4218		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.46	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	1736	4219		1736	4218		834	1827	1553	1283	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	69	1697	162	72	1008	27	199	84	339	78	84	94
RTOR Reduction (vph)	0	6	0	0	1	0	0	0	276	0	0	86
Lane Group Flow (vph)	69	1853	0	72	1034	0	199	84	63	78	84	8
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	9.9	81.9		11.6	83.1		38.0	20.9	20.9	22.8	12.2	12.2
Effective Green, g (s)	9.9	81.9		11.6	83.1		38.0	20.9	20.9	22.8	12.2	12.2
Actuated g/C Ratio	0.07	0.55		0.08	0.55		0.25	0.14	0.14	0.15	0.08	0.08
Clearance Time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	115	2304		134	2337		327	255	216	227	149	126
v/s Ratio Prot	0.04	c0.44		c0.04	0.25		c0.08	0.05		0.02	0.05	
v/s Ratio Perm							c0.08		0.04	0.03		0.00
v/c Ratio	0.60	0.80		0.54	0.44		0.61	0.33	0.29	0.34	0.56	0.06
Uniform Delay, d1	68.1	27.6		66.6	19.8		47.4	58.2	57.9	56.5	66.3	63.6
Progression Factor	0.95	0.91		1.18	0.36		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	2.7		3.9	0.6		3.2	0.8	0.7	0.9	4.8	0.2
Delay (s)	72.0	27.8		82.5	7.8		50.6	59.0	58.6	57.4	71.2	63.8
Level of Service	E	C		F	A		D	E	E	E	E	E
Approach Delay (s)		29.4			12.6			56.1			64.3	
Approach LOS		C			B			E			E	
Intersection Summary												
HCM Average Control Delay		31.2			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.71										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)			18.3				
Intersection Capacity Utilization		66.1%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 AM - No Build

1022: SR 204 & Idlewood Drive

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗		↑↑↑↗				↗			↗
Volume (veh/h)	0	1724	43	0	1013	10	0	0	100	0	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Hourly flow rate (vph)	0	1982	49	0	1089	11	0	0	149	0	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)	651			1109								
pX, platoon unblocked	0.91			0.68			0.72	0.72	0.68	0.72	0.72	0.91
vC, conflicting volume	1100			1982			2364	3082	661	1755	3076	368
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	766			786			710	1703	0	0	1695	0
tC, single (s)	4.6			4.6			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.4			2.4			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	80	100	100	98
cM capacity (veh/h)	655			478			224	64	731	585	65	982
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	661	661	661	49	436	436	229	149	20			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	49	0	0	11	149	20			
cSH	1700	1700	1700	1700	1700	1700	1700	731	982			
Volume to Capacity	0.39	0.39	0.39	0.03	0.26	0.26	0.13	0.20	0.02			
Queue Length 95th (ft)	0	0	0	0	0	0	0	19	2			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	8.7			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			11.2	8.7			
Approach LOS								B	A			
Intersection Summary												
Average Delay	0.6											
Intersection Capacity Utilization	46.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

2015 AM - No Build

1023: SR 204 & Deerfield Road

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	1676	23	41	949	78	34	22	126	113	4	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Lane Util. Factor	1.00	0.86		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	5314		1736	4217	1553	1736	1593		1649	1659	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	5314		1736	4217	1553	1736	1593		1649	1659	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	133	1783	24	42	968	80	38	24	140	131	5	47
RTOR Reduction (vph)	0	1	0	0	0	33	0	131	0	0	0	43
Lane Group Flow (vph)	133	1806	0	42	968	47	38	33	0	68	68	4
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	16.7	96.7		7.9	87.9	87.9	9.4	9.4		11.5	11.5	11.5
Effective Green, g (s)	16.7	96.7		7.9	87.9	87.9	9.4	9.4		11.5	11.5	11.5
Actuated g/C Ratio	0.11	0.64		0.05	0.59	0.59	0.06	0.06		0.08	0.08	0.08
Clearance Time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	193	3426		91	2471	910	109	100		126	127	119
v/s Ratio Prot	c0.08	c0.34		0.02	0.23		c0.02	0.02		c0.04	0.04	
v/s Ratio Perm						0.03						0.00
v/c Ratio	0.69	0.53		0.46	0.39	0.05	0.35	0.33		0.54	0.54	0.03
Uniform Delay, d1	64.2	14.3		69.0	16.7	13.3	67.4	67.3		66.7	66.7	64.1
Progression Factor	1.01	0.90		1.32	0.52	0.10	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.9	0.4		3.5	0.4	0.1	1.9	1.9		4.4	4.3	0.1
Delay (s)	71.5	13.3		94.3	9.1	1.4	69.3	69.2		71.1	71.0	64.2
Level of Service	E	B		F	A	A	E	E		E	E	E
Approach Delay (s)	17.3			11.8			69.2			69.3		
Approach LOS	B			B			E			E		
Intersection Summary												
HCM Average Control Delay	21.4			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.52											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			18.6					
Intersection Capacity Utilization	64.0%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		  			  					  		
Volume (vph)	0	962	953	0	487	20	15	0	45	536	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0		6.0	6.0	6.0		6.0	6.0		6.0
Lane Util. Factor		0.86	0.86		0.86	1.00	1.00		1.00	0.94		1.00
Frt		0.95	0.85		1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)		3787	1129		5314	1553	1736		1553	4138		1313
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)		3787	1129		5314	1553	1736		1553	4138		1313
Peak-hour factor, PHF	0.93	0.93	0.93	0.77	0.77	0.77	0.72	0.72	0.72	0.82	0.82	0.82
Adj. Flow (vph)	0	1034	1025	0	632	26	21	0	62	654	0	22
RTOR Reduction (vph)	0	45	0	0	0	7	0	0	50	0	0	18
Lane Group Flow (vph)	0	1502	512	0	632	19	21	0	12	654	0	4
Heavy Vehicles (%)	4%	23%	23%	4%	23%	4%	4%	4%	4%	23%	23%	23%
Turn Type		Free				Perm	Prot		custom	Prot		custom
Protected Phases		2			6		4			8		
Permitted Phases		Free				6			4			8
Actuated Green, G (s)		108.5	150.0		108.5	108.5	29.5		29.5	29.5		29.5
Effective Green, g (s)		108.5	150.0		108.5	108.5	29.5		29.5	29.5		29.5
Actuated g/C Ratio		0.72	1.00		0.72	0.72	0.20		0.20	0.20		0.20
Clearance Time (s)		6.0			6.0	6.0	6.0		6.0	6.0		6.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		2739	1129		3844	1123	341		305	814		258
v/s Ratio Prot		c0.40			0.12		0.01			c0.16		
v/s Ratio Perm			0.45			0.01			0.01			0.00
v/c Ratio		0.55	0.45		0.16	0.02	0.06		0.04	0.80		0.02
Uniform Delay, d1		9.5	0.0		6.5	5.8	49.0		48.8	57.5		48.6
Progression Factor		0.23	1.00		0.89	0.77	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.7	1.2		0.1	0.0	0.1		0.1	5.8		0.0
Delay (s)		2.9	1.2		5.9	4.5	49.1		48.8	63.3		48.6
Level of Service		A	A		A	A	D		D	E		D
Approach Delay (s)		2.4			5.8			48.9			62.8	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM Average Control Delay		15.9			HCM Level of Service				B			
HCM Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)				12.0			
Intersection Capacity Utilization		45.9%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		  			  	 	
Volume (vph)	0	926	69	90	469	38	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	1.00	0.86	0.97	1.00
Frt		1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)		4217	1509	1687	5314	3273	1509
Flt Permitted		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)		4217	1509	1687	5314	3273	1509
Peak-hour factor, PHF	0.93	0.93	0.93	0.77	0.77	0.82	0.82
Adj. Flow (vph)	0	996	74	117	609	46	63
RTOR Reduction (vph)	0	0	20	0	0	0	60
Lane Group Flow (vph)	0	996	54	117	609	46	3
Heavy Vehicles (%)	7%	23%	7%	7%	23%	7%	7%
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	5	2		1	6	8	
Permitted Phases			2				8
Actuated Green, G (s)		109.7	109.7	15.7	131.4	6.6	6.6
Effective Green, g (s)		109.7	109.7	15.7	131.4	6.6	6.6
Actuated g/C Ratio		0.73	0.73	0.10	0.88	0.04	0.04
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		3084	1104	177	4655	144	66
v/s Ratio Prot		c0.24		c0.07	0.11	c0.01	
v/s Ratio Perm			0.04			0.00	
v/c Ratio		0.32	0.05	0.66	0.13	0.32	0.04
Uniform Delay, d1		7.1	5.6	64.6	1.3	69.5	68.7
Progression Factor		0.18	0.18	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.1	8.9	0.1	1.3	0.3
Delay (s)		1.5	1.1	73.5	1.4	70.8	68.9
Level of Service		A	A	E	A	E	E
Approach Delay (s)		1.5			13.0	69.7	
Approach LOS		A			B	E	
Intersection Summary							
HCM Average Control Delay		9.8		HCM Level of Service		A	
HCM Volume to Capacity ratio		0.36					
Actuated Cycle Length (s)		150.0		Sum of lost time (s)		18.0	
Intersection Capacity Utilization		41.2%		ICU Level of Service		A	
Analysis Period (min)		15					
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2015 PM - No Build

1000: SR 204 & Gateway Blvd W

7/28/2011

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Volume (veh/h)	11	356	0	38	560	88	2	1	16	85	2	38						
Sign Control	Free			Free			Stop			Stop								
Grade	0%			0%			0%			0%								
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78						
Hourly flow rate (vph)	12	387	0	43	636	100	3	1	21	109	3	49						
Pedestrians																		
Lane Width (ft)																		
Walking Speed (ft/s)																		
Percent Blockage																		
Right turn flare (veh)	8																	
Median type	None			None														
Median storage veh																		
Upstream signal (ft)	708																	
pX, platoon unblocked	0.95							0.95	0.95		0.95	0.95						
vC, conflicting volume	636				387				817	1134	193	962						
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	510				387				700	1034	193	854						
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6						
tC, 2 stage (s)																		
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5						
p0 queue free %	99				96				99	99	97	51						
cM capacity (veh/h)	991				1161				275	207	812	222						
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1										
Volume Total	205	193	43	318	318	100	25	160										
Volume Left	12	0	43	0	0	0	3	109										
Volume Right	0	0	0	0	0	100	21	49										
cSH	991	1700	1161	1700	1700	1700	598	319										
Volume to Capacity	0.01	0.11	0.04	0.19	0.19	0.06	0.04	0.50										
Queue Length 95th (ft)	1	0	3	0	0	0	3	67										
Control Delay (s)	0.6	0.0	8.2	0.0	0.0	0.0	11.3	28.5										
Lane LOS	A		A				B	D										
Approach Delay (s)	0.3		0.5				11.3	28.5										
Approach LOS							B	D										
Intersection Summary																		
Average Delay				3.9														
Intersection Capacity Utilization				47.1%	ICU Level of Service			A										
Analysis Period (min)				15														

HCM Signalized Intersection Capacity Analysis

2015 PM - No Build

1001: SR 204 & I-95 SB Off-Ramp

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations												
Volume (vph)	0	374	83	706	570	0	0	0	643	0	116	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.7	5.7	6.4	5.7				6.1		6.1	
Lane Util. Factor		0.95	1.00	1.00	0.95				0.97		1.00	
Frt		1.00	0.85	1.00	1.00				1.00		0.85	
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (prot)		3312	1442	1612	3312				3127		1442	
Flt Permitted		1.00	1.00	0.18	1.00				0.95		1.00	
Satd. Flow (perm)		3312	1442	304	3312				3127		1442	
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.92	0.92	0.85	0.85	0.85	
Adj. Flow (vph)	0	473	105	776	626	0	0	0	756	0	136	
RTOR Reduction (vph)	0	0	87	0	0	0	0	0	0	0	100	
Lane Group Flow (vph)	0	473	18	776	626	0	0	0	756	0	36	
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%	
Turn Type			Perm	pm+pt					custom		custom	
Protected Phases		2		1	6							
Permitted Phases			2	6					4		4	
Actuated Green, G (s)		24.3	24.3	91.6	91.6				36.6		36.6	
Effective Green, g (s)		24.3	24.3	91.6	91.6				36.6		36.6	
Actuated g/C Ratio		0.17	0.17	0.65	0.65				0.26		0.26	
Clearance Time (s)		5.7	5.7	6.4	5.7				6.1		6.1	
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0	
Lane Grp Cap (vph)		575	250	768	2167				817		377	
v/s Ratio Prot		0.14		c0.44	0.19							
v/s Ratio Perm			0.01	c0.22					c0.24		0.02	
v/c Ratio		0.82	0.07	1.01	0.29				0.93		0.09	
Uniform Delay, d1		55.8	48.4	32.2	10.3				50.4		39.1	
Progression Factor		1.00	1.00	0.35	0.62				1.00		1.00	
Incremental Delay, d2		12.5	0.6	29.9	0.3				16.1		0.1	
Delay (s)		68.3	49.0	41.3	6.7				66.5		39.3	
Level of Service		E	D	D	A				E		D	
Approach Delay (s)		64.8			25.9		0.0			62.3		
Approach LOS		E			C		A			E		
Intersection Summary												
HCM Average Control Delay			45.0		HCM Level of Service				D			
HCM Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				12.5			
Intersection Capacity Utilization			59.9%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM - No Build

1002: SR 204 & I-95 NB On-Ramp

7/28/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	39	978	0	0	1148	492	0	0	128	0	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Lane Util. Factor	1.00	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)	1612	3312			3312	1442			1612		2538
Flt Permitted	0.13	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	220	3312			3312	1442			1612		2538
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	43	1075	0	0	1320	566	0	0	151	0	768
RTOR Reduction (vph)	0	0	0	0	0	176	0	0	0	0	142
Lane Group Flow (vph)	43	1075	0	0	1320	390	0	0	151	0	626
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			Perm			custom		custom		
Protected Phases	5	2			6						
Permitted Phases	2					6			8		8
Actuated Green, G (s)	90.1	90.1			79.3	79.3			37.9		37.9
Effective Green, g (s)	90.1	90.1			79.3	79.3			37.9		37.9
Actuated g/C Ratio	0.64	0.64			0.57	0.57			0.27		0.27
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	189	2132			1876	817			436		687
v/s Ratio Prot	0.01	c0.32			c0.40						
v/s Ratio Perm	0.14					0.27			0.09		c0.25
v/c Ratio	0.23	0.50			0.70	0.48			0.35		0.91
Uniform Delay, d1	27.4	13.2			21.9	18.0			41.1		49.4
Progression Factor	2.65	2.45			0.49	0.47			1.00		1.00
Incremental Delay, d2	0.4	0.4			0.2	0.2			0.5		16.3
Delay (s)	73.0	32.7			11.0	8.6			41.6		65.7
Level of Service	E	C			B	A			D		E
Approach Delay (s)		34.3			10.3		0.0			61.7	
Approach LOS		C			B		A			E	
Intersection Summary											
HCM Average Control Delay			29.2		HCM Level of Service					C	
HCM Volume to Capacity ratio			0.73								
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					12.0	
Intersection Capacity Utilization			59.9%		ICU Level of Service					B	
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2015 PM - No Build

1003: SR 204 & Gateway Blvd S

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	212	1217	202	141	1289	121	189	62	80	58	44	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1547	2981	1384	1547	2981	1384	1547	1491		1547	1437	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.19	1.00		0.65	1.00	
Satd. Flow (perm)	1547	2981	1384	1547	2981	1384	315	1491		1063	1437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	230	1323	220	155	1416	133	220	72	93	62	47	172
RTOR Reduction (vph)	0	0	86	0	0	36	0	32	0	0	98	0
Lane Group Flow (vph)	230	1323	134	155	1416	97	220	133	0	62	121	0
Heavy Vehicles (%)	5%	9%	5%	5%	9%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	25.2	55.9	55.9	17.6	48.3	48.3	43.8	28.1		25.5	17.7	
Effective Green, g (s)	25.2	55.9	55.9	17.6	48.3	48.3	43.8	28.1		25.5	17.7	
Actuated g/C Ratio	0.18	0.40	0.40	0.13	0.34	0.34	0.31	0.20		0.18	0.13	
Clearance Time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	278	1190	553	194	1028	477	259	299		221	182	
v/s Ratio Prot	c0.15	c0.44		0.10	c0.48		c0.11	0.09		0.02	0.08	
v/s Ratio Perm			0.10			0.07	c0.16			0.04		
v/c Ratio	0.83	1.11	0.24	0.80	1.38	0.20	0.85	0.44		0.28	0.67	
Uniform Delay, d1	55.3	42.0	28.0	59.5	45.9	32.3	40.0	49.1		48.8	58.3	
Progression Factor	1.13	0.61	0.55	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.7	59.8	0.8	19.5	176.0	1.0	21.7	1.1		0.5	8.9	
Delay (s)	76.0	85.2	16.1	79.0	221.9	33.3	61.7	50.2		49.3	67.2	
Level of Service	E	F	B	E	F	C	E	D		D	E	
Approach Delay (s)		75.5		194.1				56.7			63.2	
Approach LOS		E		F				E			E	
Intersection Summary												
HCM Average Control Delay			121.7			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.14									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				31.1		
Intersection Capacity Utilization			102.8%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

											
Movement	EBL	EBR	EBR2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	272	0	298	0	0	0	835	348	300	1480	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0				5.0	5.0	5.0	4.5	
Lane Util. Factor	0.97		1.00				0.95	1.00	1.00	0.95	
Frt	1.00		0.85				1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00				1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303		1524				3406	1524	1703	3406	
Flt Permitted	0.95		1.00				1.00	1.00	0.23	1.00	
Satd. Flow (perm)	3303		1524				3406	1524	414	3406	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	309	0	339	0	0	0	898	374	330	1626	0
RTOR Reduction (vph)	0	0	46	0	0	0	0	171	0	0	0
Lane Group Flow (vph)	309	0	293	0	0	0	898	203	330	1626	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom						Perm		pm+pt		
Protected Phases							2		1		
Permitted Phases	4		4				2		6		
Actuated Green, G (s)	17.0		17.0				54.3		54.3		73.5
Effective Green, g (s)	17.0		17.0				54.3		54.3		73.5
Actuated g/C Ratio	0.17		0.17				0.54		0.54		0.74
Clearance Time (s)	5.0		5.0				5.0		5.0		4.5
Vehicle Extension (s)	3.0		3.0				3.0		3.0		3.0
Lane Grp Cap (vph)	562		259				1849		828		2503
v/s Ratio Prot							0.26		0.09		c0.48
v/s Ratio Perm	0.09		c0.19						0.13		c0.41
v/c Ratio	0.55		1.13				0.49		0.25		0.69
Uniform Delay, d1	38.0		41.5				14.2		12.0		7.5
Progression Factor	1.00		1.00				1.00		1.00		3.03
Incremental Delay, d2	1.1		95.3				0.9		0.7		2.9
Delay (s)	39.1		136.8				15.1		12.8		25.6
Level of Service	D		F				B		B		B
Approach Delay (s)	90.2			0.0			14.4			13.5	
Approach LOS	F			A			B			B	
Intersection Summary											
HCM Average Control Delay				26.6			HCM Level of Service			C	
HCM Volume to Capacity ratio				0.76							
Actuated Cycle Length (s)				100.0			Sum of lost time (s)			9.5	
Intersection Capacity Utilization				82.4%			ICU Level of Service			E	
Analysis Period (min)				15							
c Critical Lane Group											

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR		
Lane Configurations														
Volume (vph)	0	0	0	682	0	204	362	745	0	0	1098	321		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)				5.0		5.0	5.0	5.0			5.0	5.0		
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00		
Frt				1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)				3213		1482	1656	3312			3312	1482		
Flt Permitted				0.95		1.00	0.12	1.00			1.00	1.00		
Satd. Flow (perm)				3213		1482	209	3312			3312	1482		
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.86	0.86	0.86		
Adj. Flow (vph)	0	0	0	718	0	215	393	810	0	0	1277	373		
RTOR Reduction (vph)	0	0	0	0	0	162	0	0	0	0	0	168		
Lane Group Flow (vph)	0	0	0	718	0	53	393	810	0	0	1277	205		
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%		
Turn Type				custom		custom	pm+pt						Perm	
Protected Phases							5		2				6	
Permitted Phases				8		8	2						6	
Actuated Green, G (s)				24.5		24.5	65.5		65.5				55.0	55.0
Effective Green, g (s)				24.5		24.5	65.5		65.5				55.0	55.0
Actuated g/C Ratio				0.24		0.24	0.66		0.66				0.55	0.55
Clearance Time (s)				5.0		5.0	5.0		5.0				5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)				787		363	216		2169				1822	815
v/s Ratio Prot							c0.10		0.24				0.39	
v/s Ratio Perm				c0.22		0.04	c1.09							0.14
v/c Ratio				0.91		0.15	1.82		0.37				0.70	0.25
Uniform Delay, d1				36.7		29.6	15.9		7.9				16.5	11.8
Progression Factor				1.00		1.00	4.66		1.00				1.00	1.00
Incremental Delay, d2				14.8		0.2	384.5		0.4				2.3	0.7
Delay (s)				51.5		29.8	458.6		8.3				18.8	12.5
Level of Service				D		C	F		A				B	B
Approach Delay (s)	0.0			46.5				155.4		17.3				
Approach LOS	A			D				F		B				
Intersection Summary														
HCM Average Control Delay	68.4			HCM Level of Service					E					
HCM Volume to Capacity ratio	1.53													
Actuated Cycle Length (s)	100.0			Sum of lost time (s)					10.0					
Intersection Capacity Utilization	82.4%			ICU Level of Service					E					
Analysis Period (min)	15													
c Critical Lane Group														

HCM Unsignalized Intersection Capacity Analysis

2015 PM - No Build

1006: SR 204 & Grove Point Road

7/28/2011

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Volume (veh/h)	0	1429	4	13	1745	0	9	0	23	0	0	0							
Sign Control	Free			Free			Stop			Stop									
Grade	0%			0%			0%			0%									
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.66	0.66	0.66	0.25	0.25	0.25							
Hourly flow rate (vph)	0	1588	4	14	1876	0	14	0	35	0	0	0							
Pedestrians																			
Lane Width (ft)																			
Walking Speed (ft/s)																			
Percent Blockage																			
Right turn flare (veh)																			
Median type	Raised			Raised															
Median storage veh	1			1															
Upstream signal (ft)																			
pX, platoon unblocked																			
vC, conflicting volume	1876				1592				2554	3492	794	2733	3497	938					
vC1, stage 1 conf vol							1588	1588				1904	1904						
vC2, stage 2 conf vol							966	1904				829	1592						
vCu, unblocked vol	1876				1592				2554	3492	794	2733	3497	938					
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0					
tC, 2 stage (s)							6.6	5.6				6.6	5.6						
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3					
p0 queue free %	100				97				82	100	89	100	100	100					
cM capacity (veh/h)	312				403				76	63	329	52	61	264					
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1									
Volume Total	0	794	794	4	14	938	938	0	48	0									
Volume Left	0	0	0	0	14	0	0	0	14	0									
Volume Right	0	0	0	4	0	0	0	0	35	0									
cSH	1700	1700	1700	1700	403	1700	1700	1700	170	1700									
Volume to Capacity	0.00	0.47	0.47	0.00	0.03	0.55	0.55	0.00	0.29	0.00									
Queue Length 95th (ft)	0	0	0	0	3	0	0	0	28	0									
Control Delay (s)	0.0	0.0	0.0	0.0	14.2	0.0	0.0	0.0	34.4	0.0									
Lane LOS					B				D		A								
Approach Delay (s)	0.0				0.1				34.4	0.0									
Approach LOS									D		A								
Intersection Summary																			
Average Delay				0.5															
Intersection Capacity Utilization				58.2%	ICU Level of Service			B											
Analysis Period (min)				15															

HCM Signalized Intersection Capacity Analysis

2015 PM - No Build

1007: SR 204 & Pine Grove Road

7/28/2011

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Volume (vph)	21	1385	46	114	1714	29	30	1	33	40	1	14			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Total Lost time (s)	6.0	7.5	7.5	6.0	7.5	7.5	7.0			7.0					
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00			1.00					
Frt	1.00	1.00	0.85	1.00	1.00	0.85	0.93			0.97					
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.98			0.96					
Satd. Flow (prot)	1752	3139	1568	1752	3139	1568	1676			1719					
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.84			0.66					
Satd. Flow (perm)	1752	3139	1568	1752	3139	1568	1440			1183					
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81			
Adj. Flow (vph)	23	1522	51	121	1823	31	41	1	45	49	1	17			
RTOR Reduction (vph)	0	0	8	0	0	4	0	22	0	0	7	0			
Lane Group Flow (vph)	23	1522	43	121	1823	27	0	65	0	0	60	0			
Heavy Vehicles (%)	3%	15%	3%	3%	15%	3%	3%	3%	3%	3%	3%	3%			
Turn Type	Prot	Perm		Prot	Perm		Perm	Perm			Perm				
Protected Phases	5	2			1	6	8			4					
Permitted Phases				2	6			8	4						
Actuated Green, G (s)	3.0	125.4	125.4	16.8	139.2	139.2	12.3			12.3					
Effective Green, g (s)	3.0	125.4	125.4	16.8	139.2	139.2	12.3			12.3					
Actuated g/C Ratio	0.02	0.72	0.72	0.10	0.80	0.80	0.07			0.07					
Clearance Time (s)	6.0	7.5	7.5	6.0	7.5	7.5	7.0			7.0					
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0			3.0					
Lane Grp Cap (vph)	30	2249	1124	168	2497	1247	101			83					
v/s Ratio Prot	0.01	0.48	c0.07		c0.58										
v/s Ratio Perm				0.03	0.02			0.04					c0.05		
v/c Ratio	0.77	0.68	0.04	0.72	0.73	0.02	0.64			0.72					
Uniform Delay, d1	85.7	13.6	7.2	76.8	8.7	3.7	79.2			79.6					
Progression Factor	1.00	1.00	1.00	0.86	0.71	1.09	1.00			1.00					
Incremental Delay, d2	72.7	1.7	0.1	6.0	0.8	0.0	13.0			25.4					
Delay (s)	158.3	15.3	7.3	72.4	6.9	4.1	92.2			105.1					
Level of Service	F	B	A	E	A	A	F			F					
Approach Delay (s)	17.1			10.9			92.2			105.1					
Approach LOS	B			B			F			F					
Intersection Summary															
HCM Average Control Delay				17.2	HCM Level of Service			B							
HCM Volume to Capacity ratio				0.75											
Actuated Cycle Length (s)				175.0	Sum of lost time (s)			20.5							
Intersection Capacity Utilization				75.3%	ICU Level of Service			D							
Analysis Period (min)	15														
c Critical Lane Group															

HCM Signalized Intersection Capacity Analysis

1008: King George Boulevard & SR 204

2015 PM - No Build

1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	174	1027	257	971	1458	286	158	102	403	230	150	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.1	7.1	7.0	7.1	4.0	6.2	6.6	4.0	6.2	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3139	1526	3367	3139	1553	1736	1827	1553	3367	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3139	1526	3367	3139	1553	1736	1827	1553	3367	1827	1532
Peak-hour factor, PHF	0.99	0.99	0.99	0.98	0.98	0.98	0.85	0.85	0.85	0.77	0.77	0.77
Growth Factor (vph)	100%	100%	100%	100%	171%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	176	1037	260	991	2544	292	186	120	474	299	195	313
RTOR Reduction (vph)	0	0	107	0	0	0	0	0	0	0	0	179
Lane Group Flow (vph)	176	1037	153	991	2544	292	186	120	474	299	195	134
Confl. Peds. (#/hr)	6									1		
Heavy Vehicles (%)	4%	15%	4%	4%	15%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			Free			Free			4
Actuated Green, G (s)	20.2	61.1	61.1	52.8	93.7	175.0	17.8	14.9	175.0	19.3	16.4	16.4
Effective Green, g (s)	20.2	61.1	61.1	52.8	93.7	175.0	17.8	14.9	175.0	19.3	16.4	16.4
Actuated g/C Ratio	0.12	0.35	0.35	0.30	0.54	1.00	0.10	0.09	1.00	0.11	0.09	0.09
Clearance Time (s)	7.0	7.1	7.1	7.0	7.1		6.2	6.6		6.2	6.6	6.6
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	200	1095	532	1015	1680	1553	176	155	1553	371	171	143
v/s Ratio Prot	0.10	0.33		c0.29	c0.81		c0.11	0.07		0.09	c0.11	
v/s Ratio Perm			0.10			0.19			c0.31			0.09
v/c Ratio	0.88	0.95	0.29	0.98	1.51	0.19	1.06	0.77	0.31	0.81	1.14	0.93
Uniform Delay, d1	76.2	55.4	41.2	60.5	40.6	0.0	78.6	78.4	0.0	76.0	79.3	78.8
Progression Factor	0.90	0.85	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.2	13.6	1.0	22.4	234.5	0.3	83.7	21.0	0.5	12.0	111.6	55.3
Delay (s)	94.9	60.5	36.5	82.9	275.2	0.3	162.3	99.4	0.5	88.1	190.9	134.0
Level of Service	F	E	D	F	F	A	F	F	A	F	F	F
Approach Delay (s)	60.3			204.4			54.3			130.7		
Approach LOS	E			F			D			F		
Intersection Summary												
HCM 2000 Control Delay	148.0			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.38											
Actuated Cycle Length (s)	175.0			Sum of lost time (s)			26.9					
Intersection Capacity Utilization	118.4%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1009: SR 204 & Rio Road

2015 PM - No Build

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	351	1625	175	29	1846	13	333	19	16	32	24	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	373	1729	186	32	2007	14	411	23	20	34	26	634
RTOR Reduction (vph)	0	0	60	0	0	3	0	0	16	0	0	245
Lane Group Flow (vph)	373	1729	126	32	2007	11	411	23	4	34	26	389
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	32.1	74.2	74.2	5.8	47.9	47.9	23.0	30.1	30.1	15.8	22.9	22.9
Effective Green, g (s)	32.1	74.2	74.2	5.8	47.9	47.9	23.0	30.1	30.1	15.8	22.9	22.9
Actuated g/C Ratio	0.21	0.49	0.49	0.04	0.32	0.32	0.15	0.20	0.20	0.11	0.15	0.15
Clearance Time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	372	2086	768	67	937	496	516	367	312	183	279	237
v/s Ratio Prot	c0.21	0.41		0.02	c0.68		c0.12	0.01		0.02	0.01	
v/s Ratio Perm			0.08			0.01			0.00			c0.25
v/c Ratio	1.00	0.83	0.16	0.48	2.14	0.02	0.80	0.06	0.01	0.19	0.09	1.64
Uniform Delay, d1	59.0	32.5	20.8	70.6	51.0	35.0	61.2	48.5	48.0	61.2	54.6	63.5
Progression Factor	1.00	1.00	1.00	1.17	0.85	0.58	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	47.3	4.0	0.5	3.5	516.3	0.1	8.3	0.1	0.0	0.5	0.1	307.1
Delay (s)	106.3	36.4	21.3	86.5	559.7	20.5	69.6	48.6	48.1	61.7	54.8	370.7
Level of Service	F	D	C	F	F	C	E	D	D	E	D	F
Approach Delay (s)	46.6			548.7			67.6			343.7		
Approach LOS	D			F			E			F		
Intersection Summary												
HCM Average Control Delay	273.7			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.51											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			24.1					
Intersection Capacity Utilization	112.2%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	1673	1799	43	0	89							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77							
Hourly flow rate (vph)	0	1780	1855	44	0	116							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage (veh)													
Upstream signal (ft)	697												
pX, platoon unblocked					0.66								
vC, conflicting volume	1855				2448	618							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1855				1411	618							
tC, single (s)	4.6				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	73							
cM capacity (veh/h)	248				84	427							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	593	593	593	618	618	618	44	116					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	44	116					
cSH	1700	1700	1700	1700	1700	1700	1700	427					
Volume to Capacity	0.35	0.35	0.35	0.36	0.36	0.36	0.03	0.27					
Queue Length 95th (ft)	0	0	0	0	0	0	0	27					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5					
Lane LOS	C												
Approach Delay (s)	0.0				0.0			16.5					
Approach LOS	C												
Intersection Summary													
Average Delay				0.5									
Intersection Capacity Utilization				46.9%	ICU Level of Service	A							
Analysis Period (min)				15									

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1673	1820	64	0	22		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	1780	1876	66	0	29		
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								
vC, conflicting volume	1876				2470	625		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1876				2470	625		
tC, single (s)	4.6				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.4				3.5	3.3		
p0 queue free %	100				100	93		
cM capacity (veh/h)	243				24	423		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	593	593	593	625	625	625	66	29
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	66	29
cSH	1700	1700	1700	1700	1700	1700	1700	423
Volume to Capacity	0.35	0.35	0.35	0.37	0.37	0.37	0.04	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1
Lane LOS	B							
Approach Delay (s)	0.0				0.0			14.1
Approach LOS	B							
Intersection Summary								
Average Delay				0.1				
Intersection Capacity Utilization				45.2%	ICU Level of Service			A
Analysis Period (min)				15				

HCM Unsignalized Intersection Capacity Analysis

1012: SR 204 & East Mall Driveway

2015 PM - No Build

7/28/2011

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	1673	1821	65	0	63							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77							
Hourly flow rate (vph)	0	1780	1877	67	0	82							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage (veh)													
Upstream signal (ft)	545												
pX, platoon unblocked	0.61				0.61	0.61							
vC, conflicting volume	1877				2471	626							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	175				1153	0							
tC, single (s)	4.6				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	87							
cM capacity (veh/h)	763				114	654							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	593	593	593	626	626	626	67	82					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	67	82					
cSH	1700	1700	1700	1700	1700	1700	1700	654					
Volume to Capacity	0.35	0.35	0.35	0.37	0.37	0.37	0.04	0.13					
Queue Length 95th (ft)	0	0	0	0	0	0	0	11					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3					
Lane LOS	B												
Approach Delay (s)	0.0				0.0			11.3					
Approach LOS	B												
Intersection Summary													
Average Delay				0.2									
Intersection Capacity Utilization				45.8%	ICU Level of Service		A						
Analysis Period (min)				15									

HCM Signalized Intersection Capacity Analysis

1013: SR 204 & Apache Ave

2015 PM - No Build

7/28/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	74	1540	59	150	1713	88	115	89	84	143	127	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4	
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1736	4218		3367	4218		1736	1827	1553	3367	1827	1553	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1736	4218		3367	4218		1736	1827	1553	3367	1827	1553	
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93	
Adj. Flow (vph)	85	1770	68	165	1882	97	144	111	105	154	137	62	
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	89	0	0	55	
Lane Group Flow (vph)	85	1836	0	165	1976	0	144	111	16	154	137	7	
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%	
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm	
Protected Phases	5	2		1	6		3	8		7	4		
Permitted Phases									8			4	
Actuated Green, G (s)	12.7	78.5		12.2	78.0		17.6	22.6	22.6	12.2	17.2	17.2	
Effective Green, g (s)	12.7	78.5		12.2	78.0		17.6	22.6	22.6	12.2	17.2	17.2	
Actuated g/C Ratio	0.08	0.52		0.08	0.52		0.12	0.15	0.15	0.08	0.11	0.11	
Clearance Time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	
Lane Grp Cap (vph)	147	2207		274	2193		204	275	234	274	209	178	
v/s Ratio Prot	0.05	0.44		c0.05	c0.47		c0.08	c0.06		0.05	c0.07		
v/s Ratio Perm									0.01			0.00	
v/c Ratio	0.58	0.83		0.60	0.90		0.71	0.40	0.07	0.56	0.66	0.04	
Uniform Delay, d1	66.1	30.2		66.6	32.5		63.7	57.6	54.7	66.3	63.6	59.1	
Progression Factor	1.05	0.99		1.04	0.62		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.8	2.7		1.8	3.4		10.6	2.0	0.3	2.6	9.6	0.2	
Delay (s)	73.3	32.6		70.8	23.5		74.3	59.6	54.9	69.0	73.1	59.3	
Level of Service	E	C		E	C		E	E	D	E	E	E	
Approach Delay (s)			34.4			27.1			64.1				68.9
Approach LOS			C			C			E				E
Intersection Summary													
HCM Average Control Delay			35.9	HCM Level of Service		D							
HCM Volume to Capacity ratio			0.85										
Actuated Cycle Length (s)			150.0	Sum of lost time (s)		30.9							
Intersection Capacity Utilization			73.5%	ICU Level of Service		D							
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

1014: SR 204 & Middleground Road

2015 PM - No Build

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	285	1355	127	170	1578	116	65	122	105	212	136	308
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	4217	1508	1736	4217	1532	1736	1687		1736	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.64	1.00		0.15	1.00	1.00
Satd. Flow (perm)	1736	4217	1508	1736	4217	1532	1163	1687		279	1827	1532
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	313	1489	140	179	1661	122	82	154	133	299	192	434
RTOR Reduction (vph)	0	0	43	0	0	57	0	21	0	0	0	234
Lane Group Flow (vph)	313	1489	97	179	1661	65	82	266	0	299	192	200
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	18.5	70.9	70.9	13.5	65.9	65.9	29.9	19.7		46.7	30.0	30.0
Effective Green, g (s)	18.5	70.9	70.9	13.5	65.9	65.9	29.9	19.7		46.7	30.0	30.0
Actuated g/C Ratio	0.12	0.47	0.47	0.09	0.44	0.44	0.20	0.13		0.31	0.20	0.20
Clearance Time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	214	1993	713	156	1853	673	271	222		286	365	306
v/s Ratio Prot	c0.18	c0.35		0.10	c0.39		0.02	c0.16		c0.14	0.11	
v/s Ratio Perm			0.06			0.04	0.04			0.18		0.13
v/c Ratio	1.46	0.75	0.14	1.15	0.90	0.10	0.30	1.20		1.05	0.53	0.65
Uniform Delay, d1	65.8	32.2	22.3	68.2	38.9	24.6	50.5	65.2		45.1	53.6	55.2
Progression Factor	1.26	0.63	1.07	1.14	0.63	0.29	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	223.7	1.6	0.2	112.3	6.4	0.2	0.5	124.6		65.6	0.6	3.8
Delay (s)	306.8	21.9	24.1	190.2	30.8	7.4	50.9	189.8		110.7	54.3	59.0
Level of Service	F	C	C	F	C	A	D	F		F	D	E
Approach Delay (s)		67.9			43.9			158.9			74.7	
Approach LOS		E			D			F			E	
Intersection Summary												
HCM Average Control Delay		66.5										
HCM Volume to Capacity ratio		1.12										
Actuated Cycle Length (s)		150.0						31.5				
Intersection Capacity Utilization		93.4%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1015: SR 204 & Arts Drive

2015 PM - No Build

7/28/2011

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1612	60	39	1744	120	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9		6.0	5.9	6.5	6.0
Lane Util. Factor		0.91		1.00	0.91	0.97	1.00
Frt		0.99		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4218		1736	4217	3367	1553
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4218		1736	4217	3367	1553
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.79	0.79
Adj. Flow (vph)	0	1771	66	41	1836	152	127
RTOR Reduction (vph)	0	1	0	0	0	0	1
Lane Group Flow (vph)	0	1836	0	41	1836	152	126
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%
Turn Type	Prot			Prot		custom	
Protected Phases	5	2		1	6	3	1 3
Permitted Phases							8
Actuated Green, G (s)		106.3		9.0	121.3	16.3	27.8
Effective Green, g (s)		106.3		9.0	121.3	16.3	27.8
Actuated g/C Ratio		0.71		0.06	0.81	0.11	0.19
Clearance Time (s)		5.9		6.0	5.9	6.5	
Vehicle Extension (s)		5.0		3.0	5.0	3.0	
Lane Grp Cap (vph)		2989		104	3410	366	288
v/s Ratio Prot		c0.44		0.02	c0.44	0.05	c0.07
v/s Ratio Perm							0.01
v/c Ratio		0.61		0.39	0.54	0.42	0.44
Uniform Delay, d1		11.3		67.9	4.9	62.4	54.2
Progression Factor		1.02		1.26	0.19	1.00	1.00
Incremental Delay, d2		0.5		2.0	0.5	0.8	1.1
Delay (s)		12.1		87.7	1.4	63.2	55.2
Level of Service		B		F	A	E	E
Approach Delay (s)		12.1			3.3	59.6	
Approach LOS		B			A	E	
Intersection Summary							
HCM Average Control Delay		11.3				HCM Level of Service	B
HCM Volume to Capacity ratio		0.61					
Actuated Cycle Length (s)		150.0				Sum of lost time (s)	17.8
Intersection Capacity Utilization		48.6%				ICU Level of Service	A
Analysis Period (min)		15					
c Critical Lane Group							

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	24	1688	1721	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80		
Hourly flow rate (vph)	26	1835	1871	0	0	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)			1257					
pX, platoon unblocked	0.80				0.80	0.80		
vC, conflicting volume	1871				2534	624		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1220				2048	0		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	94				100	100		
cM capacity (veh/h)	446				36	864		
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	
Volume Total	26	612	612	612	624	624	624	
Volume Left	26	0	0	0	0	0	0	
Volume Right	0	0	0	0	0	0	0	
cSH	446	1700	1700	1700	1700	1700	1700	
Volume to Capacity	0.06	0.36	0.36	0.36	0.37	0.37	0.37	
Queue Length 95th (ft)	5	0	0	0	0	0	0	
Control Delay (s)	13.6	0.0	0.0	0.0	0.0	0.0	0.0	
Lane LOS	B							
Approach Delay (s)	0.2					0.0		
Approach LOS								
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			43.8%	ICU Level of Service		A		
Analysis Period (min)			15					

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑			↕			↵	
Volume (veh/h)	0	1682	6	5	1711	0	10	0	3	38	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	0	1828	7	5	1860	0	13	0	4	48	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	Raised			Raised								
Median storage veh	1			1								
Upstream signal (ft)				1072								
pX, platoon unblocked	0.79						0.79	0.79		0.79	0.79	0.79
vC, conflicting volume	1860			1835			2463	3702	613	2484	3705	620
vC1, stage 1 conf vol							1832	1832		1871	1871	
vC2, stage 2 conf vol							631	1871		613	1835	
vCu, unblocked vol	1165			1835			1927	3492	613	1953	3496	0
tC, single (s)	4.6			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			80	100	99	58	98	100
cM capacity (veh/h)	387			320			68	72	431	114	69	853
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	731	731	372	5	620	620	620	17	49			
Volume Left	0	0	0	5	0	0	0	13	48			
Volume Right	0	0	7	0	0	0	0	4	0			
cSH	1700	1700	1700	320	1700	1700	1700	84	112			
Volume to Capacity	0.43	0.43	0.22	0.02	0.36	0.36	0.36	0.21	0.43			
Queue Length 95th (ft)	0	0	0	1	0	0	0	18	47			
Control Delay (s)	0.0	0.0	0.0	16.4	0.0	0.0	0.0	58.4	59.7			
Lane LOS				C				F	F			
Approach Delay (s)	0.0			0.0				58.4	59.7			
Approach LOS								F	F			
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			43.1%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 PM - No Build

1020: SR 204 & Mercy Blvd

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	1542	98	57	1603	78	96	22	54	124	25	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.89		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1633		1736	1607	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.52	1.00		0.70	1.00	
Satd. Flow (perm)	1736	4218		1736	4217	1553	945	1633		1278	1607	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	90	1676	107	60	1687	82	112	26	63	146	29	119
RTOR Reduction (vph)	0	4	0	0	0	21	0	54	0	0	102	0
Lane Group Flow (vph)	90	1779	0	60	1687	61	112	35	0	146	46	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	13.1	100.6		9.2	96.7	96.7	21.8	21.8		21.8	21.8	
Effective Green, g (s)	13.1	100.6		9.2	96.7	96.7	21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.09	0.67		0.06	0.64	0.64	0.15	0.15		0.15	0.15	
Clearance Time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	2829		106	2719	1001	137	237		186	234	
v/s Ratio Prot	c0.05	c0.42		0.03	0.40			0.02			0.03	
v/s Ratio Perm						0.04	c0.12			0.11		
v/c Ratio	0.59	0.63		0.57	0.62	0.06	0.82	0.15		0.78	0.20	
Uniform Delay, d1	65.9	14.1		68.5	15.8	9.9	62.2	56.0		61.8	56.4	
Progression Factor	1.11	1.61		1.00	0.44	0.36	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	0.9		4.4	0.7	0.1	30.0	0.3		19.2	0.4	
Delay (s)	78.4	23.5		73.0	7.6	3.6	92.2	56.3		81.1	56.8	
Level of Service	E	C		E	A	A	F	E		F	E	
Approach Delay (s)		26.2			9.6			76.3			68.9	
Approach LOS		C			A			E			E	
Intersection Summary												
HCM Average Control Delay			24.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				18.4		
Intersection Capacity Utilization			70.7%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM - No Build

1021: SR 204 & Largo Blvd

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	1483	94	203	1512	68	109	91	161	109	117	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4218		1736	4218		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.47	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	1736	4218		1736	4218		851	1827	1553	1080	1827	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	147	1529	97	223	1662	75	120	100	177	145	156	156
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	158	0	0	122
Lane Group Flow (vph)	147	1622	0	223	1734	0	120	100	19	145	156	34
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	16.6	70.3		23.8	77.0		29.6	15.8	15.8	32.2	17.1	17.1
Effective Green, g (s)	16.6	70.3		23.8	77.0		29.6	15.8	15.8	32.2	17.1	17.1
Actuated g/C Ratio	0.11	0.47		0.16	0.51		0.20	0.11	0.11	0.21	0.11	0.11
Clearance Time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	1977		275	2165		249	192	164	298	208	177
v/s Ratio Prot	0.08	0.38		c0.13	c0.41		0.04	0.05		c0.05	c0.09	
v/s Ratio Perm							0.05		0.01	0.06		0.02
v/c Ratio	0.77	0.82		0.81	0.80		0.48	0.52	0.11	0.49	0.75	0.19
Uniform Delay, d1	64.8	34.4		60.9	30.2		52.0	63.5	60.8	50.5	64.4	60.2
Progression Factor	1.20	0.47		1.21	0.73		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	3.2		13.1	2.5		1.5	2.5	0.3	1.3	14.1	0.5
Delay (s)	91.5	19.3		86.8	24.5		53.5	66.1	61.1	51.7	78.5	60.7
Level of Service	F	B		F	C		D	E	E	D	E	E
Approach Delay (s)		25.3			31.6			60.0			63.9	
Approach LOS		C			C			E			E	
Intersection Summary												
HCM Average Control Delay			34.8			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				18.3		
Intersection Capacity Utilization			70.1%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 PM - No Build

1022: SR 204 & Idlewood Drive

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗		↑↑↑↗				↗			↗
Volume (veh/h)	0	1632	121	0	1762	25	0	0	80	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Hourly flow rate (vph)	0	1682	125	0	1936	27	0	0	88	0	0	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (ft)	651				1109							
pX, platoon unblocked	0.73			0.70			0.84	0.84	0.70	0.84	0.84	0.73
vC, conflicting volume	1964			1682			2356	3646	561	2511	3632	659
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1034			496			0	1319	0	0	1303	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	88	100	100	96
cM capacity (veh/h)	480			739			822	128	758	753	131	789
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	561	561	561	125	775	775	415	88	28			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	125	0	0	27	88	28			
cSH	1700	1700	1700	1700	1700	1700	1700	758	789			
Volume to Capacity	0.33	0.33	0.33	0.07	0.46	0.46	0.24	0.12	0.04			
Queue Length 95th (ft)	0	0	0	0	0	0	0	10	3			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	9.7			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			10.4	9.7			
Approach LOS								B	A			
Intersection Summary												
Average Delay				0.3								
Intersection Capacity Utilization				44.6%	ICU Level of Service			A				
Analysis Period (min)				15								

HCM Signalized Intersection Capacity Analysis

2015 PM - No Build

1023: SR 204 & Deerfield Road

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	1470	56	100	1585	158	49	24	56	169	7	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Lane Util. Factor	1.00	0.86		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	5315		1736	4217	1553	1736	1635		1649	1659	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	5315		1736	4217	1553	1736	1635		1649	1659	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	200	1581	60	102	1617	161	53	26	61	180	7	163
RTOR Reduction (vph)	0	2	0	0	0	56	0	57	0	0	0	148
Lane Group Flow (vph)	200	1639	0	102	1617	105	53	30	0	94	93	15
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	22.4	87.6		14.1	79.3	79.3	9.9	9.9		13.9	13.9	13.9
Effective Green, g (s)	22.4	87.6		14.1	79.3	79.3	9.9	9.9		13.9	13.9	13.9
Actuated g/C Ratio	0.15	0.58		0.09	0.53	0.53	0.07	0.07		0.09	0.09	0.09
Clearance Time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	259	3104		163	2229	821	115	108		153	154	144
v/s Ratio Prot	c0.12	0.31		0.06	c0.38		c0.03	0.02		c0.06	0.06	
v/s Ratio Perm						0.07						0.01
v/c Ratio	0.77	0.53		0.63	0.73	0.13	0.46	0.28		0.61	0.60	0.10
Uniform Delay, d1	61.3	18.8		65.4	27.0	17.9	67.5	66.6		65.5	65.4	62.4
Progression Factor	0.99	0.98		1.26	0.49	0.08	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.7	0.5		6.5	1.9	0.3	2.9	1.4		7.1	6.5	0.3
Delay (s)	70.6	18.9		88.8	15.1	1.7	70.4	68.1		72.6	71.9	62.7
Level of Service	E	B		F	B	A	E	E		E	E	E
Approach Delay (s)		24.5			18.0			68.9			67.8	
Approach LOS		C			B			E			E	
Intersection Summary												
HCM Average Control Delay			26.7		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				24.5			
Intersection Capacity Utilization			67.8%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1024: SR 204 & Truman Parkway

2015 PM - No Build

7/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	0	851	844	0	898	41	23	0	19	926	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0		6.0	6.0	6.0		6.0	6.0		6.0
Lane Util. Factor		0.86	0.86		0.86	1.00	1.00		1.00	0.94		1.00
Frt		0.95	0.85		1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)		3787	1129		5314	1553	1736		1553	4138		1313
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)		3787	1129		5314	1553	1736		1553	4138		1313
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.50	0.50	0.50	0.88	0.88	0.88
Adj. Flow (vph)	0	905	898	0	998	46	46	0	38	1052	0	34
RTOR Reduction (vph)	0	50	0	0	0	18	0	0	26	0	0	24
Lane Group Flow (vph)	0	1304	449	0	998	28	46	0	12	1052	0	10
Heavy Vehicles (%)	4%	23%	23%	4%	23%	4%	4%	4%	4%	23%	23%	23%
Turn Type		Free				Perm	Prot		custom	Prot		custom
Protected Phases		2			6		4			8		
Permitted Phases			Free			6			4			8
Actuated Green, G (s)		92.2	150.0		92.2	92.2	45.8		45.8	45.8		45.8
Effective Green, g (s)		92.2	150.0		92.2	92.2	45.8		45.8	45.8		45.8
Actuated g/C Ratio		0.61	1.00		0.61	0.61	0.31		0.31	0.31		0.31
Clearance Time (s)		6.0			6.0	6.0	6.0		6.0	6.0		6.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		2328	1129		3266	955	530		474	1263		401
v/s Ratio Prot		c0.34			0.19		0.03			c0.25		
v/s Ratio Perm			0.40			0.02			0.01			0.01
v/c Ratio		0.56	0.40		0.31	0.03	0.09		0.02	0.83		0.03
Uniform Delay, d1		17.0	0.0		13.7	11.3	37.2		36.5	48.5		36.5
Progression Factor		0.26	1.00		0.94	0.72	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.9	0.9		0.2	0.1	0.1		0.0	4.9		0.0
Delay (s)		5.3	0.9		13.1	8.2	37.2		36.5	53.4		36.5
Level of Service		A	A		B	A	D		D	D		D
Approach Delay (s)		4.2			12.9			36.9			52.9	
Approach LOS		A			B			D			D	
Intersection Summary												
HCM Average Control Delay			20.3		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			50.3%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1025: SR 204 & White Bluff Connector

2015 PM - No Build

7/28/2011

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	841	63	83	869	70	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	1.00	0.86	0.97	1.00
Frt		1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)		4217	1509	1687	5314	3273	1509
Flt Permitted		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)		4217	1509	1687	5314	3273	1509
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.88	0.88
Adj. Flow (vph)	0	895	67	92	966	80	110
RTOR Reduction (vph)	0	0	18	0	0	0	103
Lane Group Flow (vph)	0	895	49	92	966	80	7
Heavy Vehicles (%)	7%	23%	7%	7%	23%	7%	7%
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	5	2		1	6	8	
Permitted Phases			2				8
Actuated Green, G (s)		109.3	109.3	13.5	128.8	9.2	9.2
Effective Green, g (s)		109.3	109.3	13.5	128.8	9.2	9.2
Actuated g/C Ratio		0.73	0.73	0.09	0.86	0.06	0.06
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		3073	1100	152	4563	201	93
v/s Ratio Prot		c0.21		c0.05	0.18	c0.02	
v/s Ratio Perm			0.03				0.00
v/c Ratio		0.29	0.04	0.61	0.21	0.40	0.07
Uniform Delay, d1		7.0	5.7	65.7	1.8	67.7	66.4
Progression Factor		0.14	0.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.1	6.7	0.1	1.3	0.3
Delay (s)		1.2	0.1	72.3	1.9	69.0	66.7
Level of Service		A	A	E	A	E	E
Approach Delay (s)		1.1			8.1	67.7	
Approach LOS		A			A	E	
Intersection Summary							
HCM Average Control Delay			10.2		HCM Level of Service		B
HCM Volume to Capacity ratio			0.33				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			39.2%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2035 AM - No Build

1000: SR 204 & Gateway Blvd W

8/4/2011

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Volume (veh/h)	17	752	0	26	406	46	0	5	10	53	5	3							
Sign Control	Free			Free			Stop			Stop									
Grade	0%			0%			0%			0%									
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71							
Hourly flow rate (vph)	20	885	0	30	472	53	0	11	22	75	7	4							
Pedestrians																			
Lane Width (ft)																			
Walking Speed (ft/s)																			
Percent Blockage																			
Right turn flare (veh)	8																		
Median type	None			None															
Median storage veh																			
Upstream signal (ft)	708																		
pX, platoon unblocked	0.98							0.98	0.98	0.98	0.98	0.98							
vC, conflicting volume	472				885				1225	1457	1457	236							
vC1, stage 1 conf vol																			
vC2, stage 2 conf vol																			
vCu, unblocked vol	424				885				1191	1428	1428	184							
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6							
tC, 2 stage (s)																			
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5							
p0 queue free %	98				96				100	91	96	94							
cM capacity (veh/h)	1103				754				127	123	560	163							
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1											
Volume Total	462	442	30	236	236	53	33	86											
Volume Left	20	0	30	0	0	0	0	75											
Volume Right	0	0	0	0	0	53	22	4											
cSH	1103	1700	754	1700	1700	1700	256	168											
Volume to Capacity	0.02	0.26	0.04	0.14	0.14	0.03	0.13	0.51											
Queue Length 95th (ft)	1	0	3	0	0	0	11	63											
Control Delay (s)	0.6	0.0	10.0	0.0	0.0	0.0	21.1	47.0											
Lane LOS	A			A				C	E										
Approach Delay (s)	0.3			0.5				21.1	47.0										
Approach LOS							C	E											
Intersection Summary																			
Average Delay				3.3															
Intersection Capacity Utilization				49.5%	ICU Level of Service			A											
Analysis Period (min)				15															

HCM Signalized Intersection Capacity Analysis

2035 AM - No Build

1001: SR 204 & I-95 SB Off-Ramp

8/4/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Volume (vph)	0	707	108	932	360	0	0	0	892	0	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	5.7	6.4	5.7				6.1		6.1
Lane Util. Factor		0.95	1.00	1.00	0.95				0.97		1.00
Frt		1.00	0.85	1.00	1.00				1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (prot)		3282	1442	1612	3282				3127		1442
Flt Permitted		1.00	1.00	0.10	1.00				0.95		1.00
Satd. Flow (perm)		3282	1442	175	3282				3127		1442
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	822	126	1002	387	0	0	0	1062	0	140
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	0	0	101
Lane Group Flow (vph)	0	822	49	1002	387	0	0	0	1062	0	39
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type			Perm	pm+pt					custom		custom
Protected Phases		2		1	6						
Permitted Phases			2	6					4		4
Actuated Green, G (s)		32.3	32.3	96.3	96.3				41.9		41.9
Effective Green, g (s)		32.3	32.3	96.3	96.3				41.9		41.9
Actuated g/C Ratio		0.22	0.22	0.64	0.64				0.28		0.28
Clearance Time (s)		5.7	5.7	6.4	5.7				6.1		6.1
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0
Lane Grp Cap (vph)		707	311	664	2107				873		403
v/s Ratio Prot		0.25		c0.58	0.12						
v/s Ratio Perm			0.03	c0.39					c0.34		0.03
v/c Ratio		1.16	0.16	1.51	0.18				1.22		0.10
Uniform Delay, d1		58.9	47.8	40.4	10.9				54.0		40.0
Progression Factor		1.00	1.00	1.36	1.97				1.00		1.00
Incremental Delay, d2		88.3	1.1	232.9	0.1				107.9		0.1
Delay (s)		147.1	48.9	287.8	21.6				161.9		40.1
Level of Service		F	D	F	C				F		D
Approach Delay (s)		134.1			213.6		0.0			147.7	
Approach LOS		F			F		A			F	
Intersection Summary											
HCM Average Control Delay			169.9		HCM Level of Service				F		
HCM Volume to Capacity ratio			1.39								
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				12.5		
Intersection Capacity Utilization			84.4%		ICU Level of Service				E		
Analysis Period (min)			15								
c Critical Lane Group											

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations		 			 						 
Volume (vph)	78	1521	0	0	1214	708	0	0	78	0	926
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Lane Util. Factor	1.00	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)	1612	3282			3282	1442			1612		2538
Flt Permitted	0.08	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	136	3282			3282	1442			1612		2538
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	81	1584	0	0	1252	730	0	0	98	0	1158
RTOR Reduction (vph)	0	0	0	0	0	240	0	0	0	0	15
Lane Group Flow (vph)	81	1584	0	0	1252	490	0	0	98	0	1144
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			Perm			custom			custom	
Protected Phases	5	2			6						
Permitted Phases	2					6			8		8
Actuated Green, G (s)	75.0	75.0			63.0	63.0			63.0		63.0
Effective Green, g (s)	75.0	75.0			63.0	63.0			63.0		63.0
Actuated g/C Ratio	0.50	0.50			0.42	0.42			0.42		0.42
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	127	1641			1378	606			677		1066
v/s Ratio Prot	0.03	c0.48			0.38						
v/s Ratio Perm	0.29					0.34			0.06		c0.45
v/c Ratio	0.64	0.97			0.91	0.81			0.14		1.07
Uniform Delay, d1	57.5	36.2			40.8	38.2			26.9		43.5
Progression Factor	0.87	0.15			0.75	1.03			1.00		1.00
Incremental Delay, d2	1.0	2.4			1.1	1.1			0.1		49.3
Delay (s)	50.8	7.9			31.6	40.4			27.0		92.8
Level of Service	D	A			C	D			C		F
Approach Delay (s)		10.0			34.9		0.0			87.6	
Approach LOS		B			C		A			F	
Intersection Summary											
HCM Average Control Delay			39.9		HCM Level of Service				D		
HCM Volume to Capacity ratio			1.01								
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			84.4%		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		 			 			 			 	
Volume (vph)	263	1898	286	100	1348	137	247	65	203	119	38	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1547	2954	1384	1547	2954	1384	1547	1443		1547	1410	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.15	1.00		0.20	1.00	
Satd. Flow (perm)	1547	2954	1384	1547	2954	1384	239	1443		334	1410	
Peak-hour factor, PHF	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Adj. Flow (vph)	283	2041	308	118	1586	161	298	78	245	125	40	344
RTOR Reduction (vph)	0	0	76	0	0	37	0	73	0	0	201	0
Lane Group Flow (vph)	283	2041	232	118	1586	124	298	250	0	125	183	0
Heavy Vehicles (%)	5%	10%	5%	5%	10%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm		Prot		Perm		pm+pt	pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	25.2	68.3	68.3	10.2	53.3	53.3	47.3	27.2		34.5	20.8	
Effective Green, g (s)	25.2	68.3	68.3	10.2	53.3	53.3	47.3	27.2		34.5	20.8	
Actuated g/C Ratio	0.17	0.46	0.46	0.07	0.36	0.36	0.32	0.18		0.23	0.14	
Clearance Time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	260	1345	630	105	1050	492	251	262		188	196	
v/s Ratio Prot	c0.18	c0.69		0.08	0.54		c0.16	c0.17		0.06	0.13	
v/s Ratio Perm			0.17			0.09	c0.22			0.09		
v/c Ratio	1.09	1.52	0.37	1.12	1.51	0.25	1.19	0.95		0.66	0.94	
Uniform Delay, d1	62.4	40.9	26.7	69.9	48.4	34.2	45.1	60.8		49.1	63.9	
Progression Factor	1.11	0.85	0.79	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.4	233.2	0.2	125.0	234.7	1.2	117.0	42.9		7.7	45.8	
Delay (s)	115.8	267.9	21.2	194.9	283.0	35.5	162.1	103.7		56.8	109.7	
Level of Service	F	F	C	F	F	D	F	F		E	F	
Approach Delay (s)		222.7			256.1			131.7			96.7	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM Average Control Delay			212.3		HCM Level of Service				F			
HCM Volume to Capacity ratio			1.46									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				30.6			
Intersection Capacity Utilization			129.8%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

											
Movement	EBL	EBR	EBR2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	669	0	346	0	0	0	1613	687	423	1185	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0				5.0	5.0	5.0	5.0	
Lane Util. Factor	0.97		1.00				0.95	1.00	1.00	0.95	
Frt	1.00		0.85				1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00				1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303		1524				3406	1524	1703	3406	
Flt Permitted	0.95		1.00				1.00	1.00	0.09	1.00	
Satd. Flow (perm)	3303		1524				3406	1524	159	3406	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	806	0	417	0	0	0	1943	828	455	1274	0
RTOR Reduction (vph)	0	0	38	0	0	0	0	488	0	0	0
Lane Group Flow (vph)	806	0	379	0	0	0	1943	340	455	1274	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom						Perm		pm+pt		
Protected Phases							2		1		
Permitted Phases	4			4					2		
Actuated Green, G (s)	36.4			36.4			40.0		40.0		
Effective Green, g (s)	36.4			36.4			40.0		40.0		
Actuated g/C Ratio	0.30			0.30			0.33		0.33		
Clearance Time (s)	5.0			5.0			5.0		5.0		
Vehicle Extension (s)	3.0			3.0			3.0		3.0		
Lane Grp Cap (vph)	1002			462			1135		508		
v/s Ratio Prot							c0.57		c0.23		
v/s Ratio Perm	0.24			c0.25					0.22		
v/c Ratio	0.80			0.82			1.71		0.67		
Uniform Delay, d1	38.5			38.8			40.0		34.3		
Progression Factor	1.00			1.00			1.00		1.00		
Incremental Delay, d2	4.8			11.2			324.1		6.9		
Delay (s)	43.3			50.0			364.1		41.2		
Level of Service	D			D			F		D		
Approach Delay (s)	45.6			0.0			267.6				
Approach LOS	D			A			F		C		
Intersection Summary											
HCM Average Control Delay				148.6			HCM Level of Service		F		
HCM Volume to Capacity ratio				1.20							
Actuated Cycle Length (s)				120.0			Sum of lost time (s)		15.0		
Intersection Capacity Utilization				99.6%			ICU Level of Service		F		
Analysis Period (min)				15							
c Critical Lane Group											

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Volume (vph)	0	0	0	443	0	231	610	1672	0	0	1165	332	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				5.0		5.0	5.0	5.0			5.0	5.0	
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00	
Frt				1.00		0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				3213		1482	1656	3312			3312	1482	
Flt Permitted				0.95		1.00	0.09	1.00			1.00	1.00	
Satd. Flow (perm)				3213		1482	164	3312			3312	1482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	0	0	0	492	0	257	670	1837	0	0	1280	365	
RTOR Reduction (vph)	0	0	0	0	0	14	0	0	0	0	0	186	
Lane Group Flow (vph)	0	0	0	492	0	243	670	1837	0	0	1280	179	
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
Turn Type				custom		custom	pm+pt						Perm
Protected Phases							5		2		6		
Permitted Phases				8		8	2						6
Actuated Green, G (s)				22.1		22.1	67.9		67.9		49.0		49.0
Effective Green, g (s)				22.1		22.1	67.9		67.9		49.0		49.0
Actuated g/C Ratio				0.22		0.22	0.68		0.68		0.49		0.49
Clearance Time (s)				5.0		5.0	5.0		5.0		5.0		5.0
Vehicle Extension (s)				3.0		3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)				710		328	319		2249		1623		726
v/s Ratio Prot							c0.29		0.55		0.39		
v/s Ratio Perm				0.15		c0.16	c1.13						0.12
v/c Ratio				0.69		0.74	2.10		0.82		0.79		0.25
Uniform Delay, d1				35.8		36.3	28.9		11.6		21.2		14.8
Progression Factor				1.00		1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2				2.9		8.7	505.7		3.4		4.0		0.8
Delay (s)				38.8		45.0	534.6		15.0		25.2		15.6
Level of Service				D		D	F		B		C		B
Approach Delay (s)				0.0		40.9			153.9		23.0		
Approach LOS	A					D			F		C		
Intersection Summary													
HCM Average Control Delay				92.7		HCM Level of Service				F			
HCM Volume to Capacity ratio				1.72									
Actuated Cycle Length (s)				100.0		Sum of lost time (s)				10.0			
Intersection Capacity Utilization				99.6%		ICU Level of Service				F			
Analysis Period (min)				15									
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis

2035 AM - No Build

1006: SR 204 & Grove Point Road

8/4/2011

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Volume (veh/h)	0	2291	24	20	1311	0	6	0	11	0	0	0				
Sign Control	Free			Free			Stop			Stop						
Grade	0%			0%			0%			0%						
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.41	0.41	0.41	0.92	0.92	0.92				
Hourly flow rate (vph)	0	2463	26	22	1441	0	15	0	27	0	0	0				
Pedestrians																
Lane Width (ft)																
Walking Speed (ft/s)																
Percent Blockage																
Right turn flare (veh)																
Median type	Raised			Raised												
Median storage veh	1			1												
Upstream signal (ft)																
pX, platoon unblocked																
vC, conflicting volume	1441				2489				3228	3948	1232	2743	3974	720		
vC1, stage 1 conf vol								2463	2463			1485	1485			
vC2, stage 2 conf vol								764	1485			1259	2489			
vCu, unblocked vol	1441				2489				3228	3948	1232	2743	3974	720		
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0		
tC, 2 stage (s)								6.6	5.6			6.6	5.6			
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3		
p0 queue free %	100				88				43	100	84	100	100	100		
cM capacity (veh/h)	462				178				26	40	167	58	27	368		
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1						
Volume Total	0	1232	1232	26	22	720	720	0	41	0						
Volume Left	0	0	0	0	22	0	0	0	15	0						
Volume Right	0	0	0	26	0	0	0	0	27	0						
cSH	1700	1700	1700	1700	178	1700	1700	1700	57	1700						
Volume to Capacity	0.00	0.72	0.72	0.02	0.12	0.42	0.42	0.00	0.73	0.00						
Queue Length 95th (ft)	0	0	0	0	10	0	0	0	77	0						
Control Delay (s)	0.0	0.0	0.0	0.0	28.0	0.0	0.0	0.0	163.3	0.0						
Lane LOS					D				F	A						
Approach Delay (s)	0.0				0.4				163.3	0.0						
Approach LOS									F	A						
Intersection Summary																
Average Delay				1.8												
Intersection Capacity Utilization				73.3%	ICU Level of Service			D								
Analysis Period (min)				15												

HCM Signalized Intersection Capacity Analysis

2035 AM - No Build

1007: Pine Grove Road & SR 204

1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	2154	95	46	1284	18	25	0	68	35	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.5	7.5	6.0	7.5	7.5	7.0			7.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00			1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	0.90			0.95		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.99			0.97		
Satd. Flow (prot)	1752	3059	1568	1752	3059	1568	1641			1697		
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.88			0.44		
Satd. Flow (perm)	1752	3059	1568	1752	3059	1568	1466			766		
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73
Growth Factor (vph)	100%	153%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	62	3877	112	52	1443	20	37	0	100	48	0	30
RTOR Reduction (vph)	0	0	15	0	0	5	0	62	0	0	62	0
Lane Group Flow (vph)	62	3877	97	52	1443	15	0	75	0	0	16	0
Heavy Vehicles (%)	3%	18%	3%	3%	18%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	9.9	130.6	130.6	6.7	127.4	127.4		12.2			12.2	
Effective Green, g (s)	9.9	130.6	130.6	6.7	127.4	127.4		12.2			12.2	
Actuated g/C Ratio	0.06	0.77	0.77	0.04	0.75	0.75		0.07			0.07	
Clearance Time (s)	6.0	7.5	7.5	6.0	7.5	7.5		7.0			7.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0		3.0			3.0	
Lane Grp Cap (vph)	102	2350	1204	69	2292	1175		105			54	
v/s Ratio Prot	c0.04	c1.27		0.03	0.47							
v/s Ratio Perm			0.06			0.01		c0.05			0.02	
v/c Ratio	0.61	1.65	0.08	0.75	0.63	0.01		0.71			0.29	
Uniform Delay, d1	78.2	19.7	4.9	80.8	10.1	5.4		77.2			74.8	
Progression Factor	1.00	1.00	1.00	1.16	1.89	1.00		1.00			1.00	
Incremental Delay, d2	9.8	294.3	0.1	26.1	0.9	0.0		20.3			3.0	
Delay (s)	88.0	314.0	5.0	119.6	20.0	5.4		97.5			77.8	
Level of Service	F	F	A	F	C	A		F			E	
Approach Delay (s)		302.0			23.2			97.5			77.8	
Approach LOS		F			C			F			E	
Intersection Summary												
HCM 2000 Control Delay			221.1	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.54									
Actuated Cycle Length (s)			170.0	Sum of lost time (s)				20.5				
Intersection Capacity Utilization			109.9%	ICU Level of Service				H				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1008: King George Boulevard & SR 204

2035 AM - No Build

1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	242	1915	100	467	916	217	204	87	1274	503	100	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.1	7.1	7.0	7.1	4.0	6.2	6.6	4.0	6.2	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3059	1529	3367	3059	1553	1736	1827	1553	3367	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3059	1529	3367	3059	1553	1736	1827	1553	3367	1827	1532
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Growth Factor (vph)	100%	125%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	263	2602	109	531	1041	247	232	99	1448	541	108	245
RTOR Reduction (vph)	0	0	52	0	0	0	0	0	0	0	0	198
Lane Group Flow (vph)	263	2602	57	531	1041	247	232	99	1448	541	108	47
Confl. Peds. (#/hr)	6									1		
Heavy Vehicles (%)	4%	18%	4%	4%	18%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			Free			Free			4
Actuated Green, G (s)	20.0	87.9	87.9	17.0	84.9	170.0	23.8	9.5	170.0	28.7	14.4	14.4
Effective Green, g (s)	20.0	87.9	87.9	17.0	84.9	170.0	23.8	9.5	170.0	28.7	14.4	14.4
Actuated g/C Ratio	0.12	0.52	0.52	0.10	0.50	1.00	0.14	0.06	1.00	0.17	0.08	0.08
Clearance Time (s)	7.0	7.1	7.1	7.0	7.1		6.2	6.6		6.2	6.6	6.6
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	204	1581	790	336	1527	1553	243	102	1553	568	154	129
v/s Ratio Prot	0.15	c0.85		c0.16	0.34		0.13	0.05		0.16	0.06	
v/s Ratio Perm			0.04			0.16			c0.93			0.03
v/c Ratio	1.29	1.65	0.07	1.58	0.68	0.16	0.95	0.97	0.93	0.95	0.70	0.37
Uniform Delay, d1	75.0	41.0	20.6	76.5	32.3	0.0	72.6	80.1	0.0	70.0	75.7	73.5
Progression Factor	1.06	0.80	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	133.6	290.9	0.0	275.0	2.5	0.2	44.9	79.3	11.6	26.2	13.5	1.8
Delay (s)	213.4	323.6	20.2	351.5	34.8	0.2	117.4	159.4	11.6	96.2	89.2	75.3
Level of Service	F	F	C	F	C	A	F	F	B	F	F	E
Approach Delay (s)	302.7			122.5			33.6			89.6		
Approach LOS	F			F			C			F		
Intersection Summary												
HCM 2000 Control Delay	169.2			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.54											
Actuated Cycle Length (s)	170.0			Sum of lost time (s)			26.9					
Intersection Capacity Utilization	118.1%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1009: SR 204 & Rio Road

2035 AM - No Build

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	420	2538	342	9	1417	9	277	31	1	27	6	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	438	2644	356	10	1592	10	374	42	1	33	7	283
RTOR Reduction (vph)	0	0	61	0	0	3	0	0	1	0	0	242
Lane Group Flow (vph)	438	2644	295	10	1592	7	374	42	0	33	7	41
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	40.2	90.3	90.3	3.0	53.1	53.1	21.1	25.4	25.4	7.2	11.5	11.5
Effective Green, g (s)	40.2	90.3	90.3	3.0	53.1	53.1	21.1	25.4	25.4	7.2	11.5	11.5
Actuated g/C Ratio	0.27	0.60	0.60	0.02	0.35	0.35	0.14	0.17	0.17	0.05	0.08	0.08
Clearance Time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	465	2581	935	35	1056	550	474	309	263	83	140	119
v/s Ratio Prot	c0.25	c0.62		0.01	c0.53		c0.11	0.02		0.02	0.00	
v/s Ratio Perm			0.19			0.00			0.00			c0.03
v/c Ratio	0.94	1.02	0.32	0.29	1.51	0.01	0.79	0.14	0.00	0.40	0.05	0.35
Uniform Delay, d1	53.8	29.9	14.7	72.4	48.5	31.4	62.3	53.0	51.8	69.3	64.2	65.7
Progression Factor	1.00	1.00	1.00	1.15	0.91	0.78	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.6	24.2	0.9	3.2	232.0	0.0	8.5	0.2	0.0	3.1	0.1	1.7
Delay (s)	81.4	54.1	15.5	86.7	276.2	24.6	70.8	53.2	51.8	72.4	64.3	67.4
Level of Service	F	D	B	F	F	C	E	D	D	E	E	E
Approach Delay (s)	53.6			273.5			69.0			67.9		
Approach LOS	D			F			E			E		
Intersection Summary												
HCM Average Control Delay	116.7			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.18											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			29.7					
Intersection Capacity Utilization	91.9%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations		↑↑↑↑	↑↑↑↑	↑		↑							
Volume (veh/h)	0	2566	1413	23	0	22							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	2851	1570	26	0	38							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage (veh)													
Upstream signal (ft)	697												
pX, platoon unblocked					0.42								
vC, conflicting volume	1570				2520	523							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1570				0	523							
tC, single (s)	4.5				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	92							
cM capacity (veh/h)	336				428	493							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	950	950	950	523	523	523	26	38					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	26	38					
cSH	1700	1700	1700	1700	1700	1700	1700	493					
Volume to Capacity	0.56	0.56	0.56	0.31	0.31	0.31	0.02	0.08					
Queue Length 95th (ft)	0	0	0	0	0	0	0	6					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9					
Lane LOS								B					
Approach Delay (s)	0.0				0.0			12.9					
Approach LOS	B												
Intersection Summary													
Average Delay				0.1									
Intersection Capacity Utilization				52.9%	ICU Level of Service		A						
Analysis Period (min)				15									

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑	↑		↑		
Volume (veh/h)	0	2566	1424	8	0	12		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58		
Hourly flow rate (vph)	0	2851	1582	9	0	21		
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								
vC, conflicting volume	1582				2533	527		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1582				2533	527		
tC, single (s)	4.5				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.4				3.5	3.3		
p0 queue free %	100				100	96		
cM capacity (veh/h)	332				22	490		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	950	950	950	527	527	527	9	21
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	9	21
cSH	1700	1700	1700	1700	1700	1700	1700	490
Volume to Capacity	0.56	0.56	0.56	0.31	0.31	0.31	0.01	0.04
Queue Length 95th (ft)	0	0	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7
Lane LOS								B
Approach Delay (s)	0.0				0.0			12.7
Approach LOS								B
Intersection Summary								
Average Delay				0.1				
Intersection Capacity Utilization				52.9%	ICU Level of Service		A	
Analysis Period (min)				15				

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	2566	1415	12	0	17							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	2851	1572	13	0	29							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage veh													
Upstream signal (ft)	545												
pX, platoon unblocked	0.76				0.76	0.76							
vC, conflicting volume	1572				2523	524							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	672				1915	0							
tC, single (s)	4.5				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.4				3.5	3.3							
p0 queue free %	100				100	96							
cM capacity (veh/h)	610				44	824							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	950	950	950	524	524	524	13	29					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	13	29					
cSH	1700	1700	1700	1700	1700	1700	1700	824					
Volume to Capacity	0.56	0.56	0.56	0.31	0.31	0.31	0.01	0.04					
Queue Length 95th (ft)	0	0	0	0	0	0	0	3					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5					
Lane LOS	A												
Approach Delay (s)	0.0				0.0			9.5					
Approach LOS	A												
Intersection Summary													
Average Delay	0.1												
Intersection Capacity Utilization	52.9%			ICU Level of Service			A						
Analysis Period (min)	15												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	262	2228	76	127	1148	51	230	63	138	73	51	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4285		3367	4285		1736	1827	1553	3367	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4285		3367	4285		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	308	2621	89	140	1262	56	245	67	147	95	66	64
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	122	0	0	59
Lane Group Flow (vph)	308	2708	0	140	1315	0	245	67	25	95	66	5
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	26.0	78.7		11.6	64.3		22.5	25.6	25.6	9.6	12.7	12.7
Effective Green, g (s)	26.0	78.7		11.6	64.3		22.5	25.6	25.6	9.6	12.7	12.7
Actuated g/C Ratio	0.17	0.52		0.08	0.43		0.15	0.17	0.17	0.06	0.08	0.08
Clearance Time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	301	2248		260	1837		260	312	265	215	155	131
v/s Ratio Prot	c0.18	c0.63		0.04	0.31		c0.14	0.04		0.03	c0.04	
v/s Ratio Perm									0.02			0.00
v/c Ratio	1.02	1.20		0.54	0.72		0.94	0.21	0.09	0.44	0.43	0.04
Uniform Delay, d1	62.0	35.6		66.6	35.3		63.1	53.5	52.4	67.6	65.2	63.1
Progression Factor	0.96	0.99		1.07	0.71		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	42.4	94.4		1.7	1.9		40.1	0.7	0.3	1.4	3.9	0.3
Delay (s)	101.9	129.6		73.2	27.1		103.3	54.3	52.8	69.1	69.1	63.3
Level of Service	F	F		E	C		F	D	D	E	E	E
Approach Delay (s)	126.8			31.5			79.9			67.4		
Approach LOS	F			C			E			E		
Intersection Summary												
HCM Average Control Delay	93.1			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.09											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			24.5					
Intersection Capacity Utilization	84.4%			ICU Level of Service			E					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1014: SR 204 & Middleground Road

2035 AM - No Build

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	432	1627	380	189	972	38	62	81	61	345	298	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	4287	1508	1736	4217	1532	1736	1698		1736	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.29	1.00		0.20	1.00	1.00
Satd. Flow (perm)	1736	4287	1508	1736	4217	1532	533	1698		362	1827	1532
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	445	1677	392	225	1157	45	79	104	78	401	347	340
RTOR Reduction (vph)	0	0	107	0	0	24	0	18	0	0	0	234
Lane Group Flow (vph)	445	1677	285	225	1157	21	79	164	0	401	347	106
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	23.5	78.9	78.9	13.5	68.9	68.9	23.9	13.7		38.7	22.0	22.0
Effective Green, g (s)	23.5	78.9	78.9	13.5	68.9	68.9	23.9	13.7		38.7	22.0	22.0
Actuated g/C Ratio	0.16	0.53	0.53	0.09	0.46	0.46	0.16	0.09		0.26	0.15	0.15
Clearance Time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	272	2255	793	156	1937	704	167	155		263	268	225
v/s Ratio Prot	c0.26	c0.39		0.13	0.27		0.03	0.10		c0.19	0.19	
v/s Ratio Perm			0.19			0.01	0.04			c0.21		0.07
v/c Ratio	1.64	0.74	0.36	1.44	0.60	0.03	0.47	1.06		1.52	1.29	0.47
Uniform Delay, d1	63.2	27.7	20.8	68.2	30.2	22.2	55.9	68.2		50.6	64.0	58.7
Progression Factor	1.18	0.83	1.21	1.17	0.63	0.43	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	287.7	0.2	0.1	229.9	1.3	0.1	1.5	88.2		254.6	157.5	0.6
Delay (s)	362.3	23.2	25.2	309.9	20.4	9.6	57.4	156.4		305.2	221.5	59.2
Level of Service	F	C	C	F	C	A	E	F		F	F	E
Approach Delay (s)		83.5			65.7			126.4			201.6	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM Average Control Delay		105.1										
HCM Volume to Capacity ratio		1.06										
Actuated Cycle Length (s)		150.0										
Intersection Capacity Utilization		94.9%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1015: SR 204 & Arts Drive

2035 AM - No Build

8/4/2011

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1954	79	136	1170	29	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9		6.0	5.9	6.5	6.0
Lane Util. Factor		0.91		1.00	0.91	0.97	1.00
Frt		0.99		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4218		1736	4217	3367	1553
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4218		1736	4217	3367	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.78	0.78
Adj. Flow (vph)	0	2014	81	162	1393	37	56
RTOR Reduction (vph)	0	2	0	0	0	0	1
Lane Group Flow (vph)	0	2093	0	162	1393	37	55
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%
Turn Type	Prot			Prot		custom	
Protected Phases	5	2		1	6	3	1 3
Permitted Phases							8
Actuated Green, G (s)		103.5		19.7	129.2	8.4	30.6
Effective Green, g (s)		103.5		19.7	129.2	8.4	30.6
Actuated g/C Ratio		0.69		0.13	0.86	0.06	0.20
Clearance Time (s)		5.9		6.0	5.9	6.5	
Vehicle Extension (s)		5.0		3.0	5.0	3.0	
Lane Grp Cap (vph)		2910		228	3632	189	317
v/s Ratio Prot		c0.50		c0.09	0.33	0.01	c0.03
v/s Ratio Perm							0.00
v/c Ratio		0.72		0.71	0.38	0.20	0.17
Uniform Delay, d1		14.3		62.4	2.2	67.6	49.3
Progression Factor		1.77		0.82	1.31	1.00	1.00
Incremental Delay, d2		0.7		9.1	0.3	0.5	0.3
Delay (s)		26.0		60.4	3.1	68.1	49.5
Level of Service		C		E	A	E	D
Approach Delay (s)		26.0			9.1	56.9	
Approach LOS		C			A	E	
Intersection Summary							
HCM Average Control Delay		19.7				HCM Level of Service	B
HCM Volume to Capacity ratio		0.68					
Actuated Cycle Length (s)		150.0				Sum of lost time (s)	17.9
Intersection Capacity Utilization		65.7%				ICU Level of Service	C
Analysis Period (min)		15					
c Critical Lane Group							

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	132	1866	1224	0	0	0							
Sign Control	Free		Free			Stop							
Grade	0%		0%			0%							
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76							
Hourly flow rate (vph)	150	2120	1375	0	0	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)			1257										
pX, platoon unblocked	0.89				0.89	0.89							
vC, conflicting volume	1375				2382	458							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1002				2129	0							
tC, single (s)	4.2				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.2				3.5	3.3							
p0 queue free %	75				100	100							
cM capacity (veh/h)	603				28	963							
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3						
Volume Total	150	707	707	707	458	458	458						
Volume Left	150	0	0	0	0	0	0						
Volume Right	0	0	0	0	0	0	0						
cSH	603	1700	1700	1700	1700	1700	1700						
Volume to Capacity	0.25	0.42	0.42	0.42	0.27	0.27	0.27						
Queue Length 95th (ft)	24	0	0	0	0	0	0						
Control Delay (s)	12.9	0.0	0.0	0.0	0.0	0.0	0.0						
Lane LOS	B												
Approach Delay (s)	0.9				0.0								
Approach LOS													
Intersection Summary													
Average Delay			0.5										
Intersection Capacity Utilization			41.9%	ICU Level of Service		A							
Analysis Period (min)			15										

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↓		↵	↑↑↑↑			↕			↵	
Volume (veh/h)	0	1825	41	10	1211	0	13	0	4	56	6	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.62	0.62	0.62	0.76	0.76	0.76
Hourly flow rate (vph)	0	2074	47	11	1361	0	21	0	6	74	8	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	Raised			Raised								
Median storage (veh)	1			1								
Upstream signal (ft)				1072								
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	1361				2120		2577	3480	715	2081	3504	454
vC1, stage 1 conf vol							2097	2097		1383	1383	
vC2, stage 2 conf vol							480	1383		698	2120	
vCu, unblocked vol	904				2120		2297	3332	715	1729	3359	0
tC, single (s)	4.6				4.2		7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.4				2.2		3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				95		54	100	98	52	86	100
cM capacity (veh/h)	550				247		46	64	369	152	57	941
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	830	830	461	11	454	454	454	27	82			
Volume Left	0	0	0	11	0	0	0	21	74			
Volume Right	0	0	47	0	0	0	0	6	0			
cSH	1700	1700	1700	247	1700	1700	1700	58	131			
Volume to Capacity	0.49	0.49	0.27	0.05	0.27	0.27	0.27	0.47	0.62			
Queue Length 95th (ft)	0	0	0	4	0	0	0	46	81			
Control Delay (s)	0.0	0.0	0.0	20.3	0.0	0.0	0.0	113.8	70.0			
Lane LOS				C				F	F			
Approach Delay (s)	0.0			0.2				113.8	70.0			
Approach LOS								F	F			
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			46.8%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 AM - No Build

1020: SR 204 & Mercy Blvd

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	1703	78	33	1134	112	115	12	87	82	17	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91	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	0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1586		1736	1597	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.55	1.00		0.59	1.00	
Satd. Flow (perm)	1736	4218		1736	4217	1553	997	1586		1073	1597	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	113	1851	85	38	1319	130	155	16	118	114	24	126
RTOR Reduction (vph)	0	2	0	0	0	45	0	97	0	0	104	0
Lane Group Flow (vph)	113	1934	0	38	1319	85	155	37	0	114	46	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm		Perm		Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	14.7	97.9		7.6	90.8	90.8	26.1	26.1		26.1	26.1	
Effective Green, g (s)	14.7	97.9		7.6	90.8	90.8	26.1	26.1		26.1	26.1	
Actuated g/C Ratio	0.10	0.65		0.05	0.61	0.61	0.17	0.17		0.17	0.17	
Clearance Time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	170	2753		88	2553	940	173	276		187	278	
v/s Ratio Prot	c0.07	c0.46		0.02	0.31			0.02			0.03	
v/s Ratio Perm						0.05	c0.16			0.11		
v/c Ratio	0.66	0.70		0.43	0.52	0.09	0.90	0.13		0.61	0.17	
Uniform Delay, d1	65.3	16.7		69.1	17.0	12.4	60.6	52.4		57.2	52.7	
Progression Factor	1.19	0.35		0.99	0.58	0.30	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.5	1.2		2.9	0.6	0.2	39.9	0.2		5.5	0.3	
Delay (s)	85.0	7.1		71.6	10.5	3.9	100.5	52.6		62.8	53.0	
Level of Service	F	A		E	B	A	F	D		E	D	
Approach Delay (s)		11.4			11.5			78.3			57.2	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM Average Control Delay			19.1		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				18.4			
Intersection Capacity Utilization			68.0%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM - No Build

1021: SR 204 & Largo Blvd

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	1617	179	82	1022	31	163	68	277	78	85	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4219		1736	4218		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.42	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	1736	4219		1736	4218		763	1827	1553	1264	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	87	1859	206	88	1099	33	243	101	413	95	104	115
RTOR Reduction (vph)	0	8	0	0	2	0	0	0	258	0	0	104
Lane Group Flow (vph)	87	2057	0	88	1130	0	243	101	155	95	104	11
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	12.6	77.7		12.3	76.9		41.5	23.3	23.3	25.8	14.1	14.1
Effective Green, g (s)	12.6	77.7		12.3	76.9		41.5	23.3	23.3	25.8	14.1	14.1
Actuated g/C Ratio	0.08	0.52		0.08	0.51		0.28	0.16	0.16	0.17	0.09	0.09
Clearance Time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	2185		142	2162		347	284	241	254	172	146
v/s Ratio Prot	0.05	c0.49		c0.05	0.27		c0.10	0.06		0.03	0.06	
v/s Ratio Perm							c0.10		0.10	0.04		0.01
v/c Ratio	0.60	0.94		0.62	0.52		0.70	0.36	0.64	0.37	0.60	0.07
Uniform Delay, d1	66.2	34.0		66.6	24.3		45.9	56.6	59.5	54.4	65.3	62.0
Progression Factor	0.99	0.93		1.14	0.58		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	7.8		7.3	0.8		6.3	0.8	5.8	0.9	5.9	0.2
Delay (s)	70.2	39.5		83.0	15.1		52.2	57.4	65.3	55.3	71.2	62.2
Level of Service	E	D		F	B		D	E	E	E	E	E
Approach Delay (s)		40.7			20.0			60.0			63.1	
Approach LOS		D			B			E			E	
Intersection Summary												
HCM Average Control Delay		39.9		HCM Level of Service				D				
HCM Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		150.0		Sum of lost time (s)				12.4				
Intersection Capacity Utilization		72.6%		ICU Level of Service				C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 AM - No Build

1022: SR 204 & Idlewood Drive

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗		↑↑↑↗				↗			↗
Volume (veh/h)	0	1922	50	0	1117	11	0	0	111	0	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Hourly flow rate (vph)	0	2209	57	0	1201	12	0	0	166	0	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (ft)	651			1109								
pX, platoon unblocked	0.88			0.58			0.64	0.64	0.58	0.64	0.64	0.88
vC, conflicting volume	1213			2209			2632	3422	736	1943	3416	406
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	768			523			295	1539	0	0	1530	0
tC, single (s)	4.6			4.6			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.4			2.4			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	73	100	100	98
cM capacity (veh/h)	632			522			391	71	621	474	72	949
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	736	736	736	57	480	480	252	166	22			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	57	0	0	12	166	22			
cSH	1700	1700	1700	1700	1700	1700	1700	621	949			
Volume to Capacity	0.43	0.43	0.43	0.03	0.28	0.28	0.15	0.27	0.02			
Queue Length 95th (ft)	0	0	0	0	0	0	0	27	2			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9	8.9			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			12.9	8.9			
Approach LOS								B	A			
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			50.7%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 AM - No Build

1023: SR 204 & Deerfield Road

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	1847	28	50	1038	90	41	27	154	137	5	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Lane Util. Factor	1.00	0.86		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	5314		1736	4217	1553	1736	1594		1649	1659	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	5314		1736	4217	1553	1736	1594		1649	1659	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	168	1965	30	51	1059	92	46	30	171	159	6	57
RTOR Reduction (vph)	0	1	0	0	0	41	0	140	0	0	0	52
Lane Group Flow (vph)	168	1994	0	51	1059	51	46	61	0	83	82	5
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	19.7	93.5		8.6	82.4	82.4	10.5	10.5		12.9	12.9	12.9
Effective Green, g (s)	19.7	93.5		8.6	82.4	82.4	10.5	10.5		12.9	12.9	12.9
Actuated g/C Ratio	0.13	0.62		0.06	0.55	0.55	0.07	0.07		0.09	0.09	0.09
Clearance Time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	228	3312		100	2317	853	122	112		142	143	134
v/s Ratio Prot	c0.10	c0.38		0.03	0.25		0.03	c0.04		c0.05	0.05	
v/s Ratio Perm						0.03						0.00
v/c Ratio	0.74	0.60		0.51	0.46	0.06	0.38	0.54		0.58	0.57	0.04
Uniform Delay, d1	62.7	17.0		68.7	20.3	15.7	66.6	67.4		66.0	65.9	62.9
Progression Factor	1.02	0.86		1.27	0.49	0.05	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.4	0.4		4.0	0.6	0.1	2.0	5.2		6.0	5.5	0.1
Delay (s)	70.4	15.1		91.5	10.5	0.9	68.6	72.7		72.0	71.4	63.0
Level of Service	E	B		F	B	A	E	E		E	E	E
Approach Delay (s)		19.4			13.2			71.9			69.4	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM Average Control Delay			23.8	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				18.6				
Intersection Capacity Utilization			68.6%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		  			  					  		
Volume (vph)	0	1074	1064	0	531	25	19	0	55	592	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0		6.0	6.0	6.0		6.0	6.0		6.0
Lane Util. Factor		0.86	0.86		0.86	1.00	1.00		1.00	0.94		1.00
Frt		0.95	0.85		1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)		3787	1129		5314	1553	1736		1553	4138		1313
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)		3787	1129		5314	1553	1736		1553	4138		1313
Peak-hour factor, PHF	0.93	0.93	0.93	0.77	0.77	0.77	0.72	0.72	0.72	0.82	0.82	0.82
Adj. Flow (vph)	0	1155	1144	0	690	32	26	0	76	722	0	23
RTOR Reduction (vph)	0	51	0	0	0	9	0	0	60	0	0	18
Lane Group Flow (vph)	0	1676	572	0	690	23	26	0	16	722	0	5
Heavy Vehicles (%)	4%	23%	23%	4%	23%	4%	4%	4%	4%	23%	23%	23%
Turn Type		Free				Perm	Prot		custom	Prot		custom
Protected Phases		2			6		4			8		
Permitted Phases		Free			6				4			8
Actuated Green, G (s)		106.1	150.0		106.1	106.1	31.9		31.9	31.9		31.9
Effective Green, g (s)		106.1	150.0		106.1	106.1	31.9		31.9	31.9		31.9
Actuated g/C Ratio		0.71	1.00		0.71	0.71	0.21		0.21	0.21		0.21
Clearance Time (s)		6.0			6.0	6.0	6.0		6.0	6.0		6.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		2679	1129		3759	1098	369		330	880		279
v/s Ratio Prot		c0.44			0.13		0.01			c0.17		
v/s Ratio Perm			0.51			0.01			0.01			0.00
v/c Ratio		0.63	0.51		0.18	0.02	0.07		0.05	0.82		0.02
Uniform Delay, d1		11.5	0.0		7.4	6.5	47.2		47.0	56.3		46.7
Progression Factor		0.28	1.00		0.90	0.71	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.9	1.3		0.1	0.0	0.1		0.1	6.2		0.0
Delay (s)		4.2	1.3		6.8	4.7	47.3		47.0	62.5		46.7
Level of Service		A	A		A	A	D		D	E		D
Approach Delay (s)		3.5			6.7			47.1		62.0		
Approach LOS		A			A			D		E		
Intersection Summary												
HCM Average Control Delay		16.5			HCM Level of Service				B			
HCM Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)				12.0			
Intersection Capacity Utilization		49.9%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		  			  	 	
Volume (vph)	0	1034	78	102	515	41	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	1.00	0.86	0.97	1.00
Frt		1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)		4217	1509	1687	5314	3273	1509
Flt Permitted		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)		4217	1509	1687	5314	3273	1509
Peak-hour factor, PHF	0.93	0.93	0.93	0.77	0.77	0.82	0.82
Adj. Flow (vph)	0	1112	84	132	669	50	70
RTOR Reduction (vph)	0	0	24	0	0	0	66
Lane Group Flow (vph)	0	1112	60	132	669	50	4
Heavy Vehicles (%)	7%	23%	7%	7%	23%	7%	7%
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	5	2		1	6	8	
Permitted Phases			2				8
Actuated Green, G (s)		107.1	107.1	17.0	130.1	7.9	7.9
Effective Green, g (s)		107.1	107.1	17.0	130.1	7.9	7.9
Actuated g/C Ratio		0.71	0.71	0.11	0.87	0.05	0.05
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		3011	1077	191	4609	172	79
v/s Ratio Prot		c0.26		c0.08	0.13	c0.02	
v/s Ratio Perm			0.04				0.00
v/c Ratio		0.37	0.06	0.69	0.15	0.29	0.05
Uniform Delay, d1		8.3	6.4	64.0	1.5	68.4	67.5
Progression Factor		0.21	0.13	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	0.1	10.3	0.1	0.9	0.2
Delay (s)		2.0	0.9	74.3	1.6	69.3	67.7
Level of Service		A	A	E	A	E	E
Approach Delay (s)		1.9			13.6	68.4	
Approach LOS		A			B	E	
Intersection Summary							
HCM Average Control Delay			10.1		HCM Level of Service		B
HCM Volume to Capacity ratio			0.41				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			44.0%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2035 PM - No Build

1000: SR 204 & Gateway Blvd W

8/4/2011

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Volume (veh/h)	13	479	0	46	789	108	3	1	19	104	3	46				
Sign Control	Free			Free			Stop			Stop						
Grade	0%			0%			0%			0%						
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78				
Hourly flow rate (vph)	14	521	0	52	897	123	4	1	25	133	4	59				
Pedestrians																
Lane Width (ft)																
Walking Speed (ft/s)																
Percent Blockage																
Right turn flare (veh)	8															
Median type	None			None												
Median storage veh																
Upstream signal (ft)	708															
pX, platoon unblocked	0.90							0.90	0.90		0.90	0.90				
vC, conflicting volume	897	521						1104	1550	260	1316	1550				
vC1, stage 1 conf vol																
vC2, stage 2 conf vol																
vCu, unblocked vol	656	521						887	1384	260	1123	1384				
tC, single (s)	4.2	4.2						7.6	6.6	7.0	7.6	6.6				
tC, 2 stage (s)																
tF (s)	2.2	2.2						3.5	4.0	3.3	3.5	4.0				
p0 queue free %	98	95						98	99	97	0	97				
cM capacity (veh/h)	826	1035						182	118	735	130	118				
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1								
Volume Total	274	260	52	448	448	123	31	196								
Volume Left	14	0	52	0	0	0	4	133								
Volume Right	0	0	0	0	0	123	25	59								
cSH	826	1700	1035	1700	1700	1700	453	185								
Volume to Capacity	0.02	0.15	0.05	0.26	0.26	0.07	0.07	1.06								
Queue Length 95th (ft)	1	0	4	0	0	0	5	233								
Control Delay (s)	0.7	0.0	8.7	0.0	0.0	0.0	13.5	116.6								
Lane LOS	A	A						B	F							
Approach Delay (s)	0.3	0.4						13.5	116.6							
Approach LOS							B	F								
Intersection Summary																
Average Delay				13.1												
Intersection Capacity Utilization				57.5%	ICU Level of Service			B								
Analysis Period (min)				15												

HCM Signalized Intersection Capacity Analysis

2035 PM - No Build

1001: SR 204 & I-95 SB Off-Ramp

8/4/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Volume (vph)	0	484	118	1042	778	0	0	0	933	0	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	5.7	6.4	5.7				6.1		6.1
Lane Util. Factor		0.95	1.00	1.00	0.95				0.97		1.00
Frt		1.00	0.85	1.00	1.00				1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (prot)		3312	1442	1612	3312				3127		1442
Flt Permitted		1.00	1.00	0.14	1.00				0.95		1.00
Satd. Flow (perm)		3312	1442	236	3312				3127		1442
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	613	149	1145	855	0	0	0	1098	0	194
RTOR Reduction (vph)	0	0	114	0	0	0	0	0	0	0	139
Lane Group Flow (vph)	0	613	35	1145	855	0	0	0	1098	0	55
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type			Perm	pm+pt					custom		custom
Protected Phases		2		1	6						
Permitted Phases			2	6					4		4
Actuated Green, G (s)		22.3	22.3	103.3	103.3				44.9		44.9
Effective Green, g (s)		22.3	22.3	103.3	103.3				44.9		44.9
Actuated g/C Ratio		0.14	0.14	0.65	0.65				0.28		0.28
Clearance Time (s)		5.7	5.7	6.4	5.7				6.1		6.1
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0
Lane Grp Cap (vph)		462	201	794	2138				878		405
v/s Ratio Prot		0.19		c0.67	0.26						
v/s Ratio Perm			0.02	c0.26					c0.35		0.04
v/c Ratio		1.33	0.17	1.44	0.40				1.25		0.14
Uniform Delay, d1		68.8	60.7	37.6	13.5				57.6		43.0
Progression Factor		1.00	1.00	0.19	0.24				1.00		1.00
Incremental Delay, d2		161.5	1.8	199.6	0.2				122.2		0.2
Delay (s)		230.3	62.6	206.8	3.5				179.7		43.2
Level of Service		F	E	F	A				F		D
Approach Delay (s)		197.5			119.9		0.0			159.2	
Approach LOS		F			F		A			F	
Intersection Summary											
HCM Average Control Delay			147.0		HCM Level of Service				F		
HCM Volume to Capacity ratio			1.36								
Actuated Cycle Length (s)			160.0		Sum of lost time (s)				12.5		
Intersection Capacity Utilization			81.2%		ICU Level of Service				D		
Analysis Period (min)			15								
c Critical Lane Group											

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	60	1357	0	0	1638	725	0	0	182	0	964
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0			4.0		4.0
Lane Util. Factor	1.00	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)	1612	3312			3312	1442			1612		2538
Flt Permitted	0.04	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	74	3312			3312	1442			1612		2538
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	66	1491	0	0	1883	833	0	0	214	0	1134
RTOR Reduction (vph)	0	0	0	0	0	170	0	0	0	0	48
Lane Group Flow (vph)	66	1491	0	0	1883	663	0	0	214	0	1086
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases	2					6			8		8
Actuated Green, G (s)	98.0	98.0			88.0	88.0			54.0		54.0
Effective Green, g (s)	98.0	98.0			88.0	88.0			54.0		54.0
Actuated g/C Ratio	0.61	0.61			0.55	0.55			0.34		0.34
Clearance Time (s)	4.0	4.0			4.0	4.0			4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	103	2029			1822	793			544		857
v/s Ratio Prot	0.02	c0.45			c0.57						
v/s Ratio Perm	0.37					0.46			0.13		c0.43
v/c Ratio	0.64	0.73			1.03	0.84			0.39		1.27
Uniform Delay, d1	37.7	21.8			36.0	30.0			40.5		53.0
Progression Factor	1.67	1.52			0.53	0.92			1.00		1.00
Incremental Delay, d2	1.2	0.2			17.4	1.0			0.5		129.3
Delay (s)	64.2	33.5			36.6	28.6			41.0		182.3
Level of Service	E	C			D	C			D		F
Approach Delay (s)		34.8			34.1		0.0			159.9	
Approach LOS		C			C		A			F	
Intersection Summary											
HCM Average Control Delay		64.5			HCM Level of Service				E		
HCM Volume to Capacity ratio		1.11									
Actuated Cycle Length (s)		160.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization		81.2%			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												
Volume (vph)	275	1784	262	172	1906	147	247	76	97	71	54	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1547	2981	1384	1547	2981	1384	1547	1491		1547	1434	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.14	1.00		0.63	1.00	
Satd. Flow (perm)	1547	2981	1384	1547	2981	1384	227	1491		1029	1434	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	299	1939	285	189	2095	162	287	88	113	76	57	223
RTOR Reduction (vph)	0	0	69	0	0	27	0	28	0	0	88	0
Lane Group Flow (vph)	299	1939	216	189	2095	135	287	173	0	76	192	0
Heavy Vehicles (%)	5%	9%	5%	5%	9%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm		Prot		Perm		pm+pt		pm+pt	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	25.2	70.3	70.3	18.2	63.3	63.3	48.8	30.1		31.6	20.8	
Effective Green, g (s)	25.2	70.3	70.3	18.2	63.3	63.3	48.8	30.1		31.6	20.8	
Actuated g/C Ratio	0.16	0.44	0.44	0.11	0.40	0.40	0.30	0.19		0.20	0.13	
Clearance Time (s)	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.2		7.9	7.2	
Vehicle Extension (s)	2.5	6.0	6.0	2.5	6.0	6.0	2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	244	1310	608	176	1179	548	235	280		238	186	
v/s Ratio Prot	c0.19	c0.65		0.12	c0.70		c0.15	0.12		0.02	0.13	
v/s Ratio Perm			0.16			0.10	c0.22			0.04		
v/c Ratio	1.23	1.48	0.36	1.07	1.78	0.25	1.22	0.62		0.32	1.03	
Uniform Delay, d1	67.4	44.9	29.8	70.9	48.4	32.4	48.6	59.7		54.2	69.6	
Progression Factor	1.01	0.97	0.95	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	112.5	217.4	0.5	88.9	353.1	1.1	131.6	4.0		0.6	74.9	
Delay (s)	180.6	260.8	28.8	159.8	401.4	33.5	180.2	63.7		54.7	144.5	
Level of Service	F	F	C	F	F	C	F	E		D	F	
Approach Delay (s)		225.0			358.4			132.2			125.3	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM Average Control Delay		267.3			HCM Level of Service				F			
HCM Volume to Capacity ratio		1.57										
Actuated Cycle Length (s)		160.0			Sum of lost time (s)				31.1			
Intersection Capacity Utilization		133.1%			ICU Level of Service				H			
Analysis Period (min)		15										
c Critical Lane Group												

											
Movement	EBL	EBR	EBR2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	441	0	481	0	0	0	1182	474	407	1932	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0				5.0	5.0	5.0	4.5	
Lane Util. Factor	0.97		1.00				0.95	1.00	1.00	0.95	
Frt	1.00		0.85				1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00				1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303		1524				3406	1524	1703	3406	
Flt Permitted	0.95		1.00				1.00	1.00	0.08	1.00	
Satd. Flow (perm)	3303		1524				3406	1524	143	3406	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	501	0	547	0	0	0	1271	510	447	2123	0
RTOR Reduction (vph)	0	0	17	0	0	0	0	283	0	0	0
Lane Group Flow (vph)	501	0	530	0	0	0	1271	227	447	2123	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom						Perm		pm+pt		
Protected Phases							2		1		
Permitted Phases	4		4				2		6		
Actuated Green, G (s)	17.0		17.0				44.6		44.6		73.5
Effective Green, g (s)	17.0		17.0				44.6		44.6		73.5
Actuated g/C Ratio	0.17		0.17				0.45		0.45		0.74
Clearance Time (s)	5.0		5.0				5.0		5.0		4.5
Vehicle Extension (s)	3.0		3.0				3.0		3.0		3.0
Lane Grp Cap (vph)	562		259				1519		680		2503
v/s Ratio Prot							0.37		c0.22		0.62
v/s Ratio Perm	0.15		c0.35						0.15		c0.48
v/c Ratio	0.89		2.04				0.84		0.33		0.95
Uniform Delay, d1	40.6		41.5				24.5		18.0		30.2
Progression Factor	1.00		1.00				1.00		1.00		1.41
Incremental Delay, d2	16.3		483.3				5.6		1.3		10.8
Delay (s)	56.9		524.8				30.1		19.4		53.5
Level of Service	E		F				C		B		D
Approach Delay (s)	301.1			0.0			27.0			18.2	
Approach LOS	F			A			C			B	
Intersection Summary											
HCM Average Control Delay				76.0			HCM Level of Service			E	
HCM Volume to Capacity ratio				1.14							
Actuated Cycle Length (s)				100.0			Sum of lost time (s)			10.0	
Intersection Capacity Utilization				110.5%			ICU Level of Service			H	
Analysis Period (min)				15							
c Critical Lane Group											

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	778	0	278	595	1028	0	0	1561	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0		5.0	5.0	5.0			5.0	5.0
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3213		1482	1656	3312			3312	1482
Flt Permitted				0.95		1.00	0.07	1.00			1.00	1.00
Satd. Flow (perm)				3213		1482	116	3312			3312	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	819	0	293	647	1117	0	0	1815	600
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	0	0	0	249
Lane Group Flow (vph)	0	0	0	819	0	209	647	1117	0	0	1815	351
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type				custom		custom	pm+pt		Perm			
Protected Phases							5		2		6	
Permitted Phases				8		8	2		6			
Actuated Green, G (s)				25.0		25.0	65.0		65.0		55.0	
Effective Green, g (s)				25.0		25.0	65.0		65.0		55.0	
Actuated g/C Ratio				0.25		0.25	0.65		0.65		0.55	
Clearance Time (s)				5.0		5.0	5.0		5.0		5.0	
Vehicle Extension (s)				3.0		3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)				803		371	152		2153		1822	
v/s Ratio Prot							c0.21		0.34		0.55	
v/s Ratio Perm				c0.25		0.14	c2.54		0.24			
v/c Ratio				1.02		0.56	4.26		0.52		1.00	
Uniform Delay, d1				37.5		32.7	28.2		9.2		22.4	
Progression Factor				1.00		1.00	2.08		1.68		1.00	
Incremental Delay, d2				36.9		2.0	1473.5		0.4		20.2	
Delay (s)				74.4		34.7	1532.2		16.0		42.6	
Level of Service				E		C	F		B		D	
Approach Delay (s)	0.0			63.9				572.1		35.7		
Approach LOS	A			E				F		D		
Intersection Summary												
HCM Average Control Delay	220.5			HCM Level of Service				F				
HCM Volume to Capacity ratio	3.24											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)				10.0				
Intersection Capacity Utilization	110.5%			ICU Level of Service				H				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 PM - No Build

1006: SR 204 & Grove Point Road

8/4/2011

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Volume (veh/h)	0	1906	5	15	2160	0	10	0	25	0	0	0							
Sign Control	Free			Free			Stop			Stop									
Grade	0%			0%			0%			0%									
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.66	0.66	0.66	0.25	0.25	0.25							
Hourly flow rate (vph)	0	2118	6	16	2323	0	15	0	38	0	0	0							
Pedestrians																			
Lane Width (ft)																			
Walking Speed (ft/s)																			
Percent Blockage																			
Right turn flare (veh)																			
Median type	Raised			Raised															
Median storage veh	1			1															
Upstream signal (ft)																			
pX, platoon unblocked																			
vC, conflicting volume	2323				2123				3311	4473	1059	3452	4478	1161					
vC1, stage 1 conf vol							2118	2118			2355	2355							
vC2, stage 2 conf vol							1194	2355			1097	2123							
vCu, unblocked vol	2323				2123				3311	4473	1059	3452	4478	1161					
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0					
tC, 2 stage (s)							6.6	5.6			6.6	5.6							
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3					
p0 queue free %	100				94				60	100	83	100	100	100					
cM capacity (veh/h)	208				250				37	34	219	26	31	187					
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1									
Volume Total	0	1059	1059	6	16	1161	1161	0	53	0									
Volume Left	0	0	0	0	16	0	0	0	15	0									
Volume Right	0	0	0	6	0	0	0	0	38	0									
cSH	1700	1700	1700	1700	250	1700	1700	1700	92	1700									
Volume to Capacity	0.00	0.62	0.62	0.00	0.06	0.68	0.68	0.00	0.58	0.00									
Queue Length 95th (ft)	0	0	0	0	5	0	0	0	66	0									
Control Delay (s)	0.0	0.0	0.0	0.0	20.4	0.0	0.0	0.0	87.9	0.0									
Lane LOS					C				F		A								
Approach Delay (s)	0.0				0.1				87.9	0.0									
Approach LOS									F		A								
Intersection Summary																			
Average Delay				1.1															
Intersection Capacity Utilization				69.7%	ICU Level of Service			C											
Analysis Period (min)				15															

HCM Signalized Intersection Capacity Analysis

2035 PM - No Build

1007: SR 204 & Pine Grove Road

8/4/2011

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Volume (vph)	27	1845	59	139	2116	36	40	1	40	49	1	19						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900						
Total Lost time (s)	6.0	7.5	7.5	6.0	7.5	7.5	7.0			7.0								
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00			1.00								
Frt	1.00	1.00	0.85	1.00	1.00	0.85	0.93			0.96								
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.98			0.97								
Satd. Flow (prot)	1752	3139	1568	1752	3139	1568	1680			1715								
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.82			0.64								
Satd. Flow (perm)	1752	3139	1568	1752	3139	1568	1413			1135								
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81						
Adj. Flow (vph)	30	2027	65	148	2251	38	54	1	54	60	1	23						
RTOR Reduction (vph)	0	0	8	0	0	4	0	20	0	0	7	0						
Lane Group Flow (vph)	30	2027	57	148	2251	34	0	89	0	0	77	0						
Heavy Vehicles (%)	3%	15%	3%	3%	15%	3%	3%	3%	3%	3%	3%	3%						
Turn Type	Prot	Perm		Prot	Perm		Perm	Perm			Perm							
Protected Phases	5	2			1	6	8			4								
Permitted Phases				2	6			8	4									
Actuated Green, G (s)	4.0	122.4	122.4	18.6	137.0	137.0	13.5			13.5								
Effective Green, g (s)	4.0	122.4	122.4	18.6	137.0	137.0	13.5			13.5								
Actuated g/C Ratio	0.02	0.70	0.70	0.11	0.78	0.78	0.08			0.08								
Clearance Time (s)	6.0	7.5	7.5	6.0	7.5	7.5	7.0			7.0								
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0			3.0								
Lane Grp Cap (vph)	40	2196	1097	186	2457	1228	109			88								
v/s Ratio Prot	0.02	0.65	c0.08		c0.72													
v/s Ratio Perm				0.04	0.02			0.06	c0.07									
v/c Ratio	0.75	0.92	0.05	0.80	0.92	0.03	0.81			0.87								
Uniform Delay, d1	85.0	22.3	8.2	76.3	14.6	4.2	79.5			79.9								
Progression Factor	1.00	1.00	1.00	0.86	1.07	1.35	1.00			1.00								
Incremental Delay, d2	55.2	8.0	0.1	2.2	0.7	0.0	35.3			55.7								
Delay (s)	140.2	30.3	8.3	68.1	16.3	5.7	114.8			135.6								
Level of Service	F	C	A	E	B	A	F			F								
Approach Delay (s)				31.2	19.3			114.8	135.6									
Approach LOS				C	B			F	F									
Intersection Summary																		
HCM Average Control Delay				28.8	HCM Level of Service			C										
HCM Volume to Capacity ratio				0.93														
Actuated Cycle Length (s)				175.0	Sum of lost time (s)			20.5										
Intersection Capacity Utilization				86.4%	ICU Level of Service			E										
Analysis Period (min)				15														
c Critical Lane Group																		

HCM Signalized Intersection Capacity Analysis

1008: King George Boulevard & SR 204

2035 PM - No Build

1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	233	1363	338	1188	1774	349	205	124	489	278	183	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.1	7.1	7.0	7.1	4.0	6.2	6.6	4.0	6.2	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3139	1526	3367	3139	1553	1736	1827	1553	3367	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3139	1526	3367	3139	1553	1736	1827	1553	3367	1827	1532
Peak-hour factor, PHF	0.99	0.99	0.99	0.98	0.98	0.98	0.85	0.85	0.85	0.77	0.77	0.77
Growth Factor (vph)	100%	100%	100%	100%	171%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	235	1377	341	1212	3095	356	241	146	575	361	238	405
RTOR Reduction (vph)	0	0	106	0	0	0	0	0	0	0	0	172
Lane Group Flow (vph)	235	1377	235	1212	3095	356	241	146	575	361	238	233
Confl. Peds. (#/hr)	6											1
Heavy Vehicles (%)	4%	15%	4%	4%	15%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			Free			Free			4
Actuated Green, G (s)	21.0	60.9	60.9	53.0	92.9	175.0	17.8	13.6	175.0	20.6	16.4	16.4
Effective Green, g (s)	21.0	60.9	60.9	53.0	92.9	175.0	17.8	13.6	175.0	20.6	16.4	16.4
Actuated g/C Ratio	0.12	0.35	0.35	0.30	0.53	1.00	0.10	0.08	1.00	0.12	0.09	0.09
Clearance Time (s)	7.0	7.1	7.1	7.0	7.1		6.2	6.6		6.2	6.6	6.6
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	208	1092	531	1019	1666	1553	176	141	1553	396	171	143
v/s Ratio Prot	0.14	0.44		c0.36	c0.99		c0.14	0.08		0.11	0.13	
v/s Ratio Perm			0.15			0.23			c0.37			c0.15
v/c Ratio	1.13	1.26	0.44	1.19	1.86	0.23	1.37	1.04	0.37	0.91	1.39	1.63
Uniform Delay, d1	77.0	57.1	44.0	61.0	41.0	0.0	78.6	80.7	0.0	76.3	79.3	79.3
Progression Factor	0.81	1.00	1.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	79.5	120.4	1.0	95.2	388.3	0.3	198.0	85.5	0.7	24.7	208.0	312.1
Delay (s)	141.8	177.6	53.6	156.2	429.4	0.3	276.6	166.2	0.7	101.0	287.3	391.4
Level of Service	F	F	D	F	F	A	F	F	A	F	F	F
Approach Delay (s)	151.7			325.6			94.9			262.3		
Approach LOS	F			F			F			F		
Intersection Summary												
HCM 2000 Control Delay	252.8			HCM 2000 Level of Service					F			
HCM 2000 Volume to Capacity ratio	1.72											
Actuated Cycle Length (s)	175.0			Sum of lost time (s)					26.9			
Intersection Capacity Utilization	140.9%			ICU Level of Service					H			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1009: SR 204 & Rio Road

2035 PM - No Build

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	450	1897	224	36	2039	15	408	23	19	38	29	721
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	479	2018	238	39	2216	16	504	28	23	41	31	775
RTOR Reduction (vph)	0	0	66	0	0	3	0	0	17	0	0	247
Lane Group Flow (vph)	479	2018	172	39	2216	13	504	28	6	41	31	528
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	32.1	73.6	73.6	7.7	49.2	49.2	25.5	36.8	36.8	7.8	19.1	19.1
Effective Green, g (s)	32.1	73.6	73.6	7.7	49.2	49.2	25.5	36.8	36.8	7.8	19.1	19.1
Actuated g/C Ratio	0.21	0.49	0.49	0.05	0.33	0.33	0.17	0.25	0.25	0.05	0.13	0.13
Clearance Time (s)	5.9	5.6	5.6	5.9	5.6	5.6	6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	372	2069	762	89	963	509	572	448	381	90	233	198
v/s Ratio Prot	c0.28	0.48		0.02	c0.76		c0.15	0.02		0.02	0.02	
v/s Ratio Perm			0.11			0.01			0.00			c0.34
v/c Ratio	1.29	0.98	0.23	0.44	2.30	0.02	0.88	0.06	0.01	0.46	0.13	2.67
Uniform Delay, d1	59.0	37.3	21.9	69.1	50.4	34.1	60.8	43.4	42.9	69.0	58.1	65.5
Progression Factor	1.00	1.00	1.00	1.18	0.84	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	148.3	14.8	0.7	1.7	587.1	0.0	14.8	0.1	0.0	3.6	0.3	764.4
Delay (s)	207.3	52.1	22.6	83.0	629.2	19.2	75.5	43.4	42.9	72.7	58.4	829.8
Level of Service	F	D	C	F	F	B	E	D	D	E	E	F
Approach Delay (s)	76.7			615.5			72.6			764.9		
Approach LOS	E			F			E			F		
Intersection Summary												
HCM Average Control Delay	358.3			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.81											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			24.1					
Intersection Capacity Utilization	127.8%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1954	1991	49	0	99		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	2079	2053	51	0	129		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (ft)	697							
pX, platoon unblocked					0.54			
vC, conflicting volume	2053				2745	684		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	2053				1278	684		
tC, single (s)	4.6				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.4				3.5	3.3		
p0 queue free %	100				100	67		
cM capacity (veh/h)	203				85	386		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	693	693	693	684	684	684	51	129
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	51	129
cSH	1700	1700	1700	1700	1700	1700	1700	386
Volume to Capacity	0.41	0.41	0.41	0.40	0.40	0.40	0.03	0.33
Queue Length 95th (ft)	0	0	0	0	0	0	0	36
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9
Lane LOS	C							
Approach Delay (s)	0.0				0.0			18.9
Approach LOS	C							
Intersection Summary								
Average Delay				0.6				
Intersection Capacity Utilization				51.3%	ICU Level of Service		A	
Analysis Period (min)				15				

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1954	2016	70	0	24		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	2079	2078	72	0	31		
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								
vC, conflicting volume	2078				2771	693		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	2078				2771	693		
tC, single (s)	4.6				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.4				3.5	3.3		
p0 queue free %	100				100	92		
cM capacity (veh/h)	198				15	381		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	693	693	693	693	693	693	72	31
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	72	31
cSH	1700	1700	1700	1700	1700	1700	1700	381
Volume to Capacity	0.41	0.41	0.41	0.41	0.41	0.41	0.04	0.08
Queue Length 95th (ft)	0	0	0	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3
Lane LOS	C							
Approach Delay (s)	0.0				0.0			15.3
Approach LOS	C							
Intersection Summary								
Average Delay				0.1				
Intersection Capacity Utilization				49.0%	ICU Level of Service			A
Analysis Period (min)				15				

															
Movement	EBL	EBT	WBT	WBR	SBL	SBR									
Lane Configurations															
Volume (veh/h)	0	1954	2017	71	0	69									
Sign Control		Free	Free		Stop										
Grade		0%	0%		0%										
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77									
Hourly flow rate (vph)	0	2079	2079	73	0	90									
Pedestrians															
Lane Width (ft)															
Walking Speed (ft/s)															
Percent Blockage															
Right turn flare (veh)															
Median type	None		None												
Median storage veh															
Upstream signal (ft)	545														
pX, platoon unblocked	0.54					0.54	0.54								
vC, conflicting volume	2079					2772	693								
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	18			1301		0									
tC, single (s)	4.6			6.9		7.0									
tC, 2 stage (s)															
tF (s)	2.4			3.5		3.3									
p0 queue free %	100			100		85									
cM capacity (veh/h)	787			81		582									
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1							
Volume Total	693	693	693	693	693	693	73	90							
Volume Left	0	0	0	0	0	0	0	0							
Volume Right	0	0	0	0	0	0	73	90							
cSH	1700	1700	1700	1700	1700	1700	1700	582							
Volume to Capacity	0.41	0.41	0.41	0.41	0.41	0.41	0.04	0.15							
Queue Length 95th (ft)	0	0	0	0	0	0	0	14							
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3							
Lane LOS	B														
Approach Delay (s)	0.0			0.0											
Approach LOS	B														
Intersection Summary															
Average Delay			0.3												
Intersection Capacity Utilization			49.9%		ICU Level of Service		A								
Analysis Period (min)			15												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	1790	73	208	1877	122	140	109	103	174	155	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Lane Util. Factor	1.00	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4218		3367	4218		1736	1827	1553	3367	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	4218		3367	4218		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	105	2057	84	229	2063	134	175	136	129	187	167	76
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	108	0	0	67
Lane Group Flow (vph)	105	2138	0	229	2193	0	175	136	21	187	167	9
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	14.2	73.9		13.6	73.3		19.6	24.3	24.3	13.7	18.4	18.4
Effective Green, g (s)	14.2	73.9		13.6	73.3		19.6	24.3	24.3	13.7	18.4	18.4
Actuated g/C Ratio	0.09	0.49		0.09	0.49		0.13	0.16	0.16	0.09	0.12	0.12
Clearance Time (s)	6.2	5.7		6.2	5.7		6.2	6.4	6.4	6.2	6.4	6.4
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	164	2078		305	2061		227	296	252	308	224	191
v/s Ratio Prot	0.06	0.51		c0.07	c0.52		c0.10	c0.07		0.06	c0.09	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.64	1.03		0.75	1.06		0.77	0.46	0.08	0.61	0.75	0.05
Uniform Delay, d1	65.4	38.0		66.5	38.4		63.0	56.9	53.4	65.6	63.5	58.1
Progression Factor	1.09	0.91		1.01	0.70		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	22.1		2.6	32.0		14.9	2.4	0.3	3.4	15.0	0.2
Delay (s)	75.3	56.8		70.0	58.7		77.9	59.3	53.7	68.9	78.5	58.3
Level of Service	E	E		E	E		E	E	D	E	E	E
Approach Delay (s)	57.7			59.8			65.0			70.8		
Approach LOS	E			E			E			E		
Intersection Summary												
HCM Average Control Delay			60.2		HCM Level of Service		E					
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)		30.9					
Intersection Capacity Utilization			80.4%		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												
Volume (vph)	405	1483	179	220	1705	149	88	175	148	295	193	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	4217	1508	1736	4217	1532	1736	1689		1736	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.38	1.00		0.15	1.00	1.00
Satd. Flow (perm)	1736	4217	1508	1736	4217	1532	697	1689		279	1827	1532
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	445	1630	197	232	1795	157	111	222	187	415	272	583
RTOR Reduction (vph)	0	0	55	0	0	68	0	20	0	0	0	207
Lane Group Flow (vph)	445	1630	142	232	1795	89	111	389	0	415	272	376
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	18.5	70.9	70.9	13.5	65.9	65.9	31.8	19.7		46.7	28.1	28.1
Effective Green, g (s)	18.5	70.9	70.9	13.5	65.9	65.9	31.8	19.7		46.7	28.1	28.1
Actuated g/C Ratio	0.12	0.47	0.47	0.09	0.44	0.44	0.21	0.13		0.31	0.19	0.19
Clearance Time (s)	6.5	6.1	6.1	6.5	6.1	6.1	6.5	6.3		6.5	6.3	6.3
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	214	1993	713	156	1853	673	232	222		286	342	287
v/s Ratio Prot	c0.26	c0.39		0.13	c0.43		0.04	c0.23		c0.20	0.15	
v/s Ratio Perm			0.09			0.06	0.06			0.25		c0.25
v/c Ratio	2.08	0.82	0.20	1.49	0.97	0.13	0.48	1.75		1.45	0.80	1.31
Uniform Delay, d1	65.8	34.0	23.0	68.2	41.0	25.0	49.9	65.2		45.1	58.2	61.0
Progression Factor	1.17	0.79	1.28	1.13	0.64	0.31	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	491.4	1.4	0.2	245.0	12.9	0.3	1.1	356.5		221.5	11.3	162.0
Delay (s)	568.5	28.2	29.8	322.3	39.2	8.1	51.1	421.6		266.6	69.5	222.9
Level of Service	F	C	C	F	D	A	D	F		F	E	F
Approach Delay (s)		134.1			67.0			342.5			204.3	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM Average Control Delay			142.3									
HCM Volume to Capacity ratio			1.50									
Actuated Cycle Length (s)			150.0									
Intersection Capacity Utilization			112.0%									
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	1845	81	47	1917	157	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9		6.0	5.9	6.5	6.0
Lane Util. Factor		0.91		1.00	0.91	0.97	1.00
Frt		0.99		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4218		1736	4217	3367	1553
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4218		1736	4217	3367	1553
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.79	0.79
Adj. Flow (vph)	0	2027	89	49	2018	199	154
RTOR Reduction (vph)	0	2	0	0	0	0	0
Lane Group Flow (vph)	0	2114	0	49	2018	199	154
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%
Turn Type	Prot			Prot		custom	
Protected Phases	5	2		1	6	3	1 3
Permitted Phases							8
Actuated Green, G (s)		103.9		9.6	119.5	18.1	30.2
Effective Green, g (s)		103.9		9.6	119.5	18.1	30.2
Actuated g/C Ratio		0.69		0.06	0.80	0.12	0.20
Clearance Time (s)		5.9		6.0	5.9	6.5	
Vehicle Extension (s)		5.0		3.0	5.0	3.0	
Lane Grp Cap (vph)		2922		111	3360	406	313
v/s Ratio Prot		c0.50		0.03	c0.48	0.06	c0.09
v/s Ratio Perm							0.01
v/c Ratio		0.72		0.44	0.60	0.49	0.49
Uniform Delay, d1		14.2		67.6	5.9	61.6	53.1
Progression Factor		0.97		1.27	0.22	1.00	1.00
Incremental Delay, d2		0.1		2.1	0.6	0.9	1.2
Delay (s)		14.0		88.2	1.9	62.6	54.3
Level of Service		B		F	A	E	D
Approach Delay (s)		14.0			4.0	59.0	
Approach LOS		B			A	E	
Intersection Summary							
HCM Average Control Delay			12.9			HCM Level of Service	B
HCM Volume to Capacity ratio			0.71				
Actuated Cycle Length (s)			150.0			Sum of lost time (s)	17.8
Intersection Capacity Utilization			54.9%			ICU Level of Service	A
Analysis Period (min)			15				
c Critical Lane Group							

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		  	  				
Volume (veh/h)	34	1933	1888	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80	
Hourly flow rate (vph)	37	2101	2052	0	0	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)			1257				
pX, platoon unblocked	0.74				0.74	0.74	
vC, conflicting volume	2052				2826	684	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1176				2227	0	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	91				100	100	
cM capacity (veh/h)	426				24	794	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	37	700	700	700	684	684	684
Volume Left	37	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	426	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.41	0.41	0.41	0.40	0.40	0.40
Queue Length 95th (ft)	7	0	0	0	0	0	0
Control Delay (s)	14.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	0.2				0.0		
Approach LOS							
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			47.9%		ICU Level of Service		A
Analysis Period (min)			15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			  				
Volume (veh/h)	0	1921	12	6	1876	0	12	0	4	46	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	0	2088	13	7	2039	0	16	0	5	58	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		1			1							
Upstream signal (ft)					1072							
pX, platoon unblocked	0.73						0.73	0.73		0.73	0.73	0.73
vC, conflicting volume	2039			2101			2788	4147	703	2754	4153	680
vC1, stage 1 conf vol							2095	2095		2052	2052	
vC2, stage 2 conf vol							693	2052		701	2101	
vCu, unblocked vol	1113			2101			2143	4014	703	2096	4023	0
tC, single (s)	4.6			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			65	100	99	46	98	100
cM capacity (veh/h)	374			251			46	57	376	106	54	783
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	835	835	431	7	680	680	680	21	59			
Volume Left	0	0	0	7	0	0	0	16	58			
Volume Right	0	0	13	0	0	0	0	5	0			
cSH	1700	1700	1700	251	1700	1700	1700	59	104			
Volume to Capacity	0.49	0.49	0.25	0.03	0.40	0.40	0.40	0.36	0.57			
Queue Length 95th (ft)	0	0	0	2	0	0	0	33	66			
Control Delay (s)	0.0	0.0	0.0	19.7	0.0	0.0	0.0	96.7	77.5			
Lane LOS				C				F	F			
Approach Delay (s)	0.0			0.1				96.7	77.5			
Approach LOS								F	F			
Intersection Summary												
Average Delay				1.6								
Intersection Capacity Utilization				47.4%		ICU Level of Service				A		
Analysis Period (min)				15								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	1750	120	69	1745	95	117	27	65	151	31	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.89		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1632		1736	1607	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.46	1.00		0.66	1.00	
Satd. Flow (perm)	1736	4218		1736	4217	1553	846	1632		1200	1607	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	110	1902	130	73	1837	100	136	31	76	178	36	145
RTOR Reduction (vph)	0	4	0	0	0	25	0	60	0	0	99	0
Lane Group Flow (vph)	110	2028	0	73	1837	75	136	47	0	178	82	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	14.5	94.3		11.6	91.4	91.4	25.7	25.7		25.7	25.7	
Effective Green, g (s)	14.5	94.3		11.6	91.4	91.4	25.7	25.7		25.7	25.7	
Actuated g/C Ratio	0.10	0.63		0.08	0.61	0.61	0.17	0.17		0.17	0.17	
Clearance Time (s)	5.9	5.8		5.9	5.8	5.8	6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	168	2652		134	2570	946	145	280		206	275	
v/s Ratio Prot	c0.06	c0.48		0.04	0.44			0.03			0.05	
v/s Ratio Perm						0.05	c0.16			0.15		
v/c Ratio	0.65	0.76		0.54	0.71	0.08	0.94	0.17		0.86	0.30	
Uniform Delay, d1	65.3	19.9		66.7	20.3	12.0	61.4	53.0		60.5	54.3	
Progression Factor	1.07	1.62		1.01	0.45	0.42	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	1.6		2.1	0.8	0.1	55.7	0.3		29.2	0.6	
Delay (s)	76.1	33.9		69.1	10.0	5.1	117.0	53.3		89.6	54.9	
Level of Service	E	C		E	A	A	F	D		F	D	
Approach Delay (s)		36.1			11.9			89.0			72.1	
Approach LOS		D			B			F			E	
Intersection Summary												
HCM Average Control Delay			31.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			18.4			
Intersection Capacity Utilization			78.1%			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												
Volume (vph)	182	1665	119	248	1636	83	132	112	196	133	142	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4218		1736	4218		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.37	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1736	4218		1736	4218		681	1827	1553	949	1827	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	188	1716	123	273	1798	91	145	123	215	177	189	188
RTOR Reduction (vph)	0	5	0	0	4	0	0	0	190	0	0	120
Lane Group Flow (vph)	188	1834	0	273	1885	0	145	123	25	177	189	68
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt			Perm	pm+pt	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	18.5	64.2		26.9	72.1		32.5	17.5	17.5	35.3	18.9	18.9
Effective Green, g (s)	18.5	64.2		26.9	72.1		32.5	17.5	17.5	35.3	18.9	18.9
Actuated g/C Ratio	0.12	0.43		0.18	0.48		0.22	0.12	0.12	0.24	0.13	0.13
Clearance Time (s)	6.4	5.9		5.9	5.9		6.5	6.7	6.7	6.5	6.7	6.7
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	214	1805		311	2027		253	213	181	309	230	196
v/s Ratio Prot	0.11	c0.43		c0.16	c0.45		0.06	0.07		c0.06	c0.10	
v/s Ratio Perm							0.07		0.02	0.07		0.04
v/c Ratio	0.88	1.02		0.88	0.93		0.57	0.58	0.14	0.57	0.82	0.35
Uniform Delay, d1	64.6	42.9		59.9	36.6		50.4	62.7	59.5	48.9	63.9	59.9
Progression Factor	1.17	0.61		1.21	0.78		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.0	21.1		16.3	6.3		3.1	3.8	0.4	2.6	20.5	1.1
Delay (s)	97.5	47.0		88.7	34.9		53.5	66.5	59.8	51.5	84.4	61.0
Level of Service	F	D		F	C		D	E	E	D	F	E
Approach Delay (s)		51.7			41.7			59.6			65.9	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM Average Control Delay			49.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			24.2			
Intersection Capacity Utilization			84.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 PM - No Build

1022: SR 204 & Idlewood Drive

8/4/2011

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations		↑↑↑↑	↗		↑↑↑↗				↗			↗			
Volume (veh/h)	0	1856	138	0	1944	27	0	0	88	0	0	23			
Sign Control		Free			Free			Stop			Stop				
Grade		0%			0%			0%			0%				
Peak Hour Factor	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75			
Hourly flow rate (vph)	0	1913	142	0	2136	30	0	0	97	0	0	31			
Pedestrians															
Lane Width (ft)															
Walking Speed (ft/s)															
Percent Blockage															
Right turn flare (veh)															
Median type	None			None											
Median storage veh															
Upstream signal (ft)	651			1109											
pX, platoon unblocked	0.65			0.61			0.79	0.79	0.61	0.79	0.79	0.65			
vC, conflicting volume	2166			1913			2656	4079	638	2789	4065	727			
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	919			266			0	970	0	0	951	0			
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0			
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	85	100	100	96			
cM capacity (veh/h)	473			782			764	195	659	681	200	702			
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1						
Volume Total	638	638	638	142	855	855	457	97	31						
Volume Left	0	0	0	0	0	0	0	0	0						
Volume Right	0	0	0	142	0	0	30	97	31						
cSH	1700	1700	1700	1700	1700	1700	1700	659	702						
Volume to Capacity	0.38	0.38	0.38	0.08	0.50	0.50	0.27	0.15	0.04						
Queue Length 95th (ft)	0	0	0	0	0	0	0	13	3						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4	10.4						
Lane LOS								B	B						
Approach Delay (s)	0.0				0.0			11.4	10.4						
Approach LOS								B	B						
Intersection Summary															
Average Delay	0.3														
Intersection Capacity Utilization	48.2%			ICU Level of Service			A								
Analysis Period (min)	15														

HCM Signalized Intersection Capacity Analysis

2035 PM - No Build

1023: SR 204 & Deerfield Road

8/4/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	1633	72	122	1726	181	59	29	68	206	9	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Lane Util. Factor	1.00	0.86		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	5315		1736	4217	1553	1736	1636		1649	1660	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	5315		1736	4217	1553	1736	1636		1649	1660	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	257	1756	77	124	1761	185	64	32	74	219	10	198
RTOR Reduction (vph)	0	4	0	0	0	65	0	57	0	0	0	177
Lane Group Flow (vph)	257	1829	0	124	1761	120	64	49	0	114	115	21
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6											
Actuated Green, G (s)	26.3	83.4		15.3	72.4	72.4	11.0	11.0		15.8	15.8	15.8
Effective Green, g (s)	26.3	83.4		15.3	72.4	72.4	11.0	11.0		15.8	15.8	15.8
Actuated g/C Ratio	0.18	0.56		0.10	0.48	0.48	0.07	0.07		0.11	0.11	0.11
Clearance Time (s)	6.4	5.9		6.4	5.9	5.9	6.1	6.1		6.1	6.1	6.1
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	304	2955		177	2035	750	127	120		174	175	164
v/s Ratio Prot	c0.15	0.34		0.07	c0.42		c0.04	0.03		0.07	c0.07	
v/s Ratio Perm	0.08											
v/c Ratio	0.85	0.62		0.70	0.87	0.16	0.50	0.40		0.66	0.66	0.13
Uniform Delay, d1	59.9	22.5		65.1	34.5	21.8	66.9	66.4		64.5	64.5	60.8
Progression Factor	1.01	1.07		1.25	0.57	0.24	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.5	0.5		10.2	4.5	0.4	3.1	2.2		8.6	8.6	0.4
Delay (s)	70.9	24.7		91.5	24.1	5.5	70.0	68.6		73.1	73.1	61.2
Level of Service	E	C		F	C	A	E	E		E	E	E
Approach Delay (s)	30.4			26.4			69.1			67.6		
Approach LOS	C			C			E			E		
Intersection Summary												
HCM Average Control Delay	33.4			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)			24.5					
Intersection Capacity Utilization	74.5%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	0	958	949	0	987	50	29	0	23	1019	0	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0		6.0	6.0	6.0		6.0	6.0		6.0
Lane Util. Factor		0.86	0.86		0.86	1.00	1.00		1.00	0.94		1.00
Frt		0.95	0.85		1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)		3787	1129		5314	1553	1736		1553	4138		1313
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)		3787	1129		5314	1553	1736		1553	4138		1313
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.50	0.50	0.50	0.88	0.88	0.88
Adj. Flow (vph)	0	1019	1010	0	1097	56	58	0	46	1158	0	38
RTOR Reduction (vph)	0	53	0	0	0	23	0	0	31	0	0	25
Lane Group Flow (vph)	0	1471	505	0	1097	33	58	0	15	1158	0	13
Heavy Vehicles (%)	4%	23%	23%	4%	23%	4%	4%	4%	4%	23%	23%	23%
Turn Type		Free				Perm	Prot		custom	Prot		custom
Protected Phases		2			6		4			8		
Permitted Phases		Free				6			4			8
Actuated Green, G (s)		88.5	150.0		88.5	88.5	49.5		49.5	49.5		49.5
Effective Green, g (s)		88.5	150.0		88.5	88.5	49.5		49.5	49.5		49.5
Actuated g/C Ratio		0.59	1.00		0.59	0.59	0.33		0.33	0.33		0.33
Clearance Time (s)		6.0			6.0	6.0	6.0		6.0	6.0		6.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		2234	1129		3135	916	573		512	1366		433
v/s Ratio Prot		c0.39			0.21		0.03			c0.28		
v/s Ratio Perm			0.45			0.02			0.01			0.01
v/c Ratio		0.66	0.45		0.35	0.04	0.10		0.03	0.85		0.03
Uniform Delay, d1		20.6	0.0		15.9	12.9	34.8		34.0	46.7		34.0
Progression Factor		0.24	1.00		0.88	0.75	1.00		1.00	1.00		1.00
Incremental Delay, d2		1.2	1.0		0.3	0.1	0.1		0.0	5.1		0.0
Delay (s)		6.2	1.0		14.3	9.7	34.9		34.0	51.8		34.0
Level of Service		A	A		B	A	C		C	D		C
Approach Delay (s)		4.9			14.1			34.5			51.3	
Approach LOS		A			B			C			D	
Intersection Summary												
HCM Average Control Delay		20.3			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		55.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (vph)	0	949	71	93	960	77	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	1.00	0.86	0.97	1.00
Frt		1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)		4217	1509	1687	5314	3273	1509
Flt Permitted		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)		4217	1509	1687	5314	3273	1509
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.88	0.88
Adj. Flow (vph)	0	1010	76	103	1067	88	120
RTOR Reduction (vph)	0	0	23	0	0	0	112
Lane Group Flow (vph)	0	1010	53	103	1067	88	8
Heavy Vehicles (%)	7%	23%	7%	7%	23%	7%	7%
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	5	2		1	6	8	
Permitted Phases			2				8
Actuated Green, G (s)		104.0	104.0	18.4	128.4	9.6	9.6
Effective Green, g (s)		104.0	104.0	18.4	128.4	9.6	9.6
Actuated g/C Ratio		0.69	0.69	0.12	0.86	0.06	0.06
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		2924	1046	207	4549	209	97
v/s Ratio Prot		c0.24		c0.06	0.20	c0.03	
v/s Ratio Perm			0.03				0.01
v/c Ratio		0.35	0.05	0.50	0.23	0.42	0.08
Uniform Delay, d1		9.3	7.3	61.5	1.9	67.5	66.0
Progression Factor		0.13	0.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	0.1	1.9	0.1	1.4	0.4
Delay (s)		1.5	0.1	63.4	2.1	68.9	66.4
Level of Service		A	A	E	A	E	E
Approach Delay (s)		1.4			7.5	67.5	
Approach LOS		A			A	E	
Intersection Summary							
HCM Average Control Delay		9.8		HCM Level of Service		A	
HCM Volume to Capacity ratio		0.37					
Actuated Cycle Length (s)		150.0		Sum of lost time (s)		18.0	
Intersection Capacity Utilization		41.8%		ICU Level of Service		A	
Analysis Period (min)		15					
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 1

1000: SR 204 & Gateway Blvd W

8/22/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	14	537	0	22	348	39	0	10	10	44	8	3		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71		
Hourly flow rate (vph)	16	632	0	26	405	45	0	22	22	62	11	4		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage veh														
Upstream signal (ft)	708													
pX, platoon unblocked														
vC, conflicting volume	405				632				924	1121	316	837	1121	202
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	405				632				924	1121	316	837	1121	202
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0
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 %	99				97				100	89	97	72	94	99
cM capacity (veh/h)	1143				940				205	195	677	221	195	802
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1						
Volume Total	332	316	26	202	202	45	43	77						
Volume Left	16	0	26	0	0	0	0	62						
Volume Right	0	0	0	0	0	45	22	4						
cSH	1143	1700	940	1700	1700	1700	303	230						
Volume to Capacity	0.01	0.19	0.03	0.12	0.12	0.03	0.14	0.34						
Queue Length 95th (ft)	1	0	2	0	0	0	12	36						
Control Delay (s)	0.5	0.0	8.9	0.0	0.0	0.0	18.9	28.7						
Lane LOS	A		A				C	D						
Approach Delay (s)	0.3		0.5				18.9	28.7						
Approach LOS							C	D						
Intersection Summary														
Average Delay				2.8										
Intersection Capacity Utilization				41.1%	ICU Level of Service			A						
Analysis Period (min)				15										

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 1

1001: SR 204 & I-95 SB Off-Ramp

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations												
Volume (vph)	0	515	76	917	325	0	0	0	647	0	84	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0	
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00	
Frt		1.00	0.85	1.00	1.00				1.00		0.85	
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (prot)		3282	1442	3127	3282				3127		1442	
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (perm)		3282	1442	3127	3282				3127		1442	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.84	0.84	0.84	
Adj. Flow (vph)	0	599	88	986	349	0	0	0	770	0	100	
RTOR Reduction (vph)	0	0	68	0	0	0	0	0	0	0	73	
Lane Group Flow (vph)	0	599	20	986	349	0	0	0	770	0	27	
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%	
Turn Type			Perm	Prot						custom	custom	
Protected Phases	2		1		6							
Permitted Phases			2						4	4		
Actuated Green, G (s)	25.5		25.5	37.2	68.7						29.3	29.3
Effective Green, g (s)	25.5		25.5	37.2	68.7						29.3	29.3
Actuated g/C Ratio	0.23		0.23	0.34	0.62						0.27	0.27
Clearance Time (s)	6.0		6.0	6.0	6.0						6.0	6.0
Vehicle Extension (s)	5.5		5.5	3.0	5.5						3.0	3.0
Lane Grp Cap (vph)	761		334	1057	2050						833	384
v/s Ratio Prot	c0.18		c0.32		0.11							
v/s Ratio Perm			0.01						c0.25		0.02	
v/c Ratio	0.79		0.06	0.93	0.17						0.92	0.07
Uniform Delay, d1	39.7		32.9	35.2	8.7						39.3	30.2
Progression Factor	1.00		1.00	0.40	0.47						1.00	1.00
Incremental Delay, d2	8.1		0.4	6.8	0.1						15.7	0.1
Delay (s)	47.8		33.3	20.7	4.2						55.0	30.2
Level of Service	D		C	C	A						E	C
Approach Delay (s)	45.9				16.4		0.0				52.2	
Approach LOS	D				B		A				D	
Intersection Summary												
HCM Average Control Delay			34.2		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			75.2%		ICU Level of Service				D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 1

1002: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	55	1107	0	0	1190	556	0	0	52	0	989
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3282			3282	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3282			3282	1442			1612		2538
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	57	1153	0	0	1227	573	0	0	65	0	1236
RTOR Reduction (vph)	0	0	0	0	0	307	0	0	0	0	46
Lane Group Flow (vph)	57	1153	0	0	1227	266	0	0	65	0	1191
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	Prot				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases						6			8		8
Actuated Green, G (s)	6.2	53.0			40.8	40.8			45.0		45.0
Effective Green, g (s)	6.2	53.0			40.8	40.8			45.0		45.0
Actuated g/C Ratio	0.06	0.48			0.37	0.37			0.41		0.41
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	176	1581			1217	535			659		1038
v/s Ratio Prot	0.02	c0.35			c0.37						
v/s Ratio Perm						0.18			0.04		c0.47
v/c Ratio	0.32	0.73			1.01	0.50			0.10		1.15
Uniform Delay, d1	49.9	22.8			34.6	26.7			20.0		32.5
Progression Factor	0.14	0.30			0.64	0.54			1.00		1.00
Incremental Delay, d2	0.6	1.5			24.5	2.5			0.1		77.6
Delay (s)	7.8	8.2			46.7	16.8			20.1		110.1
Level of Service	A	A			D	B			C		F
Approach Delay (s)		8.2			37.2		0.0			105.6	
Approach LOS		A			D		A			F	
Intersection Summary											
HCM Average Control Delay		49.7			HCM Level of Service				D		
HCM Volume to Capacity ratio		1.08									
Actuated Cycle Length (s)		110.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization		75.2%			ICU Level of Service				D		
Analysis Period (min)		15									
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 1

1003: SR 204 & Gateway Blvd S

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1986	110	0	1645	45	0	0	84	0	0	101
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Hourly flow rate (vph)	0	2135	118	0	1935	53	0	0	101	0	0	106
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		423										
pX, platoon unblocked												
vC, conflicting volume	1935			2135			2781	4071	712	2647	4071	645
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1935			2135			2781	4071	712	2647	4071	645
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	73	100	100	74
cM capacity (veh/h)	288			240			6	2	368	8	2	408
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	712	712	712	118	645	645	645	53	101	106		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	118	0	0	0	53	101	106		
cSH	1700	1700	1700	1700	1700	1700	1700	1700	368	408		
Volume to Capacity	0.42	0.42	0.42	0.07	0.38	0.38	0.38	0.03	0.27	0.26		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	28	26		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	16.9		
Lane LOS									C	C		
Approach Delay (s)	0.0				0.0				18.4	16.9		
Approach LOS									C	C		
Intersection Summary												
Average Delay				0.8								
Intersection Capacity Utilization				55.1%		ICU Level of Service			B			
Analysis Period (min)				15								

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 1

1004: SR 204 & New Intersection

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	211	1740	119	91	1308	77	211	55	91	106	32	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	4715	1538	1719	4715	1538	1719	1810	1538	1719	1810	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	1719	4715	1538	1719	4715	1538	1330	1810	1538	1292	1810	1538
Peak-hour factor, PHF	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Adj. Flow (vph)	227	1871	128	107	1539	91	254	66	110	112	34	180
RTOR Reduction (vph)	0	0	63	0	0	49	0	0	86	0	0	141
Lane Group Flow (vph)	227	1871	65	107	1539	42	254	66	24	112	34	39
Heavy Vehicles (%)	5%	10%	5%	5%	10%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	17.1	56.2	56.2	12.0	51.1	51.1	23.8	23.8	23.8	23.8	23.8	23.8
Effective Green, g (s)	17.1	56.2	56.2	12.0	51.1	51.1	23.8	23.8	23.8	23.8	23.8	23.8
Actuated g/C Ratio	0.16	0.51	0.51	0.11	0.46	0.46	0.22	0.22	0.22	0.22	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	267	2409	786	188	2190	714	288	392	333	280	392	333
v/s Ratio Prot	c0.13	c0.40		0.06	0.33			0.04			0.02	
v/s Ratio Perm			0.04			0.03	c0.19		0.02	0.09		0.03
v/c Ratio	0.85	0.78	0.08	0.57	0.70	0.06	0.88	0.17	0.07	0.40	0.09	0.12
Uniform Delay, d1	45.2	21.8	13.7	46.5	23.4	16.2	41.7	35.1	34.3	37.0	34.4	34.7
Progression Factor	1.07	0.83	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.5	1.1	0.1	3.9	1.0	0.0	25.5	0.2	0.1	0.9	0.1	0.2
Delay (s)	58.9	19.3	11.6	50.5	24.5	16.3	67.2	35.3	34.4	37.9	34.5	34.8
Level of Service	E	B	B	D	C	B	E	D	C	D	C	C
Approach Delay (s)		22.9			25.6			53.9			35.8	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			27.6			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			72.0%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 2

1001: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Volume (veh/h)	14	537	0	22	348	39	0	10	10	44	8	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	16	632	0	26	405	45	0	22	22	62	11	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					479							
pX, platoon unblocked												
vC, conflicting volume	405			632			924	1121	316	837	1121	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405			632			924	1121	316	837	1121	202
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			97			100	89	97	72	94	99
cM capacity (veh/h)	1143			940			205	195	677	221	195	802
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	332	316	26	202	202	45	43	77				
Volume Left	16	0	26	0	0	0	0	62				
Volume Right	0	0	0	0	0	45	22	4				
cSH	1143	1700	940	1700	1700	1700	303	230				
Volume to Capacity	0.01	0.19	0.03	0.12	0.12	0.03	0.14	0.34				
Queue Length 95th (ft)	1	0	2	0	0	0	12	36				
Control Delay (s)	0.5	0.0	8.9	0.0	0.0	0.0	18.9	28.7				
Lane LOS	A		A				C	D				
Approach Delay (s)	0.3		0.5				18.9	28.7				
Approach LOS							C	D				
Intersection Summary												
Average Delay				2.8								
Intersection Capacity Utilization			41.1%			ICU Level of Service				A		
Analysis Period (min)			15									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑↑	↓	↑
Volume (vph)	515	76	0	325	84	647
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3282	1442		4715	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3282	1442		4715	1612	1442
Peak-hour factor, PHF	0.86	0.86	0.93	0.93	0.84	0.84
Adj. Flow (vph)	599	88	0	349	100	770
RTOR Reduction (vph)	0	26	0	0	0	0
Lane Group Flow (vph)	599	62	0	349	100	770
Heavy Vehicles (%)	10%	12%	12%	10%	12%	12%
Turn Type	Perm		Perm	Free		
Protected Phases	2			6	8	
Permitted Phases		2	6			Free
Actuated Green, G (s)	49.5	49.5		49.5	8.5	70.0
Effective Green, g (s)	49.5	49.5		49.5	8.5	70.0
Actuated g/C Ratio	0.71	0.71		0.71	0.12	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2321	1020		3334	196	1442
v/s Ratio Prot	0.18			0.07	0.06	
v/s Ratio Perm		0.04				c0.53
v/c Ratio	0.26	0.06		0.10	0.51	0.53
Uniform Delay, d1	3.7	3.1		3.2	28.8	0.0
Progression Factor	1.00	1.00		0.80	1.00	1.00
Incremental Delay, d2	0.3	0.1		0.1	2.2	1.4
Delay (s)	3.9	3.3		2.7	31.0	1.4
Level of Service	A	A		A	C	A
Approach Delay (s)	3.9			2.7	4.8	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			4.1	HCM Level of Service		A
HCM Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			70.0	Sum of lost time (s)		0.0
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	SBL	SBR	NEL2	NEL	NER
Lane Configurations		  			  				 		
Volume (vph)	55	1107	0	0	273	0	0	0	52	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.50	1.00			1.00				0.95		
Satd. Flow (perm)	853	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	57	1153	0	0	281	0	0	0	65	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	57	1153	0	0	281	0	0	0	65	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt	custom									
Protected Phases	5	2	6								
Permitted Phases	2	8									
Actuated Green, G (s)	53.4	53.4	43.4						4.6		
Effective Green, g (s)	53.4	53.4	43.4						4.6		
Actuated g/C Ratio	0.76	0.76	0.62						0.07		
Clearance Time (s)	6.0	6.0	6.0						6.0		
Vehicle Extension (s)	3.0	3.0	3.0						3.0		
Lane Grp Cap (vph)	694	3597	2923						205		
v/s Ratio Prot	0.00	c0.24	0.06								
v/s Ratio Perm	0.06	c0.02									
v/c Ratio	0.08	0.32	0.10						0.32		
Uniform Delay, d1	2.3	2.6	5.4						31.2		
Progression Factor	0.55	0.48	1.00						1.00		
Incremental Delay, d2	0.0	0.2	0.1						0.9		
Delay (s)	1.3	1.5	5.4						32.1		
Level of Service	A	A	A						C		
Approach Delay (s)		1.5	5.4						0.0	32.1	
Approach LOS		A	A						A	C	
Intersection Summary											
HCM Average Control Delay			3.5	HCM Level of Service					A		
HCM Volume to Capacity ratio			0.32								
Actuated Cycle Length (s)			70.0	Sum of lost time (s)					12.0		
Intersection Capacity Utilization			33.1%	ICU Level of Service					A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 3

1001: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Volume (veh/h)	14	537	0	22	348	39	0	10	10	44	8	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	16	632	0	26	405	45	0	22	22	62	11	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	405			632			924	1121	316	837	1121	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405			632			924	1121	316	837	1121	202
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			97			100	89	97	72	94	99
cM capacity (veh/h)	1143			940			205	195	677	221	195	802
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	332	316	26	202	202	45	43	77				
Volume Left	16	0	26	0	0	0	0	62				
Volume Right	0	0	0	0	0	45	22	4				
cSH	1143	1700	940	1700	1700	1700	303	230				
Volume to Capacity	0.01	0.19	0.03	0.12	0.12	0.03	0.14	0.34				
Queue Length 95th (ft)	1	0	2	0	0	0	12	36				
Control Delay (s)	0.5	0.0	8.9	0.0	0.0	0.0	18.9	28.7				
Lane LOS	A		A				C	D				
Approach Delay (s)	0.3		0.5				18.9	28.7				
Approach LOS							C	D				
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			41.1%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 3

1003: SR 204 & I-95 SB Off-Ramp

8/22/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		  	  				
Volume (veh/h)	0	515	325	0	0	84	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.86	0.86	0.93	0.93	0.84	0.84	
Hourly flow rate (vph)	0	599	349	0	0	100	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)	712						
pX, platoon unblocked							
vC, conflicting volume	349				549	116	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	349				549	116	
tC, single (s)	4.3				7.0	7.1	
tC, 2 stage (s)							
tF (s)	2.3				3.6	3.4	
p0 queue free %	100				100	89	
cM capacity (veh/h)	1150				442	883	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	200	200	200	116	116	116	100
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	100
cSH	1700	1700	1700	1700	1700	1700	883
Volume to Capacity	0.12	0.12	0.12	0.07	0.07	0.07	0.11
Queue Length 95th (ft)	0	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A
Intersection Summary							
Average Delay			0.9				
Intersection Capacity Utilization			18.6%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A - Alternative 3

1004: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	55	460	0	0	273	0	0	0	52	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.50	1.00			1.00				0.95		
Satd. Flow (perm)	841	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	57	479	0	0	281	0	0	0	65	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	57	479	0	0	281	0	0	0	65	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			custom							
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	48.8	48.8			38.8				4.4		
Effective Green, g (s)	48.8	48.8			38.8				4.4		
Actuated g/C Ratio	0.75	0.75			0.60				0.07		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	677	3529			2806				211		
v/s Ratio Prot	0.01	c0.10			0.06						
v/s Ratio Perm	0.06								c0.02		
v/c Ratio	0.08	0.14			0.10				0.31		
Uniform Delay, d1	2.4	2.3			5.7				29.0		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.1	0.1			0.1				0.8		
Delay (s)	2.5	2.4			5.8				29.8		
Level of Service	A	A			A				C		
Approach Delay (s)		2.4			5.8	0.0				29.8	
Approach LOS		A			A	A				C	
Intersection Summary											
HCM Average Control Delay			5.5		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.15								
Actuated Cycle Length (s)			65.2		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			18.6%		ICU Level of Service				A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A

1005: SR 204 EB On Ramp & US-17

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	410	0	215	0	0	0	0	1241	541	360	850	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.94		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	4802		2682					4893	2682	3303	4893	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	4802		2682					4893	2682	3303	4893	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	494	0	259	0	0	0	0	1495	652	387	914	0
RTOR Reduction (vph)	0	0	212	0	0	0	0	0	392	0	0	0
Lane Group Flow (vph)	494	0	47	0	0	0	0	1495	260	387	914	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom		custom						Perm	Prot		
Protected Phases								2		1		6
Permitted Phases	4		4						2			
Actuated Green, G (s)	12.7		12.7					27.9	27.9	11.4		45.3
Effective Green, g (s)	12.7		12.7					27.9	27.9	11.4		45.3
Actuated g/C Ratio	0.18		0.18					0.40	0.40	0.16		0.65
Clearance Time (s)	6.0		6.0					6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	871		487					1950	1069	538		3166
v/s Ratio Prot								c0.31		c0.12		0.19
v/s Ratio Perm	c0.10		0.02						0.10			
v/c Ratio	0.57		0.10					0.77	0.24	0.72		0.29
Uniform Delay, d1	26.1		23.9					18.2	14.0	27.8		5.4
Progression Factor	1.00		1.00					1.00	1.00	0.81		0.04
Incremental Delay, d2	0.9		0.1					3.0	0.5	4.0		0.2
Delay (s)	27.0		24.0					21.2	14.6	26.6		0.4
Level of Service	C		C					C	B	C		A
Approach Delay (s)		25.9			0.0			19.2				8.2
Approach LOS		C			A			B				A
Intersection Summary												
HCM Average Control Delay			17.0		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			57.0%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A

1006: SR 204 WB On Ramp & US-17

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  		 	 	  			  	
Volume (vph)	0	0	0	332	0	170	370	1281	0	0	878	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	369	0	189	407	1408	0	0	965	222
RTOR Reduction (vph)	0	0	0	0	0	75	0	0	0	0	0	135
Lane Group Flow (vph)	0	0	0	369	0	114	407	1408	0	0	965	87
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type	custom			custom			Prot			Perm		
Protected Phases							5	2				6
Permitted Phases				8				8				6
Actuated Green, G (s)				11.1				11.1	13.6	46.9	27.3	27.3
Effective Green, g (s)				11.1				11.1	13.6	46.9	27.3	27.3
Actuated g/C Ratio				0.16				0.16	0.19	0.67	0.39	0.39
Clearance Time (s)				6.0				6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)				3.0				3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)				741				414	624	3189	1856	578
v/s Ratio Prot							c0.13	0.30				c0.20
v/s Ratio Perm				c0.08				0.04				0.06
v/c Ratio				0.50				0.28	0.65	0.44	0.52	0.15
Uniform Delay, d1				26.9				25.9	26.0	5.4	16.3	13.8
Progression Factor				1.00				1.00	0.50	0.13	1.00	1.00
Incremental Delay, d2				0.5				0.4	1.5	0.3	1.0	0.5
Delay (s)				27.4				26.3	14.4	1.0	17.4	14.4
Level of Service				C				C	B	A	B	B
Approach Delay (s)	0.0			27.0			4.0			16.8		
Approach LOS	A			C			A			B		
Intersection Summary												
HCM Average Control Delay	11.9			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.55											
Actuated Cycle Length (s)	70.0			Sum of lost time (s)			18.0					
Intersection Capacity Utilization	57.0%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A

1007: SR 204 EB Off Ramp & Pine Grove Rd

8/22/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations											 		
Volume (vph)	55	0	131	0	0	0	0	43	86	50	76	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0		
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95		
Frt	1.00		0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505		
Flt Permitted	0.95		1.00					1.00	1.00	0.72	1.00		
Satd. Flow (perm)	1752		1568					1845	1568	1321	3505		
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73	
Adj. Flow (vph)	65	0	154	0	0	0	0	63	126	68	104	0	
RTOR Reduction (vph)	0	0	135	0	0	0	0	0	46	0	0	0	
Lane Group Flow (vph)	65	0	19	0	0	0	0	63	80	68	104	0	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Turn Type	custom		custom						Perm	Perm			
Protected Phases									2		6		
Permitted Phases	4		4						2		6		
Actuated Green, G (s)	6.3		6.3						31.7	31.7	31.7	31.7	
Effective Green, g (s)	6.3		6.3						31.7	31.7	31.7	31.7	
Actuated g/C Ratio	0.13		0.13						0.63	0.63	0.63	0.63	
Clearance Time (s)	6.0		6.0						6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	221		198						1170	994	838	2222	
v/s Ratio Prot									0.03			0.03	
v/s Ratio Perm	c0.04		0.01							0.05	c0.05		
v/c Ratio	0.29		0.10						0.05	0.08	0.08	0.05	
Uniform Delay, d1	19.8		19.3						3.5	3.5	3.5	3.5	
Progression Factor	1.00		1.00						1.00	1.00	0.45	0.71	
Incremental Delay, d2	0.7		0.2						0.1	0.2	0.2	0.0	
Delay (s)	20.6		19.6						3.6	3.7	1.8	2.5	
Level of Service	C		B						A	A	A	A	
Approach Delay (s)	19.9		0.0						3.6			2.2	
Approach LOS	B		A						A			A	
Intersection Summary													
HCM Average Control Delay			9.3		HCM Level of Service				A				
HCM Volume to Capacity ratio			0.12										
Actuated Cycle Length (s)			50.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization			35.3%		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												
Volume (vph)	0	0	0	72	495	50	35	63	0	0	54	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568
Flt Permitted				0.95	1.00	1.00	0.71	1.00			1.00	1.00
Satd. Flow (perm)				1752	3505	1568	1308	3505			1845	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73
Adj. Flow (vph)	0	0	0	81	556	56	51	93	0	0	74	41
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	0	21
Lane Group Flow (vph)	0	0	0	81	556	16	51	93	0	0	74	20
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases				8			2			6		
Permitted Phases				8			2			6		
Actuated Green, G (s)				14.0	14.0	14.0	24.0	24.0	24.0			24.0
Effective Green, g (s)				14.0	14.0	14.0	24.0	24.0	24.0			24.0
Actuated g/C Ratio				0.28	0.28	0.28	0.48	0.48	0.48			0.48
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0	6.0			6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)				491	981	439	628	1682	886			753
v/s Ratio Prot				c0.16			0.03			c0.04		
v/s Ratio Perm				0.05			0.01 0.04			0.01		
v/c Ratio				0.16	0.57	0.04	0.08	0.06	0.08			0.03
Uniform Delay, d1				13.6	15.4	13.1	7.0	6.9	7.0			6.8
Progression Factor				1.00	1.00	1.00	0.93	0.38	1.00			1.00
Incremental Delay, d2				0.2	0.8	0.0	0.3	0.1	0.2			0.1
Delay (s)				13.7	16.2	13.1	6.8	2.7	7.2			6.9
Level of Service				B	B	B	A	A	A			A
Approach Delay (s)	0.0			15.6			4.1			7.1		
Approach LOS	A			B			A			A		
Intersection Summary												
HCM Average Control Delay	12.9			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.26											
Actuated Cycle Length (s)	50.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	35.3%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	235	162	423	1188	568	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.92	0.92	0.88	0.88	0.93	0.93
Adj. Flow (vph)	255	176	481	1350	611	562
RTOR Reduction (vph)	0	151	0	0	0	0
Lane Group Flow (vph)	255	25	481	1350	611	562
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Free		Prot	
Protected Phases	8		2		1 6	
Permitted Phases	8		Free			
Actuated Green, G (s)	11.3	11.3	18.8	80.0	31.9	56.7
Effective Green, g (s)	11.3	11.3	18.8	80.0	31.9	56.7
Actuated g/C Ratio	0.14	0.14	0.24	1.00	0.40	0.71
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	476	219	816	1553	692	3535
v/s Ratio Prot	0.08		0.14		0.35 0.11	
v/s Ratio Perm	0.02		c0.87			
v/c Ratio	0.54	0.11	0.59	0.87	0.88	0.16
Uniform Delay, d1	31.9	30.0	27.2	0.0	22.3	3.8
Progression Factor	1.00	1.00	1.00	1.00	0.64	0.84
Incremental Delay, d2	1.2	0.2	3.1	6.9	12.4	0.1
Delay (s)	33.1	30.2	30.3	6.9	26.6	3.3
Level of Service	C	C	C	A	C	A
Approach Delay (s)	31.9		13.0		15.4	
Approach LOS	C		B		B	
Intersection Summary						
HCM Average Control Delay			16.2		HCM Level of Service	
HCM Volume to Capacity ratio			0.87		B	
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	
Intersection Capacity Utilization			64.9%		ICU Level of Service	
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

1010: SR 204 WB Off Ramp & King George Blvd

2015 AM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 			 	 				 	
Volume (vph)	0	0	461	0	0	256	246	339	0	0	630	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00
Frt			0.85			0.86	1.00	1.00			1.00	0.85
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553
Flt Permitted			1.00			1.00	0.34	1.00			1.00	1.00
Satd. Flow (perm)			2733			1580	613	1827			3471	1553
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Adj. Flow (vph)	0	0	524	0	0	291	280	385	0	0	677	283
RTOR Reduction (vph)	0	0	115	0	0	271	0	0	0	0	0	115
Lane Group Flow (vph)	0	0	409	0	0	20	280	385	0	0	677	168
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom			custom			pm+pt					Perm
Protected Phases							5	2			6	
Permitted Phases			2				8	2				6
Actuated Green, G (s)			62.5				5.5	62.5	62.5		47.6	47.6
Effective Green, g (s)			62.5				5.5	62.5	62.5		47.6	47.6
Actuated g/C Ratio			0.78				0.07	0.78	0.78		0.60	0.60
Clearance Time (s)			6.0				6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)			3.0				3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			2135				109	604	1427		2065	924
v/s Ratio Prot							c0.05	0.21			0.20	
v/s Ratio Perm			0.15				c0.01	c0.31				0.11
v/c Ratio			0.19				0.18	0.46	0.27		0.33	0.18
Uniform Delay, d1			2.3				35.1	2.9	2.4		8.2	7.4
Progression Factor			1.00				1.00	2.08	0.52		1.00	1.00
Incremental Delay, d2			0.2				0.8	0.5	0.4		0.4	0.4
Delay (s)			2.5				35.9	6.6	1.7		8.6	7.8
Level of Service			A				D	A	A		A	A
Approach Delay (s)		2.5			35.9			3.7			8.3	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			9.1			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			43.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1011: South Access Road & Rio Road

2015 AM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 				
Volume (vph)	422	782	342	0	0	0	0	264	8	34	53	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.44	1.00	
Satd. Flow (perm)	1736	4287	1553					3471	1553	798	1827	
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	440	815	356	0	0	0	0	357	11	42	65	0
RTOR Reduction (vph)	0	0	106	0	0	0	0	0	9	0	0	0
Lane Group Flow (vph)	440	815	250	0	0	0	0	357	2	42	65	0
Heavy Vehicles (%)	4%	21%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						custom	custom		
Protected Phases			2									
Permitted Phases	2		2					8	8	4	4	
Actuated Green, G (s)	63.3	63.3	63.3					14.7	14.7	14.7	14.7	
Effective Green, g (s)	63.3	63.3	63.3					14.7	14.7	14.7	14.7	
Actuated g/C Ratio	0.70	0.70	0.70					0.16	0.16	0.16	0.16	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1221	3015	1092					567	254	130	298	
v/s Ratio Prot			0.19									
v/s Ratio Perm	c0.25		0.16					c0.10	0.00	0.05	0.04	
v/c Ratio	0.36	0.27	0.23					0.63	0.01	0.32	0.22	
Uniform Delay, d1	5.3	4.9	4.7					35.1	31.5	33.3	32.7	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.56	0.74	
Incremental Delay, d2	0.8	0.2	0.5					2.2	0.0	1.4	0.4	
Delay (s)	6.1	5.1	5.2					37.3	31.5	20.2	24.5	
Level of Service	A	A	A					D	C	C	C	
Approach Delay (s)		5.4			0.0			37.1			22.8	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM Average Control Delay			11.9			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			78.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1012: North Access Road & Rio Road

2015 AM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	10	715	10	244	442	0	0	77	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2983	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.69	1.00			1.00	1.00
Satd. Flow (perm)				1736	2983	1553	1265	1827			3471	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	11	803	11	330	597	0	0	95	243
RTOR Reduction (vph)	0	0	0	0	0	6	0	0	0	0	0	41
Lane Group Flow (vph)	0	0	0	11	803	5	330	597	0	0	95	202
Heavy Vehicles (%)	4%	4%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					6			8				4
Permitted Phases				6		6	8					4
Actuated Green, G (s)				41.4	41.4	41.4	36.6	36.6			36.6	36.6
Effective Green, g (s)				41.4	41.4	41.4	36.6	36.6			36.6	36.6
Actuated g/C Ratio				0.46	0.46	0.46	0.41	0.41			0.41	0.41
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				799	1372	714	514	743			1412	632
v/s Ratio Prot					c0.27			c0.33			0.03	
v/s Ratio Perm				0.01		0.00	0.26					0.13
v/c Ratio				0.01	0.59	0.01	0.64	0.80			0.07	0.32
Uniform Delay, d1				13.2	18.0	13.2	21.4	23.5			16.3	18.2
Progression Factor				1.00	1.00	1.00	0.54	1.16			1.00	1.00
Incremental Delay, d2				0.0	1.8	0.0	2.7	6.1			0.0	0.3
Delay (s)				13.2	19.8	13.2	14.4	33.4			16.3	18.5
Level of Service				B	B	B	B	C			B	B
Approach Delay (s)		0.0			19.6			26.6			17.9	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM Average Control Delay			22.4		HCM Level of Service						C	
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						12.0	
Intersection Capacity Utilization			75.8%		ICU Level of Service						D	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1013: North Access Road & West Mall Driveway

2015 AM Concept A

8/22/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	1062	41	0	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	1180	46	0	48
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						
vC, conflicting volume	1180				1180	393
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1180				1180	393
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	576				180	600
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	393	393	393	46	48	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	46	48	
cSH	1700	1700	1700	1700	600	
Volume to Capacity	0.23	0.23	0.23	0.03	0.08	
Queue Length 95th (ft)	0	0	0	0	7	
Control Delay (s)	0.0	0.0	0.0	0.0	11.5	
Lane LOS					B	
Approach Delay (s)	0.0				11.5	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			30.5%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	873	41	0	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	970	46	0	41
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						
vC, conflicting volume	970				970	323
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	970				970	323
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	694				247	667
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	323	323	323	46	41	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	46	41	
cSH	1700	1700	1700	1700	667	
Volume to Capacity	0.19	0.19	0.19	0.03	0.06	
Queue Length 95th (ft)	0	0	0	0	5	
Control Delay (s)	0.0	0.0	0.0	0.0	10.8	
Lane LOS					B	
Approach Delay (s)	0.0				10.8	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			26.9%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	705	294	0	0	0	383
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.91	0.91	0.94	0.94
Hourly flow rate (vph)	829	346	0	0	0	407
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						
vC, conflicting volume			829		829	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			829		829	276
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	43
cM capacity (veh/h)			785		305	715
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	276	276	276	346	407	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	346	407	
cSH	1700	1700	1700	1700	715	
Volume to Capacity	0.16	0.16	0.16	0.20	0.57	
Queue Length 95th (ft)	0	0	0	0	91	
Control Delay (s)	0.0	0.0	0.0	0.0	16.5	
Lane LOS					C	
Approach Delay (s)	0.0				16.5	
Approach LOS					C	
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			44.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept A

1016: North Access Road & Apache Ave

8/22/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	708	317	0	206
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.91	0.91	0.77	0.77
Hourly flow rate (vph)	0	0	778	348	0	268
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						
vC, conflicting volume	778				778	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	778				778	259
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	64
cM capacity (veh/h)	822				329	733
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	259	259	259	348	268	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	348	268	
cSH	1700	1700	1700	1700	733	
Volume to Capacity	0.15	0.15	0.15	0.20	0.36	
Queue Length 95th (ft)	0	0	0	0	42	
Control Delay (s)	0.0	0.0	0.0	0.0	12.7	
Lane LOS					B	
Approach Delay (s)	0.0				12.7	
Approach LOS					B	
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			33.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 AM Concept A

1017: South Access Road & Middleground Road

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 						 				
Volume (vph)	355	59	317	0	0	0	0	117	55	317	468	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3367	2983	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.66	1.00	
Satd. Flow (perm)	3367	2983	1553					3471	1553	1200	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	366	61	327	0	0	0	0	150	71	369	544	0
RTOR Reduction (vph)	0	0	179	0	0	0	0	0	41	0	0	0
Lane Group Flow (vph)	366	61	148	0	0	0	0	150	30	369	544	0
Heavy Vehicles (%)	4%	21%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						Perm	Perm		
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		
Actuated Green, G (s)	40.1	40.1	40.1					37.9	37.9	37.9	37.9	
Effective Green, g (s)	40.1	40.1	40.1					37.9	37.9	37.9	37.9	
Actuated g/C Ratio	0.45	0.45	0.45					0.42	0.42	0.42	0.42	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1500	1329	692					1462	654	505	769	
v/s Ratio Prot		0.02						0.04			0.30	
v/s Ratio Perm	c0.11		0.10						0.02	c0.31		
v/c Ratio	0.24	0.05	0.21					0.10	0.05	0.73	0.71	
Uniform Delay, d1	15.5	14.1	15.3					15.8	15.4	21.8	21.5	
Progression Factor	0.90	0.89	0.60					1.00	1.00	0.39	1.01	
Incremental Delay, d2	0.4	0.1	0.7					0.0	0.0	5.0	2.9	
Delay (s)	14.3	12.6	9.8					15.8	15.4	13.5	24.6	
Level of Service	B	B	A					B	B	B	C	
Approach Delay (s)		12.2			0.0			15.7			20.1	
Approach LOS		B			A			B			C	
Intersection Summary												
HCM Average Control Delay			16.4								B	
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			90.0							12.0		
Intersection Capacity Utilization			64.1%							C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1018: North Access Road & Middleground Road

2015 AM Concept A

8/22/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	242	381	121	66	406	0	0	543	221	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.95	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1736	2935	1553	1736	3471			3471	1553	
Flt Permitted				0.95	1.00	1.00	0.27	1.00			1.00	1.00	
Satd. Flow (perm)				1736	2935	1553	488	3471			3471	1553	
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86	
Adj. Flow (vph)	0	0	0	288	454	144	85	521	0	0	631	257	
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	0	0	0	186	
Lane Group Flow (vph)	0	0	0	288	454	85	85	521	0	0	631	71	
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%	
Turn Type				Perm		Perm		Perm					Perm
Protected Phases				6			8						4
Permitted Phases				6			8						4
Actuated Green, G (s)				53.2	53.2	53.2	24.8	24.8				24.8	24.8
Effective Green, g (s)				53.2	53.2	53.2	24.8	24.8				24.8	24.8
Actuated g/C Ratio				0.59	0.59	0.59	0.28	0.28				0.28	0.28
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0				6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)				1026	1735	918	134	956				956	428
v/s Ratio Prot				0.15			0.15						c0.18
v/s Ratio Perm				c0.17			0.05						0.17
v/c Ratio				0.28	0.26	0.09	0.63	0.54				0.66	0.17
Uniform Delay, d1				9.0	8.9	8.0	28.6	27.8				28.9	24.7
Progression Factor				1.01	1.00	1.05	0.70	1.28				1.00	1.00
Incremental Delay, d2				0.7	0.4	0.2	9.4	0.6				1.7	0.2
Delay (s)				9.8	9.3	8.5	29.4	36.2				30.6	24.9
Level of Service				A	A	A	C	D				C	C
Approach Delay (s)	0.0			9.3			35.2			28.9			
Approach LOS	A			A			D			C			
Intersection Summary													
HCM Average Control Delay	23.2			HCM Level of Service					C				
HCM Volume to Capacity ratio	0.40												
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													

HCM Unsignalized Intersection Capacity Analysis

1019: South Access Road & Arts Drive

2015 AM Concept A

8/22/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗				↗
Volume (veh/h)	424	182	0	0	0	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.84	0.84	0.78	0.78
Hourly flow rate (vph)	437	188	0	0	0	99
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						
vC, conflicting volume			437		437	219
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			437		437	219
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	87
cM capacity (veh/h)			1105		543	779
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	219	219	188	99		
Volume Left	0	0	0	0		
Volume Right	0	0	188	99		
cSH	1700	1700	1700	779		
Volume to Capacity	0.13	0.13	0.11	0.13		
Queue Length 95th (ft)	0	0	0	11		
Control Delay (s)	0.0	0.0	0.0	10.3		
Lane LOS				B		
Approach Delay (s)	0.0			10.3		
Approach LOS				B		
Intersection Summary						
Average Delay				1.4		
Intersection Capacity Utilization				23.2%	ICU Level of Service	A
Analysis Period (min)				15		

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations									
Volume (veh/h)	870	52	0	0	0	25			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.88	0.88	0.89	0.89	0.62	0.62			
Hourly flow rate (vph)	989	59	0	0	0	40			
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									
vC, conflicting volume			1048	1018		277			
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1048	1018		277			
tC, single (s)			4.2	6.9		7.0			
tC, 2 stage (s)									
tF (s)			2.2	3.5		3.3			
p0 queue free %			100	100		94			
cM capacity (veh/h)			648	230		715			
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1				
Volume Total	282	282	282	200	40				
Volume Left	0	0	0	0	0				
Volume Right	0	0	0	59	40				
cSH	1700	1700	1700	1700	715				
Volume to Capacity	0.17	0.17	0.17	0.12	0.06				
Queue Length 95th (ft)	0	0	0	0	4				
Control Delay (s)	0.0	0.0	0.0	0.0	10.3				
Lane LOS					B				
Approach Delay (s)	0.0				10.3				
Approach LOS					B				
Intersection Summary									
Average Delay			0.4						
Intersection Capacity Utilization			23.5%	ICU Level of Service		A			
Analysis Period (min)			15						

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	324	373	0	177
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76
Hourly flow rate (vph)	0	0	364	419	0	233
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						
vC, conflicting volume	783			364		182
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	783			364		182
tC, single (s)	4.2			6.9		7.0
tC, 2 stage (s)						
tF (s)	2.2			3.5		3.3
p0 queue free %	100			100		72
cM capacity (veh/h)	818			603		823
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	182	182	419	233		
Volume Left	0	0	0	0		
Volume Right	0	0	419	233		
cSH	1700	1700	1700	823		
Volume to Capacity	0.11	0.11	0.25	0.28		
Queue Length 95th (ft)	0	0	0	29		
Control Delay (s)	0.0	0.0	0.0	11.1		
Lane LOS				B		
Approach Delay (s)	0.0			11.1		
Approach LOS				B		
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			26.6%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Signalized Intersection Capacity Analysis

1023: South Access Road & Mercy Blvd

2015 AM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	416	126	0	0	0	0	198	79	98	126	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	2935	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.58	1.00	
Satd. Flow (perm)	1736	2935	1553					3471	1553	1060	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	172	452	137	0	0	0	0	268	107	136	175	0
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	87	0	0	0
Lane Group Flow (vph)	172	452	93	0	0	0	0	268	20	136	175	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						Perm	Perm		
Protected Phases	2								8	4		
Permitted Phases	2		2						8	4		
Actuated Green, G (s)	60.8	60.8	60.8					17.2	17.2	17.2	17.2	
Effective Green, g (s)	60.8	60.8	60.8					17.2	17.2	17.2	17.2	
Actuated g/C Ratio	0.68	0.68	0.68					0.19	0.19	0.19	0.19	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1173	1983	1049					663	297	203	349	
v/s Ratio Prot	c0.15								0.08	0.10		
v/s Ratio Perm	0.10		0.06						0.01	c0.13		
v/c Ratio	0.15	0.23	0.09					0.40	0.07	0.67	0.50	
Uniform Delay, d1	5.3	5.6	5.0					31.9	29.8	33.8	32.6	
Progression Factor	0.78	0.77	0.38					1.00	1.00	0.28	0.83	
Incremental Delay, d2	0.3	0.3	0.2					0.4	0.1	8.1	1.1	
Delay (s)	4.4	4.6	2.1					32.3	29.9	17.7	28.0	
Level of Service	A	A	A					C	C	B	C	
Approach Delay (s)	4.1				0.0				31.6	23.5		
Approach LOS	A				A				C	C		
Intersection Summary												
HCM Average Control Delay			15.4	HCM Level of Service				B				
HCM Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			46.4%	ICU Level of Service				A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1024: North Access Road & Mercy Blvd

2015 AM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	73	220	109	145	211	0	0	151	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.62	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	1133	1827			3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	0	0	0	85	256	127	196	285	0	0	210	190
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	0	0	0	143
Lane Group Flow (vph)	0	0	0	85	256	78	196	285	0	0	210	48
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm				Perm	
Protected Phases						6		8				4
Permitted Phases						6		8				4
Actuated Green, G (s)						55.5	55.5	22.5	22.5			22.5
Effective Green, g (s)						55.5	55.5	22.5	22.5			22.5
Actuated g/C Ratio						0.62	0.62	0.25	0.25			0.25
Clearance Time (s)						6.0	6.0	6.0	6.0			6.0
Vehicle Extension (s)						3.0	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)						1071	1810	958	283	457	868	388
v/s Ratio Prot						c0.09		0.16				0.06
v/s Ratio Perm						0.05	0.05	c0.17			0.03	
v/c Ratio						0.08	0.14	0.08	0.69	0.62	0.24	0.12
Uniform Delay, d1						7.0	7.2	7.0	30.6	30.0	26.9	26.1
Progression Factor						1.00	1.00	1.00	0.20	1.02	1.00	1.00
Incremental Delay, d2						0.1	0.2	0.2	7.1	2.6	0.1	0.1
Delay (s)						7.1	7.4	7.1	13.4	33.1	27.1	26.3
Level of Service						A	A	B	C			C
Approach Delay (s)				0.0		7.3		25.1		26.7		
Approach LOS				A		A		C		C		
Intersection Summary												
HCM Average Control Delay				19.4		HCM Level of Service				B		
HCM Volume to Capacity ratio				0.30								
Actuated Cycle Length (s)				90.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization				46.4%		ICU Level of Service				A		
Analysis Period (min)				15								
c Critical Lane Group												

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	554	314	0	0	0	290
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.93	0.93	0.67	0.67
Hourly flow rate (vph)	637	361	0	0	0	433
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						
vC, conflicting volume			637	637		318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			637	637		318
tC, single (s)			4.2	6.9		7.0
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		36
cM capacity (veh/h)			929	405		671
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	318	318	361	433		
Volume Left	0	0	0	0		
Volume Right	0	0	361	433		
cSH	1700	1700	1700	671		
Volume to Capacity	0.19	0.19	0.21	0.64		
Queue Length 95th (ft)	0	0	0	118		
Control Delay (s)	0.0	0.0	0.0	19.6		
Lane LOS				C		
Approach Delay (s)	0.0				19.6	
Approach LOS				C		
Intersection Summary						
Average Delay			5.9			
Intersection Capacity Utilization			39.9%	ICU Level of Service		A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	291	179	0	386
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.93	0.93	0.82	0.82
Hourly flow rate (vph)	0	0	313	192	0	471
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						
vC, conflicting volume	313				313	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	313				313	156
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	45
cM capacity (veh/h)	1230				650	855
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	156	156	192	471		
Volume Left	0	0	0	0		
Volume Right	0	0	192	471		
cSH	1700	1700	1700	855		
Volume to Capacity	0.09	0.09	0.11	0.55		
Queue Length 95th (ft)	0	0	0	86		
Control Delay (s)	0.0	0.0	0.0	14.2		
Lane LOS				B		
Approach Delay (s)	0.0			14.2		
Approach LOS				B		
Intersection Summary						
Average Delay			6.9			
Intersection Capacity Utilization			38.6%		ICU Level of Service	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			 			
Volume (veh/h)	0	0	420	18	0	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.93	0.93	0.82	0.82
Hourly flow rate (vph)	0	0	452	19	0	61
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						
vC, conflicting volume	452				452	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	452				452	226
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	1091				531	771
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	226	226	19	61		
Volume Left	0	0	0	0		
Volume Right	0	0	19	61		
cSH	1700	1700	1700	771		
Volume to Capacity	0.13	0.13	0.01	0.08		
Queue Length 95th (ft)	0	0	0	6		
Control Delay (s)	0.0	0.0	0.0	10.1		
Lane LOS				B		
Approach Delay (s)	0.0			10.1		
Approach LOS				B		
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			21.6%	ICU Level of Service	A	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	984	253	0	198
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.98	0.98	0.86	0.86
Hourly flow rate (vph)	0	0	1004	258	0	230
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						
vC, conflicting volume	1004				1004	335
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1004				1004	335
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	65
cM capacity (veh/h)	674				235	655
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	335	335	335	258	230	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	258	230	
cSH	1700	1700	1700	1700	655	
Volume to Capacity	0.20	0.20	0.20	0.15	0.35	
Queue Length 95th (ft)	0	0	0	0	39	
Control Delay (s)	0.0	0.0	0.0	0.0	13.4	
Lane LOS					B	
Approach Delay (s)	0.0				13.4	
Approach LOS					B	
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			37.9%	ICU Level of Service	A	
Analysis Period (min)			15			

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	78	0	38	218	0	170	0	779	0	0	646	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.72	0.72	0.72	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77
Adj. Flow (vph)	108	0	53	266	0	207	0	838	0	0	839	21
RTOR Reduction (vph)	0	0	46	0	0	103	0	0	0	0	0	6
Lane Group Flow (vph)	108	0	7	266	0	104	0	838	0	0	839	15
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	12.2		12.2	12.2		12.2		65.8			65.8	65.8
Effective Green, g (s)	12.2		12.2	12.2		12.2		65.8			65.8	65.8
Actuated g/C Ratio	0.14		0.14	0.14		0.14		0.73			0.73	0.73
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	235		211	663		211		3083			3083	1135
v/s Ratio Prot	0.06			0.05				0.20			c0.20	
v/s Ratio Perm			0.00			c0.07						0.01
v/c Ratio	0.46		0.03	0.40		0.49		0.27			0.27	0.01
Uniform Delay, d1	35.9		33.8	35.6		36.0		4.1			4.1	3.3
Progression Factor	1.00		1.00	1.00		1.00		1.00			0.93	0.89
Incremental Delay, d2	1.4		0.1	0.4		1.8		0.2			0.2	0.0
Delay (s)	37.3		33.8	36.0		37.9		4.3			4.0	2.9
Level of Service	D		C	D		D		A			A	A
Approach Delay (s)	36.2				36.8			4.3			4.0	
Approach LOS	D				D			A			A	
Intersection Summary												
HCM Average Control Delay			13.0		HCM Level of Service						B	
HCM Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			36.9%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	46	82	0	918	109	71	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.82	0.82	0.93	0.93	0.93	0.77	0.77
Adj. Flow (vph)	56	100	0	987	117	92	800
RTOR Reduction (vph)	0	93	0	0	43	0	0
Lane Group Flow (vph)	56	7	0	987	74	92	800
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	6.3	6.3	56.7		56.7	9.0	71.7
Effective Green, g (s)	6.3	6.3	56.7		56.7	9.0	71.7
Actuated g/C Ratio	0.07	0.07	0.63		0.63	0.10	0.80
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	229	106	2657		951	169	3360
v/s Ratio Prot			c0.23		c0.05		0.19
v/s Ratio Perm	c0.02	0.00			0.05		
v/c Ratio	0.24	0.07	0.37		0.08	0.54	0.24
Uniform Delay, d1	39.6	39.1	8.0		6.5	38.5	2.3
Progression Factor	1.00	1.00	0.75		0.43	1.00	1.00
Incremental Delay, d2	0.6	0.3	0.4		0.2	3.6	0.2
Delay (s)	40.2	39.4	6.4		3.0	42.1	2.5
Level of Service	D	D	A		A	D	A
Approach Delay (s)	39.6			6.1			6.6
Approach LOS	D			A			A
Intersection Summary							
HCM Average Control Delay			8.7	HCM Level of Service			A
HCM Volume to Capacity ratio			0.38				
Actuated Cycle Length (s)			90.0	Sum of lost time (s)			18.0
Intersection Capacity Utilization			40.0%	ICU Level of Service			A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept B&C - Alternative 1

1000: SR 204 & Gateway Blvd W

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	529	0	25	340	44	0	5	10	44	5	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	16	622	0	29	395	51	0	11	22	62	7	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					708							
pX, platoon unblocked												
vC, conflicting volume	395			622			915	1109	311	825	1109	198
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	395			622			915	1109	311	825	1109	198
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			97			100	94	97	74	96	99
cM capacity (veh/h)	1153			948			212	198	682	236	198	807
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	328	311	29	198	198	51	33	73				
Volume Left	16	0	29	0	0	0	0	62				
Volume Right	0	0	0	0	0	51	22	4				
cSH	1153	1700	948	1700	1700	1700	375	246				
Volume to Capacity	0.01	0.18	0.03	0.12	0.12	0.03	0.09	0.30				
Queue Length 95th (ft)	1	0	2	0	0	0	7	30				
Control Delay (s)	0.5	0.0	8.9	0.0	0.0	0.0	15.5	26.0				
Lane LOS	A		A				C	D				
Approach Delay (s)	0.3		0.5				15.5	26.0				
Approach LOS							C	D				
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			40.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B&C - Alternative 1

1001: SR 204 & I-95 SB Off-Ramp

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations												
Volume (vph)	0	507	76	878	319	0	0	0	684	0	90	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0	
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00	
Frt		1.00	0.85	1.00	1.00				1.00		0.85	
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (prot)		3282	1442	3127	3282				3127		1442	
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (perm)		3282	1442	3127	3282				3127		1442	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.84	0.84	0.84	
Adj. Flow (vph)	0	590	88	944	343	0	0	0	814	0	107	
RTOR Reduction (vph)	0	0	69	0	0	0	0	0	0	0	77	
Lane Group Flow (vph)	0	590	19	944	343	0	0	0	814	0	30	
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%	
Turn Type			Perm	Prot						custom	custom	
Protected Phases	2		1		6							
Permitted Phases			2						4	4		
Actuated Green, G (s)		23.9	23.9	37.0	66.9					31.1	31.1	
Effective Green, g (s)		23.9	23.9	37.0	66.9					31.1	31.1	
Actuated g/C Ratio		0.22	0.22	0.34	0.61					0.28	0.28	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		5.5	5.5	3.0	5.5					3.0	3.0	
Lane Grp Cap (vph)		713	313	1052	1996					884	408	
v/s Ratio Prot		c0.18	c0.30		0.10							
v/s Ratio Perm		0.01						c0.26	0.02			
v/c Ratio		0.83	0.06	0.90	0.17					0.92	0.07	
Uniform Delay, d1		41.1	34.1	34.7	9.4					38.3	28.9	
Progression Factor		1.00	1.00	0.65	0.21					1.00	1.00	
Incremental Delay, d2		10.6	0.4	5.1	0.1					14.6	0.1	
Delay (s)		51.7	34.5	27.7	2.1					52.9	29.0	
Level of Service		D	C	C	A					D	C	
Approach Delay (s)		49.5			20.9	0.0				50.1		
Approach LOS		D			C	A				D		
Intersection Summary												
HCM Average Control Delay			36.9	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			110.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			74.5%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B&C - Alternative 1

1002: SR 204 & I-95 NB On-Ramp

8/25/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	59	1132	0	0	1136	522	0	0	61	0	948
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3282			3282	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3282			3282	1442			1612		2538
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	61	1179	0	0	1171	538	0	0	76	0	1185
RTOR Reduction (vph)	0	0	0	0	0	302	0	0	0	0	42
Lane Group Flow (vph)	61	1179	0	0	1171	236	0	0	76	0	1143
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	Prot				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases						6			8		8
Actuated Green, G (s)	6.3	53.0			40.7	40.7			45.0		45.0
Effective Green, g (s)	6.3	53.0			40.7	40.7			45.0		45.0
Actuated g/C Ratio	0.06	0.48			0.37	0.37			0.41		0.41
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	179	1581			1214	534			659		1038
v/s Ratio Prot	0.02	c0.36			c0.36						
v/s Ratio Perm						0.16			0.05		c0.45
v/c Ratio	0.34	0.75			0.96	0.44			0.12		1.10
Uniform Delay, d1	49.9	23.1			33.9	26.1			20.2		32.5
Progression Factor	1.46	0.15			0.62	0.39			1.00		1.00
Incremental Delay, d2	0.6	1.5			16.0	2.1			0.1		59.9
Delay (s)	73.3	5.0			37.0	12.4			20.2		92.4
Level of Service	E	A			D	B			C		F
Approach Delay (s)		8.4			29.2		0.0			88.0	
Approach LOS		A			C		A			F	
Intersection Summary											
HCM Average Control Delay			40.7		HCM Level of Service				D		
HCM Volume to Capacity ratio			1.04								
Actuated Cycle Length (s)			110.0		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			74.5%		ICU Level of Service				D		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept B&C - Alternative 1

1003: SR 204 & Gateway Blvd S

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1970	110	0	1557	45	0	0	84	0	0	101
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Hourly flow rate (vph)	0	2118	118	0	1832	53	0	0	101	0	0	106
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		423										
pX, platoon unblocked												
vC, conflicting volume	1832			2118			2729	3950	706	2538	3950	611
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1832			2118			2729	3950	706	2538	3950	611
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	73	100	100	75
cM capacity (veh/h)	317			244			7	3	371	9	3	430
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	706	706	706	118	611	611	611	53	101	106		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	118	0	0	0	53	101	106		
cSH	1700	1700	1700	1700	1700	1700	1700	1700	371	430		
Volume to Capacity	0.42	0.42	0.42	0.07	0.36	0.36	0.36	0.03	0.27	0.25		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	27	24		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3	16.1		
Lane LOS									C	C		
Approach Delay (s)	0.0				0.0				18.3	16.1		
Approach LOS									C	C		
Intersection Summary												
Average Delay				0.8								
Intersection Capacity Utilization			54.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B&C - Alternative 1

1004: SR 204 & New Intersection

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	1724	119	91	1220	77	211	55	91	106	32	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	4715	1538	1719	4715	1538	1719	1810	1538	1719	1810	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	1719	4715	1538	1719	4715	1538	1330	1810	1538	1292	1810	1538
Peak-hour factor, PHF	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Adj. Flow (vph)	227	1854	128	107	1435	91	254	66	110	112	34	180
RTOR Reduction (vph)	0	0	60	0	0	49	0	0	86	0	0	140
Lane Group Flow (vph)	227	1854	68	107	1435	42	254	66	24	112	34	40
Heavy Vehicles (%)	5%	10%	5%	5%	10%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	17.2	55.7	55.7	12.0	50.5	50.5	24.3	24.3	24.3	24.3	24.3	24.3
Effective Green, g (s)	17.2	55.7	55.7	12.0	50.5	50.5	24.3	24.3	24.3	24.3	24.3	24.3
Actuated g/C Ratio	0.16	0.51	0.51	0.11	0.46	0.46	0.22	0.22	0.22	0.22	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	2388	779	188	2165	706	294	400	340	285	400	340
v/s Ratio Prot	c0.13	c0.39		0.06	0.30			0.04			0.02	
v/s Ratio Perm			0.04			0.03	c0.19		0.02	0.09		0.03
v/c Ratio	0.84	0.78	0.09	0.57	0.66	0.06	0.86	0.17	0.07	0.39	0.09	0.12
Uniform Delay, d1	45.1	22.1	14.0	46.5	23.1	16.5	41.3	34.6	33.9	36.6	34.0	34.3
Progression Factor	1.04	0.85	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.5	1.2	0.1	3.9	0.8	0.0	22.2	0.2	0.1	0.9	0.1	0.2
Delay (s)	57.6	19.8	11.0	50.5	23.9	16.6	63.4	34.8	34.0	37.5	34.1	34.4
Level of Service	E	B	B	D	C	B	E	C	C	D	C	C
Approach Delay (s)		23.2			25.2			51.5			35.4	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			27.4			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			71.7%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept B&C - Alternative 2

1001: SR 204 & Gateway Blvd W

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	529	0	25	340	44	0	5	10	44	5	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	16	622	0	29	395	51	0	11	22	62	7	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					479							
pX, platoon unblocked												
vC, conflicting volume	395			622			915	1109	311	825	1109	198
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	395			622			915	1109	311	825	1109	198
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			97			100	94	97	74	96	99
cM capacity (veh/h)	1153			948			212	198	682	236	198	807
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	328	311	29	198	198	51	33	73				
Volume Left	16	0	29	0	0	0	0	62				
Volume Right	0	0	0	0	0	51	22	4				
cSH	1153	1700	948	1700	1700	1700	375	246				
Volume to Capacity	0.01	0.18	0.03	0.12	0.12	0.03	0.09	0.30				
Queue Length 95th (ft)	1	0	2	0	0	0	7	30				
Control Delay (s)	0.5	0.0	8.9	0.0	0.0	0.0	15.5	26.0				
Lane LOS	A		A				C	D				
Approach Delay (s)	0.3		0.5				15.5	26.0				
Approach LOS							C	D				
Intersection Summary												
Average Delay				2.3								
Intersection Capacity Utilization			40.7%			ICU Level of Service				A		
Analysis Period (min)			15									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑↑	↓	↑
Volume (vph)	507	76	0	319	90	684
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3282	1442		4715	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3282	1442		4715	1612	1442
Peak-hour factor, PHF	0.86	0.86	0.93	0.93	0.84	0.84
Adj. Flow (vph)	590	88	0	343	107	814
RTOR Reduction (vph)	0	24	0	0	0	0
Lane Group Flow (vph)	590	64	0	343	107	814
Heavy Vehicles (%)	10%	12%	12%	10%	12%	12%
Turn Type		Perm	Perm			Free
Protected Phases	2			6	8	
Permitted Phases		2	6			Free
Actuated Green, G (s)	58.6	58.6		58.6	9.4	80.0
Effective Green, g (s)	58.6	58.6		58.6	9.4	80.0
Actuated g/C Ratio	0.73	0.73		0.73	0.12	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2404	1056		3454	189	1442
v/s Ratio Prot	0.18			0.07	0.07	
v/s Ratio Perm		0.04				c0.56
v/c Ratio	0.25	0.06		0.10	0.57	0.56
Uniform Delay, d1	3.5	3.0		3.1	33.4	0.0
Progression Factor	1.00	1.00		0.77	1.00	1.00
Incremental Delay, d2	0.2	0.1		0.1	3.9	1.6
Delay (s)	3.7	3.1		2.4	37.2	1.6
Level of Service	A	A		A	D	A
Approach Delay (s)	3.7			2.4	5.7	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			4.4	HCM Level of Service		A
HCM Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			29.0%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations		  			  				 		
Volume (vph)	59	1132	0	0	258	0	0	0	61	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.52	1.00			1.00				0.95		
Satd. Flow (perm)	883	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	61	1179	0	0	266	0	0	0	76	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	61	1179	0	0	266	0	0	0	76	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt								custom		
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	61.8	61.8			51.8				6.2		
Effective Green, g (s)	61.8	61.8			51.8				6.2		
Actuated g/C Ratio	0.77	0.77			0.65				0.08		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	719	3642			3053				242		
v/s Ratio Prot	0.00	c0.25			0.06						
v/s Ratio Perm	0.06								c0.02		
v/c Ratio	0.08	0.32			0.09				0.31		
Uniform Delay, d1	2.4	2.8			5.3				34.9		
Progression Factor	0.56	0.50			1.00				1.00		
Incremental Delay, d2	0.0	0.2			0.1				0.7		
Delay (s)	1.4	1.6			5.3				35.6		
Level of Service	A	A			A				D		
Approach Delay (s)		1.6			5.3		0.0			35.6	
Approach LOS		A			A		A			D	
Intersection Summary											
HCM Average Control Delay			3.9	HCM Level of Service					A		
HCM Volume to Capacity ratio			0.32								
Actuated Cycle Length (s)			80.0	Sum of lost time (s)					12.0		
Intersection Capacity Utilization			33.5%	ICU Level of Service					A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
1001: SR 204 & Gateway Blvd W

2015 AM Concept B&C - Alternative 3
8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Volume (veh/h)	14	529	0	25	340	44	0	5	10	44	5	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	16	622	0	29	395	51	0	11	22	62	7	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	395			622			915	1109	311	825	1109	198
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	395			622			915	1109	311	825	1109	198
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			97			100	94	97	74	96	99
cM capacity (veh/h)	1153			948			212	198	682	236	198	807
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	328	311	29	198	198	51	33	73				
Volume Left	16	0	29	0	0	0	0	62				
Volume Right	0	0	0	0	0	51	22	4				
cSH	1153	1700	948	1700	1700	1700	375	246				
Volume to Capacity	0.01	0.18	0.03	0.12	0.12	0.03	0.09	0.30				
Queue Length 95th (ft)	1	0	2	0	0	0	7	30				
Control Delay (s)	0.5	0.0	8.9	0.0	0.0	0.0	15.5	26.0				
Lane LOS	A		A				C	D				
Approach Delay (s)	0.3		0.5				15.5	26.0				
Approach LOS							C	D				
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			40.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
1003: SR 204 & I-95 SB Off-Ramp

2015 AM Concept B&C - Alternative 3
8/25/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		  	  				
Volume (veh/h)	0	507	319	0	0	90	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.86	0.86	0.93	0.93	0.84	0.84	
Hourly flow rate (vph)	0	590	343	0	0	107	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)	712						
pX, platoon unblocked							
vC, conflicting volume	343				540	114	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	343				540	114	
tC, single (s)	4.3				7.0	7.1	
tC, 2 stage (s)							
tF (s)	2.3				3.6	3.4	
p0 queue free %	100				100	88	
cM capacity (veh/h)	1157				449	885	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	197	197	197	114	114	114	107
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	107
cSH	1700	1700	1700	1700	1700	1700	885
Volume to Capacity	0.12	0.12	0.12	0.07	0.07	0.07	0.12
Queue Length 95th (ft)	0	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A
Intersection Summary							
Average Delay			1.0				
Intersection Capacity Utilization			18.4%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B&C - Alternative 3

1004: SR 204 & I-95 NB On-Ramp

8/25/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations		  			  				 		
Volume (vph)	59	448	0	0	258	0	0	0	61	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.53	1.00			1.00				0.95		
Satd. Flow (perm)	892	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	61	467	0	0	266	0	0	0	76	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	61	467	0	0	266	0	0	0	76	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			custom							
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	68.4	68.4			57.2				6.3		
Effective Green, g (s)	68.4	68.4			57.2				6.3		
Actuated g/C Ratio	0.79	0.79			0.66				0.07		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	747	3720			3111				227		
v/s Ratio Prot	0.00	c0.10			0.06						
v/s Ratio Perm	0.06								c0.02		
v/c Ratio	0.08	0.13			0.09				0.33		
Uniform Delay, d1	2.2	2.1			5.3				38.2		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.0	0.1			0.1				0.9		
Delay (s)	2.3	2.2			5.4				39.1		
Level of Service	A	A			A				D		
Approach Delay (s)		2.2			5.4	0.0				39.1	
Approach LOS		A			A	A				D	
Intersection Summary											
HCM Average Control Delay			6.4		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.14								
Actuated Cycle Length (s)			86.7		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			18.4%		ICU Level of Service				A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B&C

1005: SR 204 EB On Ramp & US-17

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	  		 					  	 	 	 	
Volume (vph)	408	0	266	0	0	0	0	1180	572	377	797	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.94		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	4802		2682					4893	2682	3303	4893	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	4802		2682					4893	2682	3303	4893	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	492	0	320	0	0	0	0	1422	689	405	857	0
RTOR Reduction (vph)	0	0	252	0	0	0	0	0	421	0	0	0
Lane Group Flow (vph)	492	0	68	0	0	0	0	1422	268	405	857	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom		custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	12.8		12.8					27.2	27.2	12.0	45.2	
Effective Green, g (s)	12.8		12.8					27.2	27.2	12.0	45.2	
Actuated g/C Ratio	0.18		0.18					0.39	0.39	0.17	0.65	
Clearance Time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	878		490					1901	1042	566	3159	
v/s Ratio Prot								c0.29		c0.12	0.18	
v/s Ratio Perm	c0.10		0.03						0.10			
v/c Ratio	0.56		0.14					0.75	0.26	0.72	0.27	
Uniform Delay, d1	26.0		24.0					18.4	14.5	27.4	5.3	
Progression Factor	1.00		1.00					1.00	1.00	0.66	0.05	
Incremental Delay, d2	0.8		0.1					2.7	0.6	3.8	0.2	
Delay (s)	26.9		24.1					21.2	15.1	21.9	0.5	
Level of Service	C		C					C	B	C	A	
Approach Delay (s)		25.8			0.0			19.2			7.3	
Approach LOS		C			A			B			A	
Intersection Summary												
HCM Average Control Delay			16.9		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			56.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B&C

1006: SR 204 WB On Ramp & US-17

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  		 	 	  			  	
Volume (vph)	0	0	0	363	0	186	361	1227	0	0	811	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	403	0	207	397	1348	0	0	891	236
RTOR Reduction (vph)	0	0	0	0	0	85	0	0	0	0	0	145
Lane Group Flow (vph)	0	0	0	403	0	122	397	1348	0	0	891	91
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type	custom			custom			Prot			Perm		
Protected Phases							5			2		
Permitted Phases				8			8					
Actuated Green, G (s)				11.7			11.7			13.2		
Effective Green, g (s)				11.7			11.7			13.2		
Actuated g/C Ratio				0.17			0.17			0.19		
Clearance Time (s)				6.0			6.0			6.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				781			436			606		
v/s Ratio Prot							c0.12			0.28		
v/s Ratio Perm				c0.09			0.05					
v/c Ratio				0.52			0.28			0.66		
Uniform Delay, d1				26.6			25.5			26.3		
Progression Factor				1.00			1.00			0.55		
Incremental Delay, d2				0.6			0.4			1.7		
Delay (s)				27.1			25.8			16.2		
Level of Service				C			C			B		
Approach Delay (s)	0.0						26.7			4.3		
Approach LOS	A						C			A		
Intersection Summary												
HCM Average Control Delay	12.2			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	70.0			Sum of lost time (s)			18.0					
Intersection Capacity Utilization	56.3%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B&C

1007: SR 204 EB Off Ramp & Pine Grove Rd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	0	127	0	0	0	0	49	75	45	71	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505	
Flt Permitted	0.95		1.00					1.00	1.00	0.71	1.00	
Satd. Flow (perm)	1752		1568					1845	1568	1310	3505	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73
Adj. Flow (vph)	64	0	149	0	0	0	0	72	110	62	97	0
RTOR Reduction (vph)	0	0	135	0	0	0	0	0	25	0	0	0
Lane Group Flow (vph)	64	0	14	0	0	0	0	72	85	62	97	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	custom		custom						Perm	Perm		
Protected Phases									2		6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	8.7		8.7						69.3	69.3	69.3	69.3
Effective Green, g (s)	8.7		8.7						69.3	69.3	69.3	69.3
Actuated g/C Ratio	0.10		0.10						0.77	0.77	0.77	0.77
Clearance Time (s)	6.0		6.0						6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0						3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169		152						1421	1207	1009	2699
v/s Ratio Prot									0.04		0.03	
v/s Ratio Perm	c0.04		0.01						c0.05	0.05		
v/c Ratio	0.38		0.09						0.05	0.07	0.06	0.04
Uniform Delay, d1	38.1		37.1						2.5	2.5	2.5	2.4
Progression Factor	1.00		1.00						1.00	1.00	1.00	0.21
Incremental Delay, d2	1.4		0.3						0.1	0.1	0.1	0.0
Delay (s)	39.5		37.3						2.5	2.6	2.6	0.5
Level of Service	D		D						A	A	A	A
Approach Delay (s)			38.0		0.0				2.6		1.4	
Approach LOS			D		A				A		A	
Intersection Summary												
HCM Average Control Delay			15.8		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.10									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			36.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1008: SR 204 WB On Ramp & Pine Grove Rd

2015 AM Concept B&C

8/25/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	69	545	46	36	67	0	0	47	30	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568	
Flt Permitted				0.95	1.00	1.00	0.72	1.00			1.00	1.00	
Satd. Flow (perm)				1752	3505	1568	1319	3505			1845	1568	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73	
Adj. Flow (vph)	0	0	0	78	612	52	53	99	0	0	64	41	
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	0	0	0	16	
Lane Group Flow (vph)	0	0	0	78	612	13	53	99	0	0	64	25	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Turn Type				Perm			Perm	Perm					Perm
Protected Phases				8			2			6			
Permitted Phases				8			2			6			
Actuated Green, G (s)				23.0	23.0	23.0	55.0	55.0				55.0	55.0
Effective Green, g (s)				23.0	23.0	23.0	55.0	55.0				55.0	55.0
Actuated g/C Ratio				0.26	0.26	0.26	0.61	0.61				0.61	0.61
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0				6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)				448	896	401	806	2142				1128	958
v/s Ratio Prot				c0.17			0.03			0.03			
v/s Ratio Perm				0.04			0.01			c0.04			0.02
v/c Ratio				0.17	0.68	0.03	0.07	0.05				0.06	0.03
Uniform Delay, d1				26.1	30.2	25.2	7.1	7.0				7.0	6.9
Progression Factor				1.00	1.00	1.00	1.00	0.39				1.00	1.00
Incremental Delay, d2				0.2	2.2	0.0	0.2	0.0				0.1	0.1
Delay (s)				26.3	32.4	25.2	7.3	2.8				7.1	7.0
Level of Service				C	C	C	A	A				A	A
Approach Delay (s)	0.0			31.2			4.3			7.1			
Approach LOS	A			C			A			A			
Intersection Summary													
HCM Average Control Delay	24.6			HCM Level of Service			C						
HCM Volume to Capacity ratio	0.25												
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			12.0						
Intersection Capacity Utilization	36.7%			ICU Level of Service			A						
Analysis Period (min)	15												
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

1009: SR 204 EB Ramps & King George Blvd

2015 AM Concept B&C

8/25/2011

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 			  
Volume (vph)	154	160	416	1195	502	604
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.92	0.92	0.88	0.88	0.93	0.93
Adj. Flow (vph)	167	174	473	1358	540	649
RTOR Reduction (vph)	0	152	0	0	0	0
Lane Group Flow (vph)	167	22	473	1358	540	649
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Free		Prot	
Protected Phases	8	2		1		6
Permitted Phases	8		Free			
Actuated Green, G (s)	8.8	8.8	16.0	70.0	27.2	49.2
Effective Green, g (s)	8.8	8.8	16.0	70.0	27.2	49.2
Actuated g/C Ratio	0.13	0.13	0.23	1.00	0.39	0.70
Clearance Time (s)	6.0	6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	423	195	793	1553	675	3506
v/s Ratio Prot	0.05	0.14		0.31		0.13
v/s Ratio Perm	0.01		c0.87			
v/c Ratio	0.39	0.11	0.60	0.87	0.80	0.19
Uniform Delay, d1	28.2	27.1	24.1	0.0	19.0	3.6
Progression Factor	1.00	1.00	1.00	1.00	0.52	0.92
Incremental Delay, d2	0.6	0.3	3.3	7.2	6.6	0.1
Delay (s)	28.8	27.4	27.4	7.2	16.5	3.4
Level of Service	C	C	C	A	B	A
Approach Delay (s)	28.1	12.4				9.3
Approach LOS	C	B				A
Intersection Summary						
HCM Average Control Delay			12.9	HCM Level of Service		B
HCM Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			70.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			58.7%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

1010: SR 204 WB Off Ramp & King George Blvd

2015 AM Concept B&C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 								 	
Volume (vph)	0	0	599	0	0	225	274	302	0	0	507	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00
Frt			0.85			0.86	1.00	1.00			1.00	0.85
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553
Flt Permitted			1.00			1.00	0.38	1.00			1.00	1.00
Satd. Flow (perm)			2733			1580	701	1827			3471	1553
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Adj. Flow (vph)	0	0	681	0	0	256	311	343	0	0	545	284
RTOR Reduction (vph)	0	0	170	0	0	236	0	0	0	0	0	133
Lane Group Flow (vph)	0	0	511	0	0	20	311	343	0	0	545	151
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom			custom		pm+pt					Perm	
Protected Phases							5	2			6	
Permitted Phases			2				8	2				6
Actuated Green, G (s)			52.5				5.5	52.5	52.5		37.1	37.1
Effective Green, g (s)			52.5				5.5	52.5	52.5		37.1	37.1
Actuated g/C Ratio			0.75				0.08	0.75	0.75		0.53	0.53
Clearance Time (s)			6.0				6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)			3.0				3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			2050				124	665	1370		1840	823
v/s Ratio Prot							c0.06	0.19			0.16	
v/s Ratio Perm			0.19				c0.01	c0.29				0.10
v/c Ratio			0.25				0.16	0.47	0.25		0.30	0.18
Uniform Delay, d1			2.7				30.1	3.1	2.7		9.2	8.6
Progression Factor			1.00				1.00	3.82	0.36		1.00	1.00
Incremental Delay, d2			0.3				0.6	0.4	0.4		0.4	0.5
Delay (s)			3.0				30.7	12.3	1.4		9.6	9.1
Level of Service			A				C	B	A		A	A
Approach Delay (s)		3.0			30.7			6.6			9.4	
Approach LOS		A			C			A			A	
Intersection Summary												
HCM Average Control Delay			9.1		HCM Level of Service						A	
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			45.0%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1011: SR 204 & Rio Road

2015 AM Concept B

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			 		 					
Volume (vph)	329	1412	270	10	849	9	202	35	6	32	6	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	343	1471	281	11	954	10	273	47	8	40	7	209
RTOR Reduction (vph)	0	0	63	0	0	4	0	0	7	0	0	0
Lane Group Flow (vph)	343	1471	218	11	954	6	273	47	1	40	7	209
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Actuated Green, G (s)	26.0	83.5	83.5	1.6	59.1	59.1	19.5	14.2	14.2	6.7	1.4	130.0
Effective Green, g (s)	26.0	83.5	83.5	1.6	59.1	59.1	19.5	14.2	14.2	6.7	1.4	130.0
Actuated g/C Ratio	0.20	0.64	0.64	0.01	0.45	0.45	0.15	0.11	0.11	0.05	0.01	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	673	2754	998	21	1356	706	505	200	170	89	20	1553
v/s Ratio Prot	c0.10	c0.34		0.01	c0.32		c0.08	0.03		0.02	0.00	
v/s Ratio Perm			0.14			0.00			0.00			c0.13
v/c Ratio	0.51	0.53	0.22	0.52	0.70	0.01	0.54	0.23	0.01	0.45	0.35	0.13
Uniform Delay, d1	46.3	12.7	9.7	63.8	28.4	19.4	51.1	52.9	51.6	59.9	63.8	0.0
Progression Factor	1.00	1.00	1.00	0.98	0.69	0.48	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.7	0.5	20.2	2.9	0.0	1.2	0.6	0.0	3.6	10.3	0.2
Delay (s)	46.9	13.4	10.2	82.9	22.4	9.4	52.3	53.5	51.6	63.4	74.1	0.2
Level of Service	D	B	B	F	C	A	D	D	D	E	E	A
Approach Delay (s)		18.5			23.0			52.5			12.1	
Approach LOS		B			C			D			B	
Intersection Summary												
HCM Average Control Delay			22.3		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				24.0			
Intersection Capacity Utilization			60.3%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	1450	835	24	0	33							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58							
Hourly flow rate (vph)	0	1611	928	27	0	57							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage (veh)													
Upstream signal (ft)	697												
pX, platoon unblocked					0.83								
vC, conflicting volume	928				1465	309							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	928				850	309							
tC, single (s)	4.2				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.2				3.5	3.3							
p0 queue free %	100				100	92							
cM capacity (veh/h)	720				246	681							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	537	537	537	309	309	309	27	57					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	27	57					
cSH	1700	1700	1700	1700	1700	1700	1700	681					
Volume to Capacity	0.32	0.32	0.32	0.18	0.18	0.18	0.02	0.08					
Queue Length 95th (ft)	0	0	0	0	0	0	0	7					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8					
Lane LOS	B												
Approach Delay (s)	0.0				0.0			10.8					
Approach LOS	B												
Intersection Summary													
Average Delay			0.2										
Intersection Capacity Utilization			31.3%	ICU Level of Service		A							
Analysis Period (min)			15										

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1450	837	9	0	22		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58		
Hourly flow rate (vph)	0	1611	930	10	0	38		
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								
vC, conflicting volume	930				1467	310		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	930				1467	310		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	94		
cM capacity (veh/h)	719				116	680		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	537	537	537	310	310	310	10	38
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	10	38
cSH	1700	1700	1700	1700	1700	1700	1700	680
Volume to Capacity	0.32	0.32	0.32	0.18	0.18	0.18	0.01	0.06
Queue Length 95th (ft)	0	0	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Lane LOS	B							
Approach Delay (s)	0.0				0.0			10.6
Approach LOS	B							
Intersection Summary								
Average Delay			0.2					
Intersection Capacity Utilization			31.3%	ICU Level of Service		A		
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept B

1014: SR 204 & East Mall Driveway

8/22/2011

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1450	818	13	0	28		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58		
Hourly flow rate (vph)	0	1611	909	14	0	48		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None		None					
Median storage veh								
Upstream signal (ft)	545							
pX, platoon unblocked	0.94				0.94	0.94		
vC, conflicting volume	909				1446	303		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	672				1245	26		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	95		
cM capacity (veh/h)	845				153	972		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	537	537	537	303	303	303	14	48
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	14	48
cSH	1700	1700	1700	1700	1700	1700	1700	972
Volume to Capacity	0.32	0.32	0.32	0.18	0.18	0.18	0.01	0.05
Queue Length 95th (ft)	0	0	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9
Lane LOS	A							
Approach Delay (s)	0.0				0.0			8.9
Approach LOS	A							
Intersection Summary								
Average Delay	0.2							
Intersection Capacity Utilization	31.3%			ICU Level of Service			A	
Analysis Period (min)	15							

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B

1015: SR 204 & Apache Ave

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  					 		
Volume (vph)	215	1172	63	109	547	50	212	52	119	72	43	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4285		3367	4283		1736	1827	1553	3367	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4285		3367	4283		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	253	1379	74	120	601	55	226	55	127	94	56	94
RTOR Reduction (vph)	0	3	0	0	6	0	0	0	108	0	0	86
Lane Group Flow (vph)	253	1450	0	120	650	0	226	55	19	94	56	8
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	15.0	68.7		10.0	63.7		16.0	19.0	19.0	8.3	11.3	11.3
Effective Green, g (s)	15.0	68.7		10.0	63.7		16.0	19.0	19.0	8.3	11.3	11.3
Actuated g/C Ratio	0.12	0.53		0.08	0.49		0.12	0.15	0.15	0.06	0.09	0.09
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	389	2264		259	2099		214	267	227	215	159	135
v/s Ratio Prot	c0.08	c0.34		0.04	0.15		c0.13	0.03		0.03	c0.03	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.65	0.64		0.46	0.31		1.06	0.21	0.08	0.44	0.35	0.06
Uniform Delay, d1	55.0	21.8		57.4	19.9		57.0	48.9	48.0	58.6	55.9	54.5
Progression Factor	0.93	0.95		0.98	0.74		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	1.3		1.3	0.4		77.1	0.8	0.3	1.4	2.8	0.4
Delay (s)	54.9	22.0		57.6	15.1		134.1	49.7	48.3	60.0	58.7	54.9
Level of Service	D	C		E	B		F	D	D	E	E	D
Approach Delay (s)	26.9			21.7			96.0			57.7		
Approach LOS	C			C			F			E		
Intersection Summary												
HCM Average Control Delay	37.0			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			24.0					
Intersection Capacity Utilization	62.5%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: SR 204 & Middleground Road

2015 AM Concept B

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	303	793	267	222	432	58	48	80	44	242	218	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3367	4287	1510	1736	4217	1532	1736	1721		1736	1827	1533
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.55	1.00		0.35	1.00	1.00
Satd. Flow (perm)	3367	4287	1510	1736	4217	1532	998	1721		637	1827	1533
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	312	818	275	264	514	69	62	103	56	281	253	263
RTOR Reduction (vph)	0	0	155	0	0	40	0	17	0	0	0	209
Lane Group Flow (vph)	312	818	120	264	514	29	62	142	0	281	253	54
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	17.2	46.9	46.9	25.8	55.5	55.5	24.0	17.3		39.3	26.6	26.6
Effective Green, g (s)	17.2	46.9	46.9	25.8	55.5	55.5	24.0	17.3		39.3	26.6	26.6
Actuated g/C Ratio	0.13	0.36	0.36	0.20	0.43	0.43	0.18	0.13		0.30	0.20	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	445	1547	545	345	1800	654	222	229		328	374	314
v/s Ratio Prot	0.09	c0.19		c0.15	0.12		0.01	0.08		c0.11	0.14	
v/s Ratio Perm			0.08			0.02	0.04			c0.15		0.04
v/c Ratio	0.70	0.53	0.22	0.77	0.29	0.05	0.28	0.62		0.86	0.68	0.17
Uniform Delay, d1	53.9	32.8	28.8	49.2	24.3	21.8	44.8	53.2		39.2	47.7	42.6
Progression Factor	1.44	0.43	0.15	0.98	0.98	0.94	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.0	1.1	0.8	9.5	0.4	0.1	0.5	4.9		19.0	3.8	0.1
Delay (s)	81.6	15.3	4.9	57.8	24.2	20.6	45.3	58.1		58.2	51.5	42.7
Level of Service	F	B	A	E	C	C	D	E		E	D	D
Approach Delay (s)		28.0			34.4			54.5			51.0	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			37.1			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			71.7%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1017: SR 204 & Arts Drive

2015 AM Concept B

8/22/2011

							
Movement	EBU	EBT	EBR	NBL	NBR2	SBR	SWL
Lane Configurations							
Volume (vph)	0	915	164	22	37	690	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0
Lane Util. Factor		0.91		0.97	1.00	0.76	1.00
Frt		0.98		1.00	0.85	0.85	1.00
Flt Protected		1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		4220		3367	1553	2994	1736
Flt Permitted		1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		4220		3367	1553	2994	1736
Peak-hour factor, PHF	0.97	0.97	0.97	0.78	0.78	0.84	0.84
Adj. Flow (vph)	0	943	169	28	47	821	224
RTOR Reduction (vph)	0	11	0	0	22	113	0
Lane Group Flow (vph)	0	1101	0	28	25	708	224
Heavy Vehicles (%)	4%	23%	4%	4%	4%	23%	4%
Turn Type	Prot			Prot	custom	custom	
Protected Phases	5	2		3	1 3		1
Permitted Phases					8	6	
Actuated Green, G (s)		84.2		5.9	33.8	112.1	21.9
Effective Green, g (s)		84.2		5.9	33.8	112.1	21.9
Actuated g/C Ratio		0.65		0.05	0.26	0.86	0.17
Clearance Time (s)		6.0		6.0		6.0	6.0
Vehicle Extension (s)		5.0		3.0		3.0	3.0
Lane Grp Cap (vph)		2733		153	404	2582	292
v/s Ratio Prot		c0.26		c0.01	0.02		c0.13
v/s Ratio Perm						0.24	
v/c Ratio		0.40		0.18	0.06	0.27	0.77
Uniform Delay, d1		10.9		59.7	36.2	1.6	51.6
Progression Factor		0.19		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.4		0.6	0.1	0.3	11.4
Delay (s)		2.4		60.3	36.2	1.9	63.0
Level of Service		A		E	D	A	E
Approach Delay (s)		2.4					63.0
Approach LOS		A					E
Intersection Summary							
HCM Average Control Delay			9.7		HCM Level of Service		A
HCM Volume to Capacity ratio			0.46				
Actuated Cycle Length (s)			130.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			48.4%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	105	436	437	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76	
Hourly flow rate (vph)	119	495	491	0	0	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)			1257				
pX, platoon unblocked							
vC, conflicting volume	491				895	164	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	491				895	164	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	89				100	100	
cM capacity (veh/h)	1055				245	846	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	119	165	165	165	164	164	164
Volume Left	119	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1055	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.11	0.10	0.10	0.10	0.10	0.10	0.10
Queue Length 95th (ft)	10	0	0	0	0	0	0
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	1.7				0.0		
Approach LOS							
Intersection Summary							
Average Delay			1.0				
Intersection Capacity Utilization			20.9%		ICU Level of Service		A
Analysis Period (min)			15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	403	33	14	426	0	11	0	5	44	6	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.62	0.62	0.62	0.76	0.76	0.76
Hourly flow rate (vph)	0	458	38	16	479	0	18	0	8	58	8	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		1			1							
Upstream signal (ft)					1072							
pX, platoon unblocked												
vC, conflicting volume	479			495			672	987	171	671	1006	160
vC1, stage 1 conf vol							477	477		510	510	
vC2, stage 2 conf vol							195	510		161	495	
vCu, unblocked vol	479			495			672	987	171	671	1006	160
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	100	99	86	98	100
cM capacity (veh/h)	1066			1051			426	354	836	416	345	851
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	183	183	129	16	160	160	160	26	66			
Volume Left	0	0	0	16	0	0	0	18	58			
Volume Right	0	0	38	0	0	0	0	8	0			
cSH	1700	1700	1700	1051	1700	1700	1700	503	406			
Volume to Capacity	0.11	0.11	0.08	0.01	0.09	0.09	0.09	0.05	0.16			
Queue Length 95th (ft)	0	0	0	1	0	0	0	4	14			
Control Delay (s)	0.0	0.0	0.0	8.5	0.0	0.0	0.0	12.5	15.6			
Lane LOS				A				B	C			
Approach Delay (s)	0.0			0.3				12.5	15.6			
Approach LOS								B	C			
Intersection Summary												
Average Delay				1.4								
Intersection Capacity Utilization			21.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B

1022: SR 204 & Mercy Blvd

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	310	61	35	397	104	82	40	53	49	42	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4220		1736	4217	1553	1736	1670		1736	1660	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.51	1.00		0.58	1.00	
Satd. Flow (perm)	1736	4220		1736	4217	1553	935	1670		1066	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	88	337	66	41	462	121	111	54	72	68	58	90
RTOR Reduction (vph)	0	12	0	0	0	44	0	51	0	0	59	0
Lane Group Flow (vph)	88	391	0	41	462	77	111	75	0	68	89	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	11.9	86.8		7.4	82.3	82.3	17.8	17.8		17.8	17.8	
Effective Green, g (s)	11.9	86.8		7.4	82.3	82.3	17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.09	0.67		0.06	0.63	0.63	0.14	0.14		0.14	0.14	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	159	2818		99	2670	983	128	229		146	227	
v/s Ratio Prot	c0.05	c0.09		0.02	c0.11			0.04			0.05	
v/s Ratio Perm						0.05	c0.12			0.06		
v/c Ratio	0.55	0.14		0.41	0.17	0.08	0.87	0.33		0.47	0.39	
Uniform Delay, d1	56.5	7.9		59.2	9.8	9.2	54.9	50.7		51.7	51.2	
Progression Factor	1.00	0.68		1.26	0.53	0.29	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.1		2.7	0.1	0.2	41.9	0.8		2.3	1.1	
Delay (s)	60.8	5.5		77.2	5.4	2.8	96.8	51.5		54.1	52.3	
Level of Service	E	A		E	A	A	F	D		D	D	
Approach Delay (s)		15.4			9.6			72.8			52.9	
Approach LOS		B			A			E			D	
Intersection Summary												
HCM Average Control Delay			26.9			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				24.0		
Intersection Capacity Utilization			43.7%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B

1023: SR 204 & Largo Blvd

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	212	140	78	344	34	123	85	208	45	96	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4225		1736	4219		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.42	1.00	1.00	0.68	1.00	1.00
Satd. Flow (perm)	1736	4225		1736	4219		769	1827	1553	1234	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	69	244	161	84	370	37	184	127	310	55	117	84
RTOR Reduction (vph)	0	60	0	0	6	0	0	0	254	0	0	74
Lane Group Flow (vph)	69	345	0	84	401	0	184	127	56	55	117	10
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	9.2	63.6		11.6	66.0		36.8	23.5	23.5	22.2	14.9	14.9
Effective Green, g (s)	9.2	63.6		11.6	66.0		36.8	23.5	23.5	22.2	14.9	14.9
Actuated g/C Ratio	0.07	0.49		0.09	0.51		0.28	0.18	0.18	0.17	0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	123	2067		155	2142		336	330	281	239	209	178
v/s Ratio Prot	0.04	0.08		c0.05	c0.10		c0.07	0.07		0.01	0.06	
v/s Ratio Perm							c0.09		0.04	0.03		0.01
v/c Ratio	0.56	0.17		0.54	0.19		0.55	0.38	0.20	0.23	0.56	0.05
Uniform Delay, d1	58.4	18.5		56.7	17.4		37.7	46.9	45.3	46.2	54.4	51.3
Progression Factor	1.19	0.51		1.44	0.43		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	0.2		3.8	0.2		1.8	0.7	0.4	0.5	3.2	0.1
Delay (s)	75.5	9.6		85.6	7.8		39.5	47.6	45.6	46.7	57.7	51.4
Level of Service	E	A		F	A		D	D	D	D	E	D
Approach Delay (s)		19.2			21.1			44.2			53.3	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay			32.9			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			46.0%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept B

1024: SR 204 & Idlewood Drive

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑				↗			↗
Volume (veh/h)	0	422	43	0	438	18	0	0	101	0	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Hourly flow rate (vph)	0	485	49	0	471	19	0	0	151	0	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		651			1109							
pX, platoon unblocked												
vC, conflicting volume	490			485			664	975	162	642	966	167
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	490			485			664	975	162	642	966	167
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	82	100	100	97
cM capacity (veh/h)	1055			1060			333	247	848	292	250	842
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	162	162	162	49	188	188	114	151	22			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	49	0	0	19	151	22			
cSH	1700	1700	1700	1700	1700	1700	1700	848	842			
Volume to Capacity	0.10	0.10	0.10	0.03	0.11	0.11	0.07	0.18	0.03			
Queue Length 95th (ft)	0	0	0	0	0	0	0	16	2			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	9.4			
Lane LOS								B	A			
Approach Delay (s)	0.0			0.0				10.2	9.4			
Approach LOS								B	A			
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			21.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 AM Concept B

1025: SR 204 & Deerfield Road

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑	↗	↗	↑↑↑	↗	↗	↗	↗	↗	↗	↗
Volume (vph)	124	376	23	50	384	102	35	27	120	122	5	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1603		1649	1659	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	4218		1736	4217	1553	1736	1603		1649	1659	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	132	400	24	51	392	104	39	30	133	142	6	43
RTOR Reduction (vph)	0	3	0	0	0	52	0	118	0	0	0	39
Lane Group Flow (vph)	132	421	0	51	392	52	39	45	0	74	74	4
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	15.2	71.6		8.1	64.5	64.5	15.1	15.1		11.2	11.2	11.2
Effective Green, g (s)	15.2	71.6		8.1	64.5	64.5	15.1	15.1		11.2	11.2	11.2
Actuated g/C Ratio	0.12	0.55		0.06	0.50	0.50	0.12	0.12		0.09	0.09	0.09
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	203	2323		108	2092	771	202	186		142	143	134
v/s Ratio Prot	c0.08	c0.10		0.03	0.09		0.02	c0.03		c0.04	0.04	
v/s Ratio Perm						0.03						0.00
v/c Ratio	0.65	0.18		0.47	0.19	0.07	0.19	0.24		0.52	0.52	0.03
Uniform Delay, d1	54.9	14.6		58.9	18.2	17.1	51.9	52.3		56.8	56.8	54.4
Progression Factor	0.96	0.96		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.1	0.2		3.2	0.2	0.2	0.5	0.7		3.4	3.1	0.1
Delay (s)	59.8	14.2		62.1	18.4	17.2	52.4	52.9		60.3	60.0	54.5
Level of Service	E	B		E	B	B	D	D		E	E	D
Approach Delay (s)		25.0			22.2			52.8			58.8	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM Average Control Delay			32.1		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			55.4%		ICU Level of Service				B			
Analysis Period (min)			15									

c Critical Lane Group

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	56	0	17	365	0	44	0	1007	0	0	154	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.72	0.72	0.72	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77
Adj. Flow (vph)	78	0	24	445	0	54	0	1083	0	0	200	44
RTOR Reduction (vph)	0	0	20	0	0	46	0	0	0	0	0	13
Lane Group Flow (vph)	78	0	4	445	0	8	0	1083	0	0	200	31
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type	Perm		Prot	custom								Perm
Protected Phases	4		8				6				2	
Permitted Phases			4		8						2	
Actuated Green, G (s)	13.7		13.7		13.7		64.3				64.3	
Effective Green, g (s)	13.7		13.7		13.7		64.3				64.3	
Actuated g/C Ratio	0.15		0.15		0.15		0.71				0.71	
Clearance Time (s)	6.0		6.0		6.0		6.0				6.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0				3.0	
Lane Grp Cap (vph)	264		236		745		236		3013		3013	
v/s Ratio Prot	0.04		c0.09				c0.26				0.05	
v/s Ratio Perm			0.00		0.01						0.02	
v/c Ratio	0.30		0.02		0.03		0.36				0.07	
Uniform Delay, d1	33.9		32.4		35.6		32.5		4.9		3.9	
Progression Factor	1.00		1.00		1.00		1.00		1.00		0.76	
Incremental Delay, d2	0.6		0.0		1.3		0.1		0.3		0.0	
Delay (s)	34.5		32.4		36.9		32.6		5.3		3.0	
Level of Service	C		C		D		C		A		A	
Approach Delay (s)	34.0				36.4				5.3		3.1	
Approach LOS	C				D				A		A	
Intersection Summary												
HCM Average Control Delay			14.6		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			43.1%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	104	24	0	967	140	40	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553		4217	1553	1736	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553		4217	1553	1736	4217
Peak-hour factor, PHF	0.82	0.82	0.93	0.93	0.93	0.77	0.77
Adj. Flow (vph)	127	29	0	1040	151	52	109
RTOR Reduction (vph)	0	26	0	0	54	0	0
Lane Group Flow (vph)	127	3	0	1040	97	52	109
Heavy Vehicles (%)	4%	4%	4%	23%	4%	4%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	8.7	8.7		57.6	57.6	5.7	69.3
Effective Green, g (s)	8.7	8.7		57.6	57.6	5.7	69.3
Actuated g/C Ratio	0.10	0.10		0.64	0.64	0.06	0.77
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	325	150		2699	994	110	3247
v/s Ratio Prot				c0.25		c0.03	0.03
v/s Ratio Perm	c0.04	0.00			0.06		
v/c Ratio	0.39	0.02		0.39	0.10	0.47	0.03
Uniform Delay, d1	38.2	36.8		7.7	6.2	40.7	2.4
Progression Factor	1.00	1.00		0.76	0.52	1.00	1.00
Incremental Delay, d2	0.8	0.1		0.4	0.2	3.2	0.0
Delay (s)	38.9	36.8		6.3	3.4	43.9	2.5
Level of Service	D	D		A	A	D	A
Approach Delay (s)	38.6			5.9			15.8
Approach LOS	D			A			B
Intersection Summary							
HCM Average Control Delay			10.3	HCM Level of Service		B	
HCM Volume to Capacity ratio			0.39				
Actuated Cycle Length (s)			90.0	Sum of lost time (s)		18.0	
Intersection Capacity Utilization			40.4%	ICU Level of Service		A	
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

2015 AM Concept C

1011: SR 204 EB & Rio Road

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	329	1412	270	0	0	0	0	237	6	32	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					4988	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4287	1553					4988	1553	1736	1827	
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	343	1471	281	0	0	0	0	320	8	40	20	0
RTOR Reduction (vph)	0	0	122	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	343	1471	159	0	0	0	0	320	1	40	20	0
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	31.2	71.6	71.6					12.7	12.7	27.7	27.7	
Effective Green, g (s)	31.2	71.6	71.6					12.7	12.7	27.7	27.7	
Actuated g/C Ratio	0.24	0.55	0.55					0.10	0.10	0.21	0.21	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	417	2361	855					487	152	370	389	
v/s Ratio Prot	c0.20	c0.34						c0.06		c0.02	0.01	
v/s Ratio Perm			0.10						0.00			
v/c Ratio	0.82	0.62	0.19					0.66	0.01	0.11	0.05	
Uniform Delay, d1	46.8	20.0	14.6					56.6	52.9	41.2	40.7	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.04	0.06	
Incremental Delay, d2	12.3	1.3	0.5					3.2	0.0	0.1	0.1	
Delay (s)	59.1	21.2	15.1					59.7	53.0	1.8	2.5	
Level of Service	E	C	B					E	D	A	A	
Approach Delay (s)		26.6			0.0			59.6			2.0	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM Average Control Delay			30.4	HCM Level of Service					C			
HCM Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)					24.0			
Intersection Capacity Utilization			74.5%	ICU Level of Service					D			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept C

1012: SR 204 WB & Rio Road

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	10	849	9	202	364	0	0	38	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	4.0
Lane Util. Factor				1.00	0.95	1.00	0.97	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2983	1553	3367	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	2983	1553	3367	1827			3471	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	11	954	10	273	492	0	0	47	209
RTOR Reduction (vph)	0	0	0	0	0	6	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	954	4	273	492	0	0	47	209
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Free
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						Free
Actuated Green, G (s)				5.4	45.8	45.8	49.9	49.9			16.3	130.0
Effective Green, g (s)				5.4	45.8	45.8	49.9	49.9			16.3	130.0
Actuated g/C Ratio				0.04	0.35	0.35	0.38	0.38			0.13	1.00
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				72	1051	547	1292	701			435	1553
v/s Ratio Prot				0.01	c0.32		0.08	c0.27			0.01	
v/s Ratio Perm						0.00						c0.13
v/c Ratio				0.15	0.91	0.01	0.21	0.70			0.11	0.13
Uniform Delay, d1				60.1	40.1	27.3	26.9	33.8			50.4	0.0
Progression Factor				0.85	0.93	1.14	0.36	0.08			1.00	1.00
Incremental Delay, d2				1.0	12.6	0.0	0.1	2.3			0.5	0.2
Delay (s)				52.2	49.7	31.1	9.7	5.0			50.9	0.2
Level of Service				D	D	C	A	A			D	A
Approach Delay (s)		0.0			49.6			6.7			9.5	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			28.0	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			74.5%	ICU Level of Service				D				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	835	24	0	33
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	928	27	0	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		689				
pX, platoon unblocked						
vC, conflicting volume	928				928	309
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	928				928	309
tC, single (s)	4.5				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	626				263	681
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	309	309	309	27	57	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	27	57	
cSH	1700	1700	1700	1700	681	
Volume to Capacity	0.18	0.18	0.18	0.02	0.08	
Queue Length 95th (ft)	0	0	0	0	7	
Control Delay (s)	0.0	0.0	0.0	0.0	10.8	
Lane LOS					B	
Approach Delay (s)	0.0				10.8	
Approach LOS					B	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			26.1%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	837	9	0	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	930	10	0	38
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						
vC, conflicting volume	930				930	310
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	930				930	310
tC, single (s)	4.5				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	624				262	680
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	310	310	310	10	38	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	10	38	
cSH	1700	1700	1700	1700	680	
Volume to Capacity	0.18	0.18	0.18	0.01	0.06	
Queue Length 95th (ft)	0	0	0	0	4	
Control Delay (s)	0.0	0.0	0.0	0.0	10.6	
Lane LOS					B	
Approach Delay (s)	0.0				10.6	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			26.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept C

1015: SR 204 WB & East Mall Driveway

8/25/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	818	13	0	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	909	14	0	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)			545			
pX, platoon unblocked	0.92				0.92	0.92
vC, conflicting volume	909				909	303
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	579				579	0
tC, single (s)	4.5				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	798				404	987
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	303	303	303	14	48	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	14	48	
cSH	1700	1700	1700	1700	987	
Volume to Capacity	0.18	0.18	0.18	0.01	0.05	
Queue Length 95th (ft)	0	0	0	0	4	
Control Delay (s)	0.0	0.0	0.0	0.0	8.8	
Lane LOS					A	
Approach Delay (s)	0.0				8.8	
Approach LOS					A	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			25.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 AM Concept C

1016: SR 204 EB & Apache Ave

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						  		 		
Volume (vph)	215	1172	63	0	0	0	0	264	119	72	152	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					4988	1553	3367	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4287	1553					4988	1553	3367	1827	
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	253	1379	74	0	0	0	0	281	127	94	197	0
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	115	0	0	0
Lane Group Flow (vph)	253	1379	36	0	0	0	0	281	12	94	197	0
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	31.0	63.6	63.6					12.2	12.2	36.2	36.2	
Effective Green, g (s)	31.0	63.6	63.6					12.2	12.2	36.2	36.2	
Actuated g/C Ratio	0.24	0.49	0.49					0.09	0.09	0.28	0.28	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	414	2097	760					468	146	938	509	
v/s Ratio Prot	0.15	c0.32						c0.06		0.03	c0.11	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.61	0.66	0.05					0.60	0.08	0.10	0.39	
Uniform Delay, d1	44.1	25.0	17.4					56.6	53.8	34.8	37.9	
Progression Factor	0.61	0.35	0.03					1.00	1.00	0.15	0.09	
Incremental Delay, d2	2.3	1.4	0.1					2.2	0.2	0.0	0.5	
Delay (s)	29.4	10.1	0.6					58.7	54.0	5.3	3.9	
Level of Service	C	B	A					E	D	A	A	
Approach Delay (s)		12.5			0.0			57.3			4.4	
Approach LOS		B			A			E			A	
Intersection Summary												
HCM Average Control Delay			19.1		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					18.0		
Intersection Capacity Utilization			60.9%		ICU Level of Service					B		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1017: SR 204 WB & Apache Ave

2015 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	109	547	50	212	267	0	0	115	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	0.97	1.00			0.91	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4287	1553	3367	1827			4988	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4287	1553	3367	1827			4988	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	0	0	0	120	601	55	226	284	0	0	149	94
RTOR Reduction (vph)	0	0	0	0	0	36	0	0	0	0	0	82
Lane Group Flow (vph)	0	0	0	120	601	19	226	284	0	0	149	12
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				13.4	46.0	46.0	49.2	49.2			16.8	16.8
Effective Green, g (s)				13.4	46.0	46.0	49.2	49.2			16.8	16.8
Actuated g/C Ratio				0.10	0.35	0.35	0.38	0.38			0.13	0.13
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				179	1517	550	1274	691			645	201
v/s Ratio Prot				c0.07	c0.14		0.07	c0.16			c0.03	
v/s Ratio Perm						0.01						0.01
v/c Ratio				0.67	0.40	0.04	0.18	0.41			0.23	0.06
Uniform Delay, d1				56.2	31.6	27.5	26.9	29.7			50.8	49.7
Progression Factor				1.39	0.59	0.34	0.19	0.01			1.00	1.00
Incremental Delay, d2				8.4	0.7	0.1	0.1	0.3			0.8	0.6
Delay (s)				86.3	19.2	9.3	5.2	0.6			51.6	50.2
Level of Service				F	B	A	A	A			D	D
Approach Delay (s)		0.0			28.9			2.6			51.1	
Approach LOS		A			C			A			D	
Intersection Summary												
HCM Average Control Delay			23.6		HCM Level of Service						C	
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)						18.0	
Intersection Capacity Utilization			60.9%		ICU Level of Service						B	
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1018: SR 204 EB & Middleground Road

2015 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	303	793	267	0	0	0	0	128	44	242	440	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					3339		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4287	1553					3339		1736	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	312	818	275	0	0	0	0	164	56	281	512	0
RTOR Reduction (vph)	0	0	194	0	0	0	0	27	0	0	0	0
Lane Group Flow (vph)	312	818	81	0	0	0	0	193	0	281	512	0
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	34.0	38.1	38.1					13.0		60.9	60.9	
Effective Green, g (s)	34.0	38.1	38.1					13.0		60.9	60.9	
Actuated g/C Ratio	0.26	0.29	0.29					0.10		0.47	0.47	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					2.5				
Lane Grp Cap (vph)	454	1256	455					334		813	856	
v/s Ratio Prot	0.18	c0.19						c0.06		0.16	c0.28	
v/s Ratio Perm			0.05									
v/c Ratio	0.69	0.65	0.18					0.58		0.35	0.60	
Uniform Delay, d1	43.2	40.1	34.3					55.9		21.9	25.5	
Progression Factor	0.65	0.63	0.61					1.00		0.04	0.05	
Incremental Delay, d2	3.4	2.1	0.7					2.0		0.2	0.8	
Delay (s)	31.3	27.5	21.4					57.9		1.1	2.1	
Level of Service	C	C	C					E		A	A	
Approach Delay (s)		27.1			0.0			57.9			1.7	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM Average Control Delay			21.6		HCM Level of Service						C	
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)						18.0	
Intersection Capacity Utilization			65.3%		ICU Level of Service						C	
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1019: SR 204 WB & Middleground Road

2015 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	222	432	58	48	383	0	0	460	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes				1.00	1.00	0.99	1.00	1.00			1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Fr _t				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1531	1736	1827			3471	1531
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1531	1736	1827			3471	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	264	514	69	62	491	0	0	535	263
RTOR Reduction (vph)	0	0	0	0	0	54	0	0	0	0	0	202
Lane Group Flow (vph)	0	0	0	264	514	15	62	491	0	0	535	61
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				24.9	29.0	29.0	53.0	53.0			30.0	30.0
Effective Green, g (s)				24.9	29.0	29.0	53.0	53.0			30.0	30.0
Actuated g/C Ratio				0.19	0.22	0.22	0.41	0.41			0.23	0.23
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				333	941	342	708	745			801	353
v/s Ratio Prot				c0.15	0.12		0.04	c0.27			c0.15	
v/s Ratio Perm						0.01						0.04
v/c Ratio				0.79	0.55	0.05	0.09	0.66			0.67	0.17
Uniform Delay, d1				50.1	44.7	39.6	23.6	31.2			45.5	40.1
Progression Factor				0.72	0.68	0.27	0.53	0.14			1.00	1.00
Incremental Delay, d2				11.9	2.2	0.2	0.0	1.7			4.4	1.1
Delay (s)				47.9	32.7	10.9	12.5	6.0			49.9	41.1
Level of Service				D	C	B	B	A			D	D
Approach Delay (s)		0.0			35.7			6.8			47.0	
Approach LOS		A			D			A			D	
Intersection Summary												
HCM Average Control Delay			32.5	HCM Level of Service						C		
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)						22.1		
Intersection Capacity Utilization			65.3%	ICU Level of Service						C		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1020: SR 204 EB & Arts Drive

2015 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	915	164	0	0	0	0	22	37	64	188	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0	6.0	
Lane Util. Factor		0.91						0.95	1.00	1.00	1.00	
Frt		0.98						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		4220						3471	1553	1736	1827	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		4220						3471	1553	1736	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.78	0.78	0.78	0.84	0.84	0.84
Adj. Flow (vph)	0	943	169	0	0	0	0	28	47	76	224	0
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	40	0	0	0
Lane Group Flow (vph)	0	1096	0	0	0	0	0	28	7	76	224	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot								Perm	Split		
Protected Phases	5!	2						3		1!	1!	
Permitted Phases									3			
Actuated Green, G (s)		72.3						18.0	18.0	21.7	21.7	
Effective Green, g (s)		72.3						18.0	18.0	21.7	21.7	
Actuated g/C Ratio		0.56						0.14	0.14	0.17	0.17	
Clearance Time (s)		6.0						6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2347						481	215	290	305	
v/s Ratio Prot		c0.26						c0.01		0.04	c0.12	
v/s Ratio Perm									0.00			
v/c Ratio		0.47						0.06	0.03	0.26	0.73	
Uniform Delay, d1		17.3						48.6	48.4	47.2	51.4	
Progression Factor		0.44						1.00	1.00	0.07	0.12	
Incremental Delay, d2		0.6						0.2	0.3	0.5	8.5	
Delay (s)		8.2						48.9	48.7	3.8	14.4	
Level of Service		A						D	D	A	B	
Approach Delay (s)		8.2			0.0			48.8			11.7	
Approach LOS		A			A			D			B	
Intersection Summary												
HCM Average Control Delay			10.9		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					18.0		
Intersection Capacity Utilization			43.2%		ICU Level of Service					A		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR	NWL2	NWL	NWR
Lane Configurations				↑↑↑	↑↑		↑↑		
Volume (vph)	0	0	0	690	22	0	252	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0		6.0		
Lane Util. Factor				0.91	0.97		0.97		
Frt				1.00	1.00		1.00		
Flt Protected				1.00	0.95		0.95		
Satd. Flow (prot)				4217	3367		3367		
Flt Permitted				1.00	0.95		0.95		
Satd. Flow (perm)				4217	3367		3367		
Peak-hour factor, PHF	0.92	0.92	0.84	0.84	0.78	0.78	0.84	0.84	0.84
Adj. Flow (vph)	0	0	0	821	28	0	300	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	821	28	0	300	0	0
Heavy Vehicles (%)	4%	23%	4%	23%	4%	4%	4%	4%	4%
Turn Type	custom								
Protected Phases				6	5 3!				
Permitted Phases							1!		
Actuated Green, G (s)				88.6	29.4		21.7		
Effective Green, g (s)				88.6	29.4		21.7		
Actuated g/C Ratio				0.68	0.23		0.17		
Clearance Time (s)				6.0			6.0		
Vehicle Extension (s)				3.0			3.0		
Lane Grp Cap (vph)				2874	761		562		
v/s Ratio Prot				c0.19	c0.01				
v/s Ratio Perm							c0.09		
v/c Ratio				0.29	0.04		0.53		
Uniform Delay, d1				8.2	39.3		49.5		
Progression Factor				1.07	0.09		0.89		
Incremental Delay, d2				0.2	0.0		1.0		
Delay (s)				9.0	3.5		45.0		
Level of Service				A	A		D		
Approach Delay (s)	0.0			9.0	3.5			45.0	
Approach LOS	A			A	A			D	
Intersection Summary									
HCM Average Control Delay			18.3		HCM Level of Service				B
HCM Volume to Capacity ratio			0.26						
Actuated Cycle Length (s)			130.0		Sum of lost time (s)			12.0	
Intersection Capacity Utilization			37.2%		ICU Level of Service				A
Analysis Period (min)			15						
! Phase conflict between lane groups.									
c Critical Lane Group									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑
Volume (veh/h)	552	53	0	0	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.62	0.62
Hourly flow rate (vph)	627	60	0	0	0	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				1051		
pX, platoon unblocked						
vC, conflicting volume			627		657	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			627		657	239
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			937		393	756
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	251	251	186	26		
Volume Left	0	0	0	0		
Volume Right	0	0	60	26		
cSH	1700	1700	1700	756		
Volume to Capacity	0.15	0.15	0.11	0.03		
Queue Length 95th (ft)	0	0	0	3		
Control Delay (s)	0.0	0.0	0.0	9.9		
Lane LOS				A		
Approach Delay (s)	0.0			9.9		
Approach LOS				A		
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			21.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept C

1023: SR 204 & Mohawk Street

8/25/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	451	209	0	114
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.89	0.89	0.76	0.76
Hourly flow rate (vph)	0	0	507	235	0	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)			1096			
pX, platoon unblocked						
vC, conflicting volume	507				507	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	507				507	169
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	82
cM capacity (veh/h)	1040				490	839
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	169	169	169	235	150	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	235	150	
cSH	1700	1700	1700	1700	839	
Volume to Capacity	0.10	0.10	0.10	0.14	0.18	
Queue Length 95th (ft)	0	0	0	0	16	
Control Delay (s)	0.0	0.0	0.0	0.0	10.2	
Lane LOS					B	
Approach Delay (s)	0.0				10.2	
Approach LOS					B	
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			22.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 AM Concept C

1025: SR 204 EB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						  				
Volume (vph)	197	310	61	0	0	0	0	122	53	49	77	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3313		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3313		1736	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	214	337	66	0	0	0	0	165	72	68	107	0
RTOR Reduction (vph)	0	0	36	0	0	0	0	39	0	0	0	0
Lane Group Flow (vph)	214	337	30	0	0	0	0	198	0	68	107	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	35.0	58.4	58.4					13.7		39.9	39.9	
Effective Green, g (s)	35.0	58.4	58.4					13.7		39.9	39.9	
Actuated g/C Ratio	0.27	0.45	0.45					0.11		0.31	0.31	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	467	1894	698					349		533	561	
v/s Ratio Prot	c0.12	c0.08						c0.06		0.04	c0.06	
v/s Ratio Perm			0.02									
v/c Ratio	0.46	0.18	0.04					0.57		0.13	0.19	
Uniform Delay, d1	39.6	21.4	20.1					55.3		32.5	33.2	
Progression Factor	0.49	0.39	0.23					1.00		0.40	0.29	
Incremental Delay, d2	0.7	0.2	0.1					2.1		0.1	0.2	
Delay (s)	20.0	8.5	4.7					57.4		13.1	9.7	
Level of Service	B	A	A					E		B	A	
Approach Delay (s)		12.1			0.0			57.4			11.0	
Approach LOS		B			A			E			B	
Intersection Summary												
HCM Average Control Delay			22.4					HCM Level of Service		C		
HCM Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			130.0					Sum of lost time (s)		24.0		
Intersection Capacity Utilization			44.4%					ICU Level of Service		A		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept C

1026: SR 204 WB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	35	397	104	198	121	0	0	91	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.94	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1736	4217	1553	1736	1827			3254	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1736	4217	1553	1736	1827			3254	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	0	0	0	41	462	121	268	164	0	0	126	90
RTOR Reduction (vph)	0	0	0	0	0	91	0	0	0	0	72	0
Lane Group Flow (vph)	0	0	0	41	462	30	268	164	0	0	144	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm		Split				
Protected Phases				1!	6			3 5!			4	
Permitted Phases						6						
Actuated Green, G (s)				8.6	32.0	32.0	54.7	54.7			25.3	
Effective Green, g (s)				8.6	32.0	32.0	54.7	54.7			25.3	
Actuated g/C Ratio				0.07	0.25	0.25	0.42	0.42			0.19	
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				115	1038	382	730	769			633	
v/s Ratio Prot				0.02	c0.11		c0.15	0.09			c0.04	
v/s Ratio Perm						0.02						
v/c Ratio				0.36	0.45	0.08	0.37	0.21			0.23	
Uniform Delay, d1				58.1	41.5	37.7	25.8	24.0			44.1	
Progression Factor				1.51	0.58	0.72	0.21	0.19			1.00	
Incremental Delay, d2				1.8	1.3	0.4	0.3	0.1			0.8	
Delay (s)				89.7	25.4	27.7	5.6	4.7			44.9	
Level of Service				F	C	C	A	A			D	
Approach Delay (s)		0.0			30.1			5.3			44.9	
Approach LOS		A			C			A			D	
Intersection Summary												
HCM Average Control Delay			24.2			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)					18.0	
Intersection Capacity Utilization			44.4%			ICU Level of Service					A	
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 AM Concept C

1027: SR 204 EB & Largo Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	212	140	0	0	0	0	208	208	45	174	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3471	1553	1736	1827	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	69	244	161	0	0	0	0	310	310	55	212	0
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	264	0	0	0
Lane Group Flow (vph)	69	244	45	0	0	0	0	310	47	55	212	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm		Split	
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	15.0	36.4	36.4					19.5	19.5	56.1	56.1	
Effective Green, g (s)	15.0	36.4	36.4					19.5	19.5	56.1	56.1	
Actuated g/C Ratio	0.12	0.28	0.28					0.15	0.15	0.43	0.43	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	200	1181	435					521	233	749	788	
v/s Ratio Prot	c0.04	c0.06						c0.09		0.03	c0.12	
v/s Ratio Perm			0.03						0.03			
v/c Ratio	0.34	0.21	0.10					0.60	0.20	0.07	0.27	
Uniform Delay, d1	53.0	35.8	34.7					51.6	48.4	21.7	23.8	
Progression Factor	0.98	1.05	2.04					1.00	1.00	0.06	0.07	
Incremental Delay, d2	1.0	0.4	0.5					1.8	0.4	0.0	0.2	
Delay (s)	52.7	37.9	71.4					53.4	48.8	1.2	1.9	
Level of Service	D	D	E					D	D	A	A	
Approach Delay (s)		51.4			0.0			51.1			1.8	
Approach LOS		D			A			D			A	
Intersection Summary												
HCM Average Control Delay			41.5			HCM Level of Service					D	
HCM Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)					24.0	
Intersection Capacity Utilization			48.5%			ICU Level of Service					A	
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1028: SR 204 WB & Largo Blvd

2015 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	78	344	34	123	145	0	0	141	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	0	0	0	84	370	37	184	216	0	0	172	84
RTOR Reduction (vph)	0	0	0	0	0	28	0	0	0	0	0	59
Lane Group Flow (vph)	0	0	0	84	370	9	184	216	0	0	172	25
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				11.6	33.0	33.0	40.5	40.5			38.5	38.5
Effective Green, g (s)				11.6	33.0	33.0	40.5	40.5			38.5	38.5
Actuated g/C Ratio				0.09	0.25	0.25	0.31	0.31			0.30	0.30
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				155	1070	394	541	569			1028	460
v/s Ratio Prot				c0.05	c0.09		0.11	c0.12			c0.05	
v/s Ratio Perm						0.01						0.02
v/c Ratio				0.54	0.35	0.02	0.34	0.38			0.17	0.05
Uniform Delay, d1				56.7	39.7	36.4	34.5	34.9			33.9	32.7
Progression Factor				0.45	0.34	0.13	0.12	0.07			1.00	1.00
Incremental Delay, d2				3.7	0.9	0.1	0.4	0.4			0.4	0.2
Delay (s)				29.0	14.3	4.8	4.6	3.0			34.2	32.9
Level of Service				C	B	A	A	A			C	C
Approach Delay (s)		0.0			16.1			3.7			33.8	
Approach LOS		A			B			A			C	
Intersection Summary												
HCM Average Control Delay			15.7		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			48.5%		ICU Level of Service					A		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1029: SR 204 EB & Idlewood Drive

2015 AM Concept C

8/25/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	422	43	0	0	0	101
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.92	0.92	0.67	0.67
Hourly flow rate (vph)	485	49	0	0	0	151
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	652			1112		
pX, platoon unblocked						
vC, conflicting volume			485		485	162
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			485		485	162
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	82
cM capacity (veh/h)			1060		506	848
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	162	162	162	49	151	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	49	151	
cSH	1700	1700	1700	1700	848	
Volume to Capacity	0.10	0.10	0.10	0.03	0.18	
Queue Length 95th (ft)	0	0	0	0	16	
Control Delay (s)	0.0	0.0	0.0	0.0	10.2	
Lane LOS					B	
Approach Delay (s)	0.0				10.2	
Approach LOS					B	
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			21.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2015 AM Concept C

1030: SR 204 WB & Idlewood Drive

8/25/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	438	18	0	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.93	0.93	0.82	0.82
Hourly flow rate (vph)	0	0	471	19	0	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		657	1105			
pX, platoon unblocked	0.98				0.98	0.98
vC, conflicting volume	490				471	157
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	407				388	67
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1111				571	956
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	157	157	157	19	22	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	19	22	
cSH	1700	1700	1700	1700	956	
Volume to Capacity	0.09	0.09	0.09	0.01	0.02	
Queue Length 95th (ft)	0	0	0	0	2	
Control Delay (s)	0.0	0.0	0.0	0.0	8.9	
Lane LOS					A	
Approach Delay (s)	0.0				8.9	
Approach LOS					A	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			18.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 AM Concept C

1031: SR 204 EB & Deerfield Road

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						  			 	
Volume (vph)	124	376	23	0	0	0	0	62	120	122	55	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		0.95	0.95	
Frt	1.00	1.00	0.85					0.90		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	0.98	
Satd. Flow (prot)	1736	4217	1553					3128		1649	1702	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	0.98	
Satd. Flow (perm)	1736	4217	1553					3128		1649	1702	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	132	400	24	0	0	0	0	69	133	142	64	0
RTOR Reduction (vph)	0	0	15	0	0	0	0	108	0	0	0	0
Lane Group Flow (vph)	132	400	9	0	0	0	0	94	0	101	105	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	29.0	50.8	50.8					24.0		37.2	37.2	
Effective Green, g (s)	29.0	50.8	50.8					24.0		37.2	37.2	
Actuated g/C Ratio	0.22	0.39	0.39					0.18		0.29	0.29	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	387	1648	607					577		472	487	
v/s Ratio Prot	c0.08	c0.09						c0.03		0.06	c0.06	
v/s Ratio Perm			0.01									
v/c Ratio	0.34	0.24	0.02					0.16		0.21	0.22	
Uniform Delay, d1	42.5	26.7	24.3					44.5		35.3	35.3	
Progression Factor	1.25	1.34	1.83					1.00		0.06	0.08	
Incremental Delay, d2	0.5	0.3	0.0					0.6		0.2	0.2	
Delay (s)	53.8	36.1	44.5					45.2		2.5	3.0	
Level of Service	D	D	D					D		A	A	
Approach Delay (s)		40.7			0.0			45.2			2.7	
Approach LOS		D			A			D			A	
Intersection Summary												
HCM Average Control Delay			33.5							HCM Level of Service		C
HCM Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			130.0							Sum of lost time (s)		24.0
Intersection Capacity Utilization			39.8%							ICU Level of Service		A
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1032: SR 204 WB & Deerfield Road

2015 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	50	384	102	35	151	0	0	127	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	51	392	104	39	168	0	0	148	43
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	0	0	0	36
Lane Group Flow (vph)	0	0	0	51	392	25	39	168	0	0	148	7
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				9.2	31.0	31.0	59.0	59.0			22.0	22.0
Effective Green, g (s)				9.2	31.0	31.0	59.0	59.0			22.0	22.0
Actuated g/C Ratio				0.07	0.24	0.24	0.45	0.45			0.17	0.17
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				123	1006	370	788	829			587	263
v/s Ratio Prot				0.03	c0.09		0.02	c0.09			c0.04	
v/s Ratio Perm						0.02						0.00
v/c Ratio				0.41	0.39	0.07	0.05	0.20			0.25	0.03
Uniform Delay, d1				57.8	41.6	38.3	19.8	21.4			46.9	45.1
Progression Factor				1.00	1.00	1.00	0.62	0.14			1.00	1.00
Incremental Delay, d2				2.3	1.1	0.3	0.0	0.1			1.0	0.2
Delay (s)				60.1	42.7	38.7	12.2	3.1			47.9	45.3
Level of Service				E	D	D	B	A			D	D
Approach Delay (s)		0.0			43.5			4.8			47.3	
Approach LOS		A			D			A			D	
Intersection Summary												
HCM Average Control Delay			35.8			HCM Level of Service					D	
HCM Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)					18.0	
Intersection Capacity Utilization			39.8%			ICU Level of Service					A	
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1033: Truman Parkway & SR 204

2015 AM Concept C

8/25/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	56	0	17	365	0	44	0	1007	0	0	154	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.72	0.72	0.72	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77
Adj. Flow (vph)	78	0	24	445	0	54	0	1083	0	0	200	44
RTOR Reduction (vph)	0	0	20	0	0	45	0	0	0	0	0	14
Lane Group Flow (vph)	78	0	4	445	0	9	0	1083	0	0	200	30
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	12.8		12.8	12.8		12.8		55.2			55.2	55.2
Effective Green, g (s)	12.8		12.8	12.8		12.8		55.2			55.2	55.2
Actuated g/C Ratio	0.16		0.16	0.16		0.16		0.69			0.69	0.69
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	278		248	783		248		2910			2910	1072
v/s Ratio Prot	0.04			c0.09				c0.26			0.05	
v/s Ratio Perm			0.00			0.01						0.02
v/c Ratio	0.28		0.02	0.57		0.03		0.37			0.07	0.03
Uniform Delay, d1	29.6		28.3	31.0		28.4		5.2			4.0	3.9
Progression Factor	1.00		1.00	1.00		1.00		1.00			0.80	0.99
Incremental Delay, d2	0.6		0.0	1.0		0.1		0.4			0.0	0.0
Delay (s)	30.1		28.3	32.0		28.4		5.5			3.3	3.9
Level of Service	C		C	C		C		A			A	A
Approach Delay (s)	29.7				31.6			5.5			3.4	
Approach LOS	C				C			A			A	
Intersection Summary												
HCM Average Control Delay			13.3			HCM Level of Service					B	
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)					12.0	
Intersection Capacity Utilization			43.1%			ICU Level of Service					A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1034: White Bluff Connector & SR 204

2015 AM Concept C

8/25/2011

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations							
Volume (vph)	104	24	0	967	140	40	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.82	0.82	0.93	0.93	0.93	0.77	0.77
Adj. Flow (vph)	127	29	0	1040	151	52	109
RTOR Reduction (vph)	0	26	0	0	58	0	0
Lane Group Flow (vph)	127	3	0	1040	93	52	109
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	7.2	7.2		49.3	49.3	5.5	60.8
Effective Green, g (s)	7.2	7.2		49.3	49.3	5.5	60.8
Actuated g/C Ratio	0.09	0.09		0.62	0.62	0.07	0.76
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	295	136		2599	930	116	3205
v/s Ratio Prot				c0.25		c0.03	0.03
v/s Ratio Perm	c0.04	0.00			0.06		
v/c Ratio	0.43	0.02		0.40	0.10	0.45	0.03
Uniform Delay, d1	34.5	33.2		7.8	6.3	35.8	2.4
Progression Factor	1.00	1.00		0.73	0.50	1.00	1.00
Incremental Delay, d2	1.0	0.1		0.4	0.2	2.7	0.0
Delay (s)	35.5	33.2		6.2	3.3	38.5	2.4
Level of Service	D	C		A	A	D	A
Approach Delay (s)	35.1			5.8		14.1	
Approach LOS	D			A		B	
Intersection Summary							
HCM Average Control Delay			9.7	HCM Level of Service		A	
HCM Volume to Capacity ratio			0.41				
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		18.0	
Intersection Capacity Utilization			40.4%	ICU Level of Service		A	
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

1000: SR 204 & Gateway Blvd W

2015 PM Concept A - Alternative 1

8/22/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	11	461	0	39	676	89	3	8	17	86	7	39		
Sign Control		Free			Free			Stop			Stop			
Grade		0%			0%			0%			0%			
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78		
Hourly flow rate (vph)	12	501	0	44	768	101	4	11	23	110	9	50		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)	8													
Median type	None			None										
Median storage veh														
Upstream signal (ft)	708													
pX, platoon unblocked	0.93							0.93	0.93			0.93	0.93	
vC, conflicting volume	768				501				1002	1382	251	1159	1382	384
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	592				501				845	1254	251	1014	1254	178
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0
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 %	99				96				98	93	97	29	94	94
cM capacity (veh/h)	902				1052				202	148	746	156	148	770
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1						
Volume Total	262	251	44	384	384	101	37	169						
Volume Left	12	0	44	0	0	0	4	110						
Volume Right	0	0	0	0	0	101	23	50						
cSH	902	1700	1052	1700	1700	1700	305	220						
Volume to Capacity	0.01	0.15	0.04	0.23	0.23	0.06	0.12	0.77						
Queue Length 95th (ft)	1	0	3	0	0	0	10	135						
Control Delay (s)	0.5	0.0	8.6	0.0	0.0	0.0	18.4	59.1						
Lane LOS	A			A				C	F					
Approach Delay (s)	0.3			0.4				18.4	59.1					
Approach LOS							C	F						
Intersection Summary														
Average Delay			6.9											
Intersection Capacity Utilization			50.9%		ICU Level of Service				A					
Analysis Period (min)			15											

HCM Signalized Intersection Capacity Analysis
1001: SR 204 & I-95 SB Off-Ramp

2015 PM Concept A - Alternative 1
8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Volume (vph)	0	480	84	1234	687	0	0	0	672	0	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00
Frt		1.00	0.85	1.00	1.00				1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (prot)		3312	1442	3127	3312				3127		1442
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (perm)		3312	1442	3127	3312				3127		1442
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	608	106	1356	755	0	0	0	791	0	138
RTOR Reduction (vph)	0	0	82	0	0	0	0	0	0	0	104
Lane Group Flow (vph)	0	608	24	1356	755	0	0	0	791	0	34
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type		Perm		Prot					custom		custom
Protected Phases		2		1		6					
Permitted Phases		2							4		4
Actuated Green, G (s)		25.0	25.0	55.0	86.0				32.0		32.0
Effective Green, g (s)		25.0	25.0	55.0	86.0				32.0		32.0
Actuated g/C Ratio		0.19	0.19	0.42	0.66				0.25		0.25
Clearance Time (s)		6.0	6.0	6.0	6.0				6.0		6.0
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0
Lane Grp Cap (vph)		637	277	1323	2191				770		355
v/s Ratio Prot		c0.18		c0.43		0.23					
v/s Ratio Perm		0.02							c0.25		0.02
v/c Ratio		0.95	0.09	1.02	0.34				1.03		0.10
Uniform Delay, d1		51.9	43.1	37.5	9.6				49.0		37.8
Progression Factor		1.00	1.00	0.24	0.35				1.00		1.00
Incremental Delay, d2		26.1	0.6	15.0	0.1				39.6		0.1
Delay (s)		78.0	43.7	24.0	3.5				88.6		37.9
Level of Service		E	D	C	A				F		D
Approach Delay (s)		72.9		16.7		0.0			81.1		
Approach LOS		E		B		A			F		
Intersection Summary											
HCM Average Control Delay		43.3		HCM Level of Service		D					
HCM Volume to Capacity ratio		1.01									
Actuated Cycle Length (s)		130.0		Sum of lost time (s)		18.0					
Intersection Capacity Utilization		69.9%		ICU Level of Service		C					
Analysis Period (min)		15									
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
1002: SR 204 & I-95 NB On-Ramp

2015 PM Concept A - Alternative 1
8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	39	1113	0	0	1792	493	0	0	129	0	832
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3312			3312	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3312			3312	1442			1612		2538
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	43	1223	0	0	2060	567	0	0	152	0	979
RTOR Reduction (vph)	0	0	0	0	0	152	0	0	0	0	114
Lane Group Flow (vph)	43	1223	0	0	2060	415	0	0	152	0	865
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	Prot				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases					6				8		8
Actuated Green, G (s)	6.1	84.0			71.9	71.9			34.0	34.0	
Effective Green, g (s)	6.1	84.0			71.9	71.9			34.0	34.0	
Actuated g/C Ratio	0.05	0.65			0.55	0.55			0.26	0.26	
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	147	2140			1832	798			422	664	
v/s Ratio Prot	0.01	c0.37			c0.62						
v/s Ratio Perm					0.29				0.09	c0.34	
v/c Ratio	0.29	0.57			1.12	0.52			0.36	1.30	
Uniform Delay, d1	59.9	12.9			29.0	18.2			39.1	48.0	
Progression Factor	0.12	0.73			0.43	0.24			1.00	1.00	
Incremental Delay, d2	0.4	0.3			60.8	1.4			0.5	146.7	
Delay (s)	7.9	9.6			73.2	5.9			39.7	194.7	
Level of Service	A	A			E	A			D	F	
Approach Delay (s)			9.6		58.6		0.0		173.9		
Approach LOS	A				E		A		F		
Intersection Summary											
HCM Average Control Delay			72.2		HCM Level of Service				E		
HCM Volume to Capacity ratio			1.17								
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			69.9%		ICU Level of Service				C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 1

1003: SR 204 & Gateway Blvd S

8/22/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑↑↑	↗		↑↑↑↑	↗			↗			↗		
Volume (veh/h)	0	1842	103	0	2221	50	0	0	41	0	0	64		
Sign Control		Free			Free			Stop			Stop			
Grade		0%			0%			0%			0%			
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94		
Hourly flow rate (vph)	0	2002	112	0	2441	55	0	0	48	0	0	68		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type	None			None										
Median storage veh														
Upstream signal (ft)	423													
pX, platoon unblocked				0.90			0.90	0.90	0.90	0.90	0.90			
vC, conflicting volume	2441			2002			2816	4443	667	3108	4443	814		
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	2441			1739			2638	4437	264	2961	4437	814		
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0		
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	93	100	100	78		
cM capacity (veh/h)	181			312			8	1	656	5	1	315		
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	667	667	667	112	814	814	814	55	48	68				
Volume Left	0	0	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	112	0	0	0	55	48	68				
cSH	1700	1700	1700	1700	1700	1700	1700	1700	656	315				
Volume to Capacity	0.39	0.39	0.39	0.07	0.48	0.48	0.48	0.03	0.07	0.22				
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	6	20				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9	19.6				
Lane LOS									B	C				
Approach Delay (s)	0.0				0.0				10.9	19.6				
Approach LOS									B	C				
Intersection Summary														
Average Delay			0.4								B			
Intersection Capacity Utilization			58.8%		ICU Level of Service									
Analysis Period (min)			15											

HCM Signalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 1

1004: SR 204 & New Intersection

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	227	1545	111	154	1961	84	201	63	44	63	45	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	4759	1538	1719	4759	1538	1719	1810	1538	1719	1810	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	1719	4759	1538	1719	4759	1538	1313	1810	1538	1284	1810	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	247	1679	121	169	2155	92	234	73	51	67	48	116
RTOR Reduction (vph)	0	0	56	0	0	41	0	0	41	0	0	94
Lane Group Flow (vph)	247	1679	65	169	2155	51	234	73	10	67	48	22
Heavy Vehicles (%)	5%	9%	5%	5%	9%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8				4
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	20.4	70.2	70.2	17.3	67.1	67.1	24.5	24.5	24.5	24.5	24.5	24.5
Effective Green, g (s)	20.4	70.2	70.2	17.3	67.1	67.1	24.5	24.5	24.5	24.5	24.5	24.5
Actuated g/C Ratio	0.16	0.54	0.54	0.13	0.52	0.52	0.19	0.19	0.19	0.19	0.19	0.19
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	270	2570	831	229	2456	794	247	341	290	242	341	290
v/s Ratio Prot	c0.14	c0.35		0.10	c0.45			0.04			0.03	
v/s Ratio Perm			0.04			0.03	c0.18		0.01	0.05		0.01
v/c Ratio	0.91	0.65	0.08	0.74	0.88	0.06	0.95	0.21	0.03	0.28	0.14	0.08
Uniform Delay, d1	53.9	21.3	14.4	54.2	27.8	15.7	52.1	44.6	43.1	45.2	44.0	43.4
Progression Factor	1.19	0.39	0.43	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.7	0.6	0.1	11.7	3.9	0.0	42.5	0.3	0.0	0.6	0.2	0.1
Delay (s)	83.9	9.0	6.2	65.9	31.7	15.8	94.6	44.9	43.1	45.8	44.2	43.5
Level of Service	F	A	A	E	C	B	F	D	D	D	D	D
Approach Delay (s)		17.8			33.5			77.1			44.3	
Approach LOS		B			C			E			D	
Intersection Summary												
HCM Average Control Delay			30.7		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				24.0			
Intersection Capacity Utilization			83.3%		ICU Level of Service				E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 2

1001: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	461	0	39	676	89	3	8	17	86	7	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	12	501	0	44	768	101	4	11	23	110	9	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage veh												
Upstream signal (ft)												479
pX, platoon unblocked	0.95							0.95	0.95		0.95	0.95
vC, conflicting volume	768			501				1002	1382	251	1159	1382
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	649			501				895	1295	251	1061	1295
tC, single (s)	4.2			4.2				7.6	6.6	7.0	7.6	6.6
tC, 2 stage (s)												
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			96				98	93	97	25	94
cM capacity (veh/h)	879			1052				188	143	746	147	143
												715
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	262	251	44	384	384	101	37	169				
Volume Left	12	0	44	0	0	0	4	110				
Volume Right	0	0	0	0	0	101	23	50				
cSH	879	1700	1052	1700	1700	1700	296	208				
Volume to Capacity	0.01	0.15	0.04	0.23	0.23	0.06	0.13	0.81				
Queue Length 95th (ft)	1	0	3	0	0	0	11	147				
Control Delay (s)	0.6	0.0	8.6	0.0	0.0	0.0	18.9	67.1				
Lane LOS	A		A				C	F				
Approach Delay (s)	0.3		0.4				18.9	67.1				
Approach LOS							C	F				
Intersection Summary												
Average Delay			7.7									
Intersection Capacity Utilization			50.9%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 2

1002: SR 204 & I-95 SB On-Ramp

8/22/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑↑	↖	↗
Volume (vph)	480	84	0	687	117	672
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3312	1442		4759	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3312	1442		4759	1612	1442
Peak-hour factor, PHF	0.79	0.79	0.91	0.91	0.85	0.85
Adj. Flow (vph)	608	106	0	755	138	791
RTOR Reduction (vph)	0	30	0	0	0	0
Lane Group Flow (vph)	608	76	0	755	138	791
Heavy Vehicles (%)	9%	12%	12%	9%	12%	12%
Turn Type		Perm	Perm			Free
Protected Phases	2			6	8	
Permitted Phases		2	6			Free
Actuated Green, G (s)	64.9	64.9		64.9	13.1	90.0
Effective Green, g (s)	64.9	64.9		64.9	13.1	90.0
Actuated g/C Ratio	0.72	0.72		0.72	0.15	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2388	1040		3432	235	1442
v/s Ratio Prot	0.18			0.16	0.09	
v/s Ratio Perm		0.05				c0.55
v/c Ratio	0.25	0.07		0.22	0.59	0.55
Uniform Delay, d1	4.3	3.7		4.2	35.9	0.0
Progression Factor	1.00	1.00		0.77	1.00	1.00
Incremental Delay, d2	0.3	0.1		0.1	3.7	1.5
Delay (s)	4.5	3.8		3.4	39.6	1.5
Level of Service	A	A		A	D	A
Approach Delay (s)	4.4			3.4	7.2	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			5.2	HCM Level of Service		A
HCM Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			90.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			29.8%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 2

1003: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	39	1113	0	0	558	0	0	0	129	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4396			4396				3127		
Flt Permitted	0.36	1.00			1.00				0.95		
Satd. Flow (perm)	611	4396			4396				3127		
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	43	1223	0	0	641	0	0	0	152	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	43	1223	0	0	641	0	0	0	152	0	0
Heavy Vehicles (%)	12%	18%	12%	12%	18%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt				custom						
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	68.3	68.3			58.4				9.7		
Effective Green, g (s)	68.3	68.3			58.4				9.7		
Actuated g/C Ratio	0.76	0.76			0.65				0.11		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	507	3336			2853				337		
v/s Ratio Prot	0.00	c0.28			0.15						
v/s Ratio Perm	0.06								c0.05		
v/c Ratio	0.08	0.37			0.22				0.45		
Uniform Delay, d1	2.9	3.6			6.5				37.7		
Progression Factor	0.55	0.50			1.00				1.00		
Incremental Delay, d2	0.1	0.3			0.2				1.0		
Delay (s)	1.7	2.1			6.7				38.6		
Level of Service	A	A			A				D		
Approach Delay (s)		2.1			6.7		0.0			38.6	
Approach LOS		A			A		A			D	
Intersection Summary											
HCM Average Control Delay			6.2		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.38								
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			33.5%		ICU Level of Service				A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 3

1001: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	461	0	39	676	89	3	8	17	86	7	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	12	501	0	44	768	101	4	11	23	110	9	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	768			501			1002	1382	251	1159	1382	384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	768			501			1002	1382	251	1159	1382	384
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			96			98	92	97	15	93	92
cM capacity (veh/h)	835			1052			163	134	746	130	134	611
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	262	251	44	384	384	101	37	169				
Volume Left	12	0	44	0	0	0	4	110				
Volume Right	0	0	0	0	0	101	23	50				
cSH	835	1700	1052	1700	1700	1700	277	186				
Volume to Capacity	0.01	0.15	0.04	0.23	0.23	0.06	0.13	0.91				
Queue Length 95th (ft)	1	0	3	0	0	0	12	175				
Control Delay (s)	0.6	0.0	8.6	0.0	0.0	0.0	20.0	88.6				
Lane LOS	A		A				C	F				
Approach Delay (s)	0.3		0.4				20.0	88.6				
Approach LOS							C	F				
Intersection Summary												
Average Delay			10.0									
Intersection Capacity Utilization			50.9%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 3

1003: SR 204 & I-95 SB Off-Ramp

8/22/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	0	480	687	0	0	117	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.79	0.79	0.91	0.91	0.85	0.85	
Hourly flow rate (vph)	0	608	755	0	0	138	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)			712				
pX, platoon unblocked							
vC, conflicting volume	755				957	252	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	755				957	252	
tC, single (s)	4.5				7.2	7.1	
tC, 2 stage (s)							
tF (s)	2.4				3.7	3.4	
p0 queue free %	100				100	81	
cM capacity (veh/h)	754				228	718	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	203	203	203	252	252	252	138
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	138
cSH	1700	1700	1700	1700	1700	1700	718
Volume to Capacity	0.12	0.12	0.12	0.15	0.15	0.15	0.19
Queue Length 95th (ft)	0	0	0	0	0	0	18
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.2
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.2
Approach LOS							B
Intersection Summary							
Average Delay			1.0				
Intersection Capacity Utilization			27.2%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

2015 PM Concept A - Alternative 3

1004: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	39	441	0	0	558	0	0	0	129	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Fr't	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4759			4759				3127		
Flt Permitted	0.34	1.00			1.00				0.95		
Satd. Flow (perm)	569	4759			4759				3127		
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	43	485	0	0	641	0	0	0	152	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	43	485	0	0	641	0	0	0	152	0	0
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt				custom						
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	41.2	41.2			32.4				6.8		
Effective Green, g (s)	41.2	41.2			32.4				6.8		
Actuated g/C Ratio	0.69	0.69			0.54				0.11		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	439	3268			2570				354		
v/s Ratio Prot	0.00	c0.10			c0.13						
v/s Ratio Perm	0.06								c0.05		
v/c Ratio	0.10	0.15			0.25				0.43		
Uniform Delay, d1	3.3	3.3			7.3				24.8		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.1	0.1			0.2				0.8		
Delay (s)	3.4	3.4			7.6				25.6		
Level of Service	A	A			A				C		
Approach Delay (s)		3.4			7.6		0.0			25.6	
Approach LOS		A			A		A			C	
Intersection Summary											
HCM Average Control Delay			8.0		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.28								
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			27.2%		ICU Level of Service				A		
Analysis Period (min)			15								

c Critical Lane Group

																									
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR													
Lane Configurations																									
Volume (vph)	264	0	290	0	0	0	0	892	352	304	1550	0													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900													
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0														
Lane Util. Factor	0.94		0.88					0.91	0.88	0.97	0.91														
Frt	1.00		0.85					1.00	0.85	1.00	1.00														
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00														
Satd. Flow (prot)	4802		2682					4893	2682	3303	4893														
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00														
Satd. Flow (perm)	4802		2682					4893	2682	3303	4893														
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.93	0.93	0.93	0.91	0.91	0.91													
Adj. Flow (vph)	300	0	330	0	0	0	0	959	378	334	1703	0													
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	230	0	0	0													
Lane Group Flow (vph)	300	0	296	0	0	0	0	959	149	334	1703	0													
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%													
Turn Type	custom		custom						Perm	Prot															
Protected Phases									2	1	6														
Permitted Phases	4		4						2																
Actuated Green, G (s)	12.8		12.8						27.5	27.5	11.7	45.2													
Effective Green, g (s)	12.8		12.8						27.5	27.5	11.7	45.2													
Actuated g/C Ratio	0.18		0.18						0.39	0.39	0.17	0.65													
Clearance Time (s)	6.0		6.0						6.0	6.0	6.0	6.0													
Vehicle Extension (s)	3.0		3.0						3.0	3.0	3.0	3.0													
Lane Grp Cap (vph)	878		490						1922	1054	552	3159													
v/s Ratio Prot									0.20	0.10	c0.35														
v/s Ratio Perm	0.06		c0.11						0.06																
v/c Ratio	0.34		0.61						0.50	0.14	0.61	0.54													
Uniform Delay, d1	24.9		26.3						16.0	13.7	27.0	6.7													
Progression Factor	1.00		1.00						1.00	1.00	0.71	0.04													
Incremental Delay, d2	0.2		2.1						0.9	0.3	1.2	0.4													
Delay (s)	25.2		28.4						17.0	13.9	20.4	0.7													
Level of Service	C		C						B	B	C	A													
Approach Delay (s)			26.9		0.0				16.1	3.9															
Approach LOS			C		A				B	A															
Intersection Summary																									
HCM Average Control Delay			11.6		HCM Level of Service				B																
HCM Volume to Capacity ratio			0.55																						
Actuated Cycle Length (s)			70.0		Sum of lost time (s)		12.0																		
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	NEL	NET	NER	SWL	SWT	SWR		
Lane Configurations														
Volume (vph)	0	0	0	689	0	209	352	804	0	0	1165	312		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0		
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00		
Frt				1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482		
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482		
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.86	0.86	0.86		
Adj. Flow (vph)	0	0	0	725	0	220	383	874	0	0	1355	363		
RTOR Reduction (vph)	0	0	0	0	0	174	0	0	0	0	0	229		
Lane Group Flow (vph)	0	0	0	725	0	46	383	874	0	0	1355	134		
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%		
Turn Type				custom		custom		Prot					Perm	
Protected Phases								5	2				6	
Permitted Phases				8		8								6
Actuated Green, G (s)				14.5		14.5		11.6	43.5				25.9	
Effective Green, g (s)				14.5		14.5		11.6	43.5				25.9	
Actuated g/C Ratio				0.21		0.21		0.17	0.62				0.37	
Clearance Time (s)				6.0		6.0		6.0	6.0				6.0	
Vehicle Extension (s)				3.0		3.0		3.0	3.0				3.0	
Lane Grp Cap (vph)				967		540		532	2957				1761	
v/s Ratio Prot								c0.12	0.18				c0.28	
v/s Ratio Perm				c0.16		0.02								0.09
v/c Ratio				0.75		0.08		0.72	0.30				0.77	
Uniform Delay, d1				26.0		22.4		27.7	6.1				19.4	
Progression Factor				1.00		1.00		0.61	0.16				1.00	
Incremental Delay, d2				3.2		0.1		4.1	0.2				3.3	
Delay (s)				29.3		22.5		21.0	1.2				22.7	
Level of Service				C		C		C	A				C	
Approach Delay (s)	0.0					27.7		7.2		21.4				
Approach LOS	A					C		A		C				
Intersection Summary														
HCM Average Control Delay	18.4			HCM Level of Service					B					
HCM Volume to Capacity ratio	0.75													
Actuated Cycle Length (s)	70.0			Sum of lost time (s)					18.0					
Intersection Capacity Utilization	60.7%			ICU Level of Service					B					
Analysis Period (min)	15													
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis

1007: SR 204 EB Off Ramp & Pine Grove Rd

2015 PM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	0	58	0	0	0	0	87	109	114	155	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505	
Flt Permitted	0.95		1.00					1.00	1.00	0.68	1.00	
Satd. Flow (perm)	1752		1568					1845	1568	1256	3505	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	46	0	64	0	0	0	0	118	147	141	191	0
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	31	0	0	0
Lane Group Flow (vph)	46	0	5	0	0	0	0	118	116	141	191	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	custom		custom						Perm	Perm		
Protected Phases									2		6	
Permitted Phases	4		4						2	6		
Actuated Green, G (s)	6.8		6.8						71.2	71.2	71.2	71.2
Effective Green, g (s)	6.8		6.8						71.2	71.2	71.2	71.2
Actuated g/C Ratio	0.08		0.08						0.79	0.79	0.79	0.79
Clearance Time (s)	6.0		6.0						6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0						3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	132		118						1460	1240	994	2773
v/s Ratio Prot									0.06		0.05	
v/s Ratio Perm	c0.03		0.00						0.07	c0.11		
v/c Ratio	0.35		0.04						0.08	0.09	0.14	0.07
Uniform Delay, d1	39.5		38.6						2.1	2.1	2.2	2.1
Progression Factor	1.00		1.00						1.00	1.00	0.98	0.20
Incremental Delay, d2	1.6		0.1						0.1	0.2	0.3	0.0
Delay (s)	41.1		38.7						2.2	2.3	2.5	0.5
Level of Service	D		D						A	A	A	A
Approach Delay (s)			39.7		0.0				2.2		1.3	
Approach LOS			D		A				A		A	
Intersection Summary												
HCM Average Control Delay			7.6		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			41.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1008: SR 204 WB On Ramp & Pine Grove Rd

2015 PM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	146	582	73	78	51	0	0	123	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568
Flt Permitted				0.95	1.00	1.00	0.66	1.00			1.00	1.00
Satd. Flow (perm)				1752	3505	1568	1218	3505			1845	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	155	619	78	105	69	0	0	152	57
RTOR Reduction (vph)	0	0	0	0	0	58	0	0	0	0	0	23
Lane Group Flow (vph)	0	0	0	155	619	20	105	69	0	0	152	34
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm		Perm	Perm				Perm	
Protected Phases				8		8	2	2		6		
Permitted Phases				8		8	2			6		
Actuated Green, G (s)				23.6		23.6	54.4	54.4		54.4		
Effective Green, g (s)				23.6		23.6	54.4	54.4		54.4		
Actuated g/C Ratio				0.26		0.26	0.60	0.60		0.60		
Clearance Time (s)				6.0		6.0	6.0	6.0		6.0		
Vehicle Extension (s)				3.0		3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)				459		919	736	2119		1115		
v/s Ratio Prot				c0.18				0.02		0.08		
v/s Ratio Perm				0.09		0.01	c0.09			0.02		
v/c Ratio				0.34		0.67	0.14	0.03		0.14		
Uniform Delay, d1				26.9		29.7	7.7	7.2		7.7		
Progression Factor				1.00		1.00	0.99	0.36		1.00		
Incremental Delay, d2				0.4		2.0	0.4	0.0		0.3		
Delay (s)				27.3		31.7	8.1	2.6		7.9		
Level of Service				C		C	A	A		A		
Approach Delay (s)	0.0			30.3				5.9		7.7		
Approach LOS	A			C				A		A		
Intersection Summary												
HCM Average Control Delay	23.0			HCM Level of Service					C			
HCM Volume to Capacity ratio	0.30											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)					12.0			
Intersection Capacity Utilization	41.9%			ICU Level of Service					A			
Analysis Period (min)	15											
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	359	224	335	419	278	1025
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.99	0.99	0.85	0.85	0.77	0.77
Adj. Flow (vph)	363	226	394	493	361	1331
RTOR Reduction (vph)	0	188	0	323	0	0
Lane Group Flow (vph)	363	38	394	170	361	1331
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm		Prot	
Protected Phases	8		2		1	
Permitted Phases	8		2			
Actuated Green, G (s)	13.5	13.5	27.6	27.6	20.9	54.5
Effective Green, g (s)	13.5	13.5	27.6	27.6	20.9	54.5
Actuated g/C Ratio	0.17	0.17	0.35	0.35	0.26	0.68
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	568	262	1197	536	454	3398
v/s Ratio Prot	c0.11		0.11		c0.21	c0.27
v/s Ratio Perm		0.02		0.11		
v/c Ratio	0.64	0.15	0.33	0.32	0.80	0.39
Uniform Delay, d1	31.0	28.3	19.4	19.3	27.6	5.5
Progression Factor	1.00	1.00	1.00	1.00	0.69	0.76
Incremental Delay, d2	2.4	0.3	0.7	1.6	9.2	0.3
Delay (s)	33.3	28.6	20.1	20.8	28.3	4.6
Level of Service	C	C	C	C	C	A
Approach Delay (s)	31.5		20.5		9.6	
Approach LOS	C		C		A	
Intersection Summary						
HCM Average Control Delay			16.7		HCM Level of Service	
HCM Volume to Capacity ratio			0.54		B	
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	
Intersection Capacity Utilization			51.3%		ICU Level of Service	
Analysis Period (min)			15		A	
c Critical Lane Group						

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	816	0	0	425	246	313	0	0	487	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00
Frt			0.85			0.86	1.00	1.00			1.00	0.85
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553
Flt Permitted			1.00			1.00	0.35	1.00			1.00	1.00
Satd. Flow (perm)			2733			1580	636	1827			3471	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.85	0.85	0.85	0.77	0.77	0.77
Adj. Flow (vph)	0	0	833	0	0	434	289	368	0	0	632	438
RTOR Reduction (vph)	0	0	201	0	0	394	0	0	0	0	0	191
Lane Group Flow (vph)	0	0	632	0	0	40	289	368	0	0	632	247
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom			custom			pm+pt			Perm		
Protected Phases							5			2		
Permitted Phases	2			8			2			6		
Actuated Green, G (s)	60.7			7.3			60.7			45.1		
Effective Green, g (s)	60.7			7.3			60.7			45.1		
Actuated g/C Ratio	0.76			0.09			0.76			0.56		
Clearance Time (s)	6.0			6.0			6.0			6.0		
Vehicle Extension (s)	3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)	2074			144			615			1386		
v/s Ratio Prot							c0.06			0.20		
v/s Ratio Perm	0.23			c0.03			c0.30					
v/c Ratio	0.30			0.28			0.47			0.27		
Uniform Delay, d1	3.0			33.9			3.4			2.9		
Progression Factor	1.00			1.00			1.07			0.56		
Incremental Delay, d2	0.4			1.0			0.6			0.4		
Delay (s)	3.4			34.9			4.2			2.1		
Level of Service	A			C			A			A		
Approach Delay (s)	3.4			34.9			3.0			9.8		
Approach LOS	A			C			A			A		
Intersection Summary												
HCM Average Control Delay	10.2			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.43											
Actuated Cycle Length (s)	80.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	52.8%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept A

1011: South Access Road & Rio Road

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	744	185	0	0	0	0	360	60	115	90	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.38	1.00	
Satd. Flow (perm)	1736	4217	1553					3471	1553	695	1827	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	400	791	197	0	0	0	0	444	74	124	97	0
RTOR Reduction (vph)	0	0	69	0	0	0	0	0	58	0	0	0
Lane Group Flow (vph)	400	791	128	0	0	0	0	444	16	124	97	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						custom	custom		
Protected Phases		2										
Permitted Phases	2		2					8	8	4	4	
Actuated Green, G (s)	58.5	58.5	58.5					19.5	19.5	19.5	19.5	
Effective Green, g (s)	58.5	58.5	58.5					19.5	19.5	19.5	19.5	
Actuated g/C Ratio	0.65	0.65	0.65					0.22	0.22	0.22	0.22	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1128	2741	1009					752	336	151	396	
v/s Ratio Prot		0.19										
v/s Ratio Perm	c0.23		0.08					0.13	0.01	c0.18	0.05	
v/c Ratio	0.35	0.29	0.13					0.59	0.05	0.82	0.24	
Uniform Delay, d1	7.2	6.8	6.0					31.7	27.9	33.6	29.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.58	1.73	
Incremental Delay, d2	0.9	0.3	0.3					1.2	0.1	28.7	0.3	
Delay (s)	8.0	7.1	6.3					32.9	28.0	48.3	50.8	
Level of Service	A	A	A					C	C	D	D	
Approach Delay (s)		7.2			0.0			32.2			49.4	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM Average Control Delay			17.7	HCM Level of Service					B			
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)					12.0			
Intersection Capacity Utilization			107.5%	ICU Level of Service					G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

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1012: North Access Road & Rio Road

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	78	887	37	338	398	0	0	127	592
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	1215	1827			3471	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	85	964	40	417	491	0	0	137	637
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	0	24
Lane Group Flow (vph)	0	0	0	85	964	17	417	491	0	0	137	613
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm				Perm	
Protected Phases				6				8				4
Permitted Phases				6		6	8				4	
Actuated Green, G (s)				39.0		39.0	39.0	39.0				39.0
Effective Green, g (s)				39.0		39.0	39.0	39.0				39.0
Actuated g/C Ratio				0.43		0.43	0.43	0.43				0.43
Clearance Time (s)				6.0		6.0	6.0	6.0				6.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0				3.0
Lane Grp Cap (vph)				752		1272	673	527				792
v/s Ratio Prot				c0.33				0.27				0.04
v/s Ratio Perm				0.05			0.01	0.34				c0.39
v/c Ratio				0.11		0.76	0.03	0.79				0.62
Uniform Delay, d1				15.2		21.5	14.6	22.0				19.8
Progression Factor				1.00		1.00	1.00	1.03				1.27
Incremental Delay, d2				0.3		4.3	0.1	7.8				1.4
Delay (s)				15.5		25.8	14.7	30.5				26.5
Level of Service				B		C	B	C				C
Approach Delay (s)	0.0					24.6		28.3		35.9		
Approach LOS	A					C		C		D		
Intersection Summary												
HCM Average Control Delay	29.0			HCM Level of Service					C			
HCM Volume to Capacity ratio	0.83											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)					12.0			
Intersection Capacity Utilization	105.1%			ICU Level of Service					G			
Analysis Period (min)	15											
c Critical Lane Group												

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1296	100	0	99
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1336	103	0	129
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						
vC, conflicting volume	1336				1336	445
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1336				1336	445
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	77
cM capacity (veh/h)	502				142	555
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	445	445	445	103	129	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	103	129	
cSH	1700	1700	1700	1700	555	
Volume to Capacity	0.26	0.26	0.26	0.06	0.23	
Queue Length 95th (ft)	0	0	0	0	22	
Control Delay (s)	0.0	0.0	0.0	0.0	13.4	
Lane LOS					B	
Approach Delay (s)	0.0				13.4	
Approach LOS					B	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			37.8%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1037	119	0	87
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1069	123	0	113
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						
vC, conflicting volume	1069				1069	356
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1069				1069	356
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	82
cM capacity (veh/h)	636				213	634
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	356	356	356	123	113	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	123	113	
cSH	1700	1700	1700	1700	634	
Volume to Capacity	0.21	0.21	0.21	0.07	0.18	
Queue Length 95th (ft)	0	0	0	0	16	
Control Delay (s)	0.0	0.0	0.0	0.0	11.9	
Lane LOS					B	
Approach Delay (s)	0.0				11.9	
Approach LOS					B	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			32.1%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	575	362	0	0	0	334
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.91	0.91	0.80	0.80
Hourly flow rate (vph)	661	416	0	0	0	418
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						
vC, conflicting volume			661	661		220
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			661	661		220
tC, single (s)			4.2	6.9		7.0
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		46
cM capacity (veh/h)			910	391		777
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	220	220	220	416	418	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	416	418	
cSH	1700	1700	1700	1700	777	
Volume to Capacity	0.13	0.13	0.13	0.24	0.54	
Queue Length 95th (ft)	0	0	0	0	81	
Control Delay (s)	0.0	0.0	0.0	0.0	14.9	
Lane LOS					B	
Approach Delay (s)	0.0				14.9	
Approach LOS					B	
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			38.5%		ICU Level of Service	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	805	266	0	351
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.91	0.91	0.93	0.93
Hourly flow rate (vph)	0	0	885	292	0	377
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						
vC, conflicting volume	885			885		295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	885			885		295
tC, single (s)	4.2			6.9		7.0
tC, 2 stage (s)						
tF (s)	2.2			3.5		3.3
p0 queue free %	100			100		46
cM capacity (veh/h)	748			281		696
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	295	295	295	292	377	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	292	377	
cSH	1700	1700	1700	1700	696	
Volume to Capacity	0.17	0.17	0.17	0.17	0.54	
Queue Length 95th (ft)	0	0	0	0	82	
Control Delay (s)	0.0	0.0	0.0	0.0	16.1	
Lane LOS					C	
Approach Delay (s)	0.0				16.1	
Approach LOS					C	
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			44.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1017: South Access Road & Middleground Road

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	336	119	138	0	0	0	0	190	115	243	347	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3367	2935	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.60	1.00	
Satd. Flow (perm)	3367	2935	1553					3471	1553	1100	1827	
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	369	131	152	0	0	0	0	241	146	342	489	0
RTOR Reduction (vph)	0	0	85	0	0	0	0	0	84	0	0	0
Lane Group Flow (vph)	369	131	67	0	0	0	0	241	62	342	489	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						Perm		Perm	
Protected Phases		2						8			4	
Permitted Phases	2		2						8		4	
Actuated Green, G (s)	39.7	39.7	39.7					38.3	38.3	38.3	38.3	
Effective Green, g (s)	39.7	39.7	39.7					38.3	38.3	38.3	38.3	
Actuated g/C Ratio	0.44	0.44	0.44					0.43	0.43	0.43	0.43	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1485	1295	685					1477	661	468	777	
v/s Ratio Prot		0.04						0.07			0.27	
v/s Ratio Perm	c0.11		0.04						0.04	c0.31		
v/c Ratio	0.25	0.10	0.10					0.16	0.09	0.73	0.63	
Uniform Delay, d1	15.8	14.7	14.7					16.0	15.5	21.6	20.3	
Progression Factor	0.90	0.91	0.71					1.00	1.00	0.24	0.62	
Incremental Delay, d2	0.4	0.2	0.3					0.1	0.1	5.7	1.6	
Delay (s)	14.6	13.6	10.7					16.0	15.5	10.8	14.2	
Level of Service	B	B	B					B	B	B	B	
Approach Delay (s)		13.5			0.0			15.8			12.8	
Approach LOS		B			A			B			B	
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)					12.0			
Intersection Capacity Utilization			62.2%	ICU Level of Service					B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1018: North Access Road & Middleground Road

2015 PM Concept A

8/22/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	154	331	177	71	455	0	0	436	353	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.95	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1736	2935	1553	1736	3471			3471	1553	
Flt Permitted				0.95	1.00	1.00	0.32	1.00			1.00	1.00	
Satd. Flow (perm)				1736	2935	1553	590	3471			3471	1553	
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71	
Adj. Flow (vph)	0	0	0	162	348	186	90	576	0	0	614	497	
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	0	0	0	150	
Lane Group Flow (vph)	0	0	0	162	348	98	90	576	0	0	614	347	
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%	
Turn Type				Perm		Perm	Perm				Perm		
Protected Phases						6		8			4		
Permitted Phases						6		8			4		
Actuated Green, G (s)						47.5	47.5	30.5	30.5				30.5
Effective Green, g (s)						47.5	47.5	30.5	30.5				30.5
Actuated g/C Ratio						0.53	0.53	0.34	0.34				0.34
Clearance Time (s)						6.0	6.0	6.0	6.0				6.0
Vehicle Extension (s)						3.0	3.0	3.0	3.0				3.0
Lane Grp Cap (vph)						916	1549	820	200	1176	1176	526	
v/s Ratio Prot						c0.12		0.17					0.18
v/s Ratio Perm						0.09		0.06 0.15					c0.22
v/c Ratio						0.18 0.22		0.12 0.45 0.49					0.52 0.66
Uniform Delay, d1						11.1 11.4		10.7 23.2 23.6					23.9 25.3
Progression Factor						1.02 1.01		1.16 0.48 1.28					1.00 1.00
Incremental Delay, d2						0.4 0.3		0.3 1.6 0.3					0.4 3.0
Delay (s)						11.7 11.9		12.7 30.6					24.3 28.3
Level of Service				B		B	B	B	C	C			C
Approach Delay (s)	0.0					12.1		28.1		26.1			
Approach LOS	A					B		C		C			
Intersection Summary													
HCM Average Control Delay			22.7		HCM Level of Service				C				
HCM Volume to Capacity ratio			0.39										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization			62.2%		ICU Level of Service				B				
Analysis Period (min)			15										
c Critical Lane Group													

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	460	105	0	0	0	214
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.95	0.95	0.79	0.79
Hourly flow rate (vph)	505	115	0	0	0	271
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						
vC, conflicting volume			505		505	253
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			505		505	253
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	63
cM capacity (veh/h)			1042		491	741
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	253	253	115	271		
Volume Left	0	0	0	0		
Volume Right	0	0	115	271		
cSH	1700	1700	1700	741		
Volume to Capacity	0.15	0.15	0.07	0.37		
Queue Length 95th (ft)	0	0	0	42		
Control Delay (s)	0.0	0.0	0.0	12.6		
Lane LOS				B		
Approach Delay (s)	0.0			12.6		
Approach LOS				B		
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			32.6%	ICU Level of Service	A	
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1096	37	0	0	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	1191	40	0	0	0	24
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						
vC, conflicting volume			1232		1211	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1232		1211	318
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			551		172	672
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	340	340	340	210	24	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	40	24	
cSH	1700	1700	1700	1700	672	
Volume to Capacity	0.20	0.20	0.20	0.12	0.04	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	10.6	
Lane LOS					B	
Approach Delay (s)	0.0				10.6	
Approach LOS					B	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			26.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept A

1021: North Access Road & Dutchtown Road

8/22/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	391	303	0	107
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80
Hourly flow rate (vph)	0	0	425	329	0	134
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						
vC, conflicting volume	754				425	212
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	754				425	212
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	83
cM capacity (veh/h)	839				552	787
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	212	212	329	134		
Volume Left	0	0	0	0		
Volume Right	0	0	329	134		
cSH	1700	1700	1700	787		
Volume to Capacity	0.13	0.13	0.19	0.17		
Queue Length 95th (ft)	0	0	0	15		
Control Delay (s)	0.0	0.0	0.0	10.5		
Lane LOS				B		
Approach Delay (s)	0.0			10.5		
Approach LOS				B		
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			24.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 PM Concept A

1023: South Access Road & Mercy Blvd

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	140	676	142	0	0	0	0	182	73	137	147	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	2935	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.62	1.00	
Satd. Flow (perm)	1736	2935	1553					3471	1553	1131	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	152	735	154	0	0	0	0	212	85	161	173	0
RTOR Reduction (vph)	0	0	52	0	0	0	0	0	68	0	0	0
Lane Group Flow (vph)	152	735	102	0	0	0	0	212	17	161	173	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						Perm	Perm		
Protected Phases		2						8			4	
Permitted Phases	2		2						8		4	
Actuated Green, G (s)	59.6	59.6	59.6					18.4	18.4	18.4	18.4	
Effective Green, g (s)	59.6	59.6	59.6					18.4	18.4	18.4	18.4	
Actuated g/C Ratio	0.66	0.66	0.66					0.20	0.20	0.20	0.20	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1150	1944	1028					710	318	231	374	
v/s Ratio Prot		c0.25						0.06			0.09	
v/s Ratio Perm	0.09		0.07						0.01	c0.14		
v/c Ratio	0.13	0.38	0.10					0.30	0.05	0.70	0.46	
Uniform Delay, d1	5.6	6.8	5.5					30.3	28.8	33.2	31.5	
Progression Factor	0.95	0.92	0.93					1.00	1.00	0.25	0.86	
Incremental Delay, d2	0.2	0.6	0.2					0.2	0.1	8.8	0.9	
Delay (s)	5.6	6.9	5.3					30.6	28.9	17.2	28.0	
Level of Service	A	A	A					C	C	B	C	
Approach Delay (s)		6.5			0.0			30.1			22.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			13.9								B	
HCM Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			90.0							12.0		
Intersection Capacity Utilization			57.4%							B		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1024: North Access Road & Mercy Blvd

2015 PM Concept A

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	85	184	130	169	153	0	0	199	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.61	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	1107	1827			3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	89	194	137	197	178	0	0	234	218
RTOR Reduction (vph)	0	0	0	0	0	53	0	0	0	0	0	164
Lane Group Flow (vph)	0	0	0	89	194	84	197	178	0	0	234	55
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					6			8				4
Permitted Phases				6		6	8					4
Actuated Green, G (s)				55.5	55.5	55.5	22.5	22.5			22.5	22.5
Effective Green, g (s)				55.5	55.5	55.5	22.5	22.5			22.5	22.5
Actuated g/C Ratio				0.62	0.62	0.62	0.25	0.25			0.25	0.25
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1071	1810	958	277	457			868	388
v/s Ratio Prot					c0.07			0.10			0.07	
v/s Ratio Perm				0.05		0.05	c0.18					0.04
v/c Ratio				0.08	0.11	0.09	0.71	0.39			0.27	0.14
Uniform Delay, d1				7.0	7.1	7.0	30.8	28.0			27.1	26.2
Progression Factor				1.00	1.00	1.00	0.20	1.31			1.00	1.00
Incremental Delay, d2				0.2	0.1	0.2	8.3	0.5			0.2	0.2
Delay (s)				7.1	7.2	7.2	14.4	37.3			27.3	26.4
Level of Service				A	A	A	B	D			C	C
Approach Delay (s)		0.0			7.2			25.3			26.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		19.8			HCM Level of Service						B	
HCM Volume to Capacity ratio		0.28										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)						12.0	
Intersection Capacity Utilization		57.4%			ICU Level of Service						B	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1025: South Access Road & Largo Blvd

2015 PM Concept A

8/22/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1012	446	0	0	0	284
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1043	460	0	0	0	312
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						
vC, conflicting volume			1043		1043	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1043		1043	522
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	37
cM capacity (veh/h)			651		221	494
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	522	522	460	312		
Volume Left	0	0	0	0		
Volume Right	0	0	460	312		
cSH	1700	1700	1700	494		
Volume to Capacity	0.31	0.31	0.27	0.63		
Queue Length 95th (ft)	0	0	0	108		
Control Delay (s)	0.0	0.0	0.0	23.9		
Lane LOS				C		
Approach Delay (s)	0.0			23.9		
Approach LOS				C		
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			52.2%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	419	322	0	552
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.91	0.91	0.75	0.75
Hourly flow rate (vph)	0	0	460	354	0	736
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						
vC, conflicting volume	460				460	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460				460	230
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	4
cM capacity (veh/h)	1083				525	766
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	230	230	354	736		
Volume Left	0	0	0	0		
Volume Right	0	0	354	736		
cSH	1700	1700	1700	766		
Volume to Capacity	0.14	0.14	0.21	0.96		
Queue Length 95th (ft)	0	0	0	371		
Control Delay (s)	0.0	0.0	0.0	46.8		
Lane LOS				E		
Approach Delay (s)	0.0			46.8		
Approach LOS				E		
Intersection Summary						
Average Delay			22.2			
Intersection Capacity Utilization			52.4%	ICU Level of Service	A	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	706	30	0	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.91	0.91	0.75	0.75
Hourly flow rate (vph)	0	0	776	33	0	47
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						
vC, conflicting volume	776				776	388
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	776				776	388
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	823				330	605
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	388	388	33	47		
Volume Left	0	0	0	0		
Volume Right	0	0	33	47		
cSH	1700	1700	1700	605		
Volume to Capacity	0.23	0.23	0.02	0.08		
Queue Length 95th (ft)	0	0	0	6		
Control Delay (s)	0.0	0.0	0.0	11.4		
Lane LOS				B		
Approach Delay (s)	0.0			11.4		
Approach LOS				B		
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			29.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept A

1030: North Access Road & Deerfield Road

8/22/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1229	555	0	343
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.98	0.98	0.94	0.94
Hourly flow rate (vph)	0	0	1254	566	0	365
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						
vC, conflicting volume	1254				1254	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1254				1254	418
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	37
cM capacity (veh/h)	540				161	578
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	418	418	418	566	365	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	566	365	
cSH	1700	1700	1700	1700	578	
Volume to Capacity	0.25	0.25	0.25	0.33	0.63	
Queue Length 95th (ft)	0	0	0	0	110	
Control Delay (s)	0.0	0.0	0.0	0.0	21.3	
Lane LOS					C	
Approach Delay (s)	0.0				21.3	
Approach LOS					C	
Intersection Summary						
Average Delay			3.6			
Intersection Capacity Utilization			51.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 PM Concept A

1031: Truman Parkway & SR 204

8/22/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	139	0	49	303	0	24	0	1023	0	0	1025	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	278	0	98	344	0	27	0	1088	0	0	1139	46
RTOR Reduction (vph)	0	0	43	0	0	21	0	0	0	0	0	16
Lane Group Flow (vph)	278	0	55	344	0	6	0	1088	0	0	1139	30
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	19.8		19.8	19.8		19.8		58.2			58.2	58.2
Effective Green, g (s)	19.8		19.8	19.8		19.8		58.2			58.2	58.2
Actuated g/C Ratio	0.22		0.22	0.22		0.22		0.65			0.65	0.65
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	382		342	1077		342		2727			2727	1004
v/s Ratio Prot	c0.16			0.07				0.26			c0.27	
v/s Ratio Perm			0.04			0.00						0.02
v/c Ratio	0.73		0.16	0.32		0.02		0.40			0.42	0.03
Uniform Delay, d1	32.6		28.4	29.4		27.5		7.6			7.7	5.7
Progression Factor	1.00		1.00	1.00		1.00		1.00			0.88	1.05
Incremental Delay, d2	6.8		0.2	0.2		0.0		0.4			0.5	0.1
Delay (s)	39.4		28.6	29.6		27.5		8.0			7.3	6.1
Level of Service	D		C	C		C		A			A	A
Approach Delay (s)	36.6				29.5			8.0			7.2	
Approach LOS	D				C			A			A	
Intersection Summary												
HCM Average Control Delay			13.9					HCM Level of Service			B	
HCM Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)			12.0	
Intersection Capacity Utilization			46.6%					ICU Level of Service			A	
Analysis Period (min)			15									

c Critical Lane Group

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations							
Volume (vph)	79	94	0	1096	90	91	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.88	0.88	0.94	0.94	0.94	0.90	0.90
Adj. Flow (vph)	90	107	0	1166	96	101	1097
RTOR Reduction (vph)	0	97	0	0	38	0	0
Lane Group Flow (vph)	90	10	0	1166	58	101	1097
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	8.0	8.0		54.6	54.6	9.4	70.0
Effective Green, g (s)	8.0	8.0		54.6	54.6	9.4	70.0
Actuated g/C Ratio	0.09	0.09		0.61	0.61	0.10	0.78
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	134		2558	915	176	3280
v/s Ratio Prot				c0.28		c0.06	0.26
v/s Ratio Perm	c0.03	0.01			0.04		
v/c Ratio	0.31	0.07		0.46	0.06	0.57	0.33
Uniform Delay, d1	38.4	37.6		9.6	7.2	38.4	3.0
Progression Factor	1.00	1.00		0.62	0.31	1.00	1.00
Incremental Delay, d2	0.6	0.2		0.5	0.1	4.5	0.3
Delay (s)	39.0	37.8		6.6	2.4	42.9	3.3
Level of Service	D	D		A	A	D	A
Approach Delay (s)	38.4			6.2			6.6
Approach LOS	D			A			A
Intersection Summary							
HCM Average Control Delay		8.8		HCM Level of Service		A	
HCM Volume to Capacity ratio		0.45					
Actuated Cycle Length (s)		90.0		Sum of lost time (s)		18.0	
Intersection Capacity Utilization		44.6%		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												
Volume (veh/h)	11	455	0	42	634	95	3	2	19	90	3	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	12	495	0	48	720	108	4	3	25	115	4	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					708							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	720			495			976	1334	247	1114	1334	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	563			495			836	1219	247	983	1219	178
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			95			98	98	97	33	98	94
cM capacity (veh/h)	933			1058			212	157	750	172	157	778
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	259	247	48	360	360	108	32	169				
Volume Left	12	0	48	0	0	0	4	115				
Volume Right	0	0	0	0	0	108	25	50				
cSH	933	1700	1058	1700	1700	1700	459	243				
Volume to Capacity	0.01	0.15	0.05	0.21	0.21	0.06	0.07	0.70				
Queue Length 95th (ft)	1	0	4	0	0	0	6	115				
Control Delay (s)	0.5	0.0	8.6	0.0	0.0	0.0	13.4	47.8				
Lane LOS	A		A				B	E				
Approach Delay (s)	0.3		0.5				13.4	47.8				
Approach LOS							B	E				
Intersection Summary												
Average Delay			5.7									
Intersection Capacity Utilization			52.2%			ICU Level of Service		A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
1001: SR 204 & I-95 SB Off-Ramp

2015 PM Concept B&C - Alternative 1
8/25/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Volume (vph)	0	477	87	1016	646	0	0	0	669	0	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00
Frt		1.00	0.85	1.00	1.00				1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (prot)		3312	1442	3127	3312				3127		1442
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (perm)		3312	1442	3127	3312				3127		1442
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	604	110	1116	710	0	0	0	787	0	147
RTOR Reduction (vph)	0	0	88	0	0	0	0	0	0	0	108
Lane Group Flow (vph)	0	604	22	1116	710	0	0	0	787	0	39
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type		Perm		Prot					custom		custom
Protected Phases		2		1		6					
Permitted Phases		2							4		4
Actuated Green, G (s)		22.1	22.1	41.0	69.1				28.9		28.9
Effective Green, g (s)		22.1	22.1	41.0	69.1				28.9		28.9
Actuated g/C Ratio		0.20	0.20	0.37	0.63				0.26		0.26
Clearance Time (s)		6.0	6.0	6.0	6.0				6.0		6.0
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0
Lane Grp Cap (vph)		665	290	1166	2081				822		379
v/s Ratio Prot		c0.18		c0.36		0.21					
v/s Ratio Perm		0.02							c0.25		0.03
v/c Ratio		0.91	0.08	0.96	0.34				0.96		0.10
Uniform Delay, d1		43.0	35.7	33.6	9.7				39.9		30.7
Progression Factor		1.00	1.00	0.25	0.60				1.00		1.00
Incremental Delay, d2		18.5	0.5	2.5	0.2				21.4		0.1
Delay (s)		61.5	36.2	10.8	6.0				61.3		30.8
Level of Service		E	D	B	A				E		C
Approach Delay (s)		57.6			8.9		0.0			56.5	
Approach LOS		E			A		A			E	
Intersection Summary											
HCM Average Control Delay		31.7		HCM Level of Service		C					
HCM Volume to Capacity ratio		0.95									
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		18.0					
Intersection Capacity Utilization		67.5%		ICU Level of Service		C					
Analysis Period (min)		15									
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
1002: SR 204 & I-95 NB On-Ramp

2015 PM Concept B&C - Alternative 1
8/25/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	43	1103	0	0	1529	568	0	0	133	0	772
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3312			3312	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3312			3312	1442			1612		2538
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	47	1212	0	0	1757	653	0	0	156	0	908
RTOR Reduction (vph)	0	0	0	0	0	240	0	0	0	0	108
Lane Group Flow (vph)	47	1212	0	0	1757	413	0	0	156	0	800
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	Prot					Perm			custom		custom
Protected Phases	5	2			6						
Permitted Phases						6			8		8
Actuated Green, G (s)	6.0	69.0			57.0	57.0			29.0		29.0
Effective Green, g (s)	6.0	69.0			57.0	57.0			29.0		29.0
Actuated g/C Ratio	0.05	0.63			0.52	0.52			0.26		0.26
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	171	2078			1716	747			425		669
v/s Ratio Prot	0.02	c0.37			c0.53						
v/s Ratio Perm						0.29			0.10		c0.32
v/c Ratio	0.27	0.58			1.02	0.55			0.37		1.20
Uniform Delay, d1	49.9	12.0			26.5	17.9			33.0		40.5
Progression Factor	1.62	0.60			0.36	0.30			1.00		1.00
Incremental Delay, d2	0.4	0.4			23.3	1.8			0.5		102.1
Delay (s)	81.1	7.7			32.9	7.2			33.6		142.6
Level of Service	F	A			C	A			C		F
Approach Delay (s)		10.4			25.9		0.0			126.6	
Approach LOS		B			C		A			F	
Intersection Summary											
HCM Average Control Delay			44.4		HCM Level of Service				D		
HCM Volume to Capacity ratio			1.07								
Actuated Cycle Length (s)			110.0		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			67.5%		ICU Level of Service				C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 1

1003: SR 204 & Gateway Blvd S

8/25/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑↑	↑		↑↑↑↑	↑			↑			↑	
Volume (veh/h)	0	1772	103	0	2033	50	0	0	41	0	0	64	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94	
Hourly flow rate (vph)	0	1926	112	0	2234	55	0	0	48	0	0	68	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None			None									
Median storage (veh)													
Upstream signal (ft)	423												
pX, platoon unblocked				0.92				0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	2234			1926			2671	4160	642	2876	4160	745	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	2234			1710			2517	4132	318	2739	4132	745	
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0	
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	92	100	100	81	
cM capacity (veh/h)	219			327			10	2	618	8	2	350	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	642	642	642	112	745	745	745	55	48	68			
Volume Left	0	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	112	0	0	0	55	48	68			
cSH	1700	1700	1700	1700	1700	1700	1700	1700	618	350			
Volume to Capacity	0.38	0.38	0.38	0.07	0.44	0.44	0.44	0.03	0.08	0.19			
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	6	18			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	17.7			
Lane LOS									B	C			
Approach Delay (s)	0.0				0.0				11.3	17.7			
Approach LOS									B	C			
Intersection Summary													
Average Delay	0.4												
Intersection Capacity Utilization	54.7%			ICU Level of Service						A			
Analysis Period (min)	15												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 1

1004: SR 204 & New Intersection

8/25/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	227	1475	111	154	1773	84	201	63	44	63	45	109	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1719	4759	1538	1719	4759	1538	1719	1810	1538	1719	1810	1538	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.71	1.00	1.00	
Satd. Flow (perm)	1719	4759	1538	1719	4759	1538	1313	1810	1538	1284	1810	1538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94	
Adj. Flow (vph)	247	1603	121	169	1948	92	234	73	51	67	48	116	
RTOR Reduction (vph)	0	0	61	0	0	45	0	0	41	0	0	93	
Lane Group Flow (vph)	247	1603	60	169	1948	47	234	73	10	67	48	23	
Heavy Vehicles (%)	5%	9%	5%	5%	9%	5%	5%	5%	5%	5%	5%	5%	
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm	
Protected Phases	5	2		1	6			8				4	
Permitted Phases			2			6	8		8	4		4	
Actuated Green, G (s)	18.2	54.4	54.4	15.4	51.6	51.6	22.2	22.2	22.2	22.2	22.2	22.2	
Effective Green, g (s)	18.2	54.4	54.4	15.4	51.6	51.6	22.2	22.2	22.2	22.2	22.2	22.2	
Actuated g/C Ratio	0.17	0.49	0.49	0.14	0.47	0.47	0.20	0.20	0.20	0.20	0.20	0.20	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	284	2354	761	241	2232	721	265	365	310	259	365	310	
v/s Ratio Prot	c0.14	c0.34		0.10	c0.41			0.04			0.03		
v/s Ratio Perm			0.04			0.03	c0.18		0.01	0.05		0.02	
v/c Ratio	0.87	0.68	0.08	0.70	0.87	0.07	0.88	0.20	0.03	0.26	0.13	0.08	
Uniform Delay, d1	44.7	21.2	14.6	45.1	26.2	16.0	42.6	36.5	35.3	37.0	36.0	35.6	
Progression Factor	1.23	0.74	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.5	0.9	0.1	8.9	4.1	0.0	27.3	0.3	0.0	0.5	0.2	0.1	
Delay (s)	69.7	16.6	11.4	54.0	30.3	16.0	69.9	36.8	35.3	37.5	36.2	35.7	
Level of Service	E	B	B	D	C	B	E	D	D	D	D	D	
Approach Delay (s)		22.9			31.6			58.2			36.3		
Approach LOS		C			C			E			D		
Intersection Summary													
HCM Average Control Delay			30.2	HCM Level of Service			C						
HCM Volume to Capacity ratio			0.94										
Actuated Cycle Length (s)			110.0	Sum of lost time (s)			24.0						
Intersection Capacity Utilization			79.6%	ICU Level of Service			D						
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 2

1001: SR 204 & Gateway Blvd W

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	455	0	42	634	95	3	2	19	90	3	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	12	495	0	48	720	108	4	3	25	115	4	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage veh												
Upstream signal (ft)												479
pX, platoon unblocked	0.95						0.95	0.95			0.95	0.95
vC, conflicting volume	720	495					976	1334	247	1114	1334	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	606	495					875	1251	247	1019	1251	228
tC, single (s)	4.2	4.2					7.6	6.6	7.0	7.6	6.6	7.0
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 %	99	95					98	98	97	30	97	93
cM capacity (veh/h)	915	1058					201	152	750	165	152	735
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	259	247	48	360	360	108	32	169				
Volume Left	12	0	48	0	0	0	4	115				
Volume Right	0	0	0	0	0	108	25	50				
cSH	915	1700	1058	1700	1700	1700	450	233				
Volume to Capacity	0.01	0.15	0.05	0.21	0.21	0.06	0.07	0.73				
Queue Length 95th (ft)	1	0	4	0	0	0	6	123				
Control Delay (s)	0.5	0.0	8.6	0.0	0.0	0.0	13.6	52.3				
Lane LOS	A		A				B	F				
Approach Delay (s)	0.3		0.5				13.6	52.3				
Approach LOS							B	F				
Intersection Summary												
Average Delay			6.2									
Intersection Capacity Utilization			52.2%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 2

1002: SR 204 & I-95 SB On-Ramp

8/25/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑↑	↖	↗
Volume (vph)	477	87	0	646	125	669
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3312	1442		4759	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3312	1442		4759	1612	1442
Peak-hour factor, PHF	0.79	0.79	0.91	0.91	0.85	0.85
Adj. Flow (vph)	604	110	0	710	147	787
RTOR Reduction (vph)	0	34	0	0	0	0
Lane Group Flow (vph)	604	76	0	710	147	787
Heavy Vehicles (%)	9%	12%	12%	9%	12%	12%
Turn Type		Perm	Perm			Free
Protected Phases	2			6	8	
Permitted Phases		2	6			Free
Actuated Green, G (s)	55.4	55.4		55.4	12.6	80.0
Effective Green, g (s)	55.4	55.4		55.4	12.6	80.0
Actuated g/C Ratio	0.69	0.69		0.69	0.16	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2294	999		3296	254	1442
v/s Ratio Prot	0.18			0.15	0.09	
v/s Ratio Perm		0.05				c0.55
v/c Ratio	0.26	0.08		0.22	0.58	0.55
Uniform Delay, d1	4.6	4.0		4.4	31.2	0.0
Progression Factor	1.00	1.00		0.76	1.00	1.00
Incremental Delay, d2	0.3	0.1		0.1	3.2	1.5
Delay (s)	4.9	4.1		3.5	34.4	1.5
Level of Service	A	A		A	C	A
Approach Delay (s)	4.8			3.5	6.7	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			5.1	HCM Level of Service		A
HCM Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			30.1%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 2

1003: SR 204 & I-95 NB On-Ramp

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER	
Lane Configurations												
Volume (vph)	43	1103	0	0	513	0	0	0	133	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	6.0			6.0				6.0			
Lane Util. Factor	1.00	0.91			0.91				0.97			
Frt	1.00	1.00			1.00				1.00			
Flt Protected	0.95	1.00			1.00				0.95			
Satd. Flow (prot)	1612	4396			4396				3127			
Flt Permitted	0.37	1.00			1.00				0.95			
Satd. Flow (perm)	632	4396			4396				3127			
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85	
Adj. Flow (vph)	47	1212	0	0	590	0	0	0	156	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	47	1212	0	0	590	0	0	0	156	0	0	
Heavy Vehicles (%)	12%	18%	12%	12%	18%	12%	12%	12%	12%	12%	12%	
Turn Type	pm+pt				custom							
Protected Phases	5	2			6							
Permitted Phases	2								8			
Actuated Green, G (s)	58.7	58.7			48.8				9.3			
Effective Green, g (s)	58.7	58.7			48.8				9.3			
Actuated g/C Ratio	0.73	0.73			0.61				0.12			
Clearance Time (s)	6.0	6.0			6.0				6.0			
Vehicle Extension (s)	3.0	3.0			3.0				3.0			
Lane Grp Cap (vph)	512	3226			2682				364			
v/s Ratio Prot	0.00	c0.28			0.13							
v/s Ratio Perm	0.06								c0.05			
v/c Ratio	0.09	0.38			0.22				0.43			
Uniform Delay, d1	3.2	3.9			7.0				32.9			
Progression Factor	0.55	0.50			1.00				1.00			
Incremental Delay, d2	0.1	0.3			0.2				0.8			
Delay (s)	1.8	2.3			7.2				33.7			
Level of Service	A	A			A				C			
Approach Delay (s)		2.2			7.2		0.0			33.7		
Approach LOS		A			A		A			C		
Intersection Summary												
HCM Average Control Delay			6.2		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			33.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 3

1001: SR 204 & Gateway Blvd W

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	455	0	42	634	95	3	2	19	90	3	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	12	495	0	48	720	108	4	3	25	115	4	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	720			495			976	1334	247	1114	1334	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	720			495			976	1334	247	1114	1334	360
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	99			95			98	98	97	22	97	92
cM capacity (veh/h)	870			1058			176	142	750	147	142	634
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	259	247	48	360	360	108	32	169				
Volume Left	12	0	48	0	0	0	4	115				
Volume Right	0	0	0	0	0	108	25	50				
cSH	870	1700	1058	1700	1700	1700	425	209				
Volume to Capacity	0.01	0.15	0.05	0.21	0.21	0.06	0.08	0.81				
Queue Length 95th (ft)	1	0	4	0	0	0	6	147				
Control Delay (s)	0.6	0.0	8.6	0.0	0.0	0.0	14.2	67.2				
Lane LOS	A		A				B	F				
Approach Delay (s)	0.3		0.5				14.2	67.2				
Approach LOS							B	F				
Intersection Summary												
Average Delay			7.8									
Intersection Capacity Utilization			52.2%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 3

1003: SR 204 & I-95 SB Off-Ramp

8/25/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	0	477	646	0	0	125	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.79	0.79	0.91	0.91	0.85	0.85	
Hourly flow rate (vph)	0	604	710	0	0	147	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)			712				
pX, platoon unblocked							
vC, conflicting volume	710				911	237	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	710				911	237	
tC, single (s)	4.5				7.2	7.1	
tC, 2 stage (s)							
tF (s)	2.4				3.7	3.4	
p0 queue free %	100				100	80	
cM capacity (veh/h)	787				246	735	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	201	201	201	237	237	237	147
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	147
cSH	1700	1700	1700	1700	1700	1700	735
Volume to Capacity	0.12	0.12	0.12	0.14	0.14	0.14	0.20
Queue Length 95th (ft)	0	0	0	0	0	0	19
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.1
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.1
Approach LOS							B
Intersection Summary							
Average Delay			1.1				
Intersection Capacity Utilization			26.9%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B&C - Alternative 3

1004: SR 204 & I-95 NB On-Ramp

8/25/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	43	434	0	0	513	0	0	0	133	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Flt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4759			4759				3127		
Flt Permitted	0.35	1.00			1.00				0.95		
Satd. Flow (perm)	598	4759			4759				3127		
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	47	477	0	0	590	0	0	0	156	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	47	477	0	0	590	0	0	0	156	0	0
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt				custom						
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	40.9	40.9			32.1				6.8		
Effective Green, g (s)	40.9	40.9			32.1				6.8		
Actuated g/C Ratio	0.69	0.69			0.54				0.11		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	457	3260			2559				356		
v/s Ratio Prot	0.00	c0.10			c0.12						
v/s Ratio Perm	0.07								c0.05		
v/c Ratio	0.10	0.15			0.23				0.44		
Uniform Delay, d1	3.4	3.3			7.3				24.7		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.1	0.1			0.2				0.9		
Delay (s)	3.5	3.4			7.5				25.5		
Level of Service	A	A			A				C		
Approach Delay (s)		3.4			7.5		0.0			25.5	
Approach LOS		A			A		A			C	
Intersection Summary											
HCM Average Control Delay			8.0		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.27								
Actuated Cycle Length (s)			59.7		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			26.9%		ICU Level of Service				A		
Analysis Period (min)			15								

c Critical Lane Group

																									
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR													
Lane Configurations																									
Volume (vph)	322	0	349	0	0	0	0	835	363	299	1490	0													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900													
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0														
Lane Util. Factor	0.94		0.88					0.91	0.88	0.97	0.91														
Frt	1.00		0.85					1.00	0.85	1.00	1.00														
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00														
Satd. Flow (prot)	4802		2682					4893	2682	3303	4893														
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00														
Satd. Flow (perm)	4802		2682					4893	2682	3303	4893														
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.93	0.93	0.93	0.91	0.91	0.91													
Adj. Flow (vph)	366	0	397	0	0	0	0	898	390	329	1637	0													
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	245	0	0	0													
Lane Group Flow (vph)	366	0	363	0	0	0	0	898	145	329	1637	0													
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%													
Turn Type	custom		custom						Perm	Prot															
Protected Phases									2	1	6														
Permitted Phases	4		4						2																
Actuated Green, G (s)	14.4		14.4						26.1	26.1	11.5	43.6													
Effective Green, g (s)	14.4		14.4						26.1	26.1	11.5	43.6													
Actuated g/C Ratio	0.21		0.21						0.37	0.37	0.16	0.62													
Clearance Time (s)	6.0		6.0						6.0	6.0	6.0	6.0													
Vehicle Extension (s)	3.0		3.0						3.0	3.0	3.0	3.0													
Lane Grp Cap (vph)	988		552						1824	1000	543	3048													
v/s Ratio Prot									0.18	0.10	c0.33														
v/s Ratio Perm	0.08		c0.14						0.05																
v/c Ratio	0.37		0.66						0.49	0.15	0.61	0.54													
Uniform Delay, d1	23.9		25.5						16.9	14.6	27.1	7.5													
Progression Factor	1.00		1.00						1.00	1.00	0.54	0.06													
Incremental Delay, d2	0.2		2.8						1.0	0.3	1.3	0.4													
Delay (s)	24.1		28.4						17.8	14.9	15.9	0.9													
Level of Service	C		C						B	B	B	A													
Approach Delay (s)			26.3		0.0				16.9	3.4															
Approach LOS			C		A				B	A															
Intersection Summary																									
HCM Average Control Delay			12.1		HCM Level of Service				B																
HCM Volume to Capacity ratio			0.57																						
Actuated Cycle Length (s)			70.0		Sum of lost time (s)		12.0																		
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	NEL	NET	NER	SWL	SWT	SWR		
Lane Configurations														
Volume (vph)	0	0	0	724	0	230	381	776	0	0	1065	336		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0		
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00		
Frt				1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482		
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482		
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.86	0.86	0.86		
Adj. Flow (vph)	0	0	0	762	0	242	414	843	0	0	1238	391		
RTOR Reduction (vph)	0	0	0	0	0	192	0	0	0	0	0	251		
Lane Group Flow (vph)	0	0	0	762	0	50	414	843	0	0	1238	140		
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%		
Turn Type				custom		custom		Prot					Perm	
Protected Phases								5	2				6	
Permitted Phases				8		8								6
Actuated Green, G (s)				14.6		14.6		12.3	43.4				25.1	
Effective Green, g (s)				14.6		14.6		12.3	43.4				25.1	
Actuated g/C Ratio				0.21		0.21		0.18	0.62				0.36	
Clearance Time (s)				6.0		6.0		6.0	6.0				6.0	
Vehicle Extension (s)				3.0		3.0		3.0	3.0				3.0	
Lane Grp Cap (vph)				974		544		565	2951				531	
v/s Ratio Prot								c0.13	0.18				c0.26	
v/s Ratio Perm				c0.16		0.02								0.09
v/c Ratio				0.78		0.09		0.73	0.29				0.26	
Uniform Delay, d1				26.2		22.4		27.3	6.1				15.9	
Progression Factor				1.00		1.00		0.54	0.14				1.00	
Incremental Delay, d2				4.2		0.1		4.3	0.2				1.2	
Delay (s)				30.4		22.4		19.2	1.1				17.1	
Level of Service				C		C		B	A				B	
Approach Delay (s)	0.0				28.4		7.1				21.0			
Approach LOS	A				C		A				C			
Intersection Summary														
HCM Average Control Delay			18.4		HCM Level of Service				B					
HCM Volume to Capacity ratio			0.74											
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				18.0					
Intersection Capacity Utilization			60.4%		ICU Level of Service				B					
Analysis Period (min)			15											
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B&C

1007: SR 204 EB Off Ramp & Pine Grove Rd

8/25/2011

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Volume (vph)	41	0	63	0	0	0	0	85	102	100	150	0						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900						
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0							
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95							
Frt	1.00		0.85					1.00	0.85	1.00	1.00							
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00							
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505							
Flt Permitted	0.95		1.00					1.00	1.00	0.68	1.00							
Satd. Flow (perm)	1752		1568					1845	1568	1260	3505							
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81						
Adj. Flow (vph)	45	0	69	0	0	0	0	115	138	123	185	0						
RTOR Reduction (vph)	0	0	64	0	0	0	0	0	29	0	0	0						
Lane Group Flow (vph)	45	0	5	0	0	0	0	115	109	123	185	0						
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%						
Turn Type	custom		custom						Perm	Perm								
Protected Phases									2		6							
Permitted Phases	4		4						2	6								
Actuated Green, G (s)	6.7		6.7						71.3	71.3	71.3	71.3						
Effective Green, g (s)	6.7		6.7						71.3	71.3	71.3	71.3						
Actuated g/C Ratio	0.07		0.07						0.79	0.79	0.79	0.79						
Clearance Time (s)	6.0		6.0						6.0	6.0	6.0	6.0						
Vehicle Extension (s)	3.0		3.0						3.0	3.0	3.0	3.0						
Lane Grp Cap (vph)	130		117						1462	1242	998	2777						
v/s Ratio Prot									0.06		0.05							
v/s Ratio Perm	c0.03		0.00						0.07	c0.10								
v/c Ratio	0.35		0.04						0.08	0.09	0.12	0.07						
Uniform Delay, d1	39.6		38.7						2.1	2.1	2.2	2.1						
Progression Factor	1.00		1.00						1.00	1.00	0.99	0.20						
Incremental Delay, d2	1.6		0.2						0.1	0.1	0.3	0.0						
Delay (s)	41.2		38.8						2.2	2.2	2.4	0.5						
Level of Service	D		D						A	A	A	A						
Approach Delay (s)			39.8		0.0				2.2		1.2							
Approach LOS			D		A				A		A							
Intersection Summary																		
HCM Average Control Delay			8.1		HCM Level of Service				A									
HCM Volume to Capacity ratio			0.14															
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0									
Intersection Capacity Utilization			41.2%		ICU Level of Service				A									
Analysis Period (min)			15															
c Critical Lane Group																		

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B&C

1008: SR 204 WB On Ramp & Pine Grove Rd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	140	571	75	83	43	0	0	110	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568
Flt Permitted				0.95	1.00	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)				1752	3505	1568	1236	3505			1845	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	149	607	80	112	58	0	0	136	57
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	0	0	0	22
Lane Group Flow (vph)	0	0	0	149	607	21	112	58	0	0	136	35
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm		Perm	Perm			Perm		
Protected Phases						8		2		6		
Permitted Phases						8	2		6			
Actuated Green, G (s)						23.1	23.1	54.9	54.9	54.9		
Effective Green, g (s)						23.1	23.1	54.9	54.9	54.9		
Actuated g/C Ratio						0.26	0.26	0.61	0.61	0.61		
Clearance Time (s)						6.0	6.0	6.0	6.0	6.0		
Vehicle Extension (s)						3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)						450	900	402	754	2138		1125
v/s Ratio Prot						c0.17		0.02		0.07		
v/s Ratio Perm						0.09	0.01	c0.09		0.02		
v/c Ratio						0.33	0.67	0.05	0.15	0.03	0.12	0.04
Uniform Delay, d1						27.2	30.1	25.2	7.5	7.0	7.4	7.0
Progression Factor						1.00	1.00	1.00	1.00	0.26	1.00	1.00
Incremental Delay, d2						0.4	2.0	0.1	0.4	0.0	0.2	0.1
Delay (s)						27.6	32.1	25.2	8.0	1.8	7.6	7.1
Level of Service						C	C	C	A	A	A	A
Approach Delay (s)						0.0		30.6		5.9		7.5
Approach LOS						A		C		A		A
Intersection Summary												
HCM Average Control Delay				23.4		HCM Level of Service				C		
HCM Volume to Capacity ratio				0.30								
Actuated Cycle Length (s)				90.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization				41.2%		ICU Level of Service				A		
Analysis Period (min)				15								
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	341	234	323	387	264	1041
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.99	0.99	0.85	0.85	0.77	0.77
Adj. Flow (vph)	344	236	380	455	343	1352
RTOR Reduction (vph)	0	194	0	0	0	0
Lane Group Flow (vph)	344	42	380	455	343	1352
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Free		Prot	
Protected Phases	8		2		1 6	
Permitted Phases	8		Free			
Actuated Green, G (s)	12.4	12.4	21.8	70.0	17.8	45.6
Effective Green, g (s)	12.4	12.4	21.8	70.0	17.8	45.6
Actuated g/C Ratio	0.18	0.18	0.31	1.00	0.25	0.65
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	596	275	1081	1553	441	3249
v/s Ratio Prot	c0.10		0.11		c0.20 c0.27	
v/s Ratio Perm	0.03		0.29			
v/c Ratio	0.58	0.15	0.35	0.29	0.78	0.42
Uniform Delay, d1	26.4	24.4	18.6	0.0	24.3	5.8
Progression Factor	1.00	1.00	1.00	1.00	0.76	0.79
Incremental Delay, d2	1.4	0.3	0.9	0.5	8.4	0.4
Delay (s)	27.8	24.6	19.5	0.5	26.8	5.0
Level of Service	C	C	B	A	C	A
Approach Delay (s)	26.5		9.2		9.4	
Approach LOS	C		A		A	
Intersection Summary						
HCM Average Control Delay			12.5		HCM Level of Service B	
HCM Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			70.0		Sum of lost time (s) 12.0	
Intersection Capacity Utilization			48.3%		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												
Volume (vph)	0	0	999	0	0	386	239	318	0	0	306	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00
Frt			0.85			0.86	1.00	1.00			1.00	0.85
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553
Flt Permitted			1.00			1.00	0.44	1.00			1.00	1.00
Satd. Flow (perm)			2733			1580	811	1827			3471	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.85	0.85	0.85	0.77	0.77	0.77
Adj. Flow (vph)	0	0	1019	0	0	394	281	374	0	0	397	432
RTOR Reduction (vph)	0	0	272	0	0	356	0	0	0	0	0	210
Lane Group Flow (vph)	0	0	747	0	0	38	281	374	0	0	397	222
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom			custom			pm+pt			Perm		
Protected Phases							5			2		
Permitted Phases	2			8			2			6		
Actuated Green, G (s)	51.3			6.7			51.3			51.3		
Effective Green, g (s)	51.3			6.7			51.3			51.3		
Actuated g/C Ratio	0.73			0.10			0.73			0.51		
Clearance Time (s)	6.0			6.0			6.0			6.0		
Vehicle Extension (s)	3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)	2003			151			717			1339		
v/s Ratio Prot							0.05			0.20		
v/s Ratio Perm	c0.27			c0.02			c0.24					
v/c Ratio	0.37			0.25			0.39			0.28		
Uniform Delay, d1	3.4			29.3			3.3			3.1		
Progression Factor	1.00			1.00			0.70			0.57		
Incremental Delay, d2	0.5			0.9			0.3			0.5		
Delay (s)	4.0			30.2			2.7			2.3		
Level of Service	A			C			A			A		
Approach Delay (s)	4.0			30.2			2.5			10.1		
Approach LOS	A			C			A			B		
Intersection Summary												
HCM Average Control Delay	8.9			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	70.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	53.4%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1011: SR 204 & Rio Road

2015 PM Concept B

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	346	862	173	43	980	17	307	39	22	37	59	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	368	917	184	47	1065	18	379	48	27	40	63	591
RTOR Reduction (vph)	0	0	85	0	0	8	0	0	23	0	0	0
Lane Group Flow (vph)	368	917	99	47	1065	10	379	48	4	40	63	591
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Actuated Green, G (s)	28.2	70.2	70.2	7.8	49.8	49.8	19.3	21.3	21.3	6.7	8.7	130.0
Effective Green, g (s)	28.2	70.2	70.2	7.8	49.8	49.8	19.3	21.3	21.3	6.7	8.7	130.0
Actuated g/C Ratio	0.22	0.54	0.54	0.06	0.38	0.38	0.15	0.16	0.16	0.05	0.07	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	730	2277	839	104	1124	595	500	299	254	89	122	1553
v/s Ratio Prot	c0.11	0.22		0.03	c0.36		c0.11	0.03		0.02	0.03	
v/s Ratio Perm			0.06			0.01			0.00			c0.38
v/c Ratio	0.50	0.40	0.12	0.45	0.95	0.02	0.76	0.16	0.02	0.45	0.52	0.38
Uniform Delay, d1	44.8	17.6	14.7	59.0	38.8	24.9	53.1	46.7	45.6	59.9	58.6	0.0
Progression Factor	1.00	1.00	1.00	1.09	0.70	0.36	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.5	0.3	2.9	16.2	0.0	6.5	0.3	0.0	3.6	3.7	0.7
Delay (s)	45.3	18.1	15.0	67.4	43.3	9.0	59.6	46.9	45.6	63.4	62.3	0.7
Level of Service	D	B	B	E	D	A	E	D	D	E	E	A
Approach Delay (s)		24.5			43.8			57.4			9.9	
Approach LOS		C			D			E			A	
Intersection Summary												
HCM Average Control Delay			31.6			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			67.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1012: SR 204 & West Mall Driveway

2015 PM Concept B

8/22/2011

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑↑	↑↑↑↑	↗		↗		
Volume (veh/h)	0	921	946	50	0	94		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	980	975	52	0	122		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh)								
Upstream signal (ft)		697						
pX, platoon unblocked					0.90			
vC, conflicting volume	975				1302	325		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	975				936	325		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	82		
cM capacity (veh/h)	691				233	665		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	327	327	327	325	325	325	52	122
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	52	122
cSH	1700	1700	1700	1700	1700	1700	1700	665
Volume to Capacity	0.19	0.19	0.19	0.19	0.19	0.19	0.03	0.18
Queue Length 95th (ft)	0	0	0	0	0	0	0	17
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Lane LOS								B
Approach Delay (s)	0.0	0.0						11.6
Approach LOS								B
Intersection Summary								
Average Delay	0.7							
Intersection Capacity Utilization	30.8%			ICU Level of Service			A	
Analysis Period (min)	15							

										
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations										
Volume (veh/h)	0	921	969	70	0	27				
Sign Control		Free	Free		Stop					
Grade		0%	0%		0%					
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77				
Hourly flow rate (vph)	0	980	999	72	0	35				
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										
vC, conflicting volume	999			1326		333				
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	999			1326		333				
tC, single (s)	4.2			6.9		7.0				
tC, 2 stage (s)										
tF (s)	2.2			3.5		3.3				
p0 queue free %	100			100		95				
cM capacity (veh/h)	677			144		657				
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1		
Volume Total	327	327	327	333	333	333	72	35		
Volume Left	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	0	0	0	72	35		
cSH	1700	1700	1700	1700	1700	1700	1700	657		
Volume to Capacity	0.19	0.19	0.19	0.20	0.20	0.20	0.04	0.05		
Queue Length 95th (ft)	0	0	0	0	0	0	0	4		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8		
Lane LOS	B									
Approach Delay (s)	0.0			0.0		10.8				
Approach LOS	B									
Intersection Summary										
Average Delay			0.2							
Intersection Capacity Utilization			28.7%		ICU Level of Service		A			
Analysis Period (min)			15							

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑	↗		↗		
Volume (veh/h)	0	921	971	75	0	68		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	980	1001	77	0	88		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (ft)			545					
pX, platoon unblocked	0.89					0.89	0.89	
vC, conflicting volume	1001					1328	334	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	590					955	0	
tC, single (s)	4.2					6.9	7.0	
tC, 2 stage (s)								
tF (s)	2.2					3.5	3.3	
p0 queue free %	100					100	91	
cM capacity (veh/h)	866					226	965	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	327	327	327	334	334	334	77	88
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	77	88
cSH	1700	1700	1700	1700	1700	1700	1700	965
Volume to Capacity	0.19	0.19	0.19	0.20	0.20	0.20	0.05	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS	A							
Approach Delay (s)	0.0			0.0				
Approach LOS	A							
Intersection Summary								
Average Delay			0.4					
Intersection Capacity Utilization			29.6%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B

1015: SR 204 & Apache Ave

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	789	59	175	876	103	111	90	90	150	128	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Fr _t	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4218		3367	4219		1736	1827	1553	3367	1827	1553
Fl _t Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4218		3367	4219		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	84	907	68	192	963	113	139	112	112	161	138	63
RTOR Reduction (vph)	0	5	0	0	8	0	0	0	94	0	0	55
Lane Group Flow (vph)	84	970	0	192	1068	0	139	112	18	161	138	8
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.6	62.3		12.9	66.6		13.7	20.5	20.5	10.3	17.1	17.1
Effective Green, g (s)	8.6	62.3		12.9	66.6		13.7	20.5	20.5	10.3	17.1	17.1
Actuated g/C Ratio	0.07	0.48		0.10	0.51		0.11	0.16	0.16	0.08	0.13	0.13
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	223	2021		334	2161		183	288	245	267	240	204
v/s Ratio Prot	0.02	0.23		c0.06	c0.25		c0.08	c0.06		0.05	c0.08	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.38	0.48		0.57	0.49		0.76	0.39	0.07	0.60	0.57	0.04
Uniform Delay, d ₁	58.1	22.9		55.9	20.7		56.5	49.1	46.6	57.9	53.0	49.3
Progression Factor	0.82	0.98		1.17	0.50		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	1.0	0.8		2.1	0.7		16.5	1.8	0.3	3.8	5.2	0.2
Delay (s)	48.4	23.1		67.6	11.1		73.0	50.9	46.9	61.7	58.3	49.5
Level of Service	D	C		E	B		E	D	D	E	E	D
Approach Delay (s)		25.1			19.7			58.1			58.3	
Approach LOS		C			B			E			E	
Intersection Summary												
HCM Average Control Delay			30.7		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					30.0		
Intersection Capacity Utilization			57.1%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B

1016: SR 204 & Middleground Road

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	285	617	127	202	800	117	62	128	104	208	156	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Fr _{pb} , ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Fl _{pb} , ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3367	4217	1510	1736	4217	1532	1736	1692		1736	1827	1533
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.62	1.00		0.22	1.00	1.00
Satd. Flow (perm)	3367	4217	1510	1736	4217	1532	1134	1692		401	1827	1533
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	313	678	140	213	842	123	78	162	132	293	220	411
RTOR Reduction (vph)	0	0	94	0	0	79	0	24	0	0	0	295
Lane Group Flow (vph)	313	678	46	213	842	44	78	270	0	293	220	116
Confl. Peds. (#/hr)			2			1		3				1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	16.5	42.6	42.6	19.9	46.0	46.0	33.4	26.5		49.5	36.6	36.6
Effective Green, g (s)	16.5	42.6	42.6	19.9	46.0	46.0	33.4	26.5		49.5	36.6	36.6
Actuated g/C Ratio	0.13	0.33	0.33	0.15	0.35	0.35	0.26	0.20		0.38	0.28	0.28
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	427	1382	495	266	1492	542	323	345		327	514	432
v/s Ratio Prot	0.09	0.16		c0.12	c0.20		0.01	0.16		c0.12	0.12	
v/s Ratio Perm			0.03			0.03	0.05			c0.22		0.08
v/c Ratio	0.73	0.49	0.09	0.80	0.56	0.08	0.24	0.78		0.90	0.43	0.27
Uniform Delay, d ₁	54.6	35.0	30.3	53.1	33.9	27.9	37.6	49.0		32.2	38.1	36.3
Progression Factor	1.22	0.78	1.48	1.11	0.87	0.58	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d ₂	5.8	1.1	0.3	14.9	1.5	0.3	0.3	11.0		25.3	0.2	0.1
Delay (s)	72.2	28.4	45.2	73.9	31.1	16.4	37.9	60.1		57.5	38.4	36.4
Level of Service	E	C	D	E	C	B	D	E		E	D	D
Approach Delay (s)		42.6			37.3			55.4			43.5	
Approach LOS		D			D			E			D	
Intersection Summary												
HCM Average Control Delay			42.4		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					18.0		
Intersection Capacity Utilization			74.9%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	EBU	EBT	EBR	NBL	NBR2	SBR	SWL
Lane Configurations							
Volume (vph)	0	844	85	119	137	1000	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0
Lane Util. Factor		0.91		0.97	1.00	0.76	1.00
Frt		0.99		1.00	0.85	0.85	1.00
Flt Protected		1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		4219		3367	1553	2994	1736
Flt Permitted		1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		4219		3367	1553	2994	1736
Peak-hour factor, PHF	0.91	0.91	0.91	0.79	0.79	0.95	0.95
Adj. Flow (vph)	0	927	93	151	173	1053	15
RTOR Reduction (vph)	0	5	0	0	44	210	0
Lane Group Flow (vph)	0	1015	0	151	129	843	15
Heavy Vehicles (%)	4%	23%	4%	4%	4%	23%	4%
Turn Type	Prot			Prot	custom	custom	
Protected Phases	5	2		3	13		1
Permitted Phases					8	6	
Actuated Green, G (s)		91.3		13.9	26.7	104.1	6.8
Effective Green, g (s)		91.3		13.9	26.7	104.1	6.8
Actuated g/C Ratio		0.70		0.11	0.21	0.80	0.05
Clearance Time (s)		6.0		6.0		6.0	6.0
Vehicle Extension (s)		5.0		3.0		3.0	3.0
Lane Grp Cap (vph)		2963		360	319	2398	91
v/s Ratio Prot		0.24		0.04	c0.08		0.01
v/s Ratio Perm						c0.28	
v/c Ratio		0.34		0.42	0.41	0.35	0.16
Uniform Delay, d1		7.6		54.3	44.8	3.6	58.9
Progression Factor		0.29		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2		0.8	0.8	0.4	0.9
Delay (s)		2.5		55.1	45.6	4.0	59.7
Level of Service		A		E	D	A	E
Approach Delay (s)		2.5					59.7
Approach LOS		A					E
Intersection Summary							
HCM Average Control Delay			9.9		HCM Level of Service		A
HCM Volume to Capacity ratio			0.35				
Actuated Cycle Length (s)			130.0		Sum of lost time (s)		6.0
Intersection Capacity Utilization			38.3%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	29	610	419	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80	
Hourly flow rate (vph)	32	663	455	0	0	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)			1257				
pX, platoon unblocked							
vC, conflicting volume	455				739	152	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	455				739	152	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	97				100	100	
cM capacity (veh/h)	1088				338	861	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	32	221	221	221	152	152	152
Volume Left	32	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1088	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.13	0.13	0.13	0.09	0.09	0.09
Queue Length 95th (ft)	2	0	0	0	0	0	0
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	0.4				0.0		
Approach LOS							
Intersection Summary							
Average Delay			0.2				
Intersection Capacity Utilization			18.1%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept B

1020: SR 204 & Mohawk Street 3

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↱		↱	↑↑↑			↕			↱	
Volume (veh/h)	0	595	15	6	409	0	10	0	8	39	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	0	647	16	7	445	0	13	0	11	49	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)					1072							
pX, platoon unblocked												
vC, conflicting volume	445			663			817	1112	224	684	1121	148
vC1, stage 1 conf vol							655	655		458	458	
vC2, stage 2 conf vol							162	458		226	663	
vCu, unblocked vol	445			663			817	1112	224	684	1121	148
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	100	99	89	99	100
cM capacity (veh/h)	1098			908			349	320	773	426	315	866
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	259	259	146	7	148	148	148	24	51			
Volume Left	0	0	0	7	0	0	0	13	49			
Volume Right	0	0	16	0	0	0	0	11	0			
cSH	1700	1700	1700	908	1700	1700	1700	462	419			
Volume to Capacity	0.15	0.15	0.09	0.01	0.09	0.09	0.09	0.05	0.12			
Queue Length 95th (ft)	0	0	0	1	0	0	0	4	10			
Control Delay (s)	0.0	0.0	0.0	9.0	0.0	0.0	0.0	13.2	14.8			
Lane LOS				A				B	B			
Approach Delay (s)	0.0			0.1				13.2	14.8			
Approach LOS								B	B			
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			22.0%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B

1022: SR 204 & Mercy Blvd

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑↑↑		↵	↑↑↑	↕	↵	↕		↵	↕	
Volume (vph)	84	461	97	63	333	85	83	36	55	127	36	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.91		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4220		1736	4217	1553	1736	1661		1736	1632	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.55	1.00		0.66	1.00	
Satd. Flow (perm)	1736	4220		1736	4217	1553	1004	1661		1209	1632	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	91	501	105	66	351	89	97	42	64	149	42	104
RTOR Reduction (vph)	0	14	0	0	0	35	0	54	0	0	87	0
Lane Group Flow (vph)	91	592	0	66	351	54	97	52	0	149	59	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4				8
Permitted Phases						6	4				8	
Actuated Green, G (s)	12.1	82.0		9.0	78.9	78.9	21.0	21.0		21.0	21.0	
Effective Green, g (s)	12.1	82.0		9.0	78.9	78.9	21.0	21.0		21.0	21.0	
Actuated g/C Ratio	0.09	0.63		0.07	0.61	0.61	0.16	0.16		0.16	0.16	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	162	2662		120	2559	943	162	268		195	264	
v/s Ratio Prot	c0.05	c0.14		0.04	0.08			0.03			0.04	
v/s Ratio Perm						0.03	0.10			c0.12		
v/c Ratio	0.56	0.22		0.55	0.14	0.06	0.60	0.20		0.76	0.22	
Uniform Delay, d1	56.4	10.3		58.5	11.0	10.4	50.6	47.2		52.1	47.4	
Progression Factor	0.95	0.78		0.70	0.91	1.91	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.2		5.2	0.1	0.1	5.8	0.4		16.2	0.4	
Delay (s)	58.0	8.2		46.4	10.1	20.0	56.4	47.5		68.3	47.8	
Level of Service	E	A		D	B	C	E	D		E	D	
Approach Delay (s)		14.7			16.6			51.8			58.2	
Approach LOS		B			B			D			E	
Intersection Summary												
HCM Average Control Delay			27.2			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			49.8%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2015 PM Concept B

1023: SR 204 & Largo Blvd

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	409	93	220	277	79	100	102	162	110	347	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4221		1736	4221		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.17	1.00	1.00	0.68	1.00	1.00
Satd. Flow (perm)	1736	4221		1736	4221		302	1827	1553	1238	1827	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	145	422	96	242	304	87	110	112	178	147	463	139
RTOR Reduction (vph)	0	25	0	0	35	0	0	0	126	0	0	46
Lane Group Flow (vph)	145	493	0	242	356	0	110	112	52	147	463	93
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	15.5	36.0		22.9	43.4		46.8	38.1	38.1	47.4	38.4	38.4
Effective Green, g (s)	15.5	36.0		22.9	43.4		46.8	38.1	38.1	47.4	38.4	38.4
Actuated g/C Ratio	0.12	0.28		0.18	0.33		0.36	0.29	0.29	0.36	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	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	207	1169		306	1409		205	535	455	486	540	459
v/s Ratio Prot	0.08	c0.12		c0.14	0.08		c0.04	0.06		0.02	c0.25	
v/s Ratio Perm							0.16		0.03	0.09		0.06
v/c Ratio	0.70	0.42		0.79	0.25		0.54	0.21	0.11	0.30	0.86	0.20
Uniform Delay, d1	55.0	38.5		51.3	31.5		31.3	34.6	33.6	28.7	43.2	34.3
Progression Factor	0.97	0.83		0.79	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.1	1.1		12.8	0.4		2.7	0.2	0.1	0.4	12.7	0.2
Delay (s)	63.4	33.1		53.4	32.0		33.9	34.8	33.7	29.0	55.9	34.6
Level of Service	E	C		D	C		C	C	C	C	E	C
Approach Delay (s)		39.7			40.2			34.1			46.7	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM Average Control Delay			41.1			HCM Level of Service					D	
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			68.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept B

1024: SR 204 & Idlewood Drive

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	560	121	0	554	30	0	0	81	0	0	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Hourly flow rate (vph)	0	577	125	0	609	33	0	0	89	0	0	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		651			1109							
pX, platoon unblocked	1.00						1.00	1.00		1.00	1.00	1.00
vC, conflicting volume	642			577			810	1219	192	818	1203	219
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	636			577			804	1214	192	812	1198	213
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	89	100	100	96
cM capacity (veh/h)	928			979			260	177	810	237	181	785
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	192	192	192	125	244	244	155	89	29			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	125	0	0	33	89	29			
cSH	1700	1700	1700	1700	1700	1700	1700	810	785			
Volume to Capacity	0.11	0.11	0.11	0.07	0.14	0.14	0.09	0.11	0.04			
Queue Length 95th (ft)	0	0	0	0	0	0	0	9	3			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	9.8			
Lane LOS								A	A			
Approach Delay (s)	0.0				0.0			10.0	9.8			
Approach LOS								A	A			
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			22.5%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
1025: SR 204 & Deerfield Road

2015 PM Concept B
8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	401	55	114	394	199	49	26	56	193	9	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	4219		1736	4217	1553	1736	1639		1649	1660	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	4219		1736	4217	1553	1736	1639		1649	1660	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	199	431	59	116	402	203	53	28	61	205	10	150
RTOR Reduction (vph)	0	10	0	0	0	114	0	54	0	0	0	134
Lane Group Flow (vph)	199	480	0	116	402	89	53	35	0	107	108	16
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	20.2	63.2		14.0	57.0	57.0	15.0	15.0		13.8	13.8	13.8
Effective Green, g (s)	20.2	63.2		14.0	57.0	57.0	15.0	15.0		13.8	13.8	13.8
Actuated g/C Ratio	0.16	0.49		0.11	0.44	0.44	0.12	0.12		0.11	0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	270	2051		187	1849	681	200	189		175	176	165
v/s Ratio Prot	c0.11	c0.11		0.07	0.10		c0.03	0.02		0.06	c0.07	
v/s Ratio Perm						0.06						0.01
v/c Ratio	0.74	0.23		0.62	0.22	0.13	0.27	0.19		0.61	0.61	0.10
Uniform Delay, d1	52.4	19.4		55.5	22.7	21.7	52.5	52.0		55.5	55.6	52.5
Progression Factor	0.79	0.73		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.7	0.3		6.3	0.3	0.4	0.7	0.5		6.2	6.2	0.3
Delay (s)	51.3	14.4		61.7	22.9	22.1	53.2	52.5		61.7	61.8	52.7
Level of Service	D	B		E	C	C	D	D		E	E	D
Approach Delay (s)		25.1			28.9			52.7			58.0	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM Average Control Delay			34.8			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			50.2%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1026: Truman Parkway & SR 204

2015 PM Concept B
8/22/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	112	0	24	602	0	49	0	812	0	0	81	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	224	0	48	684	0	56	0	864	0	0	90	77
RTOR Reduction (vph)	0	0	38	0	0	44	0	0	0	0	0	26
Lane Group Flow (vph)	224	0	10	684	0	12	0	864	0	0	90	51
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases				8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)			18.7	18.7		18.7		59.3			59.3	59.3
Effective Green, g (s)			18.7	18.7		18.7		59.3			59.3	59.3
Actuated g/C Ratio			0.21	0.21		0.21		0.66			0.66	0.66
Clearance Time (s)			6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)			3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)			323	1017		323		2779			2779	1023
v/s Ratio Prot				c0.14				c0.20			0.02	
v/s Ratio Perm			0.01			0.01						0.03
v/c Ratio			0.03	0.67		0.04		0.31			0.03	0.05
Uniform Delay, d1			28.4	32.8		28.5		6.6			5.4	5.4
Progression Factor			1.00	1.00		1.00		1.00			0.78	0.50
Incremental Delay, d2			0.0	1.8		0.0		0.3			0.0	0.1
Delay (s)			28.5	34.6		28.5		6.9			4.2	2.8
Level of Service			C	C		C		A			A	A
Approach Delay (s)				34.1				6.9			3.5	
Approach LOS				C				A			A	
Intersection Summary												
HCM Average Control Delay			20.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			46.7%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations							
Volume (vph)	34	139	0	915	58	123	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553		4217	1553	1736	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553		4217	1553	1736	4217
Peak-hour factor, PHF	0.88	0.88	0.94	0.94	0.94	0.90	0.90
Adj. Flow (vph)	39	158	0	973	62	137	129
RTOR Reduction (vph)	0	145	0	0	26	0	0
Lane Group Flow (vph)	39	13	0	973	36	137	129
Heavy Vehicles (%)	4%	4%	4%	23%	4%	4%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	7.6	7.6		52.0	52.0	12.4	70.4
Effective Green, g (s)	7.6	7.6		52.0	52.0	12.4	70.4
Actuated g/C Ratio	0.08	0.08		0.58	0.58	0.14	0.78
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	284	131		2436	897	239	3299
v/s Ratio Prot				c0.23		c0.08	0.03
v/s Ratio Perm	c0.01	0.01			0.02		
v/c Ratio	0.14	0.10		0.40	0.04	0.57	0.04
Uniform Delay, d1	38.2	38.0		10.4	8.2	36.3	2.2
Progression Factor	1.00	1.00		0.73	0.49	1.00	1.00
Incremental Delay, d2	0.2	0.3		0.5	0.1	3.3	0.0
Delay (s)	38.4	38.4		8.1	4.1	39.6	2.2
Level of Service	D	D		A	A	D	A
Approach Delay (s)	38.4			7.9			21.5
Approach LOS	D			A			C
Intersection Summary							
HCM Average Control Delay			14.3		HCM Level of Service		B
HCM Volume to Capacity ratio			0.40				
Actuated Cycle Length (s)			90.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			42.8%		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												
Volume (vph)	346	862	173	0	0	0	0	346	22	37	102	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					4988	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					4988	1553	1736	1827	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	368	917	184	0	0	0	0	427	27	40	110	0
RTOR Reduction (vph)	0	0	90	0	0	0	0	0	25	0	0	0
Lane Group Flow (vph)	368	917	94	0	0	0	0	427	2	40	110	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	25.0	61.0	61.0					11.0	11.0	30.0	30.0	
Effective Green, g (s)	25.0	61.0	61.0					11.0	11.0	30.0	30.0	
Actuated g/C Ratio	0.21	0.51	0.51					0.09	0.09	0.25	0.25	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	362	2144	789					457	142	434	457	
v/s Ratio Prot	c0.21	c0.22						c0.09		0.02	c0.06	
v/s Ratio Perm			0.06						0.00			
v/c Ratio	1.02	0.43	0.12					0.93	0.02	0.09	0.24	
Uniform Delay, d1	47.5	18.5	15.4					54.1	49.6	34.5	35.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.00	0.08	
Incremental Delay, d2	51.6	0.6	0.3					26.3	0.0	0.1	0.3	
Delay (s)	99.1	19.2	15.7					80.5	49.6	0.1	3.1	
Level of Service	F	B	B					F	D	A	A	
Approach Delay (s)		38.7			0.0			78.6			2.3	
Approach LOS		D			A			E			A	
Intersection Summary												
HCM Average Control Delay			44.8		HCM Level of Service				D			
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				24.0			
Intersection Capacity Utilization			72.1%		ICU Level of Service				C			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1012: SR 204 WB & Rio Road

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	43	980	17	307	385	0	0	96	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	4.0
Lane Util. Factor				1.00	0.95	1.00	0.97	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	3367	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	3367	1827			3471	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	47	1065	18	379	475	0	0	103	591
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	47	1065	7	379	475	0	0	103	591
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Free
Protected Phases				1!	6		3 5!	3 5!				4
Permitted Phases						6						Free
Actuated Green, G (s)				8.0	44.0	44.0	42.0	42.0			16.0	120.0
Effective Green, g (s)				8.0	44.0	44.0	42.0	42.0			16.0	120.0
Actuated g/C Ratio				0.07	0.37	0.37	0.35	0.35			0.13	1.00
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				116	1076	569	1178	639			463	1553
v/s Ratio Prot				0.03	c0.36		0.11	c0.26			0.03	
v/s Ratio Perm						0.00						c0.38
v/c Ratio				0.41	0.99	0.01	0.32	0.74			0.22	0.38
Uniform Delay, d1				53.7	37.8	24.2	28.6	34.3			46.4	0.0
Progression Factor				0.71	0.88	0.89	0.67	0.12			1.00	1.00
Incremental Delay, d2				2.2	24.4	0.0	0.1	1.5			1.1	0.7
Delay (s)				40.2	57.8	21.4	19.2	5.5			47.6	0.7
Level of Service				D	E	C	B	A			D	A
Approach Delay (s)		0.0			56.5			11.6			7.7	
Approach LOS		A			E			B			A	
Intersection Summary												
HCM Average Control Delay			29.5	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			72.1%	ICU Level of Service				C				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2015 PM Concept C

1013: SR 204 WB & West Mall Driveway

8/25/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	946	50	0	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	975	52	0	122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		689				
pX, platoon unblocked						
vC, conflicting volume	975				975	325
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	975				975	325
tC, single (s)	4.6				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	82
cM capacity (veh/h)	588				245	665
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	325	325	325	52	122	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	52	122	
cSH	1700	1700	1700	1700	665	
Volume to Capacity	0.19	0.19	0.19	0.03	0.18	
Queue Length 95th (ft)	0	0	0	0	17	
Control Delay (s)	0.0	0.0	0.0	0.0	11.6	
Lane LOS					B	
Approach Delay (s)	0.0				11.6	
Approach LOS					B	
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			30.8%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	969	70	0	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	999	72	0	35
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						
vC, conflicting volume	999				999	333
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	999				999	333
tC, single (s)	4.6				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	575				237	657
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	333	333	333	72	35	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	72	35	
cSH	1700	1700	1700	1700	657	
Volume to Capacity	0.20	0.20	0.20	0.04	0.05	
Queue Length 95th (ft)	0	0	0	0	4	
Control Delay (s)	0.0	0.0	0.0	0.0	10.8	
Lane LOS					B	
Approach Delay (s)	0.0				10.8	
Approach LOS					B	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			28.7%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	971	75	0	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1001	77	0	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			545			
pX, platoon unblocked	0.87				0.87	0.87
vC, conflicting volume	1001				1001	334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	492				492	0
tC, single (s)	4.6				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	815				437	941
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	334	334	334	77	88	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	77	88	
cSH	1700	1700	1700	1700	941	
Volume to Capacity	0.20	0.20	0.20	0.05	0.09	
Queue Length 95th (ft)	0	0	0	0	8	
Control Delay (s)	0.0	0.0	0.0	0.0	9.2	
Lane LOS					A	
Approach Delay (s)	0.0				9.2	
Approach LOS					A	
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			29.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1016: SR 204 EB & Apache Ave

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	789	59	0	0	0	0	201	90	150	303	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					4988	1553	3367	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					4988	1553	3367	1827	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	84	907	68	0	0	0	0	251	112	161	326	0
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	101	0	0	0
Lane Group Flow (vph)	84	907	26	0	0	0	0	251	11	161	326	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm							Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	13.0	46.4	46.4					11.9	11.9	43.7	43.7	
Effective Green, g (s)	13.0	46.4	46.4					11.9	11.9	43.7	43.7	
Actuated g/C Ratio	0.11	0.39	0.39					0.10	0.10	0.36	0.36	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	188	1631	600					495	154	1226	665	
v/s Ratio Prot	0.05	c0.22						c0.05		0.05	c0.18	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.45	0.56	0.04					0.51	0.07	0.13	0.49	
Uniform Delay, d1	50.1	28.8	23.0					51.3	49.0	25.5	29.5	
Progression Factor	0.69	0.48	0.17					1.00	1.00	0.00	0.02	
Incremental Delay, d2	1.6	1.3	0.1					0.8	0.2	0.0	0.5	
Delay (s)	36.3	15.2	4.1					52.1	49.2	0.0	1.2	
Level of Service	D	B	A					D	D	A	A	
Approach Delay (s)		16.1			0.0			51.2			0.8	
Approach LOS		B			A			D			A	
Intersection Summary												
HCM Average Control Delay		18.9		HCM Level of Service					B			
HCM Volume to Capacity ratio		0.52										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)				18.0				
Intersection Capacity Utilization		58.9%		ICU Level of Service				B				
Analysis Period (min)		15										
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1017: SR 204 WB & Apache Ave

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	175	876	103	111	163	0	0	278	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	0.97	1.00			0.91	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	3367	1827			4988	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	3367	1827			4988	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	192	963	113	139	204	0	0	299	63
RTOR Reduction (vph)	0	0	0	0	0	64	0	0	0	0	0	53
Lane Group Flow (vph)	0	0	0	192	963	49	139	204	0	0	299	10
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				18.6	52.0	52.0	30.9	30.9			19.1	19.1
Effective Green, g (s)				18.6	52.0	52.0	30.9	30.9			19.1	19.1
Actuated g/C Ratio				0.16	0.43	0.43	0.26	0.26			0.16	0.16
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				269	1827	673	867	470			794	247
v/s Ratio Prot				c0.11	c0.23		0.04	c0.11			c0.06	
v/s Ratio Perm						0.03						0.01
v/c Ratio				0.71	0.53	0.07	0.16	0.43			0.38	0.04
Uniform Delay, d1				48.2	25.0	19.9	34.5	37.2			45.1	42.7
Progression Factor				1.41	0.66	0.83	0.09	0.06			1.00	1.00
Incremental Delay, d2				6.3	0.8	0.2	0.1	0.6			1.4	0.3
Delay (s)				74.2	17.4	16.6	3.1	3.0			46.5	43.0
Level of Service				E	B	B	A	A			D	D
Approach Delay (s)		0.0			25.9			3.0			45.9	
Approach LOS		A			C			A			D	
Intersection Summary												
HCM Average Control Delay		25.6		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)				18.0				
Intersection Capacity Utilization		58.9%		ICU Level of Service				B				
Analysis Period (min)		15										
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1018: SR 204 EB & Middleground Road

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	285	617	127	0	0	0	0	190	104	208	358	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3287		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3287		1736	1827	
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.92	0.92	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	313	678	140	0	0	0	0	241	132	293	504	0
RTOR Reduction (vph)	0	0	96	0	0	0	0	62	0	0	0	0
Lane Group Flow (vph)	313	678	44	0	0	0	0	311	0	293	504	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	27.0	37.9	37.9					14.8		49.3	49.3	
Effective Green, g (s)	27.0	37.9	37.9					14.8		49.3	49.3	
Actuated g/C Ratio	0.22	0.32	0.32					0.12		0.41	0.41	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					2.5				
Lane Grp Cap (vph)	391	1332	490					405		713	751	
v/s Ratio Prot	c0.18	c0.16						c0.09		0.17	c0.28	
v/s Ratio Perm			0.03									
v/c Ratio	0.80	0.51	0.09					0.77		0.41	0.67	
Uniform Delay, d1	44.0	33.5	28.9					50.9		25.1	28.8	
Progression Factor	0.59	0.59	0.55					1.00		0.12	0.12	
Incremental Delay, d2	10.1	1.2	0.3					8.1		0.3	1.9	
Delay (s)	36.1	20.8	16.3					59.0		3.4	5.3	
Level of Service	D	C	B					E		A	A	
Approach Delay (s)		24.5			0.0			59.0			4.6	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM Average Control Delay			23.2									
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			120.0									
Intersection Capacity Utilization			74.2%									
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1019: SR 204 WB & Middleground Road

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	800	117	62	413	0	0	364	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frbp, ped/bikes				1.00	1.00	0.99	1.00	1.00			1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1531	1736	1827			3471	1531
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1531	1736	1827			3471	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	0	0	0	213	842	123	78	523	0	0	513	411
RTOR Reduction (vph)	0	0	0	0	0	90	0	0	0	0	0	335
Lane Group Flow (vph)	0	0	0	213	842	33	78	523	0	0	513	76
Confl. Peds. (#/hr)				2		1			3			1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				21.1	32.0	32.0	47.8	47.8			22.2	22.2
Effective Green, g (s)				21.1	32.0	32.0	47.8	47.8			22.2	22.2
Actuated g/C Ratio				0.18	0.27	0.27	0.40	0.40			0.18	0.18
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				305	1125	408	692	728			642	283
v/s Ratio Prot				0.12	c0.20		0.04	c0.29			c0.15	
v/s Ratio Perm						0.02						0.05
v/c Ratio				0.70	0.75	0.08	0.11	0.72			0.80	0.27
Uniform Delay, d1				46.5	40.3	33.0	22.7	30.4			46.8	41.9
Progression Factor				0.61	0.51	0.13	0.46	0.15			1.00	1.00
Incremental Delay, d2				6.3	4.2	0.4	0.0	2.3			10.0	2.3
Delay (s)				34.6	25.0	4.8	10.6	6.8			56.8	44.3
Level of Service				C	C	A	B	A			E	D
Approach Delay (s)		0.0			24.6			7.3			51.2	
Approach LOS		A			C			A			D	
Intersection Summary												
HCM Average Control Delay				29.9								
HCM Volume to Capacity ratio				0.75								
Actuated Cycle Length (s)				120.0							18.0	
Intersection Capacity Utilization				74.2%								
Analysis Period (min)				15								
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1020: SR 204 EB & Arts Drive

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	844	85	0	0	0	0	119	137	47	14	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0	6.0	
Lane Util. Factor		0.91						0.95	1.00	1.00	1.00	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		4219						3471	1553	1736	1827	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		4219						3471	1553	1736	1827	
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95
Adj. Flow (vph)	0	927	93	0	0	0	0	151	173	49	15	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	136	0	0	0
Lane Group Flow (vph)	0	1012	0	0	0	0	0	151	37	49	15	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot							Perm	Split			
Protected Phases	5!	2						3		1!	1!	
Permitted Phases									3			
Actuated Green, G (s)		68.3						26.0	26.0	7.7	7.7	
Effective Green, g (s)		68.3						26.0	26.0	7.7	7.7	
Actuated g/C Ratio		0.57						0.22	0.22	0.06	0.06	
Clearance Time (s)		6.0						6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2401						752	336	111	117	
v/s Ratio Prot		c0.24						c0.04		c0.03	0.01	
v/s Ratio Perm									0.02			
v/c Ratio		0.42						0.20	0.11	0.44	0.13	
Uniform Delay, d1		14.7						38.5	37.7	54.1	53.0	
Progression Factor		1.08						1.00	1.00	0.06	0.05	
Incremental Delay, d2		0.5						0.6	0.7	2.8	0.5	
Delay (s)		16.3						39.1	38.4	6.3	3.0	
Level of Service		B						D	D	A	A	
Approach Delay (s)		16.3			0.0			38.7			5.5	
Approach LOS		B			A			D			A	
Intersection Summary												
HCM Average Control Delay			21.0								HCM Level of Service	C
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			120.0							18.0		
Intersection Capacity Utilization			45.0%								ICU Level of Service	A
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1021: SR 204 WB & Arts Drive

8/25/2011

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR	NWL2	NWL	NWR
Lane Configurations									
Volume (vph)	0	0	0	1000	119	0	61	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0		6.0		
Lane Util. Factor				0.91	0.97		0.97		
Frt				1.00	1.00		1.00		
Flt Protected				1.00	0.95		0.95		
Satd. Flow (prot)				4217	3367		3367		
Flt Permitted				1.00	0.95		0.95		
Satd. Flow (perm)				4217	3367		3367		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.79	0.79	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	1053	151	0	64	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1053	151	0	64	0	0
Heavy Vehicles (%)	23%	23%	4%	23%	4%	4%	4%	23%	23%
Turn Type							custom		
Protected Phases				6	5 3!				
Permitted Phases							1!		
Actuated Green, G (s)				63.8	44.2		7.7		
Effective Green, g (s)				63.8	44.2		7.7		
Actuated g/C Ratio				0.53	0.37		0.06		
Clearance Time (s)				6.0			6.0		
Vehicle Extension (s)				3.0			3.0		
Lane Grp Cap (vph)				2242	1240		216		
v/s Ratio Prot				c0.25	c0.04				
v/s Ratio Perm							0.02		
v/c Ratio				0.47	0.12		0.30		
Uniform Delay, d1				17.5	25.1		53.6		
Progression Factor				0.97	0.11		1.03		
Incremental Delay, d2				0.7	0.0		0.8		
Delay (s)				17.7	2.8		55.8		
Level of Service				B	A		E		
Approach Delay (s)	0.0			17.7	2.8			55.8	
Approach LOS	A			B	A			E	
Intersection Summary									
HCM Average Control Delay				17.9			HCM Level of Service		B
HCM Volume to Capacity ratio				0.33					
Actuated Cycle Length (s)				120.0			Sum of lost time (s)		12.0
Intersection Capacity Utilization				39.4%			ICU Level of Service		A
Analysis Period (min)				15					
! Phase conflict between lane groups.									
c Critical Lane Group									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑					↗
Volume (veh/h)	663	23	0	0	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	721	25	0	0	0	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				1051		
pX, platoon unblocked						
vC, conflicting volume			721		733	253
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			721		733	253
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			864		352	741
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	288	288	169	24		
Volume Left	0	0	0	0		
Volume Right	0	0	25	24		
cSH	1700	1700	1700	741		
Volume to Capacity	0.17	0.17	0.10	0.03		
Queue Length 95th (ft)	0	0	0	3		
Control Delay (s)	0.0	0.0	0.0	10.0		
Lane LOS				B		
Approach Delay (s)	0.0			10.0		
Approach LOS				B		
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			23.3%	ICU Level of Service		A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↗		↗
Volume (veh/h)	0	0	425	118	0	108
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80
Hourly flow rate (vph)	0	0	462	128	0	135
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)			1096			
pX, platoon unblocked						
vC, conflicting volume	462				462	154
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	462				462	154
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	84
cM capacity (veh/h)	1082				523	858
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	154	154	154	128	135	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	128	135	
cSH	1700	1700	1700	1700	858	
Volume to Capacity	0.09	0.09	0.09	0.08	0.16	
Queue Length 95th (ft)	0	0	0	0	14	
Control Delay (s)	0.0	0.0	0.0	0.0	10.0	
Lane LOS					A	
Approach Delay (s)	0.0				10.0	
Approach LOS					A	
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			21.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1025: SR 204 EB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	461	97	0	0	0	0	119	55	127	99	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3306		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3306		1736	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	134	501	105	0	0	0	0	138	64	149	116	0
RTOR Reduction (vph)	0	0	66	0	0	0	0	49	0	0	0	0
Lane Group Flow (vph)	134	501	39	0	0	0	0	153	0	149	116	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm								Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	26.0	45.1	45.1					11.0		45.9	45.9	
Effective Green, g (s)	26.0	45.1	45.1					11.0		45.9	45.9	
Actuated g/C Ratio	0.22	0.38	0.38					0.09		0.38	0.38	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	376	1585	584					303		664	699	
v/s Ratio Prot	c0.08	c0.12						c0.05		c0.09	0.06	
v/s Ratio Perm			0.03									
v/c Ratio	0.36	0.32	0.07					0.50		0.22	0.17	
Uniform Delay, d1	39.9	26.5	24.0					51.9		25.0	24.4	
Progression Factor	0.67	0.59	1.00					1.00		0.25	0.17	
Incremental Delay, d2	0.5	0.5	0.2					1.3		0.2	0.1	
Delay (s)	27.1	16.2	24.2					53.2		6.5	4.2	
Level of Service	C	B	C					D		A	A	
Approach Delay (s)		19.3			0.0			53.2			5.5	
Approach LOS		B			A			D			A	
Intersection Summary												
HCM Average Control Delay			21.9		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					24.0		
Intersection Capacity Utilization			43.9%		ICU Level of Service					A		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1026: SR 204 WB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	63	333	85	122	120	0	0	163	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0				6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00				0.95
Frt				1.00	1.00	0.85	1.00	1.00				0.95
Flt Protected				0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827				3288
Flt Permitted				0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827				3288
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	66	351	89	142	140	0	0	192	104
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	0	0	56	0
Lane Group Flow (vph)	0	0	0	66	351	22	142	140	0	0	241	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					
Protected Phases				1!	6		3 5!	3 5!				4
Permitted Phases						6						
Actuated Green, G (s)				9.9	29.0	29.0	43.0	43.0				30.0
Effective Green, g (s)				9.9	29.0	29.0	43.0	43.0				30.0
Actuated g/C Ratio				0.08	0.24	0.24	0.36	0.36				0.25
Clearance Time (s)				6.0	6.0	6.0						6.0
Vehicle Extension (s)				3.0	3.0	3.0						3.0
Lane Grp Cap (vph)				143	1019	375	622	655				822
v/s Ratio Prot				0.04	c0.08		c0.08	0.08				c0.07
v/s Ratio Perm						0.01						
v/c Ratio				0.46	0.34	0.06	0.23	0.21				0.29
Uniform Delay, d1				52.5	37.6	35.0	26.9	26.8				36.4
Progression Factor				1.40	0.53	0.43	0.19	0.17				1.00
Incremental Delay, d2				2.3	0.9	0.3	0.2	0.2				0.9
Delay (s)				75.8	20.9	15.2	5.2	4.6				37.3
Level of Service				E	C	B	A	A				D
Approach Delay (s)		0.0			27.1			4.9				37.3
Approach LOS		A			C			A				D
Intersection Summary												
HCM Average Control Delay				24.1		HCM Level of Service				C		
HCM Volume to Capacity ratio				0.28								
Actuated Cycle Length (s)				120.0		Sum of lost time (s)				18.0		
Intersection Capacity Utilization				43.9%		ICU Level of Service				A		
Analysis Period (min)				15								
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1027: SR 204 EB & Largo Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	409	93	0	0	0	0	202	162	110	353	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3471	1553	1736	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	145	422	96	0	0	0	0	222	178	147	471	0
RTOR Reduction (vph)	0	0	70	0	0	0	0	0	157	0	0	0
Lane Group Flow (vph)	145	422	26	0	0	0	0	222	21	147	471	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	22.0	32.9	32.9					14.2	14.2	54.9	54.9	
Effective Green, g (s)	22.0	32.9	32.9					14.2	14.2	54.9	54.9	
Actuated g/C Ratio	0.18	0.27	0.27					0.12	0.12	0.46	0.46	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	318	1156	426					411	184	794	836	
v/s Ratio Prot	c0.08	c0.10						c0.06		0.08	c0.26	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.46	0.37	0.06					0.54	0.11	0.19	0.56	
Uniform Delay, d1	43.7	35.1	32.2					49.8	47.3	19.3	23.8	
Progression Factor	0.79	0.82	0.69					1.00	1.00	0.14	0.09	
Incremental Delay, d2	1.0	0.9	0.3					1.5	0.3	0.1	0.8	
Delay (s)	35.3	29.8	22.5					51.3	47.6	2.8	2.9	
Level of Service	D	C	C					D	D	A	A	
Approach Delay (s)		29.9			0.0			49.6			2.9	
Approach LOS		C			A			D			A	
Intersection Summary												
HCM Average Control Delay			24.7								HCM Level of Service	C
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			120.0							24.0	Sum of lost time (s)	
Intersection Capacity Utilization			52.7%								ICU Level of Service	A
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2015 PM Concept C

1028: SR 204 WB & Largo Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	220	277	79	100	243	0	0	243	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	0	0	0	242	304	87	110	267	0	0	324	139
RTOR Reduction (vph)	0	0	0	0	0	62	0	0	0	0	0	109
Lane Group Flow (vph)	0	0	0	242	304	25	110	267	0	0	324	30
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				23.1	34.0	34.0	42.2	42.2			25.8	25.8
Effective Green, g (s)				23.1	34.0	34.0	42.2	42.2			25.8	25.8
Actuated g/C Ratio				0.19	0.28	0.28	0.35	0.35			0.22	0.22
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				334	1195	440	610	642			746	334
v/s Ratio Prot				c0.14	c0.07		0.06	c0.15			c0.09	
v/s Ratio Perm						0.02						0.02
v/c Ratio				0.72	0.25	0.06	0.18	0.42			0.43	0.09
Uniform Delay, d1				45.5	33.2	31.3	26.9	29.5			40.8	37.7
Progression Factor				0.55	0.49	0.23	0.10	0.04			1.00	1.00
Incremental Delay, d2				7.3	0.5	0.2	0.1	0.4			1.8	0.5
Delay (s)				32.5	16.8	7.3	2.9	1.6			42.6	38.2
Level of Service				C	B	A	A	A			D	D
Approach Delay (s)		0.0			21.5			2.0			41.3	
Approach LOS		A			C			A			D	
Intersection Summary												
HCM Average Control Delay				22.7							HCM Level of Service	C
HCM Volume to Capacity ratio				0.46								
Actuated Cycle Length (s)				120.0						18.0	Sum of lost time (s)	
Intersection Capacity Utilization				52.7%							ICU Level of Service	A
Analysis Period (min)				15								
! Phase conflict between lane groups.												
c Critical Lane Group												

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	560	121	0	0	0	81
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.92	0.92	0.91	0.91
Hourly flow rate (vph)	577	125	0	0	0	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	652		1112			
pX, platoon unblocked			1.00		1.00	1.00
vC, conflicting volume			577		577	192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			574		574	189
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			981		444	814
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	192	192	192	125	89	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	125	89	
cSH	1700	1700	1700	1700	814	
Volume to Capacity	0.11	0.11	0.11	0.07	0.11	
Queue Length 95th (ft)	0	0	0	0	9	
Control Delay (s)	0.0	0.0	0.0	0.0	10.0	
Lane LOS					A	
Approach Delay (s)	0.0				10.0	
Approach LOS					A	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			22.5%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↗		↗
Volume (veh/h)	0	0	554	30	0	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.91	0.91	0.75	0.75
Hourly flow rate (vph)	0	0	609	33	0	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		652	1108			
pX, platoon unblocked	0.99				0.99	0.99
vC, conflicting volume	642				609	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	592				558	147
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	954				449	856
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	203	203	203	33	29	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	33	29	
cSH	1700	1700	1700	1700	856	
Volume to Capacity	0.12	0.12	0.12	0.02	0.03	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	9.4	
Lane LOS					A	
Approach Delay (s)	0.0				9.4	
Approach LOS					A	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			20.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1031: SR 204 EB & Deerfield Road

2015 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	401	55	0	0	0	0	75	56	193	123	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		0.95	0.95	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	0.99	
Satd. Flow (prot)	1736	4217	1553					3249		1649	1715	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	0.99	
Satd. Flow (perm)	1736	4217	1553					3249		1649	1715	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	199	431	59	0	0	0	0	82	61	205	131	0
RTOR Reduction (vph)	0	0	37	0	0	0	0	52	0	0	0	0
Lane Group Flow (vph)	199	431	22	0	0	0	0	91	0	164	172	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	29.0	44.6	44.6					18.0		39.4	39.4	
Effective Green, g (s)	29.0	44.6	44.6					18.0		39.4	39.4	
Actuated g/C Ratio	0.24	0.37	0.37					0.15		0.33	0.33	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	420	1567	577					487		541	563	
v/s Ratio Prot	c0.11	c0.10						c0.03		0.10	c0.10	
v/s Ratio Perm			0.01									
v/c Ratio	0.47	0.28	0.04					0.19		0.30	0.31	
Uniform Delay, d1	39.0	26.4	24.0					44.6		30.1	30.1	
Progression Factor	1.13	1.15	2.02					1.00		0.08	0.09	
Incremental Delay, d2	0.8	0.4	0.1					0.8		0.3	0.3	
Delay (s)	45.0	30.9	48.6					45.5		2.8	2.9	
Level of Service	D	C	D					D		A	A	
Approach Delay (s)		36.5			0.0			45.5			2.8	
Approach LOS		D			A			D			A	
Intersection Summary												
HCM Average Control Delay			27.9		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					24.0		
Intersection Capacity Utilization			51.2%		ICU Level of Service					A		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1032: SR 204 WB & Deerfield Road

2015 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	114	394	199	49	211	0	0	202	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	116	402	203	53	229	0	0	215	150
RTOR Reduction (vph)	0	0	0	0	0	154	0	0	0	0	0	125
Lane Group Flow (vph)	0	0	0	116	402	49	53	229	0	0	215	25
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				13.4	29.0	29.0	53.0	53.0			20.0	20.0
Effective Green, g (s)				13.4	29.0	29.0	53.0	53.0			20.0	20.0
Actuated g/C Ratio				0.11	0.24	0.24	0.44	0.44			0.17	0.17
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				194	1019	375	767	807			579	259
v/s Ratio Prot				c0.07	c0.10		0.03	c0.13			c0.06	
v/s Ratio Perm						0.03						0.02
v/c Ratio				0.60	0.39	0.13	0.07	0.28			0.37	0.10
Uniform Delay, d1				50.7	38.1	35.6	19.3	21.4			44.4	42.3
Progression Factor				1.00	1.00	1.00	0.40	0.06			1.00	1.00
Incremental Delay, d2				4.9	1.1	0.7	0.0	0.2			1.8	0.7
Delay (s)				55.6	39.3	36.4	7.8	1.5			46.2	43.1
Level of Service				E	D	D	A	A			D	D
Approach Delay (s)		0.0			41.1			2.7			44.9	
Approach LOS		A			D			A			D	
Intersection Summary												
HCM Average Control Delay			34.2	HCM Level of Service					C			
HCM Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			51.2%	ICU Level of Service					A			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	112	0	24	602	0	49	0	812	0	0	81	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	224	0	48	684	0	56	0	864	0	0	90	77
RTOR Reduction (vph)	0	0	37	0	0	43	0	0	0	0	0	31
Lane Group Flow (vph)	224	0	11	684	0	13	0	864	0	0	90	46
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	15.8		15.8	15.8		15.8		42.2			42.2	42.2
Effective Green, g (s)	15.8		15.8	15.8		15.8		42.2			42.2	42.2
Actuated g/C Ratio	0.23		0.23	0.23		0.23		0.60			0.60	0.60
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	392		351	1105		351		2542			2542	936
v/s Ratio Prot	0.13			c0.14				c0.20			0.02	
v/s Ratio Perm			0.01			0.01						0.03
v/c Ratio	0.57		0.03	0.62		0.04		0.34			0.04	0.05
Uniform Delay, d1	24.1		21.1	24.4		21.2		6.9			5.6	5.7
Progression Factor	1.00		1.00	1.00		1.00		1.00			0.91	1.73
Incremental Delay, d2	2.0		0.0	1.0		0.0		0.4			0.0	0.1
Delay (s)	26.1		21.2	25.4		21.2		7.3			5.1	10.0
Level of Service	C		C	C		C		A			A	A
Approach Delay (s)	25.2				25.1			7.3			7.4	
Approach LOS	C				C			A			A	
Intersection Summary												
HCM Average Control Delay			16.1		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			46.7%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	34	139	0	915	58	123	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.88	0.88	0.94	0.94	0.94	0.90	0.90
Adj. Flow (vph)	39	158	0	973	62	137	129
RTOR Reduction (vph)	0	142	0	0	31	0	0
Lane Group Flow (vph)	39	16	0	973	31	137	129
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	7.3	7.3		35.1	35.1	9.6	50.7
Effective Green, g (s)	7.3	7.3		35.1	35.1	9.6	50.7
Actuated g/C Ratio	0.10	0.10		0.50	0.50	0.14	0.72
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	341	157		2115	757	231	3054
v/s Ratio Prot				c0.23		c0.08	0.03
v/s Ratio Perm	c0.01	0.01			0.02		
v/c Ratio	0.11	0.10		0.46	0.04	0.59	0.04
Uniform Delay, d1	28.4	28.4		11.3	8.9	28.4	2.7
Progression Factor	1.00	1.00		0.68	0.46	1.00	1.00
Incremental Delay, d2	0.1	0.3		0.7	0.1	4.0	0.0
Delay (s)	28.6	28.7		8.4	4.2	32.4	2.8
Level of Service	C	C		A	A	C	A
Approach Delay (s)	28.7			8.2			18.0
Approach LOS	C			A			B
Intersection Summary							
HCM Average Control Delay			12.6		HCM Level of Service		B
HCM Volume to Capacity ratio			0.44				
Actuated Cycle Length (s)			70.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			42.8%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 1

1000: SR 204 & Gateway Blvd W

8/22/2011

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Volume (veh/h)	17	766	0	26	434	47	0	11	11	53	10	3							
Sign Control	Free			Free			Stop			Stop									
Grade	0%			0%			0%			0%									
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71							
Hourly flow rate (vph)	20	901	0	30	505	55	0	24	24	75	14	4							
Pedestrians																			
Lane Width (ft)																			
Walking Speed (ft/s)																			
Percent Blockage																			
Right turn flare (veh)	8																		
Median type	None			None															
Median storage veh																			
Upstream signal (ft)	708																		
pX, platoon unblocked	0.97							0.97	0.97		0.97	0.97							
vC, conflicting volume	505				901				1261	1506	451	1092							
vC1, stage 1 conf vol																			
vC2, stage 2 conf vol																			
vCu, unblocked vol	440				901				1216	1468	451	1042							
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6							
tC, 2 stage (s)																			
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5							
p0 queue free %	98				96				100	79	96	45							
cM capacity (veh/h)	1081				744				114	115	553	137							
											115	806							
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1											
Volume Total	471	451	30	252	252	55	48	93											
Volume Left	20	0	30	0	0	0	0	75											
Volume Right	0	0	0	0	0	55	24	4											
cSH	1081	1700	744	1700	1700	1700	191	140											
Volume to Capacity	0.02	0.27	0.04	0.15	0.15	0.03	0.25	0.67											
Queue Length 95th (ft)	1	0	3	0	0	0	24	92											
Control Delay (s)	0.6	0.0	10.0	0.0	0.0	0.0	30.1	71.0											
Lane LOS	A	B						D	F										
Approach Delay (s)	0.3	0.5						30.1	71.0										
Approach LOS							D	F											
Intersection Summary																			
Average Delay	5.2																		
Intersection Capacity Utilization	50.1%			ICU Level of Service			A												
Analysis Period (min)	15																		

HCM Signalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 1

1001: SR 204 & I-95 SB Off-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Volume (vph)	0	722	108	1352	378	0	0	0	960	0	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00
Frt		1.00	0.85	1.00	1.00				1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (prot)		3282	1442	3127	3282				3127		1442
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00
Satd. Flow (perm)		3282	1442	3127	3282				3127		1442
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	840	126	1454	406	0	0	0	1143	0	154
RTOR Reduction (vph)	0	0	62	0	0	0	0	0	0	0	109
Lane Group Flow (vph)	0	840	64	1454	406	0	0	0	1143	0	45
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type			Perm	Prot					custom		custom
Protected Phases		2		1	6						
Permitted Phases			2						4		4
Actuated Green, G (s)		34.0	34.0	54.0	94.0				44.0		44.0
Effective Green, g (s)		34.0	34.0	54.0	94.0				44.0		44.0
Actuated g/C Ratio		0.23	0.23	0.36	0.63				0.29		0.29
Clearance Time (s)		6.0	6.0	6.0	6.0				6.0		6.0
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0
Lane Grp Cap (vph)		744	327	1126	2057				917		423
v/s Ratio Prot		c0.26		c0.47	0.12						
v/s Ratio Perm			0.04						c0.37		0.03
v/c Ratio		1.13	0.20	1.29	0.20				1.25		0.11
Uniform Delay, d1		58.0	46.9	48.0	11.9				53.0		38.7
Progression Factor		1.00	1.00	0.81	1.21				1.00		1.00
Incremental Delay, d2		74.6	1.3	131.7	0.0				120.1		0.1
Delay (s)		132.6	48.3	170.7	14.4				173.1		38.8
Level of Service		F	D	F	B				F		D
Approach Delay (s)		121.6			136.6		0.0			157.1	
Approach LOS		F			F		A			F	
Intersection Summary											
HCM Average Control Delay			139.5		HCM Level of Service				F		
HCM Volume to Capacity ratio			1.23								
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			103.4%		ICU Level of Service				G		
Analysis Period (min)			15								

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 1

1002: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations	 	 			 						 
Volume (vph)	78	1604	0	0	1656	694	0	0	74	0	1403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3282			3282	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3282			3282	1442			1612		2538
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	81	1671	0	0	1707	715	0	0	92	0	1754
RTOR Reduction (vph)	0	0	0	0	0	209	0	0	0	0	8
Lane Group Flow (vph)	81	1671	0	0	1707	506	0	0	92	0	1746
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	Prot				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases						6			8		8
Actuated Green, G (s)	8.4	70.0			55.6	55.6			68.0		68.0
Effective Green, g (s)	8.4	70.0			55.6	55.6			68.0		68.0
Actuated g/C Ratio	0.06	0.47			0.37	0.37			0.45		0.45
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	175	1532			1217	535			731		1151
v/s Ratio Prot	0.03	c0.51			c0.52						
v/s Ratio Perm						0.35			0.06		c0.69
v/c Ratio	0.46	1.09			1.40	0.95			0.13		1.52
Uniform Delay, d1	68.6	40.0			47.2	45.7			23.8		41.0
Progression Factor	0.72	0.13			0.61	0.30			1.00		1.00
Incremental Delay, d2	0.2	42.1			183.8	17.4			0.1		237.3
Delay (s)	49.5	47.2			212.8	31.1			23.8		278.3
Level of Service	D	D			F	C			C		F
Approach Delay (s)		47.3			159.2		0.0			265.6	
Approach LOS		D			F		A			F	
Intersection Summary											
HCM Average Control Delay		159.2			HCM Level of Service				F		
HCM Volume to Capacity ratio		1.47									
Actuated Cycle Length (s)		150.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization		103.4%			ICU Level of Service				G		
Analysis Period (min)		15									
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 1

1003: SR 204 & Gateway Blvd S

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗		↑↑↑↑	↗			↗			↗
Volume (veh/h)	0	2893	114	0	2249	45	0	0	86	0	0	101
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Hourly flow rate (vph)	0	3111	123	0	2646	53	0	0	104	0	0	106
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		423										
pX, platoon unblocked				0.58			0.58	0.58	0.58	0.58	0.58	
vC, conflicting volume	2646			3111			3993	5757	1037	3683	5757	882
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2646			2089			3620	6681	0	3082	6681	882
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	83	100	100	63
cM capacity (veh/h)	149			144			1	0	619	2	0	284
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	1037	1037	1037	123	882	882	882	53	104	106		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	123	0	0	0	53	104	106		
cSH	1700	1700	1700	1700	1700	1700	1700	1700	619	284		
Volume to Capacity	0.61	0.61	0.61	0.07	0.52	0.52	0.52	0.03	0.17	0.37		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	15	42		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	25.1		
Lane LOS									B	D		
Approach Delay (s)	0.0				0.0				12.0	25.1		
Approach LOS									B	D		
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			74.7%		ICU Level of Service				D			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 1

1004: SR 204 & New Intersection

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	2636	124	89	1917	77	206	151	93	106	121	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	4715	1538	1719	4715	1538	1719	1810	1538	1719	1810	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	1719	4715	1538	1719	4715	1538	1096	1810	1538	872	1810	1538
Peak-hour factor, PHF	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Adj. Flow (vph)	235	2834	133	105	2255	91	248	182	112	112	127	180
RTOR Reduction (vph)	0	0	39	0	0	34	0	0	90	0	0	144
Lane Group Flow (vph)	235	2834	94	105	2255	57	248	182	22	112	127	36
Heavy Vehicles (%)	5%	10%	5%	5%	10%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	21.8	88.5	88.5	13.5	80.2	80.2	30.0	30.0	30.0	30.0	30.0	30.0
Effective Green, g (s)	21.8	88.5	88.5	13.5	80.2	80.2	30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.15	0.59	0.59	0.09	0.53	0.53	0.20	0.20	0.20	0.20	0.20	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	250	2782	907	155	2521	822	219	362	308	174	362	308
v/s Ratio Prot	c0.14	c0.60		0.06	0.48			0.10			0.07	
v/s Ratio Perm			0.06			0.04	c0.23		0.01	0.13		0.02
v/c Ratio	0.94	1.02	0.10	0.68	0.89	0.07	1.13	0.50	0.07	0.64	0.35	0.12
Uniform Delay, d1	63.5	30.8	13.4	66.1	31.1	16.9	60.0	53.4	48.7	55.1	51.6	49.1
Progression Factor	1.02	0.99	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	10.9	0.0	11.1	4.6	0.0	101.0	1.1	0.1	7.9	0.6	0.2
Delay (s)	71.6	41.3	12.6	77.3	35.7	16.9	161.0	54.5	48.8	63.0	52.2	49.3
Level of Service	E	D	B	E	D	B	F	D	D	E	D	D
Approach Delay (s)		42.3			36.8			102.1			53.9	
Approach LOS		D			D			F			D	
Intersection Summary												
HCM Average Control Delay		45.9			HCM Level of Service				D			
HCM Volume to Capacity ratio		1.06										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)		18.0					
Intersection Capacity Utilization		93.6%			ICU Level of Service		F					
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 2

1001: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	766	0	26	434	47	0	11	11	53	10	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	20	901	0	30	505	55	0	24	24	75	14	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					479							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	505			901			1261	1506	451	1092	1506	252
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	479			901			1243	1491	451	1072	1491	224
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	98			96			100	79	96	43	88	99
cM capacity (veh/h)	1062			744			110	113	553	132	113	769
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	471	451	30	252	252	55	48	93				
Volume Left	20	0	30	0	0	0	0	75				
Volume Right	0	0	0	0	0	55	24	4				
cSH	1062	1700	744	1700	1700	1700	188	135				
Volume to Capacity	0.02	0.27	0.04	0.15	0.15	0.03	0.25	0.69				
Queue Length 95th (ft)	1	0	3	0	0	0	24	96				
Control Delay (s)	0.6	0.0	10.0	0.0	0.0	0.0	30.6	76.3				
Lane LOS	A		B				D	F				
Approach Delay (s)	0.3		0.5				30.6	76.3				
Approach LOS							D	F				
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			50.1%			ICU Level of Service		A				
Analysis Period (min)			15									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Volume (vph)	722	108	0	378	129	960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3282	1442		4715	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3282	1442		4715	1612	1442
Peak-hour factor, PHF	0.86	0.86	0.93	0.93	0.84	0.84
Adj. Flow (vph)	840	126	0	406	154	1143
RTOR Reduction (vph)	0	36	0	0	0	0
Lane Group Flow (vph)	840	90	0	406	154	1143
Heavy Vehicles (%)	10%	12%	12%	10%	12%	12%
Turn Type		Perm	Perm			Free
Protected Phases	2			6	8	
Permitted Phases		2	6			Free
Actuated Green, G (s)	64.1	64.1		64.1	13.9	90.0
Effective Green, g (s)	64.1	64.1		64.1	13.9	90.0
Actuated g/C Ratio	0.71	0.71		0.71	0.15	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2338	1027		3358	249	1442
v/s Ratio Prot	0.26			0.09	0.10	
v/s Ratio Perm		0.06				c0.79
v/c Ratio	0.36	0.09		0.12	0.62	0.79
Uniform Delay, d1	5.0	4.0		4.1	35.6	0.0
Progression Factor	1.00	1.00		0.75	1.00	1.00
Incremental Delay, d2	0.4	0.2		0.1	4.5	4.5
Delay (s)	5.4	4.1		3.1	40.1	4.5
Level of Service	A	A		A	D	A
Approach Delay (s)	5.3			3.1	8.8	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			6.6	HCM Level of Service		A
HCM Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			90.0	Sum of lost time (s)		0.0
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	SBL	SBR	NEL2	NEL	NER
Lane Configurations		  			  				 		
Volume (vph)	78	1604	0	0	304	0	0	0	74	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.50	1.00			1.00				0.95		
Satd. Flow (perm)	854	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	81	1671	0	0	313	0	0	0	92	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	81	1671	0	0	313	0	0	0	92	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt								custom		
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	71.2	71.2			59.7				6.8		
Effective Green, g (s)	71.2	71.2			59.7				6.8		
Actuated g/C Ratio	0.79	0.79			0.66				0.08		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	722	3730			3128				236		
v/s Ratio Prot	0.01	c0.35			0.07						
v/s Ratio Perm	0.08								c0.03		
v/c Ratio	0.11	0.45			0.10				0.39		
Uniform Delay, d1	2.3	3.0			5.5				39.6		
Progression Factor	0.56	0.46			1.00				1.00		
Incremental Delay, d2	0.1	0.3			0.1				1.1		
Delay (s)	1.3	1.7			5.5				40.7		
Level of Service	A	A			A				D		
Approach Delay (s)		1.7			5.5		0.0			40.7	
Approach LOS		A			A		A			D	
Intersection Summary											
HCM Average Control Delay			3.9	HCM Level of Service					A		
HCM Volume to Capacity ratio			0.44								
Actuated Cycle Length (s)			90.0	Sum of lost time (s)					12.0		
Intersection Capacity Utilization			42.7%	ICU Level of Service					A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 3

1001: SR 204 & Gateway Blvd W

8/22/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		 			 			 						
Volume (veh/h)	17	766	0	26	434	47	0	11	11	53	10	3		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71		
Hourly flow rate (vph)	20	901	0	30	505	55	0	24	24	75	14	4		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage veh														
Upstream signal (ft)														
pX, platoon unblocked														
vC, conflicting volume	505				901				1261	1506	451	1092	1506	252
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	505				901				1261	1506	451	1092	1506	252
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0
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 %	98				96				100	79	96	42	87	99
cM capacity (veh/h)	1049				744				108	112	553	128	112	744
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1						
Volume Total	471	451	30	252	252	55	48	93						
Volume Left	20	0	30	0	0	0	0	75						
Volume Right	0	0	0	0	0	55	24	4						
cSH	1049	1700	744	1700	1700	1700	186	132						
Volume to Capacity	0.02	0.27	0.04	0.15	0.15	0.03	0.26	0.71						
Queue Length 95th (ft)	1	0	3	0	0	0	25	99						
Control Delay (s)	0.6	0.0	10.0	0.0	0.0	0.0	30.9	80.2						
Lane LOS	A	B						D	F					
Approach Delay (s)	0.3	0.5						30.9	80.2					
Approach LOS									D	F				
Intersection Summary														
Average Delay			5.8											
Intersection Capacity Utilization			50.1%		ICU Level of Service		A							
Analysis Period (min)			15											

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 3

1003: SR 204 & I-95 SB Off-Ramp

8/22/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Volume (veh/h)	0	722	378	0	0	129	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.86	0.86	0.93	0.93	0.84	0.84	
Hourly flow rate (vph)	0	840	406	0	0	154	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None		None				
Median storage veh)							
Upstream signal (ft)	712						
pX, platoon unblocked							
vC, conflicting volume	406				686	135	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	406				686	135	
tC, single (s)	4.3				7.0	7.1	
tC, 2 stage (s)							
tF (s)	2.3				3.6	3.4	
p0 queue free %	100				100	82	
cM capacity (veh/h)	1094				364	857	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	280	280	280	135	135	135	154
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	154
cSH	1700	1700	1700	1700	1700	1700	857
Volume to Capacity	0.16	0.16	0.16	0.08	0.08	0.08	0.18
Queue Length 95th (ft)	0	0	0	0	0	0	16
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS							B
Approach Delay (s)	0.0				0.0	10.1	
Approach LOS							B
Intersection Summary							
Average Delay			1.1				
Intersection Capacity Utilization			22.0%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

2035 AM Concept A - Alternative 3

1004: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	78	644	0	0	304	0	0	0	74	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.51	1.00			1.00				0.95		
Satd. Flow (perm)	859	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	81	671	0	0	313	0	0	0	92	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	81	671	0	0	313	0	0	0	92	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			custom							
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	74.9	74.9			63.4				6.8		
Effective Green, g (s)	74.9	74.9			63.4				6.8		
Actuated g/C Ratio	0.80	0.80			0.68				0.07		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	731	3769			3190				227		
v/s Ratio Prot	0.01	c0.14			0.07						
v/s Ratio Perm	0.08								c0.03		
v/c Ratio	0.11	0.18			0.10				0.41		
Uniform Delay, d1	2.2	2.2			5.2				41.5		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.1	0.1			0.1				1.2		
Delay (s)	2.3	2.3			5.3				42.7		
Level of Service	A	A			A				D		
Approach Delay (s)		2.3			5.3	0.0			42.7		
Approach LOS		A			A	A			D		
Intersection Summary											
HCM Average Control Delay			6.3		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.20								
Actuated Cycle Length (s)			93.7		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			22.0%		ICU Level of Service				A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2035 AM Concept A

1005: SR 204 EB On Ramp & US-17

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	669	0	217	0	0	0	0	1642	770	513	1321	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.94		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	4802		2682					4893	2682	3303	4893	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	4802		2682					4893	2682	3303	4893	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	806	0	261	0	0	0	0	1978	928	552	1420	0
RTOR Reduction (vph)	0	0	101	0	0	0	0	0	516	0	0	0
Lane Group Flow (vph)	806	0	160	0	0	0	0	1978	412	552	1420	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom		custom						Perm	Prot		
Protected Phases								2		1		6
Permitted Phases	4		4						2			
Actuated Green, G (s)	16.0		16.0					40.0	40.0	16.0		62.0
Effective Green, g (s)	16.0		16.0					40.0	40.0	16.0		62.0
Actuated g/C Ratio	0.18		0.18					0.44	0.44	0.18		0.69
Clearance Time (s)	6.0		6.0					6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	854		477					2175	1192	587		3371
v/s Ratio Prot								c0.40		c0.17		0.29
v/s Ratio Perm	c0.17		0.06						0.15			
v/c Ratio	0.94		0.34					0.91	0.35	0.94		0.42
Uniform Delay, d1	36.6		32.3					23.3	16.4	36.5		6.1
Progression Factor	1.00		1.00					1.00	1.00	0.66		0.16
Incremental Delay, d2	18.5		0.4					7.1	0.8	15.4		0.2
Delay (s)	55.0		32.8					30.4	17.2	39.4		1.2
Level of Service	E		C					C	B	D		A
Approach Delay (s)		49.6			0.0			26.2				11.9
Approach LOS		D			A			C				B
Intersection Summary												
HCM Average Control Delay			25.7		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			74.1%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1006: SR 204 WB On Ramp & US-17

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  		 	 	  			  	
Volume (vph)	0	0	0	474	0	241	658	1653	0	0	1360	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	527	0	268	723	1816	0	0	1495	314
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	0	0	0	192
Lane Group Flow (vph)	0	0	0	527	0	219	723	1816	0	0	1495	122
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type	custom			custom			Prot			Perm		
Protected Phases							5			2		
Permitted Phases				8			8					
Actuated Green, G (s)				14.1			14.1			23.0		
Effective Green, g (s)				14.1			14.1			23.0		
Actuated g/C Ratio				0.16			0.16			0.26		
Clearance Time (s)				6.0			6.0			6.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				732			409			821		
v/s Ratio Prot							c0.23			0.38		
v/s Ratio Perm				c0.11			0.08					
v/c Ratio				0.72			0.54			0.88		
Uniform Delay, d1				36.1			34.9			32.2		
Progression Factor				1.00			1.00			0.63		
Incremental Delay, d2				3.4			1.4			4.8		
Delay (s)				39.5			36.3			25.0		
Level of Service				D			D			C		
Approach Delay (s)	0.0						38.4			7.4		
Approach LOS	A						D			A		
Intersection Summary												
HCM Average Control Delay	19.1			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			18.0					
Intersection Capacity Utilization	74.1%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1007: SR 204 EB Off Ramp & Pine Grove Rd

2035 AM Concept A

8/23/2011

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Volume (vph)	67	0	159	0	0	0	0	52	104	60	92	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0					
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95					
Frt	1.00		0.85					1.00	0.85	1.00	1.00					
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00					
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505					
Flt Permitted	0.95		1.00					1.00	1.00	0.71	1.00					
Satd. Flow (perm)	1752		1568					1845	1568	1305	3505					
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73				
Adj. Flow (vph)	79	0	187	0	0	0	0	76	153	82	126	0				
RTOR Reduction (vph)	0	0	167	0	0	0	0	0	37	0	0	0				
Lane Group Flow (vph)	79	0	20	0	0	0	0	76	116	82	126	0				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%				
Turn Type	custom		custom								Perm		Perm			
Protected Phases									2		6					
Permitted Phases	4		4						2		6					
Actuated Green, G (s)	9.5		9.5						68.5		68.5		68.5			
Effective Green, g (s)	9.5		9.5						68.5		68.5		68.5			
Actuated g/C Ratio	0.11		0.11						0.76		0.76		0.76			
Clearance Time (s)	6.0		6.0						6.0		6.0		6.0			
Vehicle Extension (s)	3.0		3.0						3.0		3.0		3.0			
Lane Grp Cap (vph)	185		166						1404		1193		993		2668	
v/s Ratio Prot									0.04						0.04	
v/s Ratio Perm	c0.05		0.01								c0.07		0.06			
v/c Ratio	0.43		0.12						0.05		0.10		0.08		0.05	
Uniform Delay, d1	37.7		36.5						2.7		2.8		2.7		2.7	
Progression Factor	1.00		1.00						1.00		1.00		1.33		0.31	
Incremental Delay, d2	1.6		0.3						0.1		0.2		0.2		0.0	
Delay (s)	39.3		36.8						2.8		2.9		3.8		0.9	
Level of Service	D		D						A		A		A		A	
Approach Delay (s)			37.5		0.0				2.9						2.0	
Approach LOS			D		A				A						A	
Intersection Summary																
HCM Average Control Delay			15.7		HCM Level of Service				B							
HCM Volume to Capacity ratio			0.14													
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0							
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													
Volume (vph)	0	0	0	87	643	60	42	77	0	0	65	36	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568	
Flt Permitted				0.95	1.00	1.00	0.70	1.00			1.00	1.00	
Satd. Flow (perm)				1752	3505	1568	1290	3505			1845	1568	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73	
Adj. Flow (vph)	0	0	0	98	722	67	62	113	0	0	89	49	
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	21	
Lane Group Flow (vph)	0	0	0	98	722	20	62	113	0	0	89	28	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Turn Type				Perm	Perm			Perm					Perm
Protected Phases				8			2						6
Permitted Phases				8			2						6
Actuated Green, G (s)				26.7	26.7	26.7	51.3	51.3			51.3	51.3	
Effective Green, g (s)				26.7	26.7	26.7	51.3	51.3			51.3	51.3	
Actuated g/C Ratio				0.30	0.30	0.30	0.57	0.57			0.57	0.57	
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)				520	1040	465	735	1998			1052	894	
v/s Ratio Prot				c0.21			0.03			c0.05			
v/s Ratio Perm				0.06			0.01 0.05			0.02			
v/c Ratio				0.19	0.69	0.04	0.08	0.06			0.08	0.03	
Uniform Delay, d1				23.6	28.0	22.5	8.7	8.6			8.7	8.5	
Progression Factor				1.00	1.00	1.00	0.99	0.32			1.00	1.00	
Incremental Delay, d2				0.2	2.0	0.0	0.2	0.1			0.2	0.1	
Delay (s)				23.8	30.1	22.6	8.9	2.8			8.9	8.5	
Level of Service				C	C	C	A	A			A	A	
Approach Delay (s)	0.0			28.8			4.9			8.8			
Approach LOS	A			C			A			A			
Intersection Summary													
HCM Average Control Delay	23.0			HCM Level of Service			C						
HCM Volume to Capacity ratio	0.29												
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			12.0						
Intersection Capacity Utilization	39.5%			ICU Level of Service			A						
Analysis Period (min)	15												
c Critical Lane Group													

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	282	197	604	1527	741	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.92	0.92	0.88	0.88	0.93	0.93
Adj. Flow (vph)	307	214	686	1735	797	753
RTOR Reduction (vph)	0	186	0	0	0	0
Lane Group Flow (vph)	307	28	686	1735	797	753
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Free		Prot	
Protected Phases	8	2		1		6
Permitted Phases	8		Free			
Actuated Green, G (s)	14.4	14.4	24.8	110.0	52.8	83.6
Effective Green, g (s)	14.4	14.4	24.8	110.0	52.8	83.6
Actuated g/C Ratio	0.13	0.13	0.23	1.00	0.48	0.76
Clearance Time (s)	6.0	6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	441	203	783	1553	833	3791
v/s Ratio Prot	0.09	0.20		0.46		0.15
v/s Ratio Perm	0.02		c1.12			
v/c Ratio	0.70	0.14	0.88	1.12	0.96	0.20
Uniform Delay, d1	45.7	42.3	41.1	55.0	27.5	3.7
Progression Factor	1.00	1.00	1.00	1.00	0.73	0.90
Incremental Delay, d2	4.7	0.3	13.2	62.1	20.4	0.1
Delay (s)	50.4	42.6	54.3	117.1	40.5	3.5
Level of Service	D	D	D	F	D	A
Approach Delay (s)	47.2	99.3		22.5		
Approach LOS	D	F		C		
Intersection Summary						
HCM Average Control Delay			66.8	HCM Level of Service		E
HCM Volume to Capacity ratio			1.12			
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			80.8%	ICU Level of Service		D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

1010: SR 204 WB Off Ramp & King George Blvd

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 								 	
Volume (vph)	0	0	673	0	0	312	339	462	0	0	768	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00
Frt			0.85			0.86	1.00	1.00			1.00	0.85
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553
Flt Permitted			1.00			1.00	0.28	1.00			1.00	1.00
Satd. Flow (perm)			2733			1580	513	1827			3471	1553
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Adj. Flow (vph)	0	0	765	0	0	355	385	525	0	0	826	344
RTOR Reduction (vph)	0	0	133	0	0	332	0	0	0	0	0	129
Lane Group Flow (vph)	0	0	632	0	0	23	385	525	0	0	826	215
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom			custom		pm+pt					Perm	
Protected Phases							5	2			6	
Permitted Phases			2			8	2					6
Actuated Green, G (s)			90.9			7.1	90.9	90.9			68.7	68.7
Effective Green, g (s)			90.9			7.1	90.9	90.9			68.7	68.7
Actuated g/C Ratio			0.83			0.06	0.83	0.83			0.62	0.62
Clearance Time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)			3.0			3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)			2258			102	604	1510			2168	970
v/s Ratio Prot							c0.09	0.29			0.24	
v/s Ratio Perm			0.23			c0.01	c0.43					0.14
v/c Ratio			0.28			0.22	0.64	0.35			0.38	0.22
Uniform Delay, d1			2.2			48.8	4.2	2.3			10.2	9.0
Progression Factor			1.00			1.00	4.05	0.58			1.00	1.00
Incremental Delay, d2			0.3			1.1	1.1	0.4			0.5	0.5
Delay (s)			2.5			50.0	18.1	1.8			10.7	9.5
Level of Service			A			D	B	A			B	A
Approach Delay (s)		2.5			50.0			8.7			10.3	
Approach LOS		A			D			A			B	
Intersection Summary												
HCM Average Control Delay			12.4		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			54.8%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1011: South Access Road & Rio Road

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 				
Volume (vph)	466	1247	365	0	0	0	0	321	6	29	64	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.36	1.00	
Satd. Flow (perm)	1736	4287	1553					3471	1553	665	1827	
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	485	1299	380	0	0	0	0	434	8	36	79	0
RTOR Reduction (vph)	0	0	122	0	0	0	0	0	6	0	0	0
Lane Group Flow (vph)	485	1299	258	0	0	0	0	434	2	36	79	0
Heavy Vehicles (%)	4%	21%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						custom	custom		
Protected Phases		2										
Permitted Phases	2		2					8	8	4	4	
Actuated Green, G (s)	61.0	61.0	61.0					17.0	17.0	17.0	17.0	
Effective Green, g (s)	61.0	61.0	61.0					17.0	17.0	17.0	17.0	
Actuated g/C Ratio	0.68	0.68	0.68					0.19	0.19	0.19	0.19	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1177	2906	1053					656	293	126	345	
v/s Ratio Prot		c0.30										
v/s Ratio Perm	0.28		0.17					c0.13	0.00	0.05	0.04	
v/c Ratio	0.41	0.45	0.24					0.66	0.01	0.29	0.23	
Uniform Delay, d1	6.5	6.7	5.6					33.8	29.6	31.3	30.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.54	0.72	
Incremental Delay, d2	1.1	0.5	0.6					2.5	0.0	1.3	0.3	
Delay (s)	7.6	7.2	6.2					36.3	29.6	18.1	22.6	
Level of Service	A	A	A					D	C	B	C	
Approach Delay (s)		7.1			0.0			36.2			21.2	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM Average Control Delay			12.4		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			89.2%		ICU Level of Service				E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1012: North Access Road & Rio Road

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	12	872	12	297	490	0	0	81	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2983	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.69	1.00			1.00	1.00
Satd. Flow (perm)				1736	2983	1553	1259	1827			3471	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	13	980	13	401	662	0	0	100	296
RTOR Reduction (vph)	0	0	0	0	0	7	0	0	0	0	0	25
Lane Group Flow (vph)	0	0	0	13	980	6	401	662	0	0	100	271
Heavy Vehicles (%)	4%	4%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					6			8				4
Permitted Phases				6		6	8					4
Actuated Green, G (s)				39.9	39.9	39.9	38.1	38.1			38.1	38.1
Effective Green, g (s)				39.9	39.9	39.9	38.1	38.1			38.1	38.1
Actuated g/C Ratio				0.44	0.44	0.44	0.42	0.42			0.42	0.42
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				770	1322	688	533	773			1469	657
v/s Ratio Prot					c0.33			c0.36				0.03
v/s Ratio Perm				0.01		0.00	0.32					0.17
v/c Ratio				0.02	0.74	0.01	0.75	0.86			0.07	0.41
Uniform Delay, d1				14.0	20.8	14.0	22.0	23.5			15.4	18.1
Progression Factor				1.00	1.00	1.00	0.69	1.11			1.00	1.00
Incremental Delay, d2				0.0	3.8	0.0	5.8	8.8			0.0	0.4
Delay (s)				14.1	24.5	14.0	20.9	34.8			15.4	18.5
Level of Service				B	C	B	C	C			B	B
Approach Delay (s)		0.0			24.3			29.6			17.8	
Approach LOS		A			C			C			B	
Intersection Summary												
HCM Average Control Delay			25.5		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			86.8%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1013: North Access Road & West Mall Driveway

2035 AM Concept A

8/23/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	1359	45	0	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	1510	50	0	52
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						
vC, conflicting volume	1510				1510	503
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1510				1510	503
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	429				109	508
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	503	503	503	50	52	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	50	52	
cSH	1700	1700	1700	1700	508	
Volume to Capacity	0.30	0.30	0.30	0.03	0.10	
Queue Length 95th (ft)	0	0	0	0	8	
Control Delay (s)	0.0	0.0	0.0	0.0	12.9	
Lane LOS					B	
Approach Delay (s)	0.0				12.9	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			36.3%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1093	45	0	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	1214	50	0	45
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						
vC, conflicting volume	1214				1214	405
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214				1214	405
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	559				171	590
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	405	405	405	50	45	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	50	45	
cSH	1700	1700	1700	1700	590	
Volume to Capacity	0.24	0.24	0.24	0.03	0.08	
Queue Length 95th (ft)	0	0	0	0	6	
Control Delay (s)	0.0	0.0	0.0	0.0	11.6	
Lane LOS					B	
Approach Delay (s)	0.0				11.6	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			31.1%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	  					
Volume (veh/h)	1117	408	0	0	0	431
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.91	0.91	0.94	0.94
Hourly flow rate (vph)	1314	480	0	0	0	459
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						
vC, conflicting volume			1314		1314	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1314		1314	438
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	18
cM capacity (veh/h)			512		147	561
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	438	438	438	480	459	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	480	459	
cSH	1700	1700	1700	1700	561	
Volume to Capacity	0.26	0.26	0.26	0.28	0.82	
Queue Length 95th (ft)	0	0	0	0	205	
Control Delay (s)	0.0	0.0	0.0	0.0	33.9	
Lane LOS					D	
Approach Delay (s)	0.0				33.9	
Approach LOS					D	
Intersection Summary						
Average Delay			6.9			
Intersection Capacity Utilization			54.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

1016: North Access Road & Apache Ave

2035 AM Concept A

8/23/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	786	487	0	352
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.91	0.91	0.77	0.77
Hourly flow rate (vph)	0	0	864	535	0	457
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						
vC, conflicting volume	864				864	288
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	864				864	288
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	35
cM capacity (veh/h)	762				290	703
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	288	288	288	535	457	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	535	457	
cSH	1700	1700	1700	1700	703	
Volume to Capacity	0.17	0.17	0.17	0.31	0.65	
Queue Length 95th (ft)	0	0	0	0	121	
Control Delay (s)	0.0	0.0	0.0	0.0	19.1	
Lane LOS					C	
Approach Delay (s)	0.0				19.1	
Approach LOS					C	
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			43.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1017: South Access Road & Middleground Road

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 						 				
Volume (vph)	433	233	386	0	0	0	0	145	66	386	637	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3367	2983	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.63	1.00	
Satd. Flow (perm)	3367	2983	1553					3471	1553	1159	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	446	240	398	0	0	0	0	186	85	449	741	0
RTOR Reduction (vph)	0	0	120	0	0	0	0	0	43	0	0	0
Lane Group Flow (vph)	446	240	278	0	0	0	0	186	43	449	741	0
Heavy Vehicles (%)	4%	21%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						Perm	Perm		
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		
Actuated Green, G (s)	33.0	33.0	33.0					45.0	45.0	45.0	45.0	
Effective Green, g (s)	33.0	33.0	33.0					45.0	45.0	45.0	45.0	
Actuated g/C Ratio	0.37	0.37	0.37					0.50	0.50	0.50	0.50	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1235	1094	569					1736	777	580	914	
v/s Ratio Prot		0.08						0.05			c0.41	
v/s Ratio Perm	0.13		c0.18						0.03	0.39		
v/c Ratio	0.36	0.22	0.49					0.11	0.05	0.77	0.81	
Uniform Delay, d1	20.8	19.6	22.0					11.9	11.6	18.4	18.9	
Progression Factor	0.90	0.92	0.81					1.00	1.00	1.49	0.85	
Incremental Delay, d2	0.8	0.5	2.9					0.0	0.0	5.7	5.0	
Delay (s)	19.6	18.5	20.8					11.9	11.6	33.0	21.1	
Level of Service	B	B	C					B	B	C	C	
Approach Delay (s)		19.8			0.0			11.8			25.6	
Approach LOS		B			A			B			C	
Intersection Summary												
HCM Average Control Delay			21.7		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			79.2%		ICU Level of Service					D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1018: North Access Road & Middleground Road

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	344	369	172	94	484	0	0	679	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	1736	3471			3471	1553
Flt Permitted				0.95	1.00	1.00	0.22	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	410	3471			3471	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	410	439	205	121	621	0	0	790	365
RTOR Reduction (vph)	0	0	0	0	0	93	0	0	0	0	0	169
Lane Group Flow (vph)	0	0	0	410	439	112	121	621	0	0	790	196
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					6			8				4
Permitted Phases				6		6	8					4
Actuated Green, G (s)				46.3	46.3	46.3	31.7	31.7			31.7	31.7
Effective Green, g (s)				46.3	46.3	46.3	31.7	31.7			31.7	31.7
Actuated g/C Ratio				0.51	0.51	0.51	0.35	0.35			0.35	0.35
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				893	1510	799	144	1223			1223	547
v/s Ratio Prot					0.15			0.18			0.23	
v/s Ratio Perm				c0.24		0.07	c0.29					0.13
v/c Ratio				0.46	0.29	0.14	0.84	0.51			0.65	0.36
Uniform Delay, d1				13.9	12.5	11.4	26.8	23.0			24.4	21.6
Progression Factor				0.96	0.96	0.85	0.77	1.79			1.00	1.00
Incremental Delay, d2				1.7	0.5	0.4	33.4	0.3			1.2	0.4
Delay (s)				15.1	12.4	10.1	54.1	41.5			25.6	22.0
Level of Service				B	B	B	D	D			C	C
Approach Delay (s)		0.0			13.0			43.5			24.5	
Approach LOS		A			B			D			C	
Intersection Summary												
HCM Average Control Delay			25.2									HCM Level of Service C
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0									Sum of lost time (s) 12.0
Intersection Capacity Utilization			79.2%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1019: South Access Road & Arts Drive

2035 AM Concept A

8/23/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	509	418	0	0	0	289
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.84	0.84	0.78	0.78
Hourly flow rate (vph)	525	431	0	0	0	371
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						
vC, conflicting volume			525		525	262
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			525		525	262
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	49
cM capacity (veh/h)			1024		478	730
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	262	262	431	371		
Volume Left	0	0	0	0		
Volume Right	0	0	431	371		
cSH	1700	1700	1700	730		
Volume to Capacity	0.15	0.15	0.25	0.51		
Queue Length 95th (ft)	0	0	0	73		
Control Delay (s)	0.0	0.0	0.0	14.9		
Lane LOS				B		
Approach Delay (s)	0.0			14.9		
Approach LOS				B		
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			38.6%		ICU Level of Service A	
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1312	70	0	0	0	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.89	0.89	0.62	0.62
Hourly flow rate (vph)	1491	80	0	0	0	61
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						
vC, conflicting volume			1570		1531	412
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1570		1531	412
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			407		106	583
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	426	426	426	293	61	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	80	61	
cSH	1700	1700	1700	1700	583	
Volume to Capacity	0.25	0.25	0.25	0.17	0.11	
Queue Length 95th (ft)	0	0	0	0	9	
Control Delay (s)	0.0	0.0	0.0	0.0	11.9	
Lane LOS					B	
Approach Delay (s)	0.0				11.9	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			30.2%	ICU Level of Service		A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	333	454	0	214
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76
Hourly flow rate (vph)	0	0	374	510	0	282
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						
vC, conflicting volume	884				374	187
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	884				374	187
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	66
cM capacity (veh/h)	748				595	817
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	187	187	510	282		
Volume Left	0	0	0	0		
Volume Right	0	0	510	282		
cSH	1700	1700	1700	817		
Volume to Capacity	0.11	0.11	0.30	0.34		
Queue Length 95th (ft)	0	0	0	39		
Control Delay (s)	0.0	0.0	0.0	11.7		
Lane LOS				B		
Approach Delay (s)	0.0			11.7		
Approach LOS				B		
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			31.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1023: South Access Road & Mercy Blvd

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	734	153	0	0	0	0	241	96	119	153	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	2935	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.52	1.00	
Satd. Flow (perm)	1736	2935	1553					3471	1553	945	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	209	798	166	0	0	0	0	326	130	165	212	0
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	98	0	0	0
Lane Group Flow (vph)	209	798	107	0	0	0	0	326	32	165	212	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						Perm	Perm		
Protected Phases	2								8	4		
Permitted Phases	2		2						8	4		
Actuated Green, G (s)	57.8	57.8	57.8					20.2	20.2	20.2	20.2	
Effective Green, g (s)	57.8	57.8	57.8					20.2	20.2	20.2	20.2	
Actuated g/C Ratio	0.64	0.64	0.64					0.22	0.22	0.22	0.22	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1115	1885	997					779	349	212	410	
v/s Ratio Prot	c0.27								0.09	0.12		
v/s Ratio Perm	0.12	0.07						0.02	c0.17			
v/c Ratio	0.19	0.42	0.11					0.42	0.09	0.78	0.52	
Uniform Delay, d1	6.5	7.9	6.2					29.9	27.6	32.8	30.6	
Progression Factor	1.00	1.00	1.06					1.00	1.00	0.36	0.89	
Incremental Delay, d2	0.4	0.7	0.2					0.4	0.1	16.3	1.1	
Delay (s)	6.9	8.6	6.8					30.2	27.7	28.3	28.4	
Level of Service	A	A	A					C	C	C	C	
Approach Delay (s)	8.1		0.0		29.5		28.3					
Approach LOS	A		A		C		C					
Intersection Summary												
HCM Average Control Delay	16.8		HCM Level of Service		B							
HCM Volume to Capacity ratio	0.52											
Actuated Cycle Length (s)	90.0		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	59.6%		ICU Level of Service		B							
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1024: North Access Road & Mercy Blvd

2035 AM Concept A

8/23/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	88	174	133	176	257	0	0	184	166	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1736	2935	1553	1736	1827			3471	1553	
Flt Permitted				0.95	1.00	1.00	0.59	1.00			1.00	1.00	
Satd. Flow (perm)				1736	2935	1553	1084	1827			3471	1553	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72	
Adj. Flow (vph)	0	0	0	102	202	155	238	347	0	0	256	231	
RTOR Reduction (vph)	0	0	0	0	0	68	0	0	0	0	0	160	
Lane Group Flow (vph)	0	0	0	102	202	87	238	347	0	0	256	71	
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%	
Turn Type				Perm	Perm		Perm				Perm		
Protected Phases				6		6		8		4			
Permitted Phases				6		6		8				4	
Actuated Green, G (s)				50.3	50.3	50.3	27.7	27.7				27.7	27.7
Effective Green, g (s)				50.3	50.3	50.3	27.7	27.7				27.7	27.7
Actuated g/C Ratio				0.56	0.56	0.56	0.31	0.31				0.31	0.31
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0				6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)				970	1640	868	334	562				1068	478
v/s Ratio Prot				c0.07				0.19				0.07	
v/s Ratio Perm				0.06	0.06		c0.22				0.05		
v/c Ratio				0.11	0.12	0.10	0.71	0.62				0.24	0.15
Uniform Delay, d1				9.3	9.4	9.3	27.6	26.6				23.3	22.6
Progression Factor				1.00	1.00	1.00	0.22	1.10				1.00	1.00
Incremental Delay, d2				0.2	0.2	0.2	7.0	2.0				0.1	0.1
Delay (s)				9.5	9.6	9.5	13.1	31.4				23.4	22.7
Level of Service				A	A	A	B	C				C	C
Approach Delay (s)	0.0		9.5		24.0		23.1						
Approach LOS	A		A		C		C						
Intersection Summary													
HCM Average Control Delay	19.4		HCM Level of Service		B								
HCM Volume to Capacity ratio	0.33												
Actuated Cycle Length (s)	90.0		Sum of lost time (s)		12.0								
Intersection Capacity Utilization	59.6%		ICU Level of Service		B								
Analysis Period (min)	15												
c Critical Lane Group													

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	793	537	0	0	0	508
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.93	0.93	0.67	0.67
Hourly flow rate (vph)	911	617	0	0	0	758
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						
vC, conflicting volume			911	911		456
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			911	911		456
tC, single (s)			4.2	6.9		7.0
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		0
cM capacity (veh/h)			731	270		546
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	456	456	617	758		
Volume Left	0	0	0	0		
Volume Right	0	0	617	758		
cSH	1700	1700	1700	546		
Volume to Capacity	0.27	0.27	0.36	1.39		
Queue Length 95th (ft)	0	0	0	867		
Control Delay (s)	0.0	0.0	0.0	207.3		
Lane LOS				F		
Approach Delay (s)	0.0				207.3	
Approach LOS				F		
Intersection Summary						
Average Delay			68.7			
Intersection Capacity Utilization			60.0%		ICU Level of Service	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	299	224	0	477
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.93	0.93	0.82	0.82
Hourly flow rate (vph)	0	0	322	241	0	582
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						
vC, conflicting volume	322				322	161
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	322				322	161
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	32
cM capacity (veh/h)	1221				642	850
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	161	161	241	582		
Volume Left	0	0	0	0		
Volume Right	0	0	241	582		
cSH	1700	1700	1700	850		
Volume to Capacity	0.09	0.09	0.14	0.68		
Queue Length 95th (ft)	0	0	0	140		
Control Delay (s)	0.0	0.0	0.0	17.9		
Lane LOS				C		
Approach Delay (s)	0.0			17.9		
Approach LOS				C		
Intersection Summary						
Average Delay			9.1			
Intersection Capacity Utilization			44.5%		ICU Level of Service	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	468	19	0	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.93	0.93	0.82	0.82
Hourly flow rate (vph)	0	0	503	20	0	67
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						
vC, conflicting volume	503				503	252
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	503				503	252
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	1044				493	742
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	252	252	20	67		
Volume Left	0	0	0	0		
Volume Right	0	0	20	67		
cSH	1700	1700	1700	742		
Volume to Capacity	0.15	0.15	0.01	0.09		
Queue Length 95th (ft)	0	0	0	7		
Control Delay (s)	0.0	0.0	0.0	10.3		
Lane LOS				B		
Approach Delay (s)	0.0			10.3		
Approach LOS				B		
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			23.0%	ICU Level of Service	A	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	1286	302	0	235
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.98	0.98	0.86	0.86
Hourly flow rate (vph)	0	0	1312	308	0	273
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						
vC, conflicting volume	1312				1312	437
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1312				1312	437
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	51
cM capacity (veh/h)	512				147	562
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	437	437	437	308	273	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	308	273	
cSH	1700	1700	1700	1700	562	
Volume to Capacity	0.26	0.26	0.26	0.18	0.49	
Queue Length 95th (ft)	0	0	0	0	66	
Control Delay (s)	0.0	0.0	0.0	0.0	17.3	
Lane LOS					C	
Approach Delay (s)	0.0				17.3	
Approach LOS					C	
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			46.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1031: Truman Parkway & SR 204

2035 AM Concept A

8/23/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	147	0	52	303	0	141	0	1210	0	0	768	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.72	0.72	0.72	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77
Adj. Flow (vph)	204	0	72	370	0	172	0	1301	0	0	997	35
RTOR Reduction (vph)	0	0	60	0	0	45	0	0	0	0	0	10
Lane Group Flow (vph)	204	0	12	370	0	127	0	1301	0	0	997	25
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	17.1		17.1	17.1		17.1		70.9			70.9	70.9
Effective Green, g (s)	17.1		17.1	17.1		17.1		70.9			70.9	70.9
Actuated g/C Ratio	0.17		0.17	0.17		0.17		0.71			0.71	0.71
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	297		266	837		266		2990			2990	1101
v/s Ratio Prot	c0.12			0.08				c0.31			0.24	
v/s Ratio Perm			0.01			0.08						0.02
v/c Ratio	0.69		0.05	0.44		0.48		0.44			0.33	0.02
Uniform Delay, d1	38.9		34.6	37.2		37.4		6.1			5.5	4.3
Progression Factor	1.00		1.00	1.00		1.00		1.00			0.97	1.08
Incremental Delay, d2	6.5		0.1	0.4		1.4		0.5			0.3	0.0
Delay (s)	45.4		34.7	37.5		38.8		6.6			5.7	4.7
Level of Service	D		C	D		D		A			A	A
Approach Delay (s)	42.6				37.9			6.6			5.6	
Approach LOS	D				D			A			A	
Intersection Summary												
HCM Average Control Delay			14.8		HCM Level of Service						B	
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			50.6%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1032: White Bluff Connector & SR 204

2035 AM Concept A

8/23/2011

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	63	113	0	1347	151	98	732
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.82	0.82	0.93	0.93	0.93	0.77	0.77
Adj. Flow (vph)	77	138	0	1448	162	127	951
RTOR Reduction (vph)	0	127	0	0	63	0	0
Lane Group Flow (vph)	77	11	0	1448	99	127	951
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	8.1	8.1		61.1	61.1	12.8	79.9
Effective Green, g (s)	8.1	8.1		61.1	61.1	12.8	79.9
Actuated g/C Ratio	0.08	0.08		0.61	0.61	0.13	0.80
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	265	122		2577	922	216	3369
v/s Ratio Prot				c0.34		c0.08	0.23
v/s Ratio Perm	c0.02	0.01			0.07		
v/c Ratio	0.29	0.09		0.56	0.11	0.59	0.28
Uniform Delay, d1	43.2	42.5		11.5	8.1	41.1	2.6
Progression Factor	1.00	1.00		0.73	0.40	1.00	1.00
Incremental Delay, d2	0.6	0.3		0.8	0.2	4.0	0.2
Delay (s)	43.9	42.9		9.2	3.5	45.2	2.8
Level of Service	D	D		A	A	D	A
Approach Delay (s)	43.2			8.6			7.8
Approach LOS	D			A			A
Intersection Summary							
HCM Average Control Delay			10.9	HCM Level of Service			B
HCM Volume to Capacity ratio			0.54				
Actuated Cycle Length (s)			100.0	Sum of lost time (s)			18.0
Intersection Capacity Utilization			49.8%	ICU Level of Service			A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B&C - Alternative 1

1000: SR 204 & Gateway Blvd W

8/25/2011

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Volume (veh/h)	17	772	0	30	411	53	0	6	11	53	6	3							
Sign Control	Free			Free			Stop			Stop									
Grade	0%			0%			0%			0%									
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71							
Hourly flow rate (vph)	20	908	0	35	478	62	0	13	24	75	8	4							
Pedestrians																			
Lane Width (ft)																			
Walking Speed (ft/s)																			
Percent Blockage																			
Right turn flare (veh)												8							
Median type	None			None															
Median storage veh																			
Upstream signal (ft)	708																		
pX, platoon unblocked	0.98							0.98	0.98		0.98	0.98							
vC, conflicting volume	478	908						1261	1496	454	1072	1496							
vC1, stage 1 conf vol																			
vC2, stage 2 conf vol																			
vCu, unblocked vol	429	908						1227	1467	454	1035	1467							
tC, single (s)	4.2	4.2						7.6	6.6	7.0	7.6	6.6							
tC, 2 stage (s)																			
tF (s)	2.2	2.2						3.5	4.0	3.3	3.5	4.0							
p0 queue free %	98	95						100	89	96	50	93							
cM capacity (veh/h)	1099	739						117	115	550	151	115							
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1											
Volume Total	474	454	35	239	239	62	37	87											
Volume Left	20	0	35	0	0	0	0	75											
Volume Right	0	0	0	0	0	62	24	4											
cSH	1099	1700	739	1700	1700	1700	236	155											
Volume to Capacity	0.02	0.27	0.05	0.14	0.14	0.04	0.16	0.56											
Queue Length 95th (ft)	1	0	4	0	0	0	14	72											
Control Delay (s)	0.6	0.0	10.1	0.0	0.0	0.0	23.1	55.0											
Lane LOS	A	B						C	F										
Approach Delay (s)	0.3	0.6						23.1	55.0										
Approach LOS							C	F											
Intersection Summary																			
Average Delay				3.9															
Intersection Capacity Utilization				50.1%	ICU Level of Service			A											
Analysis Period (min)				15															

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B&C - Alternative 1

1001: SR 204 & I-95 SB Off-Ramp

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations		 		 	 				 			
Volume (vph)	0	728	108	1131	367	0	0	0	823	0	127	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0	
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00	
Frt		1.00	0.85	1.00	1.00				1.00		0.85	
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (prot)		3282	1442	3127	3282				3127		1442	
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (perm)		3282	1442	3127	3282				3127		1442	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.84	0.84	0.84	
Adj. Flow (vph)	0	847	126	1216	395	0	0	0	980	0	151	
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	0	0	108	
Lane Group Flow (vph)	0	847	65	1216	395	0	0	0	980	0	43	
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%	
Turn Type			Perm	Prot					custom		custom	
Protected Phases		2		1	6							
Permitted Phases			2						4		4	
Actuated Green, G (s)		36.0	36.0	53.0	95.0				43.0		43.0	
Effective Green, g (s)		36.0	36.0	53.0	95.0				43.0		43.0	
Actuated g/C Ratio		0.24	0.24	0.35	0.63				0.29		0.29	
Clearance Time (s)		6.0	6.0	6.0	6.0				6.0		6.0	
Vehicle Extension (s)		5.5	5.5	3.0	5.5				3.0		3.0	
Lane Grp Cap (vph)		788	346	1105	2079				896		413	
v/s Ratio Prot		c0.26		c0.39	0.12							
v/s Ratio Perm			0.05						c0.31		0.03	
v/c Ratio		1.07	0.19	1.10	0.19				1.09		0.10	
Uniform Delay, d1		57.0	45.4	48.5	11.5				53.5		39.3	
Progression Factor		1.00	1.00	1.04	0.26				1.00		1.00	
Incremental Delay, d2		54.1	1.2	46.8	0.1				59.0		0.1	
Delay (s)		111.1	46.6	97.0	3.1				112.5		39.5	
Level of Service		F	D	F	A				F		D	
Approach Delay (s)		102.8			74.0		0.0			102.7		
Approach LOS		F			E		A			F		
Intersection Summary												
HCM Average Control Delay			90.3		HCM Level of Service				F			
HCM Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			98.3%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B&C - Alternative 1

1002: SR 204 & I-95 NB On-Ramp

8/25/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	84	1467	0	0	1412	743	0	0	86	0	1365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3282			3282	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3282			3282	1442			1612		2538
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	88	1528	0	0	1456	766	0	0	108	0	1706
RTOR Reduction (vph)	0	0	0	0	0	263	0	0	0	0	9
Lane Group Flow (vph)	88	1528	0	0	1456	503	0	0	108	0	1697
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	Prot				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases						6			8		8
Actuated Green, G (s)	8.5	67.0			52.5	52.5			71.0		71.0
Effective Green, g (s)	8.5	67.0			52.5	52.5			71.0		71.0
Actuated g/C Ratio	0.06	0.45			0.35	0.35			0.47		0.47
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	177	1466			1149	505			763		1201
v/s Ratio Prot	0.03	c0.47			c0.44						
v/s Ratio Perm						0.35			0.07		c0.67
v/c Ratio	0.50	1.04			1.27	1.00			0.14		1.41
Uniform Delay, d1	68.7	41.5			48.8	48.7			22.3		39.5
Progression Factor	1.30	0.50			0.63	0.41			1.00		1.00
Incremental Delay, d2	0.2	21.4			124.5	30.1			0.1		190.9
Delay (s)	89.5	42.1			155.1	49.9			22.4		230.4
Level of Service	F	D			F	D			C		F
Approach Delay (s)		44.7			118.8		0.0			218.0	
Approach LOS		D			F		A			F	
Intersection Summary											
HCM Average Control Delay		129.5			HCM Level of Service		F				
HCM Volume to Capacity ratio		1.36									
Actuated Cycle Length (s)		150.0			Sum of lost time (s)		18.0				
Intersection Capacity Utilization		98.3%			ICU Level of Service		F				
Analysis Period (min)		15									
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B&C - Alternative 1

1003: SR 204 & Gateway Blvd S

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2698	134	0	2033	55	0	0	102	0	0	122
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Hourly flow rate (vph)	0	2901	144	0	2392	65	0	0	123	0	0	128
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		423										
pX, platoon unblocked				0.62			0.62	0.62	0.62	0.62	0.62	
vC, conflicting volume	2392			2901			3698	5293	967	3359	5293	797
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2392			1916			3204	5781	0	2656	5781	797
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	82	100	100	60
cM capacity (veh/h)	189			182			1	0	665	5	0	323
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	967	967	967	144	797	797	797	65	123	128		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	144	0	0	0	65	123	128		
cSH	1700	1700	1700	1700	1700	1700	1700	1700	665	323		
Volume to Capacity	0.57	0.57	0.57	0.08	0.47	0.47	0.47	0.04	0.18	0.40		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	17	46		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6	23.3		
Lane LOS									B	C		
Approach Delay (s)	0.0				0.0				11.6	23.3		
Approach LOS									B	C		
Intersection Summary												
Average Delay				0.8								
Intersection Capacity Utilization				71.6%			ICU Level of Service		C			
Analysis Period (min)				15								

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B&C - Alternative 1

1004: SR 204 & New Intersection

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	2398	145	111	1622	93	257	66	111	129	39	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	4715	1538	1719	4715	1538	1719	1810	1538	1719	1810	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	1719	4715	1538	1719	4715	1538	1322	1810	1538	1276	1810	1538
Peak-hour factor, PHF	0.93	0.93	0.93	0.85	0.85	0.85	0.83	0.83	0.83	0.95	0.95	0.95
Adj. Flow (vph)	276	2578	156	131	1908	109	310	80	134	136	41	220
RTOR Reduction (vph)	0	0	43	0	0	40	0	0	105	0	0	172
Lane Group Flow (vph)	276	2578	113	131	1908	69	310	80	29	136	41	48
Heavy Vehicles (%)	5%	10%	5%	5%	10%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	27.0	84.3	84.3	14.7	72.0	72.0	33.0	33.0	33.0	33.0	33.0	33.0
Effective Green, g (s)	27.0	84.3	84.3	14.7	72.0	72.0	33.0	33.0	33.0	33.0	33.0	33.0
Actuated g/C Ratio	0.18	0.56	0.56	0.10	0.48	0.48	0.22	0.22	0.22	0.22	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	2650	864	168	2263	738	291	398	338	281	398	338
v/s Ratio Prot	c0.16	c0.55		0.08	0.40			0.04			0.02	
v/s Ratio Perm			0.07			0.04	c0.23		0.02	0.11		0.03
v/c Ratio	0.89	0.97	0.13	0.78	0.84	0.09	1.07	0.20	0.09	0.48	0.10	0.14
Uniform Delay, d1	60.1	31.7	15.5	66.1	34.1	21.2	58.5	47.7	46.5	51.1	46.7	47.1
Progression Factor	1.01	0.99	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	1.9	0.0	20.1	3.0	0.1	71.1	0.3	0.1	1.3	0.1	0.2
Delay (s)	64.2	33.2	15.2	86.2	37.1	21.3	129.6	48.0	46.6	52.4	46.8	47.3
Level of Service	E	C	B	F	D	C	F	D	D	D	D	D
Approach Delay (s)		35.1			39.3			95.9			49.0	
Approach LOS		D			D			F			D	
Intersection Summary												
HCM Average Control Delay			42.7			HCM Level of Service					D	
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			88.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B&C - Alternative 2

1001: SR 204 & Gateway Blvd W

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	772	0	30	411	53	0	6	11	53	6	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71
Hourly flow rate (vph)	20	908	0	35	478	62	0	13	24	75	8	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					479							
pX, platoon unblocked												
vC, conflicting volume	478			908			1261	1496	454	1072	1496	239
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478			908			1261	1496	454	1072	1496	239
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	98			95			100	88	96	48	93	99
cM capacity (veh/h)	1074			739			112	113	550	144	113	759
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	474	454	35	239	239	62	37	87				
Volume Left	20	0	35	0	0	0	0	75				
Volume Right	0	0	0	0	0	62	24	4				
cSH	1074	1700	739	1700	1700	1700	232	148				
Volume to Capacity	0.02	0.27	0.05	0.14	0.14	0.04	0.16	0.59				
Queue Length 95th (ft)	1	0	4	0	0	0	14	77				
Control Delay (s)	0.6	0.0	10.1	0.0	0.0	0.0	23.4	59.6				
Lane LOS	A		B				C	F				
Approach Delay (s)	0.3		0.6				23.4	59.6				
Approach LOS							C	F				
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization			50.1%			ICU Level of Service				A		
Analysis Period (min)			15									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Volume (vph)	728	108	0	367	127	823
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3282	1442		4715	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3282	1442		4715	1612	1442
Peak-hour factor, PHF	0.86	0.86	0.93	0.93	0.84	0.84
Adj. Flow (vph)	847	126	0	395	151	980
RTOR Reduction (vph)	0	40	0	0	0	0
Lane Group Flow (vph)	847	86	0	395	151	980
Heavy Vehicles (%)	10%	12%	12%	10%	12%	12%
Turn Type	Perm		Perm		Free	
Protected Phases	2		6		8	
Permitted Phases	2		6		Free	
Actuated Green, G (s)	47.6	47.6		47.6	10.4	70.0
Effective Green, g (s)	47.6	47.6		47.6	10.4	70.0
Actuated g/C Ratio	0.68	0.68		0.68	0.15	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2232	981		3206	239	1442
v/s Ratio Prot	0.26			0.08	0.09	
v/s Ratio Perm		0.06				c0.68
v/c Ratio	0.38	0.09		0.12	0.63	0.68
Uniform Delay, d1	4.8	3.8		3.9	28.0	0.0
Progression Factor	1.00	1.00		0.71	1.00	1.00
Incremental Delay, d2	0.5	0.2		0.1	5.4	2.6
Delay (s)	5.3	4.0		2.9	33.4	2.6
Level of Service	A	A		A	C	A
Approach Delay (s)	5.1			2.9	6.7	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			5.5	HCM Level of Service		A
HCM Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			70.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			37.2%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations		  			  				 		
Volume (vph)	84	1467	0	0	281	0	0	0	86	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.49	1.00			1.00				0.95		
Satd. Flow (perm)	836	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	88	1528	0	0	290	0	0	0	108	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	88	1528	0	0	290	0	0	0	108	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt								custom		
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	51.4	51.4			39.8				6.6		
Effective Green, g (s)	51.4	51.4			39.8				6.6		
Actuated g/C Ratio	0.73	0.73			0.57				0.09		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	676	3462			2681				295		
v/s Ratio Prot	0.01	c0.32			0.06						
v/s Ratio Perm	0.09								c0.03		
v/c Ratio	0.13	0.44			0.11				0.37		
Uniform Delay, d1	2.9	3.7			6.9				29.7		
Progression Factor	0.54	0.45			1.00				1.00		
Incremental Delay, d2	0.1	0.4			0.1				0.8		
Delay (s)	1.6	2.0			7.0				30.5		
Level of Service	A	A			A				C		
Approach Delay (s)		2.0			7.0		0.0			30.5	
Approach LOS		A			A		A			C	
Intersection Summary											
HCM Average Control Delay			4.2	HCM Level of Service					A		
HCM Volume to Capacity ratio			0.43								
Actuated Cycle Length (s)			70.0	Sum of lost time (s)					12.0		
Intersection Capacity Utilization			40.0%	ICU Level of Service					A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
1001: SR 204 & Gateway Blvd W

2035 AM Concept B&C - Alternative 3
8/25/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	17	772	0	30	411	53	0	6	11	53	6	3		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.46	0.46	0.46	0.71	0.71	0.71		
Hourly flow rate (vph)	20	908	0	35	478	62	0	13	24	75	8	4		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage (veh)														
Upstream signal (ft)														
pX, platoon unblocked														
vC, conflicting volume	478				908				1261	1496	454	1072	1496	239
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	478				908				1261	1496	454	1072	1496	239
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0
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 %	98				95				100	88	96	48	93	99
cM capacity (veh/h)	1074				739				112	113	550	144	113	759
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1						
Volume Total	474	454	35	239	239	62	37	87						
Volume Left	20	0	35	0	0	0	0	75						
Volume Right	0	0	0	0	0	62	24	4						
cSH	1074	1700	739	1700	1700	1700	232	148						
Volume to Capacity	0.02	0.27	0.05	0.14	0.14	0.04	0.16	0.59						
Queue Length 95th (ft)	1	0	4	0	0	0	14	77						
Control Delay (s)	0.6	0.0	10.1	0.0	0.0	0.0	23.4	59.6						
Lane LOS	A	B						C	F					
Approach Delay (s)	0.3	0.6						23.4	59.6					
Approach LOS									C	F				
Intersection Summary														
Average Delay			4.1											
Intersection Capacity Utilization			50.1%		ICU Level of Service		A							
Analysis Period (min)			15											

HCM Unsignalized Intersection Capacity Analysis
1003: SR 204 & I-95 SB Ramps

2035 AM Concept B&C - Alternative 3
8/25/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	0	728	367	0	0	127	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.86	0.86	0.93	0.93	0.84	0.84	
Hourly flow rate (vph)	0	847	395	0	0	151	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)	712						
pX, platoon unblocked							
vC, conflicting volume	395				677	132	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	395				677	132	
tC, single (s)	4.3				7.0	7.1	
tC, 2 stage (s)							
tF (s)	2.3				3.6	3.4	
p0 queue free %	100				100	82	
cM capacity (veh/h)	1105				369	863	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	282	282	282	132	132	132	151
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	151
cSH	1700	1700	1700	1700	1700	1700	863
Volume to Capacity	0.17	0.17	0.17	0.08	0.08	0.08	0.18
Queue Length 95th (ft)	0	0	0	0	0	0	16
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS							B
Approach Delay (s)	0.0				0.0	10.1	
Approach LOS							B
Intersection Summary							
Average Delay			1.1				
Intersection Capacity Utilization			21.6%		ICU Level of Service		A
Analysis Period (min)			15				

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations		  			  				 		
Volume (vph)	84	644	0	0	281	0	0	0	86	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4715			4715				3127		
Flt Permitted	0.50	1.00			1.00				0.95		
Satd. Flow (perm)	853	4715			4715				3127		
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	88	671	0	0	290	0	0	0	108	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	88	671	0	0	290	0	0	0	108	0	0
Heavy Vehicles (%)	12%	10%	12%	12%	10%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			custom							
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	58.4	58.4			46.8				6.7		
Effective Green, g (s)	58.4	58.4			46.8				6.7		
Actuated g/C Ratio	0.76	0.76			0.61				0.09		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	701	3571			2862				272		
v/s Ratio Prot	0.01	c0.14			0.06						
v/s Ratio Perm	0.09								c0.03		
v/c Ratio	0.13	0.19			0.10				0.40		
Uniform Delay, d1	2.7	2.6			6.3				33.3		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.1	0.1			0.1				1.0		
Delay (s)	2.7	2.8			6.4				34.2		
Level of Service	A	A			A				C		
Approach Delay (s)		2.8			6.4	0.0				34.2	
Approach LOS		A			A	A				C	
Intersection Summary											
HCM Average Control Delay			6.6		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.21								
Actuated Cycle Length (s)			77.1		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			21.6%		ICU Level of Service				A		
Analysis Period (min)			15								
c Critical Lane Group											

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	  		 					  	 	 	  	
Volume (vph)	613	0	342	0	0	0	0	1596	816	536	1195	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.94		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	4802		2682					4893	2682	3303	4893	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	4802		2682					4893	2682	3303	4893	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	739	0	412	0	0	0	0	1923	983	576	1285	0
RTOR Reduction (vph)	0	0	140	0	0	0	0	0	504	0	0	0
Lane Group Flow (vph)	739	0	272	0	0	0	0	1923	479	576	1285	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom		custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	15.0		15.0					39.3	39.3	17.7	63.0	
Effective Green, g (s)	15.0		15.0					39.3	39.3	17.7	63.0	
Actuated g/C Ratio	0.17		0.17					0.44	0.44	0.20	0.70	
Clearance Time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	800		447					2137	1171	650	3425	
v/s Ratio Prot								c0.39		c0.17	0.26	
v/s Ratio Perm	c0.15		0.10						0.18			
v/c Ratio	0.92		0.61					0.90	0.41	0.89	0.38	
Uniform Delay, d1	36.9		34.8					23.5	17.4	35.2	5.5	
Progression Factor	1.00		1.00					1.00	1.00	0.52	0.11	
Incremental Delay, d2	16.2		2.3					6.6	1.1	10.5	0.2	
Delay (s)	53.1		37.1					30.1	18.5	28.7	0.8	
Level of Service	D		D					C	B	C	A	
Approach Delay (s)		47.4			0.0			26.2			9.4	
Approach LOS		D			A			C			A	
Intersection Summary												
HCM Average Control Delay			25.0		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			72.8%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B&C

1006: SR 204 WB On Ramp & US-17

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	607	0	175	530	1679	0	0	1124	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	674	0	194	582	1845	0	0	1235	335
RTOR Reduction (vph)	0	0	0	0	0	36	0	0	0	0	0	207
Lane Group Flow (vph)	0	0	0	674	0	158	582	1845	0	0	1235	128
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type	custom			custom			Prot			Perm		
Protected Phases							5			2		
Permitted Phases				8			8			6		
Actuated Green, G (s)				17.1			17.1			20.5		
Effective Green, g (s)				17.1			17.1			20.5		
Actuated g/C Ratio				0.19			0.19			0.23		
Clearance Time (s)				6.0			6.0			6.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				887			496			732		
v/s Ratio Prot							c0.18			0.39		
v/s Ratio Perm				c0.14			0.06					
v/c Ratio				0.76			0.32			0.80		
Uniform Delay, d1				34.5			31.4			32.8		
Progression Factor				1.00			1.00			0.61		
Incremental Delay, d2				3.8			0.4			2.6		
Delay (s)				38.3			31.8			22.5		
Level of Service				D			C			C		
Approach Delay (s)	0.0						36.8			6.2		
Approach LOS	A						D			A		
Intersection Summary												
HCM Average Control Delay	17.4			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			18.0					
Intersection Capacity Utilization	72.8%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B&C

1007: SR 204 EB Off Ramp & Pine Grove Rd

8/25/2011

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Volume (vph)	65	0	154	0	0	0	0	59	91	54	86	0								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0									
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95									
Frt	1.00		0.85					1.00	0.85	1.00	1.00									
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00									
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505									
Flt Permitted	0.95		1.00					1.00	1.00	0.70	1.00									
Satd. Flow (perm)	1752		1568					1845	1568	1292	3505									
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73								
Adj. Flow (vph)	76	0	181	0	0	0	0	87	134	74	118	0								
RTOR Reduction (vph)	0	0	162	0	0	0	0	0	32	0	0	0								
Lane Group Flow (vph)	76	0	19	0	0	0	0	87	102	74	118	0								
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%								
Turn Type	custom		custom						Perm	Perm										
Protected Phases									2			6								
Permitted Phases	4		4						2	6										
Actuated Green, G (s)	9.3		9.3						68.7	68.7		68.7								
Effective Green, g (s)	9.3		9.3						68.7	68.7		68.7								
Actuated g/C Ratio	0.10		0.10						0.76	0.76		0.76								
Clearance Time (s)	6.0		6.0						6.0	6.0		6.0								
Vehicle Extension (s)	3.0		3.0						3.0	3.0		3.0								
Lane Grp Cap (vph)	181		162						1408	1197		2675								
v/s Ratio Prot									0.05			0.03								
v/s Ratio Perm	c0.04		0.01							c0.07		0.06								
v/c Ratio	0.42		0.12						0.06	0.09		0.04								
Uniform Delay, d1	37.8		36.6						2.6	2.7		2.6								
Progression Factor	1.00		1.00						1.00	1.00		0.27								
Incremental Delay, d2	1.6		0.3						0.1	0.1		0.0								
Delay (s)	39.4		36.9						2.7	2.8		0.7								
Level of Service	D		D						A	A		A								
Approach Delay (s)			37.7		0.0				2.8			1.7								
Approach LOS			D		A				A			A								
Intersection Summary																				
HCM Average Control Delay	15.9			HCM Level of Service			B													
HCM Volume to Capacity ratio	0.13																			
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			12.0													
Intersection Capacity Utilization	40.0%			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												
Volume (vph)	0	0	0	83	662	56	43	81	0	0	57	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568
Flt Permitted				0.95	1.00	1.00	0.71	1.00			1.00	1.00
Satd. Flow (perm)				1752	3505	1568	1303	3505			1845	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.68	0.68	0.68	0.73	0.73	0.73
Adj. Flow (vph)	0	0	0	93	744	63	63	119	0	0	78	49
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	21
Lane Group Flow (vph)	0	0	0	93	744	19	63	119	0	0	78	28
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	Perm			Perm				Perm
Protected Phases				8			2			6		
Permitted Phases				8			2			6		
Actuated Green, G (s)				27.4			50.6			50.6		
Effective Green, g (s)				27.4			50.6			50.6		
Actuated g/C Ratio				0.30			0.56			0.56		
Clearance Time (s)				6.0			6.0			6.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				533			1067			1037		
v/s Ratio Prot				c0.21			0.03			0.04		
v/s Ratio Perm				0.05			c0.05			0.02		
v/c Ratio				0.17			0.09			0.08		
Uniform Delay, d1				23.0			9.1			9.0		
Progression Factor				1.00			1.04			1.00		
Incremental Delay, d2				0.2			0.2			0.1		
Delay (s)				23.1			9.7			9.1		
Level of Service				C			A			A		
Approach Delay (s)	0.0			28.4			5.6			9.0		
Approach LOS	A			C			A			A		
Intersection Summary												
HCM Average Control Delay	23.0			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.30											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	40.0%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	183	195	602	1462	613	796
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.92	0.92	0.88	0.88	0.93	0.93
Adj. Flow (vph)	199	212	684	1661	659	856
RTOR Reduction (vph)	0	187	0	0	0	0
Lane Group Flow (vph)	199	25	684	1661	659	856
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Free		Prot	
Protected Phases	8	2		1		6
Permitted Phases	8		Free			
Actuated Green, G (s)	10.6	10.6	23.1	90.0	38.3	67.4
Effective Green, g (s)	10.6	10.6	23.1	90.0	38.3	67.4
Actuated g/C Ratio	0.12	0.12	0.26	1.00	0.43	0.75
Clearance Time (s)	6.0	6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	397	183	891	1553	739	3735
v/s Ratio Prot	0.06	0.20		0.38		0.17
v/s Ratio Perm	0.02		c1.07			
v/c Ratio	0.50	0.14	0.77	1.07	0.89	0.23
Uniform Delay, d1	37.2	35.6	31.0	45.0	23.9	3.4
Progression Factor	1.00	1.00	1.00	1.00	0.75	0.87
Incremental Delay, d2	1.0	0.3	6.3	44.0	12.6	0.1
Delay (s)	38.2	35.9	37.3	89.0	30.6	3.1
Level of Service	D	D	D	F	C	A
Approach Delay (s)	37.0	73.9				15.1
Approach LOS	D	E				B
Intersection Summary						
HCM Average Control Delay			49.5	HCM Level of Service		D
HCM Volume to Capacity ratio			1.07			
Actuated Cycle Length (s)			90.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			70.8%	ICU Level of Service		C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

1010: SR 204 WB Off Ramp & King George Blvd

2035 AM Concept B&C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 			 	 	 			  	
Volume (vph)	0	0	733	0	0	274	331	466	0	0	676	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00
Frt			0.85			0.86	1.00	1.00			1.00	0.85
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553
Flt Permitted			1.00			1.00	0.31	1.00			1.00	1.00
Satd. Flow (perm)			2733			1580	570	1827			3471	1553
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Adj. Flow (vph)	0	0	833	0	0	311	376	530	0	0	727	346
RTOR Reduction (vph)	0	0	169	0	0	289	0	0	0	0	0	142
Lane Group Flow (vph)	0	0	664	0	0	22	376	530	0	0	727	204
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom			custom		pm+pt						Perm
Protected Phases							5	2			6	
Permitted Phases			2			8	2					6
Actuated Green, G (s)			71.7			6.3	71.7	71.7			53.0	53.0
Effective Green, g (s)			71.7			6.3	71.7	71.7			53.0	53.0
Actuated g/C Ratio			0.80			0.07	0.80	0.80			0.59	0.59
Clearance Time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)			3.0			3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)			2177			111	619	1456			2044	915
v/s Ratio Prot							c0.09	0.29			0.21	
v/s Ratio Perm			0.24			c0.01	c0.40					0.13
v/c Ratio			0.30			0.20	0.61	0.36			0.36	0.22
Uniform Delay, d1			2.5			39.5	3.6	2.6			9.6	8.8
Progression Factor			1.00			1.00	2.51	0.61			1.00	1.00
Incremental Delay, d2			0.4			0.9	1.1	0.5			0.5	0.6
Delay (s)			2.8			40.3	10.2	2.1			10.1	9.3
Level of Service			A			D	B	A			B	A
Approach Delay (s)		2.8			40.3			5.5			9.9	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			9.7		HCM Level of Service					A		
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			54.3%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1011: SR 204 & Rio Road

2035 AM Concept B

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  	 	 	  	 	 	 	 	 	 	
Volume (vph)	401	1973	329	11	1088	10	246	56	7	38	19	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4287	1553	1736	2983	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	418	2055	343	12	1222	11	332	76	9	47	23	253
RTOR Reduction (vph)	0	0	60	0	0	4	0	0	8	0	0	0
Lane Group Flow (vph)	418	2055	283	12	1222	7	332	76	1	47	23	253
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Actuated Green, G (s)	32.5	79.8	79.8	3.0	50.3	50.3	18.3	16.3	16.3	6.9	4.9	130.0
Effective Green, g (s)	32.5	79.8	79.8	3.0	50.3	50.3	18.3	16.3	16.3	6.9	4.9	130.0
Actuated g/C Ratio	0.25	0.61	0.61	0.02	0.39	0.39	0.14	0.13	0.13	0.05	0.04	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	842	2632	953	40	1154	601	474	229	195	92	69	1553
v/s Ratio Prot	c0.12	c0.48		0.01	c0.41		c0.10	c0.04		0.03	0.01	
v/s Ratio Perm			0.18			0.00			0.00			0.16
v/c Ratio	0.50	0.78	0.30	0.30	1.06	0.01	0.70	0.33	0.01	0.51	0.33	0.16
Uniform Delay, d1	41.7	18.6	11.9	62.5	39.9	24.5	53.2	51.9	49.8	59.9	61.0	0.0
Progression Factor	1.00	1.00	1.00	1.21	0.92	0.60	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	2.4	0.8	3.6	41.8	0.0	4.6	0.9	0.0	4.7	2.8	0.2
Delay (s)	42.2	21.0	12.7	79.0	78.5	14.9	57.9	52.7	49.8	64.6	63.8	0.2
Level of Service	D	C	B	E	E	B	E	D	D	E	E	A
Approach Delay (s)		23.1			77.9			56.8			14.1	
Approach LOS		C			E			E			B	
Intersection Summary												
HCM Average Control Delay			39.6		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					24.0		
Intersection Capacity Utilization			71.8%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	2018	1084	26	0	25		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58		
Hourly flow rate (vph)	0	2242	1204	29	0	43		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (ft)	697							
pX, platoon unblocked					0.66			
vC, conflicting volume	1204				1952	401		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1204				610	401		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	93		
cM capacity (veh/h)	564				276	593		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	747	747	747	401	401	401	29	43
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	29	43
cSH	1700	1700	1700	1700	1700	1700	1700	593
Volume to Capacity	0.44	0.44	0.44	0.24	0.24	0.24	0.02	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
Lane LOS	B							
Approach Delay (s)	0.0				0.0			11.5
Approach LOS	B							
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			42.3%	ICU Level of Service		A		
Analysis Period (min)			15					

										
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations		↑↑↑↑	↑↑↑↑	↗		↗				
Volume (veh/h)	0	2018	1097	9	0	13				
Sign Control		Free	Free		Stop					
Grade		0%	0%		0%					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58				
Hourly flow rate (vph)	0	2242	1219	10	0	22				
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										
vC, conflicting volume	1219				1966	406				
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	1219				1966	406				
tC, single (s)	4.2				6.9	7.0				
tC, 2 stage (s)										
tF (s)	2.2				3.5	3.3				
p0 queue free %	100				100	96				
cM capacity (veh/h)	557				54	588				
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1		
Volume Total	747	747	747	406	406	406	10	22		
Volume Left	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	0	0	0	10	22		
cSH	1700	1700	1700	1700	1700	1700	1700	588		
Volume to Capacity	0.44	0.44	0.44	0.24	0.24	0.24	0.01	0.04		
Queue Length 95th (ft)	0	0	0	0	0	0	0	3		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4		
Lane LOS	B									
Approach Delay (s)	0.0				0.0			11.4		
Approach LOS	B									
Intersection Summary										
Average Delay			0.1							
Intersection Capacity Utilization			42.3%	ICU Level of Service		A				
Analysis Period (min)			15							

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B

1014: SR 204 & East Mall Driveway

8/23/2011

												
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations												
Volume (veh/h)	0	2018	1087	14	0	19						
Sign Control		Free	Free		Stop							
Grade		0%	0%		0%							
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58						
Hourly flow rate (vph)	0	2242	1208	16	0	33						
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None		None									
Median storage veh												
Upstream signal (ft)	545											
pX, platoon unblocked	0.84					0.84	0.84					
vC, conflicting volume	1208					1955	403					
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	593			1480		0						
tC, single (s)	4.2			6.9		7.0						
tC, 2 stage (s)												
tF (s)	2.2			3.5		3.3						
p0 queue free %	100			100		96						
cM capacity (veh/h)	813			96		908						
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1				
Volume Total	747	747	747	403	403	403	16	33				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	0	16	33				
cSH	1700	1700	1700	1700	1700	1700	1700	908				
Volume to Capacity	0.44	0.44	0.44	0.24	0.24	0.24	0.01	0.04				
Queue Length 95th (ft)	0	0	0	0	0	0	0	3				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1				
Lane LOS	A											
Approach Delay (s)	0.0			0.0		9.1						
Approach LOS	A											
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			42.3%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B

1015: SR 204 & Apache Ave

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  					 		
Volume (vph)	262	1680	76	144	929	60	121	165	145	87	52	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4285		3367	4284		1736	1827	1553	3367	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4285		3367	4284		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	308	1976	89	158	1021	66	129	176	154	113	68	66
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	130	0	0	56
Lane Group Flow (vph)	308	2062	0	158	1083	0	129	176	24	113	68	10
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	17.3	66.0		11.5	60.2		9.0	20.0	20.0	8.5	19.5	19.5
Effective Green, g (s)	17.3	66.0		11.5	60.2		9.0	20.0	20.0	8.5	19.5	19.5
Actuated g/C Ratio	0.13	0.51		0.09	0.46		0.07	0.15	0.15	0.07	0.15	0.15
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	448	2175		298	1984		120	281	239	220	274	233
v/s Ratio Prot	c0.09	c0.48		0.05	0.25		c0.07	c0.10		0.03	0.04	
v/s Ratio Perm									0.02			0.01
v/c Ratio	0.69	0.95		0.53	0.55		1.07	0.63	0.10	0.51	0.25	0.04
Uniform Delay, d1	53.8	30.4		56.7	25.1		60.5	51.5	47.3	58.8	48.8	47.3
Progression Factor	1.04	0.75		0.97	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	8.5		1.5	0.9		103.7	6.1	0.4	2.0	1.0	0.2
Delay (s)	59.4	31.3		56.7	23.6		164.2	57.6	47.6	60.8	49.8	47.4
Level of Service	E	C		E	C		F	E	D	E	D	D
Approach Delay (s)	34.9		27.8				84.2		54.2			
Approach LOS	C		C				F		D			
Intersection Summary												
HCM Average Control Delay			39.2		HCM Level of Service		D					
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)		18.0					
Intersection Capacity Utilization			71.2%		ICU Level of Service		C					
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1016: SR 204 & Middleground Road

2035 AM Concept B
8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	432	1100	380	231	744	39	68	81	62	345	298	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3367	4287	1510	1736	4217	1532	1736	1697		1736	1827	1533
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.29	1.00		0.36	1.00	1.00
Satd. Flow (perm)	3367	4287	1510	1736	4217	1532	533	1697		656	1827	1533
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	445	1134	392	275	886	46	87	104	79	401	347	373
RTOR Reduction (vph)	0	0	172	0	0	29	0	23	0	0	0	288
Lane Group Flow (vph)	445	1134	220	275	886	17	87	160	0	401	347	85
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	21.3	42.5	42.5	25.7	46.9	46.9	30.1	21.8		43.8	29.5	29.5
Effective Green, g (s)	21.3	42.5	42.5	25.7	46.9	46.9	30.1	21.8		43.8	29.5	29.5
Actuated g/C Ratio	0.16	0.33	0.33	0.20	0.36	0.36	0.23	0.17		0.34	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	552	1402	494	343	1521	553	200	285		354	415	348
v/s Ratio Prot	0.13	c0.26		c0.16	c0.21		0.03	0.09		c0.14	0.19	
v/s Ratio Perm			0.15			0.01	0.07			c0.24		0.06
v/c Ratio	0.81	0.81	0.44	0.80	0.58	0.03	0.43	0.56		1.13	0.84	0.24
Uniform Delay, d1	52.4	40.0	34.5	49.7	33.6	26.9	40.9	49.7		40.3	47.9	41.1
Progression Factor	1.41	0.77	0.76	0.99	0.99	0.95	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.0	2.4	1.3	11.9	1.5	0.1	1.1	2.5		88.9	13.1	0.1
Delay (s)	77.9	33.2	27.6	60.9	34.8	25.6	42.0	52.2		129.2	61.0	41.2
Level of Service	E	C	C	E	C	C	D	D		F	E	D
Approach Delay (s)		42.2			40.4			48.9			78.8	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM Average Control Delay		51.1										
HCM Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		83.0%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1017: SR 204 & Arts Drive

2035 AM Concept B
8/23/2011

							
Movement	EBU	EBT	EBR	NBL	NBR2	SBR	SWL
Lane Configurations							
Volume (vph)	0	1306	201	27	46	987	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	0.97	1.00	0.76	1.00
Frt		1.00	0.85	1.00	0.85	0.85	1.00
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		4217	1553	3367	1553	2994	1736
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		4217	1553	3367	1553	2994	1736
Peak-hour factor, PHF	0.97	0.97	0.97	0.78	0.78	0.84	0.84
Adj. Flow (vph)	0	1346	207	35	59	1175	258
RTOR Reduction (vph)	0	0	35	0	5	175	0
Lane Group Flow (vph)	0	1346	172	35	54	1000	258
Heavy Vehicles (%)	4%	23%	4%	4%	4%	23%	4%
Turn Type	Prot		Perm	Prot	custom	custom	
Protected Phases	5	2		3	1 3		1
Permitted Phases			2		8	6	
Actuated Green, G (s)		80.0	80.0	7.4	38.0	110.6	24.6
Effective Green, g (s)		80.0	80.0	7.4	38.0	110.6	24.6
Actuated g/C Ratio		0.62	0.62	0.06	0.29	0.85	0.19
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)		5.0	5.0	3.0		3.0	3.0
Lane Grp Cap (vph)		2595	956	192	454	2547	329
v/s Ratio Prot		c0.32		c0.01	0.03		c0.15
v/s Ratio Perm			0.11			0.33	
v/c Ratio		0.52	0.18	0.18	0.12	0.39	0.78
Uniform Delay, d1		14.1	10.8	58.4	33.7	2.2	50.2
Progression Factor		0.30	0.07	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	0.2	0.5	0.1	0.5	11.6
Delay (s)		4.5	1.0	58.9	33.8	2.6	61.8
Level of Service		A	A	E	C	A	E
Approach Delay (s)		4.1					61.8
Approach LOS		A					E
Intersection Summary							
HCM Average Control Delay		9.5				HCM Level of Service	A
HCM Volume to Capacity ratio		0.56					
Actuated Cycle Length (s)		130.0				Sum of lost time (s)	18.0
Intersection Capacity Utilization		53.9%				ICU Level of Service	A
Analysis Period (min)		15					
c Critical Lane Group							

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	127	673	622	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76	
Hourly flow rate (vph)	144	765	699	0	0	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)			1257				
pX, platoon unblocked							
vC, conflicting volume	699			1242	233		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	699			1242	233		
tC, single (s)	4.2			6.9	7.0		
tC, 2 stage (s)							
tF (s)	2.2			3.5	3.3		
p0 queue free %	84			100	100		
cM capacity (veh/h)	880			137	763		
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	144	255	255	255	233	233	233
Volume Left	144	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	880	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.16	0.15	0.15	0.15	0.14	0.14	0.14
Queue Length 95th (ft)	15	0	0	0	0	0	0
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	1.6				0.0		
Approach LOS							
Intersection Summary							
Average Delay			0.9				
Intersection Capacity Utilization			25.7%		ICU Level of Service		A
Analysis Period (min)			15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	634	39	16	609	0	13	0	4	53	15	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.62	0.62	0.62	0.76	0.76	0.76
Hourly flow rate (vph)	0	720	44	18	684	0	21	0	6	70	20	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		1			1							
Upstream signal (ft)					1072							
pX, platoon unblocked												
vC, conflicting volume	684			765			1017	1463	262	967	1485	228
vC1, stage 1 conf vol							743	743		720	720	
vC2, stage 2 conf vol							274	720		247	765	
vCu, unblocked vol	684			765			1017	1463	262	967	1485	228
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			93	100	99	77	92	100
cM capacity (veh/h)	892			831			285	246	730	300	237	768
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	288	288	188	18	228	228	228	27	89			
Volume Left	0	0	0	18	0	0	0	21	70			
Volume Right	0	0	44	0	0	0	0	6	0			
cSH	1700	1700	1700	831	1700	1700	1700	333	283			
Volume to Capacity	0.17	0.17	0.11	0.02	0.13	0.13	0.13	0.08	0.32			
Queue Length 95th (ft)	0	0	0	2	0	0	0	7	33			
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	0.0	16.8	23.4			
Lane LOS				A				C	C			
Approach Delay (s)	0.0			0.2				16.8	23.4			
Approach LOS								C	C			
Intersection Summary												
Average Delay				1.7								
Intersection Capacity Utilization			24.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1022: SR 204 & Mercy Blvd

2035 AM Concept B

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	519	74	42	531	126	100	25	89	84	27	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.88		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4219		1736	4217	1553	1736	1613		1736	1604	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.42	1.00		0.54	1.00	
Satd. Flow (perm)	1736	4219		1736	4217	1553	759	1613		987	1604	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	107	564	80	49	617	147	135	34	120	117	38	165
RTOR Reduction (vph)	0	9	0	0	0	61	0	99	0	0	136	0
Lane Group Flow (vph)	107	635	0	49	617	86	135	55	0	117	67	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	13.3	81.6		7.9	76.2	76.2	22.5	22.5		22.5	22.5	
Effective Green, g (s)	13.3	81.6		7.9	76.2	76.2	22.5	22.5		22.5	22.5	
Actuated g/C Ratio	0.10	0.63		0.06	0.59	0.59	0.17	0.17		0.17	0.17	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	2648		105	2472	910	131	279		171	278	
v/s Ratio Prot	c0.06	c0.15		0.03	c0.15			0.03			0.04	
v/s Ratio Perm						0.06	c0.18			0.12		
v/c Ratio	0.60	0.24		0.47	0.25	0.09	1.03	0.20		0.68	0.24	
Uniform Delay, d1	55.8	10.6		59.0	13.0	11.8	53.8	46.0		50.4	46.4	
Progression Factor	1.09	0.55		1.05	0.89	1.44	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.2	0.2		3.1	0.2	0.2	87.0	0.3		10.8	0.4	
Delay (s)	66.1	6.0		65.1	11.8	17.1	140.7	46.4		61.2	46.8	
Level of Service	E	A		E	B	B	F	D		E	D	
Approach Delay (s)		14.6			16.0			90.4			52.1	
Approach LOS		B			B			F			D	
Intersection Summary												
HCM Average Control Delay			30.7			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)					24.0	
Intersection Capacity Utilization			52.2%			ICU Level of Service					A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: SR 204 & Largo Blvd

2035 AM Concept B

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	450	170	94	446	21	150	131	227	79	95	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4222		1736	4218		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.43	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	1736	4222		1736	4218		789	1827	1553	1021	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	83	517	195	101	480	23	224	196	339	96	116	126
RTOR Reduction (vph)	0	37	0	0	3	0	0	0	286	0	0	112
Lane Group Flow (vph)	83	675	0	101	500	0	224	196	53	96	116	14
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	11.5	62.7		12.9	64.1		36.0	20.5	20.5	24.8	14.9	14.9
Effective Green, g (s)	11.5	62.7		12.9	64.1		36.0	20.5	20.5	24.8	14.9	14.9
Actuated g/C Ratio	0.09	0.48		0.10	0.49		0.28	0.16	0.16	0.19	0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	154	2036		172	2080		331	288	245	249	209	178
v/s Ratio Prot	0.05	c0.16		c0.06	0.12		c0.08	c0.11		0.03	0.06	
v/s Ratio Perm							0.11		0.03	0.04		0.01
v/c Ratio	0.54	0.33		0.59	0.24		0.68	0.68	0.22	0.39	0.56	0.08
Uniform Delay, d1	56.7	20.7		56.0	18.9		39.3	51.7	47.8	45.1	54.4	51.4
Progression Factor	1.09	0.53		0.66	1.07		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.4		5.0	0.3		5.4	6.5	0.5	1.0	3.2	0.2
Delay (s)	65.6	11.3		41.7	20.6		44.7	58.1	48.2	46.1	57.6	51.6
Level of Service	E	B		D	C		D	E	D	D	E	D
Approach Delay (s)		17.0			24.1			49.7			52.1	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay			33.4			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)					24.0	
Intersection Capacity Utilization			51.0%			ICU Level of Service					A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B

1024: SR 204 & Idlewood Drive

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑				↗			↗
Volume (veh/h)	0	706	50	0	542	19	0	0	114	0	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Hourly flow rate (vph)	0	811	57	0	583	20	0	0	170	0	0	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		651			1109							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	603			811			1029	1415	270	864	1405	204
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	530			811			964	1357	270	796	1347	124
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	76	100	100	97
cM capacity (veh/h)	1001			798			198	143	721	206	145	880
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	270	270	270	57	233	233	137	170	23			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	57	0	0	20	170	23			
cSH	1700	1700	1700	1700	1700	1700	1700	721	880			
Volume to Capacity	0.16	0.16	0.16	0.03	0.14	0.14	0.08	0.24	0.03			
Queue Length 95th (ft)	0	0	0	0	0	0	0	23	2			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	9.2			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			11.5	9.2			
Approach LOS								B	A			
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			27.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B

1025: SR 204 & Deerfield Road

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑	↗	↗	↗		↗	↗	↗
Volume (vph)	151	642	27	61	474	104	42	47	158	161	6	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	4218		1736	4217	1553	1736	1615		1649	1659	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	4218		1736	4217	1553	1736	1615		1649	1659	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	161	683	29	62	484	106	47	52	176	187	7	52
RTOR Reduction (vph)	0	2	0	0	0	58	0	105	0	0	0	47
Lane Group Flow (vph)	161	710	0	62	484	48	47	123	0	97	97	5
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	17.3	67.0		8.8	58.5	58.5	17.3	17.3		12.9	12.9	12.9
Effective Green, g (s)	17.3	67.0		8.8	58.5	58.5	17.3	17.3		12.9	12.9	12.9
Actuated g/C Ratio	0.13	0.52		0.07	0.45	0.45	0.13	0.13		0.10	0.10	0.10
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	231	2174		118	1898	699	231	215		164	165	154
v/s Ratio Prot	c0.09	c0.17		0.04	0.11		0.03	c0.08		c0.06	0.06	
v/s Ratio Perm						0.03						0.00
v/c Ratio	0.70	0.33		0.53	0.26	0.07	0.20	0.57		0.59	0.59	0.03
Uniform Delay, d1	53.8	18.4		58.6	22.2	20.3	50.2	52.9		56.0	56.0	52.9
Progression Factor	0.81	0.94		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.5	0.4		4.2	0.3	0.2	0.4	3.7		5.6	5.3	0.1
Delay (s)	52.1	17.6		62.8	22.5	20.5	50.6	56.5		61.6	61.3	53.0
Level of Service	D	B		E	C	C	D	E		E	E	D
Approach Delay (s)		24.0			26.0			55.5			59.7	
Approach LOS		C			C			E			E	
Intersection Summary												
HCM Average Control Delay			33.2		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)			18.0				
Intersection Capacity Utilization			58.0%		ICU Level of Service			B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1026: Truman Parkway & SR 204

2035 AM Concept B
8/23/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	153	0	22	490	0	58	0	1347	0	0	127	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.72	0.72	0.72	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77
Adj. Flow (vph)	212	0	31	598	0	71	0	1448	0	0	165	35
RTOR Reduction (vph)	0	0	25	0	0	33	0	0	0	0	0	11
Lane Group Flow (vph)	212	0	6	598	0	38	0	1448	0	0	165	24
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				6			2	
Permitted Phases			4			8						2
Actuated Green, G (s)	18.2		18.2	18.2		18.2		69.8			69.8	69.8
Effective Green, g (s)	18.2		18.2	18.2		18.2		69.8			69.8	69.8
Actuated g/C Ratio	0.18		0.18	0.18		0.18		0.70			0.70	0.70
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	316		283	891		283		2943			2943	1084
v/s Ratio Prot	0.12			c0.12				c0.34			0.04	
v/s Ratio Perm			0.00			0.02						0.02
v/c Ratio	0.67		0.02	0.67		0.14		0.49			0.06	0.02
Uniform Delay, d1	38.1		33.6	38.1		34.3		6.9			4.7	4.6
Progression Factor	1.00		1.00	1.00		1.00		1.00			0.76	0.86
Incremental Delay, d2	5.5		0.0	2.0		0.2		0.6			0.0	0.0
Delay (s)	43.6		33.6	40.1		34.5		7.5			3.7	4.0
Level of Service	D		C	D		C		A			A	A
Approach Delay (s)	42.3				39.5			7.5			3.7	
Approach LOS	D				D			A			A	
Intersection Summary												
HCM Average Control Delay			18.9		HCM Level of Service						B	
HCM Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			57.2%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1027: White Bluff Connector & SR 204

2035 AM Concept B
8/23/2011

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	82	94	0	1359	199	50	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553		4217	1553	1736	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553		4217	1553	1736	4217
Peak-hour factor, PHF	0.82	0.82	0.93	0.93	0.93	0.77	0.77
Adj. Flow (vph)	100	115	0	1461	214	65	94
RTOR Reduction (vph)	0	105	0	0	74	0	0
Lane Group Flow (vph)	100	10	0	1461	140	65	94
Heavy Vehicles (%)	4%	4%	4%	23%	4%	4%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	8.4	8.4	65.6		65.6	8.0	79.6
Effective Green, g (s)	8.4	8.4	65.6		65.6	8.0	79.6
Actuated g/C Ratio	0.08	0.08	0.66		0.66	0.08	0.80
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	283	130	2766		1019	139	3357
v/s Ratio Prot			c0.35			c0.04	0.02
v/s Ratio Perm	c0.03	0.01			0.09		
v/c Ratio	0.35	0.07	0.53		0.14	0.47	0.03
Uniform Delay, d1	43.2	42.2	9.1		6.5	44.0	2.1
Progression Factor	1.00	1.00	0.68		0.30	1.00	1.00
Incremental Delay, d2	0.8	0.2	0.7		0.3	2.5	0.0
Delay (s)	44.0	42.5	6.8		2.2	46.4	2.1
Level of Service	D	D	A		A	D	A
Approach Delay (s)	43.2			6.2			20.3
Approach LOS	D			A			C
Intersection Summary							
HCM Average Control Delay			11.2	HCM Level of Service			B
HCM Volume to Capacity ratio			0.50				
Actuated Cycle Length (s)			100.0	Sum of lost time (s)			18.0
Intersection Capacity Utilization			47.9%	ICU Level of Service			A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1011: SR 204 & Rio Road

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	401	1973	329	11	1088	10	246	56	7	38	19	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4287	1553	1736	4287	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3367	4287	1553	1736	4287	1553	3367	1827	1553	1827	1827	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	418	2055	343	12	1222	11	332	76	9	47	23	253
RTOR Reduction (vph)	0	0	146	0	0	5	0	0	8	0	0	0
Lane Group Flow (vph)	418	2055	197	12	1222	6	332	76	1	47	23	253
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	pm+pt		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8	4		Free
Actuated Green, G (s)	18.8	63.6	63.6	1.4	46.2	46.2	18.6	15.0	15.0	9.6	3.0	110.6
Effective Green, g (s)	18.8	63.6	63.6	1.4	46.2	46.2	18.6	15.0	15.0	9.6	3.0	110.6
Actuated g/C Ratio	0.17	0.58	0.58	0.01	0.42	0.42	0.17	0.14	0.14	0.09	0.03	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	572	2465	893	22	1791	649	566	248	211	153	50	1553
v/s Ratio Prot	c0.12	c0.48		0.01	0.29		c0.10	c0.04		0.02	0.01	
v/s Ratio Perm			0.13			0.00			0.00	0.01		0.16
v/c Ratio	0.73	0.83	0.22	0.55	0.68	0.01	0.59	0.31	0.01	0.31	0.46	0.16
Uniform Delay, d1	43.5	19.2	11.4	54.3	26.2	18.8	42.5	43.1	41.3	47.4	53.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.8	3.5	0.6	24.9	2.1	0.0	1.6	0.7	0.0	1.1	6.6	0.2
Delay (s)	48.3	22.7	12.0	79.1	28.4	18.8	44.0	43.8	41.4	48.5	59.6	0.2
Level of Service	D	C	B	E	C	B	D	D	D	D	E	A
Approach Delay (s)		25.2			28.8			43.9			11.5	
Approach LOS		C			C			D			B	
Intersection Summary												
HCM Average Control Delay			26.8			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			110.6			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			71.8%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1012: SR 204 & West Mall Driveway

8/29/2011

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	2018	1084	26	0	25		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58		
Hourly flow rate (vph)	0	2242	1204	29	0	43		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh								
Upstream signal (ft)		697						
pX, platoon unblocked					0.62			
vC, conflicting volume	1204				1952	401		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1204				398	401		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	93		
cM capacity (veh/h)	564				357	593		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	747	747	747	401	401	401	29	43
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	29	43
cSH	1700	1700	1700	1700	1700	1700	1700	593
Volume to Capacity	0.44	0.44	0.44	0.24	0.24	0.24	0.02	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
Lane LOS								B
Approach Delay (s)	0.0	0.0						11.5
Approach LOS								B
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			42.3%	ICU Level of Service			A	
Analysis Period (min)			15					

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	2018	1097	9	0	13		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58		
Hourly flow rate (vph)	0	2242	1219	10	0	22		
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								
vC, conflicting volume	1219					1966	406	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1219					1966	406	
tC, single (s)	4.2					6.9	7.0	
tC, 2 stage (s)								
tF (s)	2.2					3.5	3.3	
p0 queue free %	100					100	96	
cM capacity (veh/h)	557					54	588	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	747	747	747	406	406	406	10	22
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	10	22
cSH	1700	1700	1700	1700	1700	1700	1700	588
Volume to Capacity	0.44	0.44	0.44	0.24	0.24	0.24	0.01	0.04
Queue Length 95th (ft)	0	0	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4
Lane LOS								B
Approach Delay (s)	0.0			0.0		11.4		
Approach LOS								B
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			42.3%		ICU Level of Service		A	
Analysis Period (min)			15					

															
Movement	EBL	EBT	WBT	WBR	SBL	SBR									
Lane Configurations															
Volume (veh/h)	0	2018	1087	14	0	19									
Sign Control		Free	Free		Stop										
Grade		0%	0%		0%										
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58									
Hourly flow rate (vph)	0	2242	1208	16	0	33									
Pedestrians															
Lane Width (ft)															
Walking Speed (ft/s)															
Percent Blockage															
Right turn flare (veh)															
Median type	None		None												
Median storage (veh)															
Upstream signal (ft)	545														
pX, platoon unblocked	0.84					0.84	0.84								
vC, conflicting volume	1208					1955	403								
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	591					1478	0								
tC, single (s)	4.2					6.9	7.0								
tC, 2 stage (s)															
tF (s)	2.2					3.5	3.3								
p0 queue free %	100					100	96								
cM capacity (veh/h)	815					96	908								
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1							
Volume Total	747	747	747	403	403	403	16	33							
Volume Left	0	0	0	0	0	0	0	0							
Volume Right	0	0	0	0	0	0	16	33							
cSH	1700	1700	1700	1700	1700	1700	1700	908							
Volume to Capacity	0.44	0.44	0.44	0.24	0.24	0.24	0.01	0.04							
Queue Length 95th (ft)	0	0	0	0	0	0	0	3							
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1							
Lane LOS	A														
Approach Delay (s)	0.0			0.0											
Approach LOS	A														
Intersection Summary															
Average Delay			0.1												
Intersection Capacity Utilization			42.3%		ICU Level of Service		A								
Analysis Period (min)			15												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1015: SR 204 & Apache Ave

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	262	1680	76	144	929	60	121	165	145	87	52	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4285		3367	4284		1736	1827	1553	1736	1827	1553
Fl _t Permitted	0.95	1.00		0.95	1.00		0.71	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	3367	4285		3367	4284		1296	1827	1553	833	1827	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	308	1976	89	158	1021	66	129	176	154	113	68	66
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	130	0	0	56
Lane Group Flow (vph)	308	2062	0	158	1083	0	129	176	24	113	68	10
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	17.3	65.8		11.5	60.0		28.8	19.9	19.9	28.6	19.8	19.8
Effective Green, g (s)	17.3	65.8		11.5	60.0		28.8	19.9	19.9	28.6	19.8	19.8
Actuated g/C Ratio	0.13	0.51		0.09	0.46		0.22	0.15	0.15	0.22	0.15	0.15
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	448	2169		298	1977		317	280	238	244	278	237
v/s Ratio Prot	c0.09	c0.48		0.05	0.25		0.03	c0.10		c0.03	0.04	
v/s Ratio Perm							0.06		0.02	0.07		0.01
v/c Ratio	0.69	0.95		0.53	0.55		0.41	0.63	0.10	0.46	0.24	0.04
Uniform Delay, d ₁	53.8	30.6		56.7	25.2		42.6	51.6	47.3	42.4	48.5	47.0
Progression Factor	1.00	1.00		0.98	0.90		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	4.4	10.8		1.5	0.9		0.9	6.1	0.4	1.4	1.0	0.2
Delay (s)	58.1	41.3		56.9	23.7		43.4	57.7	47.7	43.8	49.5	47.2
Level of Service	E	D		E	C		D	E	D	D	D	D
Approach Delay (s)		43.5			27.9			50.3			46.3	
Approach LOS		D			C			D			D	
Intersection Summary												
HCM Average Control Delay			39.9		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					18.0		
Intersection Capacity Utilization			72.7%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1016: SR 204 & Middleground Road

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	432	1100	380	231	744	39	68	81	62	345	298	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Fr _{pb} , ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99
Fl _{pb} , ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4287	1510	1736	4217	1532	1736	1827	1529	3367	1827	1533
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.35	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4287	1510	1736	4217	1532	634	1827	1529	3367	1827	1533
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	445	1134	392	275	886	46	87	104	79	401	347	373
RTOR Reduction (vph)	0	0	224	0	0	30	0	0	68	0	0	288
Lane Group Flow (vph)	445	1134	168	275	886	16	87	104	11	401	347	85
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8		8			4
Actuated Green, G (s)	21.7	41.6	41.6	26.4	46.3	46.3	26.9	18.5	18.5	19.5	29.6	29.6
Effective Green, g (s)	21.7	41.6	41.6	26.4	46.3	46.3	26.9	18.5	18.5	19.5	29.6	29.6
Actuated g/C Ratio	0.17	0.32	0.32	0.20	0.36	0.36	0.21	0.14	0.14	0.15	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0	3.0	2.5	2.0	2.0
Lane Grp Cap (vph)	562	1372	483	353	1502	546	202	260	218	505	416	349
v/s Ratio Prot	0.13	c0.26		c0.16	c0.21		0.03	0.06		c0.12	c0.19	
v/s Ratio Perm			0.11			0.01	0.06		0.01			0.06
v/c Ratio	0.79	0.83	0.35	0.78	0.59	0.03	0.43	0.40	0.05	0.79	0.83	0.24
Uniform Delay, d ₁	52.0	40.9	33.8	49.0	34.1	27.2	43.2	50.7	48.2	53.3	47.9	41.0
Progression Factor	1.39	0.80	0.96	1.00	0.98	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	3.5	2.7	0.9	9.8	1.6	0.1	1.1	1.0	0.1	8.1	12.9	0.1
Delay (s)	75.8	35.3	33.3	58.7	35.2	25.6	44.3	51.7	48.3	61.4	60.7	41.2
Level of Service	E	D	C	E	D	C	D	D	D	E	E	D
Approach Delay (s)		44.1			40.2			48.3			54.5	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			45.8		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					30.0		
Intersection Capacity Utilization			73.9%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1017: SR 204 & Arts Drive

8/29/2011

							
Movement	EBU	EBT	EBR	NBL	NBR2	SBR	SWL
Lane Configurations							
Volume (vph)	0	1306	201	27	46	987	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	0.97	1.00	0.76	0.97
Frt		1.00	0.85	1.00	0.85	0.85	1.00
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		4217	1553	3367	1553	2994	3367
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		4217	1553	3367	1553	2994	3367
Peak-hour factor, PHF	0.97	0.97	0.97	0.78	0.78	0.84	0.84
Adj. Flow (vph)	0	1346	207	35	59	1175	258
RTOR Reduction (vph)	0	0	64	0	13	174	0
Lane Group Flow (vph)	0	1346	143	35	46	1001	258
Heavy Vehicles (%)	4%	23%	4%	4%	4%	23%	4%
Turn Type	Prot		Perm	Prot	custom	custom	
Protected Phases	5	2		3	13		1
Permitted Phases			2		8	6	
Actuated Green, G (s)		89.5	89.5	7.3	28.5	110.7	15.2
Effective Green, g (s)		89.5	89.5	7.3	28.5	110.7	15.2
Actuated g/C Ratio		0.69	0.69	0.06	0.22	0.85	0.12
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)		5.0	5.0	3.0		3.0	3.0
Lane Grp Cap (vph)		2903	1069	189	340	2550	394
v/s Ratio Prot		c0.32		0.01	c0.03		c0.08
v/s Ratio Perm			0.09			0.33	
v/c Ratio		0.46	0.13	0.19	0.13	0.39	0.65
Uniform Delay, d1		9.3	6.9	58.5	40.8	2.2	54.9
Progression Factor		0.03	0.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	0.2	0.5	0.2	0.5	3.9
Delay (s)		0.6	0.2	59.0	41.0	2.6	58.8
Level of Service		A	A	E	D	A	E
Approach Delay (s)		0.6					58.8
Approach LOS		A					E
Intersection Summary							
HCM Average Control Delay			7.7		HCM Level of Service		A
HCM Volume to Capacity ratio			0.47				
Actuated Cycle Length (s)			130.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			48.1%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1019: SR 204 & Mohawk Street 2

8/29/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	127	673	622	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.88	0.88	0.89	0.89	0.76	0.76	
Hourly flow rate (vph)	144	765	699	0	0	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)			1257				
pX, platoon unblocked							
vC, conflicting volume	699				1242	233	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	699				1242	233	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	84				100	100	
cM capacity (veh/h)	880				137	763	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	144	255	255	255	233	233	233
Volume Left	144	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	880	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.16	0.15	0.15	0.15	0.14	0.14	0.14
Queue Length 95th (ft)	15	0	0	0	0	0	0
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	1.6				0.0		
Approach LOS							
Intersection Summary							
Average Delay							
Intersection Capacity Utilization							
Analysis Period (min)							

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1020: SR 204 & Mohawk Street 3

8/29/2011

																	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Lane Configurations		  			  			 			 						
Volume (veh/h)	0	634	39	16	609	0	13	0	4	53	15	0					
Sign Control		Free			Free			Stop			Stop						
Grade		0%			0%			0%			0%						
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.62	0.62	0.62	0.76	0.76	0.76					
Hourly flow rate (vph)	0	720	44	18	684	0	21	0	6	70	20	0					
Pedestrians																	
Lane Width (ft)																	
Walking Speed (ft/s)																	
Percent Blockage																	
Right turn flare (veh)																	
Median type	Raised			Raised													
Median storage veh	1			1													
Upstream signal (ft)				1072													
pX, platoon unblocked																	
vC, conflicting volume	684				765				1017	1463	262	967	1485	228			
vC1, stage 1 conf vol							743	743				720	720				
vC2, stage 2 conf vol							274	720				247	765				
vCu, unblocked vol	684				765				1017	1463	262	967	1485	228			
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0			
tC, 2 stage (s)							6.6	5.6				6.6	5.6				
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3			
p0 queue free %	100				98				93	100	99	77	92	100			
cM capacity (veh/h)	892				831				285	246	730	300	237	768			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1								
Volume Total	288	288	188	18	228	228	228	27	89								
Volume Left	0	0	0	18	0	0	0	21	70								
Volume Right	0	0	44	0	0	0	0	6	0								
cSH	1700	1700	1700	831	1700	1700	1700	333	283								
Volume to Capacity	0.17	0.17	0.11	0.02	0.13	0.13	0.13	0.08	0.32								
Queue Length 95th (ft)	0	0	0	2	0	0	0	7	33								
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	0.0	16.8	23.4								
Lane LOS				A						C							
Approach Delay (s)	0.0				0.2				16.8	23.4							
Approach LOS							C			C							
Intersection Summary																	
Average Delay				1.7													
Intersection Capacity Utilization				24.1%			ICU Level of Service			A							
Analysis Period (min)				15													

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1022: SR 204 & Mercy Blvd

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	98	519	74	42	531	126	100	25	89	84	27	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.88		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4219		1736	4217	1553	1736	1613		1736	1604	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.38	1.00		0.56	1.00	
Satd. Flow (perm)	1736	4219		1736	4217	1553	703	1613		1027	1604	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	107	564	80	49	617	147	135	34	120	117	38	165
RTOR Reduction (vph)	0	11	0	0	0	76	0	108	0	0	149	0
Lane Group Flow (vph)	107	633	0	49	617	71	135	46	0	117	54	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	11.4	52.4		7.2	48.2	48.2	17.4	10.4		15.4	9.4	
Effective Green, g (s)	11.4	52.4		7.2	48.2	48.2	17.4	10.4		15.4	9.4	
Actuated g/C Ratio	0.11	0.52		0.07	0.48	0.48	0.17	0.10		0.15	0.09	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	2211		125	2033	749	195	168		201	151	
v/s Ratio Prot	c0.06	c0.15		0.03	c0.15		c0.05	0.03		0.03	0.03	
v/s Ratio Perm						0.05	c0.07			0.05		
v/c Ratio	0.54	0.29		0.39	0.30	0.09	0.69	0.28		0.58	0.35	
Uniform Delay, d1	41.8	13.3		44.3	15.7	14.1	37.2	41.3		38.4	42.5	
Progression Factor	1.00	1.00		0.91	0.64	0.76	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	0.3		1.9	0.4	0.2	10.1	0.9		4.2	1.4	
Delay (s)	44.8	13.7		42.1	10.4	10.9	47.4	42.2		42.7	43.9	
Level of Service	D	B		D	B	B	D	D		D	D	
Approach Delay (s)	18.1			12.4			44.6			43.4		
Approach LOS	B			B			D			D		
Intersection Summary												
HCM Average Control Delay	23.2			HCM Level of Service					C			
HCM Volume to Capacity ratio	0.43											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)					24.0			
Intersection Capacity Utilization	52.2%			ICU Level of Service					A			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1023: SR 204 & Largo Blvd

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	450	170	94	446	21	150	131	227	79	95	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4222		1736	4218		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.61	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	1736	4222		1736	4218		1121	1827	1553	1022	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	83	517	195	101	480	23	224	196	339	96	116	126
RTOR Reduction (vph)	0	51	0	0	4	0	0	0	275	0	0	105
Lane Group Flow (vph)	83	661	0	101	499	0	224	196	64	96	116	21
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	8.9	40.2		9.8	41.1		27.9	18.9	18.9	24.1	17.0	17.0
Effective Green, g (s)	8.9	40.2		9.8	41.1		27.9	18.9	18.9	24.1	17.0	17.0
Actuated g/C Ratio	0.09	0.40		0.10	0.41		0.28	0.19	0.19	0.24	0.17	0.17
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	155	1697		170	1734		368	345	294	297	311	264
v/s Ratio Prot	0.05	c0.16		c0.06	0.12		c0.05	0.11		0.02	0.06	
v/s Ratio Perm							c0.11		0.04	0.05		0.01
v/c Ratio	0.54	0.39		0.59	0.29		0.61	0.57	0.22	0.32	0.37	0.08
Uniform Delay, d1	43.6	21.2		43.2	19.7		30.2	36.8	34.3	30.5	36.8	34.9
Progression Factor	1.10	0.69		0.67	0.70		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.6		5.4	0.4		2.8	2.1	0.4	0.6	0.8	0.1
Delay (s)	51.2	15.3		34.5	14.2		33.0	39.0	34.7	31.1	37.5	35.1
Level of Service	D	B		C	B		C	D	C	C	D	D
Approach Delay (s)		19.1			17.6			35.3			34.8	
Approach LOS		B			B			D			C	
Intersection Summary												
HCM Average Control Delay		25.8		HCM Level of Service						C		
HCM Volume to Capacity ratio		0.47										
Actuated Cycle Length (s)		100.0		Sum of lost time (s)					18.0			
Intersection Capacity Utilization		51.0%		ICU Level of Service					A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1024: SR 204 & Idlewood Drive

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	706	50	0	542	19	0	0	114	0	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Hourly flow rate (vph)	0	811	57	0	583	20	0	0	170	0	0	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		651			1109							
pX, platoon unblocked	1.00						1.00	1.00		1.00	1.00	1.00
vC, conflicting volume	603			811			1029	1415	270	864	1405	204
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	586			811			1013	1401	270	847	1391	185
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	76	100	100	97
cM capacity (veh/h)	967			798			184	136	721	192	138	816
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	270	270	270	57	233	233	137	170	23			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	57	0	0	20	170	23			
cSH	1700	1700	1700	1700	1700	1700	1700	721	816			
Volume to Capacity	0.16	0.16	0.16	0.03	0.14	0.14	0.08	0.24	0.03			
Queue Length 95th (ft)	0	0	0	0	0	0	0	23	2			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	9.5			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			11.5	9.5			
Approach LOS								B	A			
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			27.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1025: SR 204 & Deerfield Road

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	642	27	61	474	104	42	47	158	161	6	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	3367	4218		1736	4217	1553	1736	1615		1649	1659	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	3367	4218		1736	4217	1553	1736	1615		1649	1659	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	161	683	29	62	484	106	47	52	176	187	7	52
RTOR Reduction (vph)	0	4	0	0	0	64	0	128	0	0	0	46
Lane Group Flow (vph)	161	708	0	62	484	42	47	100	0	97	97	6
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	9.9	41.4		7.8	39.3	39.3	15.6	15.6		11.2	11.2	11.2
Effective Green, g (s)	9.9	41.4		7.8	39.3	39.3	15.6	15.6		11.2	11.2	11.2
Actuated g/C Ratio	0.10	0.41		0.08	0.39	0.39	0.16	0.16		0.11	0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	333	1746		135	1657	610	271	252		185	186	174
v/s Ratio Prot	c0.05	c0.17		0.04	0.11		0.03	c0.06		c0.06	0.06	
v/s Ratio Perm						0.03						0.00
v/c Ratio	0.48	0.41		0.46	0.29	0.07	0.17	0.40		0.52	0.52	0.03
Uniform Delay, d1	42.6	20.6		44.1	20.8	18.9	36.6	38.0		41.9	41.9	39.6
Progression Factor	0.82	0.93		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.7		2.5	0.4	0.2	0.3	1.0		2.7	2.6	0.1
Delay (s)	36.0	19.9		46.5	21.3	19.1	36.9	39.0		44.6	44.5	39.7
Level of Service	D	B		D	C	B	D	D		D	D	D
Approach Delay (s)		22.9			23.3			38.6			43.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			27.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			53.9%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2035 AM Concept B - With Improvements

1026: Truman Parkway & SR 204

8/29/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	153	0	22	490	0	58	0	1347	0	0	127	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.72	0.72	0.72	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77
Adj. Flow (vph)	212	0	31	598	0	71	0	1448	0	0	165	35
RTOR Reduction (vph)	0	0	25	0	0	26	0	0	0	0	0	13
Lane Group Flow (vph)	212	0	6	598	0	45	0	1448	0	0	165	22
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				6			2	
Permitted Phases			4			8						2
Actuated Green, G (s)	14.3		14.3	14.3		14.3		43.7			43.7	43.7
Effective Green, g (s)	14.3		14.3	14.3		14.3		43.7			43.7	43.7
Actuated g/C Ratio	0.20		0.20	0.20		0.20		0.62			0.62	0.62
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	355		317	1000		317		2633			2633	970
v/s Ratio Prot	0.12			c0.12				c0.34			0.04	
v/s Ratio Perm			0.00			0.03						0.01
v/c Ratio	0.60		0.02	0.60		0.14		0.55			0.06	0.02
Uniform Delay, d1	25.2		22.3	25.2		22.8		7.5			5.1	5.0
Progression Factor	1.00		1.00	1.00		1.00		1.00			2.19	3.94
Incremental Delay, d2	2.7		0.0	1.0		0.2		0.8			0.0	0.0
Delay (s)	27.9		22.3	26.2		23.0		8.4			11.3	19.8
Level of Service	C		C	C		C		A			B	B
Approach Delay (s)	27.2			25.9				8.4			12.8	
Approach LOS	C			C				A			B	
Intersection Summary												
HCM Average Control Delay			15.1			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			57.2%			ICU Level of Service				B		
Analysis Period (min)			15									

c Critical Lane Group

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations							
Volume (vph)	82	94	0	1359	199	50	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553		4217	1553	1736	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553		4217	1553	1736	4217
Peak-hour factor, PHF	0.82	0.82	0.93	0.93	0.93	0.77	0.77
Adj. Flow (vph)	100	115	0	1461	214	65	94
RTOR Reduction (vph)	0	104	0	0	87	0	0
Lane Group Flow (vph)	100	11	0	1461	127	65	94
Heavy Vehicles (%)	4%	4%	4%	23%	4%	4%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	6.5	6.5		39.9	39.9	5.6	51.5
Effective Green, g (s)	6.5	6.5		39.9	39.9	5.6	51.5
Actuated g/C Ratio	0.09	0.09		0.57	0.57	0.08	0.74
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	313	144		2404	885	139	3103
v/s Ratio Prot				c0.35		c0.04	0.02
v/s Ratio Perm	c0.03	0.01			0.08		
v/c Ratio	0.32	0.07		0.61	0.14	0.47	0.03
Uniform Delay, d1	29.7	29.0		9.9	7.0	30.8	2.5
Progression Factor	1.00	1.00		0.59	0.20	1.00	1.00
Incremental Delay, d2	0.6	0.2		1.0	0.3	2.5	0.0
Delay (s)	30.3	29.2		6.8	1.7	33.3	2.5
Level of Service	C	C		A	A	C	A
Approach Delay (s)	29.7			6.1			15.1
Approach LOS	C			A			B
Intersection Summary							
HCM Average Control Delay			9.3		HCM Level of Service		A
HCM Volume to Capacity ratio			0.56				
Actuated Cycle Length (s)			70.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			47.9%		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												
Volume (vph)	401	1973	329	0	0	0	0	302	7	38	30	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					4988	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4287	1553					4988	1553	1736	1827	
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	418	2055	343	0	0	0	0	408	9	47	37	0
RTOR Reduction (vph)	0	0	93	0	0	0	0	0	8	0	0	0
Lane Group Flow (vph)	418	2055	250	0	0	0	0	408	1	47	37	0
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	35.2	88.4	88.4					15.9	15.9	27.7	27.7	
Effective Green, g (s)	35.2	88.4	88.4					15.9	15.9	27.7	27.7	
Actuated g/C Ratio	0.23	0.59	0.59					0.11	0.11	0.18	0.18	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	407	2526	915					529	165	321	337	
v/s Ratio Prot	c0.24	c0.48						c0.08		c0.03	0.02	
v/s Ratio Perm			0.16						0.00			
v/c Ratio	1.03	0.81	0.27					0.77	0.01	0.15	0.11	
Uniform Delay, d1	57.4	24.3	15.1					65.3	60.0	51.2	50.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.03	0.03	
Incremental Delay, d2	51.7	3.0	0.7					6.9	0.0	0.2	0.1	
Delay (s)	109.1	27.3	15.8					72.1	60.0	1.9	1.7	
Level of Service	F	C	B					E	E	A	A	
Approach Delay (s)		38.0			0.0			71.9			1.8	
Approach LOS		D			A			E			A	
Intersection Summary												
HCM Average Control Delay			41.4		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)					24.0		
Intersection Capacity Utilization			93.2%		ICU Level of Service					F		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1012: SR 204 WB & Rio Road

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	11	1088	10	246	457	0	0	57	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	4.0
Lane Util. Factor				1.00	0.95	1.00	0.97	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2983	1553	3367	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	2983	1553	3367	1827			3471	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	12	1222	11	332	618	0	0	70	253
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	12	1222	6	332	618	0	0	70	253
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Free
Protected Phases				1!	6		3 5!	3 5!				4
Permitted Phases						6						Free
Actuated Green, G (s)				5.6	58.8	58.8	57.1	57.1			16.1	150.0
Effective Green, g (s)				5.6	58.8	58.8	57.1	57.1			16.1	150.0
Actuated g/C Ratio				0.04	0.39	0.39	0.38	0.38			0.11	1.00
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				65	1169	609	1282	695			373	1553
v/s Ratio Prot				0.01	c0.41		0.10	c0.34			0.02	
v/s Ratio Perm						0.00						c0.16
v/c Ratio				0.18	1.05	0.01	0.26	0.89			0.19	0.16
Uniform Delay, d1				70.0	45.6	27.8	31.9	43.5			61.0	0.0
Progression Factor				0.75	1.29	1.55	0.38	0.11			1.00	1.00
Incremental Delay, d2				1.2	37.5	0.0	0.1	7.5			1.1	0.2
Delay (s)				53.8	96.1	43.0	12.1	12.2			62.1	0.2
Level of Service				D	F	D	B	B			E	A
Approach Delay (s)		0.0			95.2			12.2				13.6
Approach LOS		A			F			B				B
Intersection Summary												
HCM Average Control Delay			53.4		HCM Level of Service				D			
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			93.2%		ICU Level of Service			F				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1013: SR 204 WB & West Mall Driveway

2035 AM Concept C

8/25/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	1084	26	0	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	1204	29	0	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		689				
pX, platoon unblocked						
vC, conflicting volume	1204				1204	401
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1204				1204	401
tC, single (s)	4.5				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	93
cM capacity (veh/h)	480				174	593
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	401	401	401	29	43	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	29	43	
cSH	1700	1700	1700	1700	593	
Volume to Capacity	0.24	0.24	0.24	0.02	0.07	
Queue Length 95th (ft)	0	0	0	0	6	
Control Delay (s)	0.0	0.0	0.0	0.0	11.5	
Lane LOS					B	
Approach Delay (s)	0.0				11.5	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			30.9%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1097	9	0	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	1219	10	0	22
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						
vC, conflicting volume	1219				1219	406
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1219				1219	406
tC, single (s)	4.5				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	473				170	588
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	406	406	406	10	22	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	10	22	
cSH	1700	1700	1700	1700	588	
Volume to Capacity	0.24	0.24	0.24	0.01	0.04	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	11.4	
Lane LOS					B	
Approach Delay (s)	0.0				11.4	
Approach LOS					B	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			31.2%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1087	14	0	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.58	0.58
Hourly flow rate (vph)	0	0	1208	16	0	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			545			
pX, platoon unblocked	0.83				0.83	0.83
vC, conflicting volume	1208				1208	403
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	517				517	0
tC, single (s)	4.5				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	763				399	891
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	403	403	403	16	33	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	16	33	
cSH	1700	1700	1700	1700	891	
Volume to Capacity	0.24	0.24	0.24	0.01	0.04	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	9.2	
Lane LOS					A	
Approach Delay (s)	0.0				9.2	
Approach LOS					A	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			31.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1016: SR 204 EB & Apache Ave

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	262	1680	76	0	0	0	0	184	145	87	196	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					4988	1553	3367	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4287	1553					4988	1553	3367	1827	
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	308	1976	89	0	0	0	0	196	154	113	255	0
RTOR Reduction (vph)	0	0	29	0	0	0	0	0	143	0	0	0
Lane Group Flow (vph)	308	1976	60	0	0	0	0	196	11	113	255	0
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm						Perm		Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	39.0	80.8	80.8					11.1	11.1	40.1	40.1	
Effective Green, g (s)	39.0	80.8	80.8					11.1	11.1	40.1	40.1	
Actuated g/C Ratio	0.26	0.54	0.54					0.07	0.07	0.27	0.27	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	451	2309	837					369	115	900	488	
v/s Ratio Prot	0.18	c0.46						c0.04		0.03	c0.14	
v/s Ratio Perm			0.04						0.01			
v/c Ratio	0.68	0.86	0.07					0.53	0.10	0.13	0.52	
Uniform Delay, d1	49.9	29.6	16.6					66.9	64.8	41.7	46.8	
Progression Factor	0.58	0.33	0.04					1.00	1.00	0.15	0.11	
Incremental Delay, d2	3.0	3.1	0.1					1.5	0.4	0.1	0.9	
Delay (s)	32.2	12.8	0.7					68.4	65.2	6.2	6.0	
Level of Service	C	B	A					E	E	A	A	
Approach Delay (s)		14.9		0.0				67.0			6.1	
Approach LOS		B		A				E			A	
Intersection Summary												
HCM Average Control Delay			19.8	HCM Level of Service						B		
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)						18.0		
Intersection Capacity Utilization			78.6%	ICU Level of Service						D		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1017: SR 204 WB & Apache Ave

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	144	929	60	121	325	0	0	139	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	0.97	1.00			0.91	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4287	1553	3367	1827			4988	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4287	1553	3367	1827			4988	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	0	0	0	158	1021	66	129	346	0	0	181	66
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	0	0	0	59
Lane Group Flow (vph)	0	0	0	158	1021	28	129	346	0	0	181	7
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				17.2	59.0	59.0	56.1	56.1			16.9	16.9
Effective Green, g (s)				17.2	59.0	59.0	56.1	56.1			16.9	16.9
Actuated g/C Ratio				0.11	0.39	0.39	0.37	0.37			0.11	0.11
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				199	1686	611	1259	683			562	175
v/s Ratio Prot				c0.09	c0.24		0.04	c0.19			c0.04	
v/s Ratio Perm						0.02						0.00
v/c Ratio				0.79	0.61	0.05	0.10	0.51			0.32	0.04
Uniform Delay, d1				64.7	36.2	28.1	30.6	36.3			61.3	59.3
Progression Factor				1.44	0.44	0.18	0.05	0.01			1.00	1.00
Incremental Delay, d2				12.5	1.0	0.1	0.0	0.5			1.5	0.5
Delay (s)				105.5	16.9	5.1	1.6	0.7			62.8	59.8
Level of Service				F	B	A	A	A			E	E
Approach Delay (s)		0.0			27.6			1.0			62.0	
Approach LOS		A			C			A			E	
Intersection Summary												
HCM Average Control Delay			25.5	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			78.6%	ICU Level of Service				D				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1018: SR 204 EB & Middleground Road

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	432	1100	380	0	0	0	0	149	62	345	529	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4287	1553					3319		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4287	1553					3319		1736	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	445	1134	392	0	0	0	0	191	79	401	615	0
RTOR Reduction (vph)	0	0	247	0	0	0	0	30	0	0	0	0
Lane Group Flow (vph)	445	1134	145	0	0	0	0	240	0	401	615	0
Heavy Vehicles (%)	4%	21%	4%	4%	21%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	40.0	48.0	48.0					16.1		67.9	67.9	
Effective Green, g (s)	40.0	48.0	48.0					16.1		67.9	67.9	
Actuated g/C Ratio	0.27	0.32	0.32					0.11		0.45	0.45	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					2.5				
Lane Grp Cap (vph)	463	1372	497					356		786	827	
v/s Ratio Prot	c0.26	c0.26						c0.07		0.23	c0.34	
v/s Ratio Perm			0.09									
v/c Ratio	0.96	0.83	0.29					0.67		0.51	0.74	
Uniform Delay, d1	54.2	47.2	38.3					64.4		29.2	33.9	
Progression Factor	0.87	0.87	1.56					1.00		0.09	0.05	
Incremental Delay, d2	22.5	3.4	0.9					4.5		0.2	1.6	
Delay (s)	69.8	44.3	60.6					68.9		2.8	3.3	
Level of Service	E	D	E					E		A	A	
Approach Delay (s)		53.3			0.0			68.9			3.1	
Approach LOS		D			A			E			A	
Intersection Summary												
HCM Average Control Delay			39.0	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				24.0				
Intersection Capacity Utilization			80.6%	ICU Level of Service				D				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1019: SR 204 WB & Middleground Road

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	231	744	39	68	513	0	0	643	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frbp, ped/bikes				1.00	1.00	0.99	1.00	1.00			1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1530	1736	1827			3471	1530
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1530	1736	1827			3471	1530
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	275	886	46	87	658	0	0	748	373
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	0	0	0	246
Lane Group Flow (vph)	0	0	0	275	886	11	87	658	0	0	748	127
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	21%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				27.0	35.0	35.0	62.1	62.1			34.9	34.9
Effective Green, g (s)				27.0	35.0	35.0	62.1	62.1			34.9	34.9
Actuated g/C Ratio				0.18	0.23	0.23	0.41	0.41			0.23	0.23
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				312	984	357	719	756			808	356
v/s Ratio Prot				0.16	c0.21		0.05	c0.36			c0.22	
v/s Ratio Perm						0.01						0.08
v/c Ratio				0.88	0.90	0.03	0.12	0.87			0.93	0.36
Uniform Delay, d1				59.9	55.8	44.4	27.1	40.3			56.3	48.2
Progression Factor				0.74	0.75	0.36	0.54	0.14			1.00	1.00
Incremental Delay, d2				23.1	12.4	0.1	0.1	7.9			18.0	2.8
Delay (s)				67.7	54.4	15.9	14.7	13.7			74.3	51.0
Level of Service				E	D	B	B	B			E	D
Approach Delay (s)		0.0			56.0			13.8			66.5	
Approach LOS		A			E			B			E	
Intersection Summary												
HCM Average Control Delay			49.6	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			80.6%	ICU Level of Service				D				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept C

1020: SR 204 EB & Arts Drive

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1306	201	0	0	0	0	27	46	84	217	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0	6.0	
Lane Util. Factor		0.91						0.95	1.00	1.00	1.00	
Frt		0.98						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		4220						3471	1553	1736	1827	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		4220						3471	1553	1736	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.78	0.78	0.78	0.84	0.84	0.84
Adj. Flow (vph)	0	1346	207	0	0	0	0	35	59	100	258	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	52	0	0	0
Lane Group Flow (vph)	0	1541	0	0	0	0	0	35	7	100	258	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot							Perm	Split			
Protected Phases	5!	2						3		1!	1!	
Permitted Phases									3			
Actuated Green, G (s)		86.7						18.0	18.0	27.3	27.3	
Effective Green, g (s)		86.7						18.0	18.0	27.3	27.3	
Actuated g/C Ratio		0.58						0.12	0.12	0.18	0.18	
Clearance Time (s)		6.0						6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2439						417	186	316	333	
v/s Ratio Prot		c0.37						c0.01		0.06	c0.14	
v/s Ratio Perm									0.00			
v/c Ratio		0.63						0.08	0.04	0.32	0.77	
Uniform Delay, d1		21.0						58.7	58.3	53.3	58.4	
Progression Factor		0.38						1.00	1.00	0.06	0.10	
Incremental Delay, d2		0.8						0.4	0.4	0.5	10.0	
Delay (s)		8.9						59.1	58.7	3.9	15.8	
Level of Service		A						E	E	A	B	
Approach Delay (s)		8.9			0.0			58.9			12.5	
Approach LOS		A			A			E			B	
Intersection Summary												
HCM Average Control Delay		11.9										
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		150.0										
Intersection Capacity Utilization		52.7%										
Analysis Period (min)		15										
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept C

1021: SR 204 WB & Arts Drive

8/25/2011

										
Movement	EBT	EBR	WBL	WBT	NBL	NBR	NWL2	NWL	NWR	
Lane Configurations										
Volume (vph)	0	0	0	987	27	0	301	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0		6.0			
Lane Util. Factor				0.91	0.97		0.97			
Frt				1.00	1.00		1.00			
Flt Protected				1.00	0.95		0.95			
Satd. Flow (prot)				4217	3367		3367			
Flt Permitted				1.00	0.95		0.95			
Satd. Flow (perm)				4217	3367		3367			
Peak-hour factor, PHF	0.92	0.92	0.84	0.84	0.78	0.78	0.84	0.84	0.84	
Adj. Flow (vph)	0	0	0	1175	35	0	358	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	1175	35	0	358	0	0	
Heavy Vehicles (%)	4%	23%	4%	23%	4%	4%	4%	4%	4%	
Turn Type							custom			
Protected Phases				6	8					
Permitted Phases							1			
Actuated Green, G (s)				120.0	18.0		27.3			
Effective Green, g (s)				120.0	18.0		27.3			
Actuated g/C Ratio				0.80	0.12		0.18			
Clearance Time (s)				6.0	6.0		6.0			
Vehicle Extension (s)				3.0	3.0		3.0			
Lane Grp Cap (vph)				3374	404		613			
v/s Ratio Prot				c0.28	c0.01					
v/s Ratio Perm							c0.11			
v/c Ratio				0.35	0.09		0.58			
Uniform Delay, d1				4.2	58.7		56.2			
Progression Factor				1.80	0.07		0.92			
Incremental Delay, d2				0.3	0.1		1.4			
Delay (s)				7.8	4.1		53.0			
Level of Service				A	A		D			
Approach Delay (s)	0.0			7.8	4.1			53.0		
Approach LOS	A			A	A			D		
Intersection Summary										
HCM Average Control Delay				18.0						
HCM Volume to Capacity ratio				0.35						
Actuated Cycle Length (s)				150.0						
Intersection Capacity Utilization				44.3%						
Analysis Period (min)				15						
c Critical Lane Group										

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑					↗
Volume (veh/h)	814	70	0	0	0	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.62	0.62
Hourly flow rate (vph)	925	80	0	0	0	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1051		
pX, platoon unblocked						
vC, conflicting volume			925		965	348
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			925		965	348
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			722		249	642
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	370	370	265	27		
Volume Left	0	0	0	0		
Volume Right	0	0	80	27		
cSH	1700	1700	1700	642		
Volume to Capacity	0.22	0.22	0.16	0.04		
Queue Length 95th (ft)	0	0	0	3		
Control Delay (s)	0.0	0.0	0.0	10.9		
Lane LOS				B		
Approach Delay (s)	0.0			10.9		
Approach LOS				B		
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			27.3%	ICU Level of Service		A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↑		↑
Volume (veh/h)	0	0	638	252	0	144
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.89	0.89	0.76	0.76
Hourly flow rate (vph)	0	0	717	283	0	189
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			1096			
pX, platoon unblocked						
vC, conflicting volume	717				717	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717				717	239
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	75
cM capacity (veh/h)	867				360	756
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	239	239	239	283	189	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	283	189	
cSH	1700	1700	1700	1700	756	
Volume to Capacity	0.14	0.14	0.14	0.17	0.25	
Queue Length 95th (ft)	0	0	0	0	25	
Control Delay (s)	0.0	0.0	0.0	0.0	11.3	
Lane LOS					B	
Approach Delay (s)	0.0				11.3	
Approach LOS					B	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			27.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2035 AM Concept C

1025: SR 204 EB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	519	74	0	0	0	0	125	89	84	69	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3255		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3255		1736	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	259	564	80	0	0	0	0	169	120	117	96	0
RTOR Reduction (vph)	0	0	41	0	0	0	0	91	0	0	0	0
Lane Group Flow (vph)	259	564	39	0	0	0	0	198	0	117	96	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	41.0	73.6	73.6					15.5		42.9	42.9	
Effective Green, g (s)	41.0	73.6	73.6					15.5		42.9	42.9	
Actuated g/C Ratio	0.27	0.49	0.49					0.10		0.29	0.29	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	475	2069	762					336		496	523	
v/s Ratio Prot	c0.15	c0.13						c0.06		c0.07	0.05	
v/s Ratio Perm			0.03									
v/c Ratio	0.55	0.27	0.05					0.59		0.24	0.18	
Uniform Delay, d1	46.5	22.5	20.0					64.2		41.0	40.4	
Progression Factor	0.51	0.37	0.10					1.00		0.48	0.32	
Incremental Delay, d2	1.1	0.3	0.1					2.6		0.2	0.2	
Delay (s)	24.8	8.5	2.1					66.8		19.8	12.9	
Level of Service	C	A	A					E		B	B	
Approach Delay (s)		12.6			0.0			66.8			16.7	
Approach LOS		B			A			E			B	
Intersection Summary												
HCM Average Control Delay			24.4									HCM Level of Service C
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			150.0									Sum of lost time (s) 24.0
Intersection Capacity Utilization			52.8%									ICU Level of Service A
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 AM Concept C

1026: SR 204 WB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	42	531	126	240	123	0	0	111	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0				6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00				0.95
Frt				1.00	1.00	0.85	1.00	1.00				0.92
Flt Protected				0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827				3202
Flt Permitted				0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827				3202
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.74	0.74	0.74	0.72	0.72	0.72
Adj. Flow (vph)	0	0	0	49	617	147	324	166	0	0	154	165
RTOR Reduction (vph)	0	0	0	0	0	106	0	0	0	0	125	0
Lane Group Flow (vph)	0	0	0	49	617	41	324	166	0	0	194	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					
Protected Phases				1!	6		3 5!	3 5!				4
Permitted Phases						6						
Actuated Green, G (s)				9.4	42.0	42.0	62.5	62.5				27.5
Effective Green, g (s)				9.4	42.0	42.0	62.5	62.5				27.5
Actuated g/C Ratio				0.06	0.28	0.28	0.42	0.42				0.18
Clearance Time (s)				6.0	6.0	6.0						6.0
Vehicle Extension (s)				3.0	3.0	3.0						3.0
Lane Grp Cap (vph)				109	1181	435	723	761				587
v/s Ratio Prot				0.03	c0.15		c0.19	0.09				c0.06
v/s Ratio Perm						0.03						
v/c Ratio				0.45	0.52	0.09	0.45	0.22				0.33
Uniform Delay, d1				67.8	45.5	39.9	31.4	28.1				53.2
Progression Factor				1.18	0.59	0.73	0.25	0.23				1.00
Incremental Delay, d2				2.8	1.6	0.4	0.4	0.1				1.5
Delay (s)				82.9	28.5	29.6	8.2	6.6				54.8
Level of Service				F	C	C	A	A				D
Approach Delay (s)		0.0			32.0			7.7				54.8
Approach LOS		A			C			A				D
Intersection Summary												
HCM Average Control Delay				29.1								HCM Level of Service C
HCM Volume to Capacity ratio				0.45								
Actuated Cycle Length (s)				150.0								Sum of lost time (s) 18.0
Intersection Capacity Utilization				52.8%								ICU Level of Service A
Analysis Period (min)				15								
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1027: SR 204 EB & Largo Blvd

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	450	170	0	0	0	0	281	227	79	189	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3471	1553	1736	1827	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	83	517	195	0	0	0	0	419	339	96	230	0
RTOR Reduction (vph)	0	0	139	0	0	0	0	0	219	0	0	0
Lane Group Flow (vph)	83	517	56	0	0	0	0	419	120	96	230	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	17.0	42.8	42.8					27.7	27.7	61.5	61.5	
Effective Green, g (s)	17.0	42.8	42.8					27.7	27.7	61.5	61.5	
Actuated g/C Ratio	0.11	0.29	0.29					0.18	0.18	0.41	0.41	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	197	1203	443					641	287	712	749	
v/s Ratio Prot	0.05	c0.12						c0.12		0.06	c0.13	
v/s Ratio Perm			0.04						0.08			
v/c Ratio	0.42	0.43	0.13					0.65	0.42	0.13	0.31	
Uniform Delay, d1	61.9	43.7	39.7					56.7	54.0	27.6	29.9	
Progression Factor	0.94	0.98	1.81					1.00	1.00	0.06	0.07	
Incremental Delay, d2	1.4	1.1	0.6					2.4	1.0	0.1	0.2	
Delay (s)	59.9	43.8	72.5					59.1	55.0	1.8	2.2	
Level of Service	E	D	E					E	E	A	A	
Approach Delay (s)		52.5			0.0			57.3			2.1	
Approach LOS		D			A			E			A	
Intersection Summary												
HCM Average Control Delay			45.7								HCM Level of Service	D
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			150.0								Sum of lost time (s)	18.0
Intersection Capacity Utilization			55.6%								ICU Level of Service	B
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1028: SR 204 WB & Largo Blvd

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	94	446	21	150	203	0	0	174	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.67	0.67	0.67	0.82	0.82	0.82
Adj. Flow (vph)	0	0	0	101	480	23	224	303	0	0	212	126
RTOR Reduction (vph)	0	0	0	0	0	17	0	0	0	0	0	91
Lane Group Flow (vph)	0	0	0	101	480	6	224	303	0	0	212	35
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				14.2	40.0	40.0	50.7	50.7			41.3	41.3
Effective Green, g (s)				14.2	40.0	40.0	50.7	50.7			41.3	41.3
Actuated g/C Ratio				0.09	0.27	0.27	0.34	0.34			0.28	0.28
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				164	1125	414	587	618			956	428
v/s Ratio Prot				c0.06	c0.11		0.13	c0.17			c0.06	
v/s Ratio Perm						0.00						0.02
v/c Ratio				0.62	0.43	0.01	0.38	0.49			0.22	0.08
Uniform Delay, d1				65.3	45.5	40.5	37.7	39.4			41.9	40.3
Progression Factor				1.65	0.43	0.07	0.10	0.07			1.00	1.00
Incremental Delay, d2				6.4	1.1	0.1	0.4	0.6			0.5	0.4
Delay (s)				114.4	20.7	2.8	4.2	3.2			42.5	40.7
Level of Service				F	C	A	A	A			D	D
Approach Delay (s)		0.0			35.7			3.6			41.8	
Approach LOS		A			D			A			D	
Intersection Summary												
HCM Average Control Delay				25.6							HCM Level of Service	C
HCM Volume to Capacity ratio				0.40								
Actuated Cycle Length (s)				150.0							Sum of lost time (s)	18.0
Intersection Capacity Utilization				55.6%							ICU Level of Service	B
Analysis Period (min)				15								
! Phase conflict between lane groups.												
c Critical Lane Group												

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	706	50	0	0	0	114
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.92	0.92	0.67	0.67
Hourly flow rate (vph)	811	57	0	0	0	170
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	652		1112			
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			811		811	270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			580		580	5
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	83
cM capacity (veh/h)			919		415	1007
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	270	270	270	57	170	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	57	170	
cSH	1700	1700	1700	1700	1007	
Volume to Capacity	0.16	0.16	0.16	0.03	0.17	
Queue Length 95th (ft)	0	0	0	0	15	
Control Delay (s)	0.0	0.0	0.0	0.0	9.3	
Lane LOS					A	
Approach Delay (s)	0.0				9.3	
Approach LOS					A	
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			27.4%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	542	19	0	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.93	0.93	0.82	0.82
Hourly flow rate (vph)	0	0	583	20	0	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		657	1105			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	603				583	194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	393				372	0
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1089				566	1023
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	194	194	194	20	23	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	20	23	
cSH	1700	1700	1700	1700	1023	
Volume to Capacity	0.11	0.11	0.11	0.01	0.02	
Queue Length 95th (ft)	0	0	0	0	2	
Control Delay (s)	0.0	0.0	0.0	0.0	8.6	
Lane LOS					A	
Approach Delay (s)	0.0				8.6	
Approach LOS					A	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			20.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1031: SR 204 EB & Deerfield Road

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Volume (vph)	151	642	27	0	0	0	0	89	158	161	67	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		0.95	0.95	
Frt	1.00	1.00	0.85					0.90		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	0.98	
Satd. Flow (prot)	1736	4217	1553					3138		1649	1700	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	0.98	
Satd. Flow (perm)	1736	4217	1553					3138		1649	1700	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	161	683	29	0	0	0	0	99	176	187	78	0
RTOR Reduction (vph)	0	0	16	0	0	0	0	145	0	0	0	0
Lane Group Flow (vph)	161	683	13	0	0	0	0	130	0	131	134	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	36.0	65.3	65.3					26.0		40.7	40.7	
Effective Green, g (s)	36.0	65.3	65.3					26.0		40.7	40.7	
Actuated g/C Ratio	0.24	0.44	0.44					0.17		0.27	0.27	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	417	1836	676					544		447	461	
v/s Ratio Prot	0.09	c0.16						c0.04		c0.08	0.08	
v/s Ratio Perm			0.01									
v/c Ratio	0.39	0.37	0.02					0.24		0.29	0.29	
Uniform Delay, d1	47.7	28.5	24.1					53.5		43.3	43.2	
Progression Factor	0.86	0.91	1.01					1.00		0.07	0.23	
Incremental Delay, d2	0.6	0.6	0.0					1.0		0.4	0.3	
Delay (s)	41.4	26.6	24.4					54.5		3.5	10.4	
Level of Service	D	C	C					D		A	B	
Approach Delay (s)		29.3			0.0			54.5			7.0	
Approach LOS		C			A			D			A	
Intersection Summary												
HCM Average Control Delay			30.0	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			49.7%	ICU Level of Service				A				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1032: SR 204 WB & Deerfield Road

2035 AM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  						 	
Volume (vph)	0	0	0	61	474	104	42	198	0	0	167	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	62	484	106	47	220	0	0	194	52
RTOR Reduction (vph)	0	0	0	0	0	78	0	0	0	0	0	44
Lane Group Flow (vph)	0	0	0	62	484	28	47	220	0	0	194	8
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				10.7	40.0	40.0	68.0	68.0			24.0	24.0
Effective Green, g (s)				10.7	40.0	40.0	68.0	68.0			24.0	24.0
Actuated g/C Ratio				0.07	0.27	0.27	0.45	0.45			0.16	0.16
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				124	1125	414	787	828			555	248
v/s Ratio Prot				0.04	c0.11		0.03	c0.12			c0.06	
v/s Ratio Perm						0.02						0.01
v/c Ratio				0.50	0.43	0.07	0.06	0.27			0.35	0.03
Uniform Delay, d1				67.1	45.6	41.1	23.0	25.5			56.1	53.2
Progression Factor				1.00	1.00	1.00	0.61	0.17			1.00	1.00
Incremental Delay, d2				3.1	1.2	0.3	0.0	0.2			1.7	0.3
Delay (s)				70.2	46.8	41.4	14.2	4.4			57.8	53.5
Level of Service				E	D	D	B	A			E	D
Approach Delay (s)		0.0			48.1			6.1			56.9	
Approach LOS		A			D			A			E	
Intersection Summary												
HCM Average Control Delay			40.3	HCM Level of Service					D			
HCM Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			49.7%	ICU Level of Service					A			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	153	0	22	490	0	58	0	1347	0	0	127	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.72	0.72	0.72	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77
Adj. Flow (vph)	212	0	31	598	0	71	0	1448	0	0	165	35
RTOR Reduction (vph)	0	0	25	0	0	26	0	0	0	0	0	13
Lane Group Flow (vph)	212	0	6	598	0	45	0	1448	0	0	165	22
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	14.3		14.3	14.3		14.3		43.7			43.7	43.7
Effective Green, g (s)	14.3		14.3	14.3		14.3		43.7			43.7	43.7
Actuated g/C Ratio	0.20		0.20	0.20		0.20		0.62			0.62	0.62
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	355		317	1000		317		2633			2633	970
v/s Ratio Prot	0.12			c0.12				c0.34			0.04	
v/s Ratio Perm			0.00			0.03						0.01
v/c Ratio	0.60		0.02	0.60		0.14		0.55			0.06	0.02
Uniform Delay, d1	25.2		22.3	25.2		22.8		7.5			5.1	5.0
Progression Factor	1.00		1.00	1.00		1.00		1.00			2.18	3.92
Incremental Delay, d2	2.7		0.0	1.0		0.2		0.8			0.0	0.0
Delay (s)	27.9		22.3	26.2		23.0		8.4			11.3	19.7
Level of Service	C		C	C		C		A			B	B
Approach Delay (s)	27.2				25.9			8.4			12.8	
Approach LOS	C				C			A			B	
Intersection Summary												
HCM Average Control Delay			15.1		HCM Level of Service						B	
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			57.2%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	82	94	0	1359	199	50	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.82	0.82	0.93	0.93	0.93	0.77	0.77
Adj. Flow (vph)	100	115	0	1461	214	65	94
RTOR Reduction (vph)	0	104	0	0	92	0	0
Lane Group Flow (vph)	100	11	0	1461	122	65	94
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	6.5	6.5	39.8		39.8	5.7	51.5
Effective Green, g (s)	6.5	6.5	39.8		39.8	5.7	51.5
Actuated g/C Ratio	0.09	0.09	0.57		0.57	0.08	0.74
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	304	140	2398		858	137	3103
v/s Ratio Prot			c0.35		c0.04		0.02
v/s Ratio Perm	c0.03	0.01			0.08		
v/c Ratio	0.33	0.08	0.61		0.14	0.47	0.03
Uniform Delay, d1	29.7	29.0	10.0		7.1	30.7	2.5
Progression Factor	1.00	1.00	0.59		0.18	1.00	1.00
Incremental Delay, d2	0.6	0.2	1.0		0.3	2.6	0.0
Delay (s)	30.3	29.2	6.9		1.6	33.3	2.5
Level of Service	C	C	A		A	C	A
Approach Delay (s)	29.8			6.2			15.1
Approach LOS	C			A			B
Intersection Summary							
HCM Average Control Delay			9.4	HCM Level of Service			A
HCM Volume to Capacity ratio			0.56				
Actuated Cycle Length (s)			70.0	Sum of lost time (s)			18.0
Intersection Capacity Utilization			47.9%	ICU Level of Service			A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 1

1000: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	544	0	47	881	108	3	9	20	104	8	47
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	14	591	0	53	1001	123	4	12	27	133	10	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage veh												
Upstream signal (ft)	708											
pX, platoon unblocked	0.89							0.89	0.89		0.89	0.89
vC, conflicting volume	1001	591			1232			1728	296	1465	1728	501
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	753	591			1012			1569	296	1274	1569	190
tC, single (s)	4.2	4.2			7.6			6.6	7.0	7.6	6.6	7.0
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 %	98	95			97			87	96	0	89	92
cM capacity (veh/h)	753	974			135			90	698	89	90	726
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	310	296	53	501	501	123	43	204				
Volume Left	14	0	53	0	0	0	4	133				
Volume Right	0	0	0	0	0	123	27	60				
cSH	753	1700	974	1700	1700	1700	212	124				
Volume to Capacity	0.02	0.17	0.05	0.29	0.29	0.07	0.20	1.65				
Queue Length 95th (ft)	1	0	4	0	0	0	18	377				
Control Delay (s)	0.7	0.0	8.9	0.0	0.0	0.0	26.3	387.4				
Lane LOS	A		A				D	F				
Approach Delay (s)	0.3		0.4				26.3	387.4				
Approach LOS							D	F				
Intersection Summary												
Average Delay	39.8											
Intersection Capacity Utilization	58.6%			ICU Level of Service			B					
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 1

1001: SR 204 & I-95 SB Off-Ramp

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations												
Volume (vph)	0	549	119	1766	840	0	0	0	915	0	196	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0	
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00	
Frt		1.00	0.85	1.00	1.00				1.00		0.85	
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (prot)		3312	1442	3127	3312				3127		1442	
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (perm)		3312	1442	3127	3312				3127		1442	
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.92	0.92	0.85	0.85	0.85	
Adj. Flow (vph)	0	695	151	1941	923	0	0	0	1076	0	231	
RTOR Reduction (vph)	0	0	103	0	0	0	0	0	0	0	128	
Lane Group Flow (vph)	0	695	48	1941	923	0	0	0	1076	0	103	
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%	
Turn Type		Perm		Prot		custom				custom		
Protected Phases		2		1		6						
Permitted Phases		2								4		
Actuated Green, G (s)		24.0	24.0	55.0	85.0					33.0	33.0	
Effective Green, g (s)		24.0	24.0	55.0	85.0					33.0	33.0	
Actuated g/C Ratio		0.18	0.18	0.42	0.65					0.25	0.25	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		5.5	5.5	3.0	5.5					3.0	3.0	
Lane Grp Cap (vph)		611	266	1323	2166					794	366	
v/s Ratio Prot		c0.21		c0.62								
v/s Ratio Perm		0.03								c0.34	0.07	
v/c Ratio		1.14	0.18	1.47	0.43					1.36	0.28	
Uniform Delay, d1		53.0	44.7	37.5	10.8					48.5	39.0	
Progression Factor		1.00	1.00	0.86	1.37					1.00	1.00	
Incremental Delay, d2		80.6	1.5	210.6	0.1					168.1	0.4	
Delay (s)		133.6	46.2	242.7	14.9					216.6	39.4	
Level of Service		F	D	F	B					F	D	
Approach Delay (s)		118.0				169.3		0.0		185.2		
Approach LOS		F				F		A		F		
Intersection Summary												
HCM Average Control Delay		164.8		HCM Level of Service		F						
HCM Volume to Capacity ratio		1.36										
Actuated Cycle Length (s)		130.0		Sum of lost time (s)		18.0						
Intersection Capacity Utilization		96.7%		ICU Level of Service		F						
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 1

1002: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	55	1409	0	0	2423	697	0	0	183	0	1366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3312			3312	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3312			3312	1442			1612		2538
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	60	1548	0	0	2785	801	0	0	215	0	1607
RTOR Reduction (vph)	0	0	0	0	0	160	0	0	0	0	34
Lane Group Flow (vph)	60	1548	0	0	2785	641	0	0	215	0	1573
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	Prot				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases						6			8		8
Actuated Green, G (s)	6.5	75.0			62.5	62.5			43.0		43.0
Effective Green, g (s)	6.5	75.0			62.5	62.5			43.0		43.0
Actuated g/C Ratio	0.05	0.58			0.48	0.48			0.33		0.33
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	156	1911			1592	693			533		839
v/s Ratio Prot	0.02	c0.47			c0.84						
v/s Ratio Perm						0.44			0.13		c0.62
v/c Ratio	0.38	0.81			1.75	0.92			0.40		1.87
Uniform Delay, d1	59.8	21.8			33.8	31.5			33.6		43.5
Progression Factor	1.37	0.10			0.43	0.33			1.00		1.00
Incremental Delay, d2	0.1	0.4			337.5	2.6			0.5		398.2
Delay (s)	82.3	2.4			351.9	13.2			34.1		441.7
Level of Service	F	A			F	B			C		F
Approach Delay (s)		5.4			276.2		0.0			393.6	
Approach LOS		A			F		A			F	
Intersection Summary											
HCM Average Control Delay		244.6			HCM Level of Service				F		
HCM Volume to Capacity ratio		1.77									
Actuated Cycle Length (s)		130.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization		96.7%			ICU Level of Service				F		
Analysis Period (min)		15									
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 1

1003: SR 204 & Gateway Blvd S

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2655	120	0	3056	48	0	0	42	0	0	64
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Hourly flow rate (vph)	0	2886	130	0	3358	53	0	0	49	0	0	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		423										
pX, platoon unblocked				0.72			0.72	0.72	0.72	0.72	0.72	
vC, conflicting volume	3358			2886			4005	6244	962	4320	6244	1119
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3358			2262			3814	6918	0	4251	6918	1119
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	94	100	100	65
cM capacity (veh/h)	76			154			1	0	775	0	0	196
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	962	962	962	130	1119	1119	1119	53	49	68		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	130	0	0	0	53	49	68		
cSH	1700	1700	1700	1700	1700	1700	1700	1700	775	196		
Volume to Capacity	0.57	0.57	0.57	0.08	0.66	0.66	0.66	0.03	0.06	0.35		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	5	37		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	32.8		
Lane LOS									A	D		
Approach Delay (s)	0.0				0.0				10.0	32.8		
Approach LOS									A	D		
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			76.7%		ICU Level of Service				D			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 1

1004: SR 204 & New Intersection

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	266	2301	130	152	2794	83	201	118	45	63	104	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	4759	1538	1719	4759	1538	1719	1810	1538	1719	1810	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.65	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	1719	4759	1538	1719	4759	1538	1172	1810	1538	1040	1810	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	289	2501	141	167	3070	91	234	137	52	67	111	116
RTOR Reduction (vph)	0	0	55	0	0	29	0	0	44	0	0	97
Lane Group Flow (vph)	289	2501	86	167	3070	62	234	137	8	67	111	19
Heavy Vehicles (%)	5%	9%	5%	5%	9%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	18.0	75.8	75.8	15.2	73.0	73.0	21.0	21.0	21.0	21.0	21.0	21.0
Effective Green, g (s)	18.0	75.8	75.8	15.2	73.0	73.0	21.0	21.0	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.14	0.58	0.58	0.12	0.56	0.56	0.16	0.16	0.16	0.16	0.16	0.16
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	238	2775	897	201	2672	864	189	292	248	168	292	248
v/s Ratio Prot	c0.17	c0.53		0.10	c0.65			0.08			0.06	
v/s Ratio Perm			0.06			0.04	c0.20		0.01	0.06		0.01
v/c Ratio	1.21	0.90	0.10	0.83	1.15	0.07	1.24	0.47	0.03	0.40	0.38	0.08
Uniform Delay, d1	56.0	23.8	12.0	56.1	28.5	13.0	54.5	49.4	45.9	48.8	48.7	46.3
Progression Factor	1.14	0.92	0.71	1.13	0.95	0.58	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	100.1	0.5	0.0	24.0	71.8	0.0	144.0	1.2	0.1	1.6	0.8	0.1
Delay (s)	163.9	22.5	8.5	87.4	98.8	7.6	198.5	50.6	46.0	50.4	49.5	46.4
Level of Service	F	C	A	F	F	A	F	D	D	D	D	D
Approach Delay (s)		35.8			95.8			131.9			48.5	
Approach LOS		D			F			F			D	
Intersection Summary												
HCM Average Control Delay		70.8			HCM Level of Service					E		
HCM Volume to Capacity ratio		1.24										
Actuated Cycle Length (s)		130.0			Sum of lost time (s)			24.0				
Intersection Capacity Utilization		101.5%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 2

1001: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 			  			 	
Volume (veh/h)	13	544	0	47	881	108	3	9	20	104	8	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	14	591	0	53	1001	123	4	12	27	133	10	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					479							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	1001			591			1232	1728	296	1465	1728	501
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	795			591			1049	1596	296	1306	1596	242
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	98			95			97	86	96	0	88	91
cM capacity (veh/h)	740			974			128	88	698	86	88	685
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	310	296	53	501	501	123	43	204				
Volume Left	14	0	53	0	0	0	4	133				
Volume Right	0	0	0	0	0	123	27	60				
cSH	740	1700	974	1700	1700	1700	207	119				
Volume to Capacity	0.02	0.17	0.05	0.29	0.29	0.07	0.21	1.72				
Queue Length 95th (ft)	1	0	4	0	0	0	19	389				
Control Delay (s)	0.7	0.0	8.9	0.0	0.0	0.0	26.8	418.2				
Lane LOS	A		A				D	F				
Approach Delay (s)	0.3		0.4				26.8	418.2				
Approach LOS							D	F				
Intersection Summary												
Average Delay			42.9									
Intersection Capacity Utilization			58.6%			ICU Level of Service			B			
Analysis Period (min)			15									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑↑	↖	↗
Volume (vph)	549	119	0	840	196	915
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3312	1442		4759	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3312	1442		4759	1612	1442
Peak-hour factor, PHF	0.79	0.79	0.91	0.91	0.85	0.85
Adj. Flow (vph)	695	151	0	923	231	1076
RTOR Reduction (vph)	0	55	0	0	0	0
Lane Group Flow (vph)	695	96	0	923	231	1076
Heavy Vehicles (%)	9%	12%	12%	9%	12%	12%
Turn Type		Perm	Perm			Free
Protected Phases	2			6	8	
Permitted Phases		2	6			Free
Actuated Green, G (s)	51.1	51.1		51.1	16.9	80.0
Effective Green, g (s)	51.1	51.1		51.1	16.9	80.0
Actuated g/C Ratio	0.64	0.64		0.64	0.21	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2116	921		3040	341	1442
v/s Ratio Prot	0.21			0.19	0.14	
v/s Ratio Perm		0.07				c0.75
v/c Ratio	0.33	0.10		0.30	0.68	0.75
Uniform Delay, d1	6.6	5.6		6.5	29.0	0.0
Progression Factor	1.00	1.00		0.72	1.00	1.00
Incremental Delay, d2	0.4	0.2		0.3	5.3	3.6
Delay (s)	7.0	5.8		4.9	34.3	3.6
Level of Service	A	A		A	C	A
Approach Delay (s)	6.8			4.9	9.0	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			7.2	HCM Level of Service		A
HCM Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		0.0
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	SBL	SBR	NEL2	NEL	NER
Lane Configurations		  			  				 		
Volume (vph)	55	1409	0	0	657	0	0	0	183	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4759			4759				3127		
Flt Permitted	0.31	1.00			1.00				0.95		
Satd. Flow (perm)	532	4759			4759				3127		
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	60	1548	0	0	755	0	0	0	215	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	60	1548	0	0	755	0	0	0	215	0	0
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt								custom		
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	57.2	57.2			47.0				10.8		
Effective Green, g (s)	57.2	57.2			47.0				10.8		
Actuated g/C Ratio	0.72	0.72			0.59				0.14		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	437	3403			2796				422		
v/s Ratio Prot	0.01	c0.33			0.16						
v/s Ratio Perm	0.09								c0.07		
v/c Ratio	0.14	0.45			0.27				0.51		
Uniform Delay, d1	3.6	4.8			8.1				32.1		
Progression Factor	0.61	0.52			1.00				1.00		
Incremental Delay, d2	0.1	0.4			0.2				1.0		
Delay (s)	2.3	2.9			8.3				33.1		
Level of Service	A	A			A				C		
Approach Delay (s)		2.8			8.3		0.0			33.1	
Approach LOS		A			A		A			C	
Intersection Summary											
HCM Average Control Delay			7.0	HCM Level of Service					A		
HCM Volume to Capacity ratio			0.46								
Actuated Cycle Length (s)			80.0	Sum of lost time (s)					12.0		
Intersection Capacity Utilization			40.8%	ICU Level of Service					A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 3

1001: SR 204 & Gateway Blvd W

8/22/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	544	0	47	881	108	3	9	20	104	8	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	14	591	0	53	1001	123	4	12	27	133	10	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1001			591			1232	1728	296	1465	1728	501
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1001			591			1232	1728	296	1465	1728	501
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	98			95			96	85	96	0	87	88
cM capacity (veh/h)	681			974			99	80	698	71	80	513
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	310	296	53	501	501	123	43	204				
Volume Left	14	0	53	0	0	0	4	133				
Volume Right	0	0	0	0	0	123	27	60				
cSH	681	1700	974	1700	1700	1700	187	98				
Volume to Capacity	0.02	0.17	0.05	0.29	0.29	0.07	0.23	2.07				
Queue Length 95th (ft)	2	0	4	0	0	0	21	439				
Control Delay (s)	0.7	0.0	8.9	0.0	0.0	0.0	29.8	587.0				
Lane LOS	A		A				D	F				
Approach Delay (s)	0.4		0.4				29.8	587.0				
Approach LOS							D	F				
Intersection Summary												
Average Delay			59.9									
Intersection Capacity Utilization			58.6%		ICU Level of Service		B					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 3

1003: SR 204 & I-95 SB Off-Ramp

8/22/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Volume (veh/h)	0	549	840	0	0	196	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.79	0.79	0.91	0.91	0.85	0.85	
Hourly flow rate (vph)	0	695	923	0	0	231	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None		None				
Median storage (veh)							
Upstream signal (ft)	712						
pX, platoon unblocked	0.97				0.97	0.97	
vC, conflicting volume	923				1155	308	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	798				1038	161	
tC, single (s)	4.3				7.2	7.1	
tC, 2 stage (s)							
tF (s)	2.3				3.7	3.4	
p0 queue free %	100				100	71	
cM capacity (veh/h)	750				195	797	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	232	232	232	308	308	308	231
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	231
cSH	1700	1700	1700	1700	1700	1700	797
Volume to Capacity	0.14	0.14	0.14	0.18	0.18	0.18	0.29
Queue Length 95th (ft)	0	0	0	0	0	0	30
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.3
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.3
Approach LOS							B
Intersection Summary							
Average Delay			1.4				
Intersection Capacity Utilization			35.0%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A - Alternative 3

1004: SR 204 & I-95 NB On-Ramp

8/22/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	55	494	0	0	657	0	0	0	183	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4759			4759				3127		
Flt Permitted	0.31	1.00			1.00				0.95		
Satd. Flow (perm)	527	4759			4759				3127		
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	60	543	0	0	755	0	0	0	215	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	60	543	0	0	755	0	0	0	215	0	0
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			custom							
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	53.6	53.6			43.3				10.3		
Effective Green, g (s)	53.6	53.6			43.3				10.3		
Actuated g/C Ratio	0.71	0.71			0.57				0.14		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	434	3361			2715				424		
v/s Ratio Prot	0.01	c0.11			c0.16						
v/s Ratio Perm	0.09								c0.07		
v/c Ratio	0.14	0.16			0.28				0.51		
Uniform Delay, d1	3.7	3.7			8.3				30.4		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.1	0.1			0.3				1.0		
Delay (s)	3.8	3.8			8.6				31.4		
Level of Service	A	A			A				C		
Approach Delay (s)		3.8			8.6	0.0				31.4	
Approach LOS		A			A	A				C	
Intersection Summary											
HCM Average Control Delay			9.9		HCM Level of Service				A		
HCM Volume to Capacity ratio			0.32								
Actuated Cycle Length (s)			75.9		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			35.0%		ICU Level of Service				A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A

1005: SR 204 EB On Ramp & US-17

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	376	0	412	0	0	0	0	1270	502	433	2283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303		2682					4893	2682	3303	4893	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3303		2682					4893	2682	3303	4893	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	427	0	468	0	0	0	0	1366	540	476	2509	0
RTOR Reduction (vph)	0	0	11	0	0	0	0	0	272	0	0	0
Lane Group Flow (vph)	427	0	457	0	0	0	0	1366	268	476	2509	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom		custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	25.5		25.5					64.6	64.6	21.9	92.5	
Effective Green, g (s)	25.5		25.5					64.6	64.6	21.9	92.5	
Actuated g/C Ratio	0.20		0.20					0.50	0.50	0.17	0.71	
Clearance Time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	648		526					2431	1333	556	3482	
v/s Ratio Prot								0.28		c0.14	c0.51	
v/s Ratio Perm	0.13		c0.17						0.10			
v/c Ratio	0.66		0.87					0.56	0.20	0.86	0.72	
Uniform Delay, d1	48.2		50.6					22.8	18.3	52.5	11.1	
Progression Factor	0.55		0.56					1.00	1.00	0.93	0.11	
Incremental Delay, d2	1.3		8.0					0.9	0.3	4.6	0.4	
Delay (s)	27.8		36.1					23.8	18.6	53.5	1.7	
Level of Service	C		D					C	B	D	A	
Approach Delay (s)		32.2			0.0			22.3			10.0	
Approach LOS		C			A			C			A	
Intersection Summary												
HCM Average Control Delay			17.5		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			81.5%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A

1006: SR 204 WB On Ramp & US-17

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  		 	 	  			  	
Volume (vph)	0	0	0	982	0	297	501	1145	0	0	1734	444
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	1034	0	313	545	1245	0	0	2016	516
RTOR Reduction (vph)	0	0	0	0	0	128	0	0	0	0	0	212
Lane Group Flow (vph)	0	0	0	1034	0	185	545	1245	0	0	2016	304
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type	custom			custom			Prot			Perm		
Protected Phases							5			2		
Permitted Phases				8			8			6		
Actuated Green, G (s)				30.0			30.0			23.7		
Effective Green, g (s)				30.0			30.0			23.7		
Actuated g/C Ratio				0.23			0.23			0.18		
Clearance Time (s)				6.0			6.0			6.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				1078			602			586		
v/s Ratio Prot							c0.17			0.26		
v/s Ratio Perm				c0.22			0.07					
v/c Ratio				0.96			0.31			0.93		
Uniform Delay, d1				49.4			41.4			52.3		
Progression Factor				1.00			1.00			0.55		
Incremental Delay, d2				18.2			0.3			18.9		
Delay (s)				67.6			41.7			47.5		
Level of Service				E			D			D		
Approach Delay (s)	0.0						61.5			25.0		
Approach LOS	A						E			C		
Intersection Summary												
HCM Average Control Delay				40.8			HCM Level of Service			D		
HCM Volume to Capacity ratio				0.95								
Actuated Cycle Length (s)				130.0			Sum of lost time (s)			18.0		
Intersection Capacity Utilization				81.5%			ICU Level of Service			D		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A

1007: SR 204 EB Off Ramp & Pine Grove Rd

8/23/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations											 			
Volume (vph)	51	0	70	0	0	0	0	105	133	138	188	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0			
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95			
Frt	1.00		0.85					1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505			
Flt Permitted	0.95		1.00					1.00	1.00	0.67	1.00			
Satd. Flow (perm)	1752		1568					1845	1568	1229	3505			
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81		
Adj. Flow (vph)	56	0	77	0	0	0	0	142	180	170	232	0		
RTOR Reduction (vph)	0	0	68	0	0	0	0	0	65	0	0	0		
Lane Group Flow (vph)	56	0	9	0	0	0	0	142	115	170	232	0		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%		
Turn Type	custom		custom						Perm		Perm			
Protected Phases									2		6			
Permitted Phases	4		4						2		6			
Actuated Green, G (s)	6.0		6.0						32.0		32.0			
Effective Green, g (s)	6.0		6.0						32.0		32.0			
Actuated g/C Ratio	0.12		0.12						0.64		0.64			
Clearance Time (s)	6.0		6.0						6.0		6.0			
Vehicle Extension (s)	3.0		3.0						3.0		3.0			
Lane Grp Cap (vph)	210		188						1181		1004			
v/s Ratio Prot									0.08		0.07			
v/s Ratio Perm	c0.03		0.01								0.07			
v/c Ratio	0.27		0.05						0.12		0.11			
Uniform Delay, d1	20.0		19.5						3.5		3.5			
Progression Factor	1.00		1.00						1.00		1.00			
Incremental Delay, d2	0.7		0.1						0.2		0.2			
Delay (s)	20.7		19.6						3.7		3.7			
Level of Service	C		B						A		A			
Approach Delay (s)			20.0		0.0				3.7					
Approach LOS			C		A				A					
Intersection Summary														
HCM Average Control Delay			5.8		HCM Level of Service				A					
HCM Volume to Capacity ratio			0.22											
Actuated Cycle Length (s)			50.0		Sum of lost time (s)				12.0					
Intersection Capacity Utilization			47.5%		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												
Volume (vph)	0	0	0	178	705	88	94	62	0	0	148	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568
Flt Permitted				0.95	1.00	1.00	0.64	1.00			1.00	1.00
Satd. Flow (perm)				1752	3505	1568	1184	3505			1845	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	189	750	94	127	84	0	0	183	68
RTOR Reduction (vph)	0	0	0	0	0	63	0	0	0	0	0	39
Lane Group Flow (vph)	0	0	0	189	750	31	127	84	0	0	183	29
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	Perm			Perm				Perm
Protected Phases				8			2			6		
Permitted Phases				8			2			6		
Actuated Green, G (s)				16.7	16.7	16.7	21.3	21.3			21.3	21.3
Effective Green, g (s)				16.7	16.7	16.7	21.3	21.3			21.3	21.3
Actuated g/C Ratio				0.33	0.33	0.33	0.43	0.43			0.43	0.43
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				585	1171	524	504	1493			786	668
v/s Ratio Prot				c0.21			0.02			0.10		
v/s Ratio Perm				0.11			c0.11			0.02		
v/c Ratio				0.32	0.64	0.06	0.25	0.06			0.23	0.04
Uniform Delay, d1				12.4	14.1	11.3	9.2	8.4			9.1	8.4
Progression Factor				1.00	1.00	1.00	0.90	0.36			1.00	1.00
Incremental Delay, d2				0.3	1.2	0.0	1.2	0.1			0.7	0.1
Delay (s)				12.8	15.3	11.4	9.5	3.1			9.8	8.5
Level of Service				B	B	B	A	A			A	A
Approach Delay (s)	0.0			14.5			7.0			9.5		
Approach LOS	A			B			A			A		
Intersection Summary												
HCM Average Control Delay	12.6			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.42											
Actuated Cycle Length (s)	50.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	47.5%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 			  
Volume (vph)	435	273	403	514	339	1341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.99	0.99	0.85	0.85	0.77	0.77
Adj. Flow (vph)	439	276	474	605	440	1742
RTOR Reduction (vph)	0	221	0	419	0	0
Lane Group Flow (vph)	439	55	474	186	440	1742
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm		Prot	
Protected Phases	8		2		1 6	
Permitted Phases	8		2			
Actuated Green, G (s)	14.0	14.0	18.1	18.1	19.9	44.0
Effective Green, g (s)	14.0	14.0	18.1	18.1	19.9	44.0
Actuated g/C Ratio	0.20	0.20	0.26	0.26	0.28	0.63
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	673	311	898	402	494	3135
v/s Ratio Prot	c0.13		0.14		c0.25 c0.35	
v/s Ratio Perm	0.04		0.12			
v/c Ratio	0.65	0.18	0.53	0.46	0.89	0.56
Uniform Delay, d1	25.8	23.2	22.3	21.9	24.0	7.4
Progression Factor	1.00	1.00	1.00	1.00	0.72	0.72
Incremental Delay, d2	2.3	0.3	2.2	3.8	17.8	0.7
Delay (s)	28.0	23.5	24.5	25.7	35.2	6.0
Level of Service	C	C	C	C	D	A
Approach Delay (s)	26.3		25.1		11.9	
Approach LOS	C		C		B	
Intersection Summary						
HCM Average Control Delay			18.1		HCM Level of Service B	
HCM Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			70.0		Sum of lost time (s) 12.0	
Intersection Capacity Utilization			60.6%		ICU Level of Service B	
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

1010: SR 204 WB Off Ramp & King George Blvd

2035 PM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1185	0	0	518	295	381	0	0	495	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00
Frt			0.85			0.86	1.00	1.00			1.00	0.85
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553
Flt Permitted			1.00			1.00	0.29	1.00			1.00	1.00
Satd. Flow (perm)			2733			1580	527	1827			3471	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.85	0.85	0.85	0.77	0.77	0.77
Adj. Flow (vph)	0	0	1209	0	0	529	347	448	0	0	643	534
RTOR Reduction (vph)	0	0	439	0	0	312	0	0	0	0	0	323
Lane Group Flow (vph)	0	0	770	0	0	217	347	448	0	0	643	211
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom			custom		pm+pt						Perm
Protected Phases						5		2			6	
Permitted Phases			2			8		2				6
Actuated Green, G (s)			44.6			13.4		44.6			27.6	27.6
Effective Green, g (s)			44.6			13.4		44.6			27.6	27.6
Actuated g/C Ratio			0.64			0.19		0.64			0.39	0.39
Clearance Time (s)			6.0			6.0		6.0			6.0	6.0
Vehicle Extension (s)			3.0			3.0		3.0			3.0	3.0
Lane Grp Cap (vph)			1741			302		526			1369	612
v/s Ratio Prot								c0.10			0.19	
v/s Ratio Perm			0.28			c0.14		c0.32				0.14
v/c Ratio			0.44			0.72		0.66			0.47	0.34
Uniform Delay, d1			6.4			26.5		7.0			15.8	14.9
Progression Factor			1.00			1.00		0.68			1.00	1.00
Incremental Delay, d2			0.8			7.9		2.7			1.2	1.5
Delay (s)			7.2			34.5		7.6			16.9	16.4
Level of Service			A			C		A			B	B
Approach Delay (s)		7.2			34.5			5.5			16.7	
Approach LOS		A			C			A			B	
Intersection Summary												
HCM Average Control Delay		13.7			HCM Level of Service						B	
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		65.1%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1011: South Access Road & Rio Road

2035 PM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	458	1000	226	0	0	0	0	439	73	140	109	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.33	1.00	
Satd. Flow (perm)	1736	4217	1553					3471	1553	611	1827	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	487	1064	240	0	0	0	0	542	90	151	117	0
RTOR Reduction (vph)	0	0	98	0	0	0	0	0	34	0	0	0
Lane Group Flow (vph)	487	1064	142	0	0	0	0	542	56	151	117	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						custom	custom		
Protected Phases		2										
Permitted Phases	2		2					8	8	4	4	
Actuated Green, G (s)	53.4	53.4	53.4					24.6	24.6	24.6	24.6	
Effective Green, g (s)	53.4	53.4	53.4					24.6	24.6	24.6	24.6	
Actuated g/C Ratio	0.59	0.59	0.59					0.27	0.27	0.27	0.27	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1030	2502	921					949	424	167	499	
v/s Ratio Prot		0.25										
v/s Ratio Perm	c0.28		0.09					0.16	0.04	c0.25	0.06	
v/c Ratio	0.47	0.43	0.15					0.57	0.13	0.90	0.23	
Uniform Delay, d1	10.3	10.0	8.2					28.2	24.6	31.6	25.4	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.64	1.64	
Incremental Delay, d2	1.6	0.5	0.4					0.8	0.1	42.8	0.2	
Delay (s)	11.9	10.5	8.6					29.0	24.8	63.0	42.0	
Level of Service	B	B	A					C	C	E	D	
Approach Delay (s)		10.6			0.0			28.4			53.8	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM Average Control Delay		19.1			HCM Level of Service					B		
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		132.4%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1012: North Access Road & Rio Road

2035 PM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	94	1256	45	412	485	0	0	155	721
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.65	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	1181	1827			3471	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	102	1365	49	509	599	0	0	167	775
RTOR Reduction (vph)	0	0	0	0	0	28	0	0	0	0	0	7
Lane Group Flow (vph)	0	0	0	102	1365	21	509	599	0	0	167	768
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					6			8				4
Permitted Phases				6		6	8					4
Actuated Green, G (s)				38.0	38.0	38.0	40.0	40.0			40.0	40.0
Effective Green, g (s)				38.0	38.0	38.0	40.0	40.0			40.0	40.0
Actuated g/C Ratio				0.42	0.42	0.42	0.44	0.44			0.44	0.44
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				733	1239	656	525	812			1543	690
v/s Ratio Prot					c0.47			0.33			0.05	
v/s Ratio Perm				0.06		0.01	0.43					c0.49
v/c Ratio				0.14	1.10	0.03	0.97	0.74			0.11	1.11
Uniform Delay, d1				16.0	26.0	15.2	24.4	20.7			14.6	25.0
Progression Factor				1.00	1.00	1.00	1.04	1.21			1.00	1.00
Incremental Delay, d2				0.4	58.1	0.1	30.7	3.2			0.0	69.5
Delay (s)				16.4	84.1	15.3	56.1	28.3			14.6	94.5
Level of Service				B	F	B	E	C			B	F
Approach Delay (s)		0.0			77.4			41.0			80.4	
Approach LOS		A			E			D			F	
Intersection Summary												
HCM Average Control Delay		66.9		HCM Level of Service				E				
HCM Volume to Capacity ratio		1.11										
Actuated Cycle Length (s)		90.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		130.0%		ICU Level of Service				H				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1013: North Access Road & West Mall Driveway

2035 PM Concept A

8/23/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	1832	110	0	109
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1889	113	0	142
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						
vC, conflicting volume	1889				1889	630
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1889				1889	630
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	66
cM capacity (veh/h)	305				61	420
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	630	630	630	113	142	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	113	142	
cSH	1700	1700	1700	1700	420	
Volume to Capacity	0.37	0.37	0.37	0.07	0.34	
Queue Length 95th (ft)	0	0	0	0	37	
Control Delay (s)	0.0	0.0	0.0	0.0	17.9	
Lane LOS					C	
Approach Delay (s)	0.0				17.9	
Approach LOS					C	
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			48.8%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1469	131	0	96
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1514	135	0	125
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						
vC, conflicting volume	1514				1514	505
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1514				1514	505
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	75
cM capacity (veh/h)	428				108	507
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	505	505	505	135	125	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	135	125	
cSH	1700	1700	1700	1700	507	
Volume to Capacity	0.30	0.30	0.30	0.08	0.25	
Queue Length 95th (ft)	0	0	0	0	24	
Control Delay (s)	0.0	0.0	0.0	0.0	14.4	
Lane LOS					B	
Approach Delay (s)	0.0				14.4	
Approach LOS					B	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			41.0%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	  					
Volume (veh/h)	798	440	0	0	0	407
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.91	0.91	0.80	0.80
Hourly flow rate (vph)	917	506	0	0	0	509
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						
vC, conflicting volume			917		917	306
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			917		917	306
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	26
cM capacity (veh/h)			727		267	684
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	306	306	306	506	509	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	506	509	
cSH	1700	1700	1700	1700	684	
Volume to Capacity	0.18	0.18	0.18	0.30	0.74	
Queue Length 95th (ft)	0	0	0	0	167	
Control Delay (s)	0.0	0.0	0.0	0.0	23.9	
Lane LOS					C	
Approach Delay (s)	0.0				23.9	
Approach LOS					C	
Intersection Summary						
Average Delay			6.3			
Intersection Capacity Utilization			47.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept A

1016: North Access Road & Apache Ave

8/23/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1173	323	0	427
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.91	0.91	0.93	0.93
Hourly flow rate (vph)	0	0	1289	355	0	459
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						
vC, conflicting volume	1289				1289	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1289				1289	430
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	19
cM capacity (veh/h)	523				153	568
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	430	430	430	355	459	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	355	459	
cSH	1700	1700	1700	1700	568	
Volume to Capacity	0.25	0.25	0.25	0.21	0.81	
Queue Length 95th (ft)	0	0	0	0	199	
Control Delay (s)	0.0	0.0	0.0	0.0	32.7	
Lane LOS					D	
Approach Delay (s)	0.0				32.7	
Approach LOS					D	
Intersection Summary						
Average Delay			7.1			
Intersection Capacity Utilization			55.8%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2035 PM Concept A

1017: South Access Road & Middleground Road

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 						 				
Volume (vph)	409	190	168	0	0	0	0	283	140	296	509	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3367	2935	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.54	1.00	
Satd. Flow (perm)	3367	2935	1553					3471	1553	983	1827	
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	449	209	185	0	0	0	0	358	177	417	717	0
RTOR Reduction (vph)	0	0	126	0	0	0	0	0	80	0	0	0
Lane Group Flow (vph)	449	209	59	0	0	0	0	358	97	417	717	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Perm						Perm	Perm		
Protected Phases		2						8			4	
Permitted Phases	2		2						8		4	
Actuated Green, G (s)	28.5	28.5	28.5					49.5	49.5	49.5	49.5	
Effective Green, g (s)	28.5	28.5	28.5					49.5	49.5	49.5	49.5	
Actuated g/C Ratio	0.32	0.32	0.32					0.55	0.55	0.55	0.55	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1066	929	492					1909	854	541	1005	
v/s Ratio Prot		0.07						0.10			0.39	
v/s Ratio Perm	c0.13		0.04						0.06	c0.42		
v/c Ratio	0.42	0.22	0.12					0.19	0.11	0.77	0.71	
Uniform Delay, d1	24.2	22.6	21.8					10.2	9.7	15.8	15.0	
Progression Factor	0.87	0.86	0.49					1.00	1.00	0.90	0.72	
Incremental Delay, d2	1.2	0.6	0.5					0.0	0.1	6.5	2.3	
Delay (s)	22.3	20.0	11.2					10.2	9.8	20.7	13.1	
Level of Service	C	B	B					B	A	C	B	
Approach Delay (s)		19.3			0.0			10.1			15.9	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM Average Control Delay			15.8								B	
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			90.0							12.0		
Intersection Capacity Utilization			79.7%							D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1018: North Access Road & Middleground Road

2035 PM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	219	454	251	101	591	0	0	586	503
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	1736	3471			3471	1553
Flt Permitted				0.95	1.00	1.00	0.29	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	538	3471			3471	1553
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	0	0	0	231	478	264	128	748	0	0	825	708
RTOR Reduction (vph)	0	0	0	0	0	156	0	0	0	0	0	36
Lane Group Flow (vph)	0	0	0	231	478	108	128	748	0	0	825	672
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					6			8				4
Permitted Phases				6		6	8					4
Actuated Green, G (s)				28.1	28.1	28.1	49.9	49.9			49.9	49.9
Effective Green, g (s)				28.1	28.1	28.1	49.9	49.9			49.9	49.9
Actuated g/C Ratio				0.31	0.31	0.31	0.55	0.55			0.55	0.55
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				542	916	485	298	1924			1924	861
v/s Ratio Prot					c0.16			0.22			0.24	
v/s Ratio Perm				0.13		0.07	0.24					c0.43
v/c Ratio				0.43	0.52	0.22	0.43	0.39			0.43	0.78
Uniform Delay, d1				24.6	25.4	22.9	11.7	11.4			11.7	15.7
Progression Factor				0.92	0.92	0.74	1.10	1.02			1.00	1.00
Incremental Delay, d2				2.4	2.1	1.1	1.0	0.1			0.2	4.6
Delay (s)				25.0	25.6	18.0	13.8	11.8			11.9	20.4
Level of Service				C	C	B	B	B			B	C
Approach Delay (s)		0.0			23.4			12.1			15.8	
Approach LOS		A			C			B			B	
Intersection Summary												
HCM Average Control Delay		17.0			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.69										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		79.7%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1019: South Access Road & Arts Drive

2035 PM Concept A

8/23/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	610	138	0	0	0	271
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.95	0.95	0.79	0.79
Hourly flow rate (vph)	670	152	0	0	0	343
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						
vC, conflicting volume			670		670	335
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			670		670	335
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	48
cM capacity (veh/h)			903		386	655
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	335	335	152	343		
Volume Left	0	0	0	0		
Volume Right	0	0	152	343		
cSH	1700	1700	1700	655		
Volume to Capacity	0.20	0.20	0.09	0.52		
Queue Length 95th (ft)	0	0	0	77		
Control Delay (s)	0.0	0.0	0.0	16.4		
Lane LOS				C		
Approach Delay (s)	0.0			16.4		
Approach LOS				C		
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization			40.3%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1478	40	0	0	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	1607	43	0	0	0	21
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						
vC, conflicting volume			1650		1628	423
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1650		1628	423
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			378		91	574
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	459	459	459	273	21	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	43	21	
cSH	1700	1700	1700	1700	574	
Volume to Capacity	0.27	0.27	0.27	0.16	0.04	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	11.5	
Lane LOS					B	
Approach Delay (s)	0.0				11.5	
Approach LOS					B	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			32.1%		ICU Level of Service	A
Analysis Period (min)			15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↗		↗
Volume (veh/h)	0	0	569	366	0	127
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80
Hourly flow rate (vph)	0	0	618	398	0	159
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						
vC, conflicting volume	1016				618	309
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1016				618	309
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	77
cM capacity (veh/h)	666				416	681
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	309	309	398	159		
Volume Left	0	0	0	0		
Volume Right	0	0	398	159		
cSH	1700	1700	1700	681		
Volume to Capacity	0.18	0.18	0.23	0.23		
Queue Length 95th (ft)	0	0	0	22		
Control Delay (s)	0.0	0.0	0.0	11.9		
Lane LOS				B		
Approach Delay (s)	0.0			11.9		
Approach LOS				B		
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			30.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1023: South Access Road & Mercy Blvd

2035 PM Concept A

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	935	173	0	0	0	0	221	88	166	179	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	2935	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.59	1.00	
Satd. Flow (perm)	1736	2935	1553					3471	1553	1083	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	185	1016	188	0	0	0	0	257	102	195	211	0
RTOR Reduction (vph)	0	0	70	0	0	0	0	0	66	0	0	0
Lane Group Flow (vph)	185	1016	118	0	0	0	0	257	36	195	211	0
Heavy Vehicles (%)	4%	23%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	Perm						Perm		Perm		
Protected Phases	2								8	4		
Permitted Phases	2	2						8		4		
Actuated Green, G (s)	56.5	56.5	56.5					21.5	21.5	21.5	21.5	
Effective Green, g (s)	56.5	56.5	56.5					21.5	21.5	21.5	21.5	
Actuated g/C Ratio	0.63	0.63	0.63					0.24	0.24	0.24	0.24	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1090	1843	975					829	371	259	436	
v/s Ratio Prot	c0.35								0.07	0.12		
v/s Ratio Perm	0.11	0.08						0.02		c0.18		
v/c Ratio	0.17	0.55	0.12					0.31	0.10	0.75	0.48	
Uniform Delay, d1	7.0	9.5	6.7					28.2	26.7	31.8	29.5	
Progression Factor	0.94	0.96	0.87					1.00	1.00	0.32	0.91	
Incremental Delay, d2	0.3	1.2	0.3					0.2	0.1	11.7	0.8	
Delay (s)	6.9	10.3	6.1					28.4	26.8	21.9	27.8	
Level of Service	A	B	A					C	C	C	C	
Approach Delay (s)	9.3		0.0		27.9		25.0					
Approach LOS	A		A		C		C					
Intersection Summary												
HCM Average Control Delay	15.4		HCM Level of Service		B							
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	90.0		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	69.8%		ICU Level of Service		C							
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1024: North Access Road & Mercy Blvd

2035 PM Concept A

8/23/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	103	289	158	205	186	0	0	242	225	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor				1.00	0.95	1.00	1.00	1.00			0.95	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1736	2935	1553	1736	1827			3471	1553	
Flt Permitted				0.95	1.00	1.00	0.58	1.00			1.00	1.00	
Satd. Flow (perm)				1736	2935	1553	1054	1827			3471	1553	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85	
Adj. Flow (vph)	0	0	0	108	304	166	238	216	0	0	285	265	
RTOR Reduction (vph)	0	0	0	0	0	73	0	0	0	0	0	183	
Lane Group Flow (vph)	0	0	0	108	304	93	238	216	0	0	285	82	
Heavy Vehicles (%)	4%	4%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%	
Turn Type				Perm		Perm		Perm					Perm
Protected Phases				6		6		8					4
Permitted Phases				6		6		8					4
Actuated Green, G (s)				50.3	50.3	50.3	27.7	27.7				27.7	27.7
Effective Green, g (s)				50.3	50.3	50.3	27.7	27.7				27.7	27.7
Actuated g/C Ratio				0.56	0.56	0.56	0.31	0.31				0.31	0.31
Clearance Time (s)				6.0	6.0	6.0	6.0	6.0				6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)				970	1640	868	324	562				1068	478
v/s Ratio Prot				c0.10		0.12		0.12					0.08
v/s Ratio Perm				0.06	0.06		c0.23	0.23					0.05
v/c Ratio				0.11	0.19	0.11	0.73	0.38				0.27	0.17
Uniform Delay, d1				9.3	9.8	9.3	27.9	24.5				23.5	22.8
Progression Factor				1.00	1.00	1.00	0.22	1.57				1.00	1.00
Incremental Delay, d2				0.2	0.2	0.2	8.3	0.4				0.1	0.2
Delay (s)				9.6	10.0	9.6	14.5	38.8				23.6	22.9
Level of Service				A	B	A	B	D				C	C
Approach Delay (s)	0.0			9.8		26.1		26.1		23.3			
Approach LOS	A			A		C		C		C			
Intersection Summary													
HCM Average Control Delay	19.2			HCM Level of Service				B					
HCM Volume to Capacity ratio	0.38												
Actuated Cycle Length (s)	90.0			Sum of lost time (s)				12.0					
Intersection Capacity Utilization	69.8%			ICU Level of Service				C					
Analysis Period (min)	15												
c Critical Lane Group													

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗				↗
Volume (veh/h)	1344	640	0	0	0	443
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1386	660	0	0	0	487
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						
vC, conflicting volume			1386		1386	693
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1386		1386	693
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	0
cM capacity (veh/h)			480		132	381
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	693	693	660	487		
Volume Left	0	0	0	0		
Volume Right	0	0	660	487		
cSH	1700	1700	1700	381		
Volume to Capacity	0.41	0.41	0.39	1.28		
Queue Length 95th (ft)	0	0	0	541		
Control Delay (s)	0.0	0.0	0.0	173.1		
Lane LOS				F		
Approach Delay (s)	0.0		173.1			
Approach LOS				F		
Intersection Summary						
Average Delay			33.3			
Intersection Capacity Utilization			71.2%	ICU Level of Service		C
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	671	393	0	674
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.91	0.91	0.75	0.75
Hourly flow rate (vph)	0	0	737	432	0	899
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						
vC, conflicting volume	737				737	369
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	737				737	369
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	851				349	623
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	369	369	432	899		
Volume Left	0	0	0	0		
Volume Right	0	0	432	899		
cSH	1700	1700	1700	623		
Volume to Capacity	0.22	0.22	0.25	1.44		
Queue Length 95th (ft)	0	0	0	1061		
Control Delay (s)	0.0	0.0	0.0	227.5		
Lane LOS				F		
Approach Delay (s)	0.0			227.5		
Approach LOS				F		
Intersection Summary						
Average Delay			98.9			
Intersection Capacity Utilization			66.9%	ICU Level of Service		C
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			 			
Volume (veh/h)	0	0	1025	33	0	39
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.91	0.91	0.75	0.75
Hourly flow rate (vph)	0	0	1126	36	0	52
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						
vC, conflicting volume	1126				1126	563
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1126				1126	563
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	605				195	464
Direction, Lane #	WB 1	WB 2	WB 3	SB 1		
Volume Total	563	563	36	52		
Volume Left	0	0	0	0		
Volume Right	0	0	36	52		
cSH	1700	1700	1700	464		
Volume to Capacity	0.33	0.33	0.02	0.11		
Queue Length 95th (ft)	0	0	0	9		
Control Delay (s)	0.0	0.0	0.0	13.7		
Lane LOS				B		
Approach Delay (s)	0.0			13.7		
Approach LOS				B		
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			38.3%	ICU Level of Service	A	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1802	675	0	417
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.98	0.98	0.94	0.94
Hourly flow rate (vph)	0	0	1839	689	0	444
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						
vC, conflicting volume	1839				1839	613
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1839				1839	613
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	319				65	431
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	613	613	613	689	444	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	689	444	
cSH	1700	1700	1700	1700	431	
Volume to Capacity	0.36	0.36	0.36	0.41	1.03	
Queue Length 95th (ft)	0	0	0	0	343	
Control Delay (s)	0.0	0.0	0.0	0.0	82.8	
Lane LOS					F	
Approach Delay (s)	0.0				82.8	
Approach LOS					F	
Intersection Summary						
Average Delay			12.4			
Intersection Capacity Utilization			67.3%	ICU Level of Service	C	
Analysis Period (min)			15			

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	192	0	67	420	0	32	0	1421	0	0	1425	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	384	0	134	477	0	36	0	1512	0	0	1583	69
RTOR Reduction (vph)	0	0	9	0	0	11	0	0	0	0	0	31
Lane Group Flow (vph)	384	0	125	477	0	25	0	1512	0	0	1583	38
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	19.8		19.8	19.8		19.8		38.2			38.2	38.2
Effective Green, g (s)	19.8		19.8	19.8		19.8		38.2			38.2	38.2
Actuated g/C Ratio	0.28		0.28	0.28		0.28		0.55			0.55	0.55
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	491		439	1384		439		2301			2301	847
v/s Ratio Prot	c0.22			0.10				0.36			c0.38	
v/s Ratio Perm			0.08			0.02						0.02
v/c Ratio	0.78		0.28	0.34		0.06		0.66			0.69	0.04
Uniform Delay, d1	23.1		19.6	19.9		18.3		11.3			11.6	7.4
Progression Factor	1.00		1.00	1.00		1.00		1.00			0.79	0.29
Incremental Delay, d2	7.9		0.4	0.2		0.1		1.5			1.5	0.1
Delay (s)	31.0		19.9	20.1		18.3		12.7			10.7	2.2
Level of Service	C		B	C		B		B			B	A
Approach Delay (s)	28.2				20.0			12.7			10.3	
Approach LOS	C				B			B			B	
Intersection Summary												
HCM Average Control Delay			14.6		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			59.5%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	111	88	0	1520	125	126	1376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.88	0.88	0.94	0.94	0.94	0.90	0.90
Adj. Flow (vph)	126	100	0	1617	133	140	1529
RTOR Reduction (vph)	0	90	0	0	66	0	0
Lane Group Flow (vph)	126	10	0	1617	67	140	1529
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	6.9	6.9		35.4	35.4	9.7	51.1
Effective Green, g (s)	6.9	6.9		35.4	35.4	9.7	51.1
Actuated g/C Ratio	0.10	0.10		0.51	0.51	0.14	0.73
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	323	149		2133	763	234	3078
v/s Ratio Prot				c0.38		0.08	c0.36
v/s Ratio Perm	c0.04	0.01			0.04		
v/c Ratio	0.39	0.07		0.76	0.09	0.60	0.50
Uniform Delay, d1	29.6	28.6		13.9	9.0	28.3	4.0
Progression Factor	1.00	1.00		0.59	0.10	1.00	1.00
Incremental Delay, d2	0.8	0.2		2.0	0.2	4.1	0.6
Delay (s)	30.4	28.8		10.1	1.1	32.4	4.6
Level of Service	C	C		B	A	C	A
Approach Delay (s)	29.7			9.4			6.9
Approach LOS	C			A			A
Intersection Summary							
HCM Average Control Delay			9.5	HCM Level of Service			A
HCM Volume to Capacity ratio			0.69				
Actuated Cycle Length (s)			70.0	Sum of lost time (s)			18.0
Intersection Capacity Utilization			54.7%	ICU Level of Service			A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B&C - Alternative 1

1000: SR 204 & Gateway Blvd W

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	486	0	51	867	115	3	2	23	109	3	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	14	528	0	58	985	131	4	3	31	140	4	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					708							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	985			528			1167	1658	264	1426	1658	493
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	691			528			899	1461	264	1195	1461	126
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	98			94			98	97	96	0	96	92
cM capacity (veh/h)	779			1028			172	102	731	109	102	783
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	278	264	58	493	493	131	37	204				
Volume Left	14	0	58	0	0	0	4	140				
Volume Right	0	0	0	0	0	131	31	60				
cSH	779	1700	1028	1700	1700	1700	409	151				
Volume to Capacity	0.02	0.16	0.06	0.29	0.29	0.08	0.09	1.35				
Queue Length 95th (ft)	1	0	4	0	0	0	7	315				
Control Delay (s)	0.7	0.0	8.7	0.0	0.0	0.0	14.7	249.8				
Lane LOS	A		A				B	F				
Approach Delay (s)	0.4		0.4				14.7	249.8				
Approach LOS							B	F				
Intersection Summary												
Average Delay			26.6									
Intersection Capacity Utilization			60.6%		ICU Level of Service					B		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B&C - Alternative 1

1001: SR 204 & I-95 SB Off-Ramp

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	
Lane Configurations												
Volume (vph)	0	494	124	1454	856	0	0	0	953	0	177	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0	6.0	6.0				6.0		6.0	
Lane Util. Factor		0.95	1.00	0.97	0.95				0.97		1.00	
Frt		1.00	0.85	1.00	1.00				1.00		0.85	
Flt Protected		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (prot)		3312	1442	3127	3312				3127		1442	
Flt Permitted		1.00	1.00	0.95	1.00				0.95		1.00	
Satd. Flow (perm)		3312	1442	3127	3312				3127		1442	
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.92	0.92	0.85	0.85	0.85	
Adj. Flow (vph)	0	625	157	1598	941	0	0	0	1121	0	208	
RTOR Reduction (vph)	0	0	110	0	0	0	0	0	0	0	105	
Lane Group Flow (vph)	0	625	47	1598	941	0	0	0	1121	0	103	
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%	
Turn Type			Perm	Prot						custom	custom	
Protected Phases	2		1		6							
Permitted Phases			2						4		4	
Actuated Green, G (s)	24.0		24.0	57.0	87.0						41.0	41.0
Effective Green, g (s)	24.0		24.0	57.0	87.0						41.0	41.0
Actuated g/C Ratio	0.17		0.17	0.41	0.62						0.29	0.29
Clearance Time (s)	6.0		6.0	6.0	6.0						6.0	6.0
Vehicle Extension (s)	5.5		5.5	3.0	5.5						3.0	3.0
Lane Grp Cap (vph)	568		247	1273	2058						916	422
v/s Ratio Prot	c0.19		c0.51		0.28							
v/s Ratio Perm			0.03						c0.36		0.07	
v/c Ratio	1.10		0.19	1.26	0.46						1.22	0.24
Uniform Delay, d1	58.0		49.7	41.5	14.0						49.5	37.7
Progression Factor	1.00		1.00	0.92	0.26						1.00	1.00
Incremental Delay, d2	68.2		1.7	115.5	0.1						110.5	0.3
Delay (s)	126.2		51.4	153.6	3.7						160.0	38.0
Level of Service	F		D	F	A						F	D
Approach Delay (s)	111.2				98.0		0.0				140.9	
Approach LOS	F				F		A				F	
Intersection Summary												
HCM Average Control Delay			112.5		HCM Level of Service				F			
HCM Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			92.6%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B&C - Alternative 1

1002: SR 204 & I-95 NB On-Ramp

8/25/2011

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations	 	 			 						 
Volume (vph)	60	1387	0	0	2121	824	0	0	189	0	1265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0			6.0		6.0
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)	3127	3312			3312	1442			1612		2538
Flt Permitted	0.95	1.00			1.00	1.00			0.95		1.00
Satd. Flow (perm)	3127	3312			3312	1442			1612		2538
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	66	1524	0	0	2438	947	0	0	222	0	1488
RTOR Reduction (vph)	0	0	0	0	0	203	0	0	0	0	33
Lane Group Flow (vph)	66	1524	0	0	2438	744	0	0	222	0	1456
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	Prot				Perm				custom		custom
Protected Phases	5	2			6						
Permitted Phases						6			8		8
Actuated Green, G (s)	6.7	79.0			66.3	66.3			49.0		49.0
Effective Green, g (s)	6.7	79.0			66.3	66.3			49.0		49.0
Actuated g/C Ratio	0.05	0.56			0.47	0.47			0.35		0.35
Clearance Time (s)	6.0	6.0			6.0	6.0			6.0		6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)	150	1869			1568	683			564		888
v/s Ratio Prot	0.02	c0.46			c0.74						
v/s Ratio Perm						0.52			0.14		c0.57
v/c Ratio	0.44	0.82			1.55	1.09			0.39		1.64
Uniform Delay, d1	64.8	24.6			36.9	36.9			34.3		45.5
Progression Factor	1.30	0.06			0.45	0.31			1.00		1.00
Incremental Delay, d2	0.2	0.4			250.5	47.0			0.5		292.7
Delay (s)	84.8	1.8			267.2	58.4			34.8		338.2
Level of Service	F	A			F	E			C		F
Approach Delay (s)		5.3			208.7		0.0			298.8	
Approach LOS		A			F		A			F	
Intersection Summary											
HCM Average Control Delay		183.4			HCM Level of Service				F		
HCM Volume to Capacity ratio		1.57									
Actuated Cycle Length (s)		140.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization		92.6%			ICU Level of Service				F		
Analysis Period (min)		15									
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B&C - Alternative 1

1003: SR 204 & Gateway Blvd S

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗		↑↑↑↑	↗			↗			↗
Volume (veh/h)	0	2527	125	0	2867	60	0	0	49	0	0	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Hourly flow rate (vph)	0	2747	136	0	3151	66	0	0	57	0	0	83
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		423										
pX, platoon unblocked				0.72			0.72	0.72	0.72	0.72	0.72	
vC, conflicting volume	3151			2747			3797	5897	916	4066	5897	1050
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3151			2068			3525	6438	0	3898	6438	1050
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	93	100	100	62
cM capacity (veh/h)	93			184			1	0	775	1	0	219
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	916	916	916	136	1050	1050	1050	66	57	83		
Volume Left	0	0	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	136	0	0	0	66	57	83		
cSH	1700	1700	1700	1700	1700	1700	1700	1700	775	219		
Volume to Capacity	0.54	0.54	0.54	0.08	0.62	0.62	0.62	0.04	0.07	0.38		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	6	42		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	31.2		
Lane LOS									B	D		
Approach Delay (s)	0.0				0.0				10.0	31.2		
Approach LOS									B	D		
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			73.6%		ICU Level of Service				D			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B&C - Alternative 1

1004: SR 204 & New Intersection

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	276	2165	135	187	2550	103	245	76	54	76	54	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	4759	1538	1719	4759	1538	1719	1810	1538	1719	1810	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.72	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	1719	4759	1538	1719	4759	1538	1303	1810	1538	1266	1810	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	300	2353	147	205	2802	113	285	88	63	81	57	140
RTOR Reduction (vph)	0	0	48	0	0	31	0	0	52	0	0	115
Lane Group Flow (vph)	300	2353	99	205	2802	82	285	88	11	81	57	25
Heavy Vehicles (%)	5%	9%	5%	5%	9%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	21.0	79.0	79.0	18.0	76.0	76.0	25.0	25.0	25.0	25.0	25.0	25.0
Effective Green, g (s)	21.0	79.0	79.0	18.0	76.0	76.0	25.0	25.0	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.15	0.56	0.56	0.13	0.54	0.54	0.18	0.18	0.18	0.18	0.18	0.18
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	258	2685	868	221	2583	835	233	323	275	226	323	275
v/s Ratio Prot	c0.17	c0.49		0.12	c0.59			0.05			0.03	
v/s Ratio Perm			0.06			0.05	c0.22		0.01	0.06		0.02
v/c Ratio	1.16	0.88	0.11	0.93	1.08	0.10	1.22	0.27	0.04	0.36	0.18	0.09
Uniform Delay, d1	59.5	26.3	14.2	60.4	32.0	15.5	57.5	49.6	47.6	50.5	48.8	48.0
Progression Factor	1.13	0.87	0.69	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	77.5	0.4	0.0	40.5	45.6	0.1	132.5	0.5	0.1	1.0	0.3	0.1
Delay (s)	144.9	23.2	9.8	100.9	77.6	15.5	190.0	50.1	47.6	51.4	49.0	48.2
Level of Service	F	C	A	F	E	B	F	D	D	D	D	D
Approach Delay (s)		35.5			76.9			141.2			49.3	
Approach LOS		D			E			F			D	
Intersection Summary												
HCM Average Control Delay			62.5			HCM Level of Service					E	
HCM Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				24.0		
Intersection Capacity Utilization			99.8%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B&C - Alternative 2

1001: SR 204 & Gateway Blvd W

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	486	0	51	867	115	3	2	23	109	3	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	14	528	0	58	985	131	4	3	31	140	4	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)					479							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	985			528			1167	1658	264	1426	1658	493
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	784			528			984	1524	264	1268	1524	242
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	98			94			97	97	96	0	96	91
cM capacity (veh/h)	749			1028			153	98	731	100	98	687
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	278	264	58	493	493	131	37	204				
Volume Left	14	0	58	0	0	0	4	140				
Volume Right	0	0	0	0	0	131	31	60				
cSH	749	1700	1028	1700	1700	1700	391	138				
Volume to Capacity	0.02	0.16	0.06	0.29	0.29	0.08	0.10	1.47				
Queue Length 95th (ft)	1	0	4	0	0	0	8	344				
Control Delay (s)	0.7	0.0	8.7	0.0	0.0	0.0	15.2	306.6				
Lane LOS	A		A				C	F				
Approach Delay (s)	0.4		0.4				15.2	306.6				
Approach LOS							C	F				
Intersection Summary												
Average Delay				32.6								
Intersection Capacity Utilization			60.6%			ICU Level of Service				B		
Analysis Period (min)			15									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑↑	↘	↗
Volume (vph)	494	124	0	856	177	953
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	4.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3312	1442		4759	1612	1442
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3312	1442		4759	1612	1442
Peak-hour factor, PHF	0.79	0.79	0.91	0.91	0.85	0.85
Adj. Flow (vph)	625	157	0	941	208	1121
RTOR Reduction (vph)	0	54	0	0	0	0
Lane Group Flow (vph)	625	103	0	941	208	1121
Heavy Vehicles (%)	9%	12%	12%	9%	12%	12%
Turn Type		Perm	Perm			Free
Protected Phases	2			6	8	
Permitted Phases		2	6			Free
Actuated Green, G (s)	52.3	52.3		52.3	15.7	80.0
Effective Green, g (s)	52.3	52.3		52.3	15.7	80.0
Actuated g/C Ratio	0.65	0.65		0.65	0.20	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	5.5	5.5		5.5	3.0	
Lane Grp Cap (vph)	2165	943		3111	316	1442
v/s Ratio Prot	0.19			0.20	0.13	
v/s Ratio Perm		0.07				c0.78
v/c Ratio	0.29	0.11		0.30	0.66	0.78
Uniform Delay, d1	5.9	5.2		6.0	29.7	0.0
Progression Factor	1.00	1.00		0.72	1.00	1.00
Incremental Delay, d2	0.3	0.2		0.2	4.9	4.2
Delay (s)	6.2	5.4		4.5	34.6	4.2
Level of Service	A	A		A	C	A
Approach Delay (s)	6.1			4.5	8.9	
Approach LOS	A			A	A	
Intersection Summary						
HCM Average Control Delay			6.9	HCM Level of Service		A
HCM Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		0.0
Intersection Capacity Utilization			36.3%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	60	1387	0	0	667	0	0	0	189	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4759			4759				3127		
Flt Permitted	0.31	1.00			1.00				0.95		
Satd. Flow (perm)	519	4759			4759				3127		
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	66	1524	0	0	767	0	0	0	222	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	66	1524	0	0	767	0	0	0	222	0	0
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt								custom		
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	57.0	57.0			45.5				11.0		
Effective Green, g (s)	57.0	57.0			45.5				11.0		
Actuated g/C Ratio	0.71	0.71			0.57				0.14		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	445	3391			2707				430		
v/s Ratio Prot	0.01	c0.32			0.16						
v/s Ratio Perm	0.10								c0.07		
v/c Ratio	0.15	0.45			0.28				0.52		
Uniform Delay, d1	3.7	4.9			8.9				32.0		
Progression Factor	0.67	0.58			1.00				1.00		
Incremental Delay, d2	0.1	0.3			0.3				1.0		
Delay (s)	2.6	3.2			9.1				33.1		
Level of Service	A	A			A				C		
Approach Delay (s)		3.2			9.1		0.0			33.1	
Approach LOS		A			A		A			C	
Intersection Summary											
HCM Average Control Delay			7.5	HCM Level of Service					A		
HCM Volume to Capacity ratio			0.46								
Actuated Cycle Length (s)			80.0	Sum of lost time (s)					12.0		
Intersection Capacity Utilization			40.5%	ICU Level of Service					A		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
1001: SR 204 & Gateway Blvd W

2035 PM Concept B&C - Alternative 3
8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Volume (veh/h)	13	486	0	51	867	115	3	2	23	109	3	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.75	0.75	0.75	0.78	0.78	0.78
Hourly flow rate (vph)	14	528	0	58	985	131	4	3	31	140	4	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	985			528			1167	1658	264	1426	1658	493
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	985			528			1167	1658	264	1426	1658	493
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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 %	98			94			97	97	96	0	96	88
cM capacity (veh/h)	691			1028			119	89	731	84	89	519
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	278	264	58	493	493	131	37	204				
Volume Left	14	0	58	0	0	0	4	140				
Volume Right	0	0	0	0	0	131	31	60				
cSH	691	1700	1028	1700	1700	1700	353	115				
Volume to Capacity	0.02	0.16	0.06	0.29	0.29	0.08	0.11	1.78				
Queue Length 95th (ft)	2	0	4	0	0	0	9	399				
Control Delay (s)	0.8	0.0	8.7	0.0	0.0	0.0	16.4	447.8				
Lane LOS	A		A				C	F				
Approach Delay (s)	0.4		0.4				16.4	447.8				
Approach LOS							C	F				
Intersection Summary												
Average Delay			47.3									
Intersection Capacity Utilization			60.6%		ICU Level of Service		B					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
1003: SR 204 & I-95 SB Off-Ramp

2035 PM Concept B&C - Alternative 3
8/25/2011

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Volume (veh/h)	0	494	856	0	0	177	
Sign Control		Free	Free		Yield		
Grade		0%	0%		0%		
Peak Hour Factor	0.79	0.79	0.91	0.91	0.85	0.85	
Hourly flow rate (vph)	0	625	941	0	0	208	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (ft)	712						
pX, platoon unblocked	0.96				0.96	0.96	
vC, conflicting volume	941				1149	314	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	796				1013	143	
tC, single (s)	4.3				7.2	7.1	
tC, 2 stage (s)							
tF (s)	2.3				3.7	3.4	
p0 queue free %	100				100	74	
cM capacity (veh/h)	747				201	815	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	208	208	208	314	314	314	208
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	208
cSH	1700	1700	1700	1700	1700	1700	815
Volume to Capacity	0.12	0.12	0.12	0.18	0.18	0.18	0.26
Queue Length 95th (ft)	0	0	0	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.9
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.9
Approach LOS							B
Intersection Summary							
Average Delay			1.3				
Intersection Capacity Utilization			34.2%		ICU Level of Service		A
Analysis Period (min)			15				

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL2	NEL	NER
Lane Configurations											
Volume (vph)	60	434	0	0	667	0	0	0	189	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0				6.0		
Lane Util. Factor	1.00	0.91			0.91				0.97		
Frt	1.00	1.00			1.00				1.00		
Flt Protected	0.95	1.00			1.00				0.95		
Satd. Flow (prot)	1612	4759			4759				3127		
Flt Permitted	0.30	1.00			1.00				0.95		
Satd. Flow (perm)	506	4759			4759				3127		
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	66	477	0	0	767	0	0	0	222	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	66	477	0	0	767	0	0	0	222	0	0
Heavy Vehicles (%)	12%	9%	12%	12%	9%	12%	12%	12%	12%	12%	12%
Turn Type	pm+pt			custom							
Protected Phases	5	2			6						
Permitted Phases	2								8		
Actuated Green, G (s)	45.6	45.6			35.2				9.9		
Effective Green, g (s)	45.6	45.6			35.2				9.9		
Actuated g/C Ratio	0.68	0.68			0.52				0.15		
Clearance Time (s)	6.0	6.0			6.0				6.0		
Vehicle Extension (s)	3.0	3.0			3.0				3.0		
Lane Grp Cap (vph)	414	3215			2482				459		
v/s Ratio Prot	0.01	c0.10			c0.16						
v/s Ratio Perm	0.10								c0.07		
v/c Ratio	0.16	0.15			0.31				0.48		
Uniform Delay, d1	4.0	3.9			9.2				26.5		
Progression Factor	1.00	1.00			1.00				1.00		
Incremental Delay, d2	0.2	0.1			0.3				0.8		
Delay (s)	4.2	4.0			9.5				27.3		
Level of Service	A	A			A				C		
Approach Delay (s)		4.1			9.5	0.0				27.3	
Approach LOS		A			A	A				C	
Intersection Summary											
HCM Average Control Delay			10.2		HCM Level of Service				B		
HCM Volume to Capacity ratio			0.34								
Actuated Cycle Length (s)			67.5		Sum of lost time (s)				18.0		
Intersection Capacity Utilization			34.2%		ICU Level of Service				A		
Analysis Period (min)			15								
c Critical Lane Group											

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	456	0	496	0	0	0	0	1196	511	432	2195	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.94		0.88					0.91	0.88	0.97	0.91	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	4802		2682					4893	2682	3303	4893	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	4802		2682					4893	2682	3303	4893	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	518	0	564	0	0	0	0	1286	549	475	2412	0
RTOR Reduction (vph)	0	0	6	0	0	0	0	0	335	0	0	0
Lane Group Flow (vph)	518	0	558	0	0	0	0	1286	214	475	2412	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	custom		custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	25.2		25.2					39.0	39.0	17.8	62.8	
Effective Green, g (s)	25.2		25.2					39.0	39.0	17.8	62.8	
Actuated g/C Ratio	0.25		0.25					0.39	0.39	0.18	0.63	
Clearance Time (s)	6.0		6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1210		676					1908	1046	588	3073	
v/s Ratio Prot								0.26		0.14	c0.49	
v/s Ratio Perm	0.11		c0.21						0.08			
v/c Ratio	0.43		0.83					0.67	0.20	0.81	0.78	
Uniform Delay, d1	31.4		35.3					25.2	20.2	39.5	13.6	
Progression Factor	1.00		1.00					1.00	1.00	0.65	0.16	
Incremental Delay, d2	0.2		8.1					1.9	0.4	0.8	0.5	
Delay (s)	31.6		43.4					27.2	20.7	26.5	2.7	
Level of Service	C		D					C	C	C	A	
Approach Delay (s)		37.8		0.0				25.2			6.6	
Approach LOS		D		A				C			A	
Intersection Summary												
HCM Average Control Delay			18.3					HCM Level of Service		B		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			100.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			80.8%					ICU Level of Service		D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B&C

1006: SR 204 WB On Ramp & US-17

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  		 	 	  			  	
Volume (vph)	0	0	0	1056	0	322	539	1113	0	0	1571	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0		6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.94		0.88	0.97	0.91			0.91	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				4670		2608	3213	4759			4759	1482
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				4670		2608	3213	4759			4759	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	1112	0	339	586	1210	0	0	1827	553
RTOR Reduction (vph)	0	0	0	0	0	112	0	0	0	0	0	327
Lane Group Flow (vph)	0	0	0	1112	0	227	586	1210	0	0	1827	226
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Turn Type	custom			custom			Prot			Perm		
Protected Phases							5	2				6
Permitted Phases				8				8				6
Actuated Green, G (s)				25.0				25.0	19.0	63.0	38.0	38.0
Effective Green, g (s)				25.0				25.0	19.0	63.0	38.0	38.0
Actuated g/C Ratio				0.25				0.25	0.19	0.63	0.38	0.38
Clearance Time (s)				6.0				6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)				3.0				3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)				1168				652	610	2998	1808	563
v/s Ratio Prot							c0.18	0.25				c0.38
v/s Ratio Perm				c0.24				0.09				0.15
v/c Ratio				0.95				0.35	0.96	0.40	1.01	0.40
Uniform Delay, d1				36.9				30.8	40.1	9.2	31.0	22.7
Progression Factor				1.00				1.00	0.35	0.37	1.00	1.00
Incremental Delay, d2				16.1				0.3	22.0	0.3	23.8	2.1
Delay (s)				53.0				31.1	36.2	3.7	54.8	24.8
Level of Service				D				C	D	A	D	C
Approach Delay (s)	0.0			47.9			14.3			47.8		
Approach LOS	A			D			B			D		
Intersection Summary												
HCM Average Control Delay	37.1			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.98											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			18.0					
Intersection Capacity Utilization	80.8%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B&C

1007: SR 204 EB Off Ramp & Pine Grove Rd

8/25/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations											 		
Volume (vph)	50	0	76	0	0	0	0	103	124	121	182	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0		6.0					6.0	6.0	6.0	6.0		
Lane Util. Factor	1.00		1.00					1.00	1.00	1.00	0.95		
Frt	1.00		0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1752		1568					1845	1568	1752	3505		
Flt Permitted	0.95		1.00					1.00	1.00	0.67	1.00		
Satd. Flow (perm)	1752		1568					1845	1568	1233	3505		
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81	
Adj. Flow (vph)	55	0	84	0	0	0	0	139	168	149	225	0	
RTOR Reduction (vph)	0	0	75	0	0	0	0	0	62	0	0	0	
Lane Group Flow (vph)	55	0	9	0	0	0	0	139	106	149	225	0	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Turn Type	custom		custom						Perm	Perm			
Protected Phases									2		6		
Permitted Phases	4		4						2	6			
Actuated Green, G (s)	4.7		4.7						28.3	28.3	28.3	28.3	
Effective Green, g (s)	4.7		4.7						28.3	28.3	28.3	28.3	
Actuated g/C Ratio	0.10		0.10						0.63	0.63	0.63	0.63	
Clearance Time (s)	6.0		6.0						6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	183		164						1160	986	775	2204	
v/s Ratio Prot									0.08			0.06	
v/s Ratio Perm	c0.03		0.01							0.07	c0.12		
v/c Ratio	0.30		0.05						0.12	0.11	0.19	0.10	
Uniform Delay, d1	18.6		18.1						3.4	3.3	3.5	3.3	
Progression Factor	1.00		1.00						1.00	1.00	0.73	0.40	
Incremental Delay, d2	0.9		0.1						0.2	0.2	0.5	0.1	
Delay (s)	19.6		18.3						3.6	3.5	3.1	1.4	
Level of Service	B		B						A	A	A	A	
Approach Delay (s)	18.8		0.0						3.6			2.1	
Approach LOS	B		A						A			A	
Intersection Summary													
HCM Average Control Delay			5.5		HCM Level of Service				A				
HCM Volume to Capacity ratio			0.21										
Actuated Cycle Length (s)			45.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization			47.5%		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												
Volume (vph)	0	0	0	170	720	66	101	52	0	0	133	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1752	3505	1568	1752	3505			1845	1568
Flt Permitted				0.95	1.00	1.00	0.65	1.00			1.00	1.00
Satd. Flow (perm)				1752	3505	1568	1205	3505			1845	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	181	766	70	136	70	0	0	164	68
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	36
Lane Group Flow (vph)	0	0	0	181	766	23	136	70	0	0	164	32
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases				8			2			6		
Permitted Phases				8			2			6		
Actuated Green, G (s)				14.7			18.3			18.3		
Effective Green, g (s)				14.7			18.3			18.3		
Actuated g/C Ratio				0.33			0.41			0.41		
Clearance Time (s)				6.0			6.0			6.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				572			1425			750		
v/s Ratio Prot				c0.22			0.02			0.09		
v/s Ratio Perm				0.10			c0.11			0.02		
v/c Ratio				0.32			0.05			0.22		
Uniform Delay, d1				11.4			8.1			8.1		
Progression Factor				1.00			0.59			1.00		
Incremental Delay, d2				0.3			0.1			0.7		
Delay (s)				11.7			14.7			9.4		
Level of Service				B			A			A		
Approach Delay (s)	0.0			13.8			9.4			9.0		
Approach LOS	A			B			A			A		
Intersection Summary												
HCM Average Control Delay	12.4			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.45											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	47.5%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 			  
Volume (vph)	412	285	387	475	321	1394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553	3471	1553	1736	4988
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553	3471	1553	1736	4988
Peak-hour factor, PHF	0.99	0.99	0.85	0.85	0.77	0.77
Adj. Flow (vph)	416	288	455	559	417	1810
RTOR Reduction (vph)	0	237	0	0	0	0
Lane Group Flow (vph)	416	51	455	559	417	1810
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Turn Type	Perm		Free		Prot	
Protected Phases	8		2		1	
Permitted Phases	8		Free		6	
Actuated Green, G (s)	14.3	14.3	23.7	80.0	24.0	53.7
Effective Green, g (s)	14.3	14.3	23.7	80.0	24.0	53.7
Actuated g/C Ratio	0.18	0.18	0.30	1.00	0.30	0.67
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	602	278	1028	1553	521	3348
v/s Ratio Prot	c0.12		0.13		c0.24	c0.36
v/s Ratio Perm		0.03		0.36		
v/c Ratio	0.69	0.19	0.44	0.36	0.80	0.54
Uniform Delay, d1	30.8	27.9	22.8	0.0	25.8	6.8
Progression Factor	1.00	1.00	1.00	1.00	0.65	0.77
Incremental Delay, d2	3.4	0.3	1.4	0.7	8.6	0.6
Delay (s)	34.2	28.2	24.2	0.7	25.3	5.8
Level of Service	C	C	C	A	C	A
Approach Delay (s)	31.8		11.2			9.5
Approach LOS	C		B			A
Intersection Summary						
HCM Average Control Delay			13.9	HCM Level of Service		B
HCM Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization			55.2%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

1010: SR 204 WB Off Ramp & King George Blvd

2035 PM Concept B&C

8/25/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations			 			 	 				 		
Volume (vph)	0	0	1225	0	0	470	285	387	0	0	490	436	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)			6.0			6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor			0.88			1.00	1.00	1.00			0.95	1.00	
Frt			0.85			0.86	1.00	1.00			1.00	0.85	
Flt Protected			1.00			1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)			2733			1580	1736	1827			3471	1553	
Flt Permitted			1.00			1.00	0.33	1.00			1.00	1.00	
Satd. Flow (perm)			2733			1580	595	1827			3471	1553	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.85	0.85	0.85	0.77	0.77	0.77	
Adj. Flow (vph)	0	0	1250	0	0	480	335	455	0	0	636	566	
RTOR Reduction (vph)	0	0	370	0	0	342	0	0	0	0	0	289	
Lane Group Flow (vph)	0	0	880	0	0	138	335	455	0	0	636	277	
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Turn Type	custom			custom		pm+pt						Perm	
Protected Phases							5	2					6
Permitted Phases			2			8	2						6
Actuated Green, G (s)			56.3			11.7	56.3	56.3					39.2
Effective Green, g (s)			56.3			11.7	56.3	56.3					39.2
Actuated g/C Ratio			0.70			0.15	0.70	0.70					0.49
Clearance Time (s)			6.0			6.0	6.0	6.0					6.0
Vehicle Extension (s)			3.0			3.0	3.0	3.0					3.0
Lane Grp Cap (vph)			1923			231	577	1286					1701
v/s Ratio Prot							c0.08	0.25					0.18
v/s Ratio Perm			0.32			c0.09	c0.33						0.18
v/c Ratio			0.46			0.60	0.58	0.35					0.37
Uniform Delay, d1			5.2			31.9	5.3	4.7					12.7
Progression Factor			1.00			1.00	0.57	0.52					1.00
Incremental Delay, d2			0.8			4.1	1.4	0.7					0.6
Delay (s)			6.0			36.0	4.5	3.1					13.4
Level of Service			A			D	A	A					B
Approach Delay (s)	6.0				36.0			3.7					13.7
Approach LOS	A				D			A					B
Intersection Summary													
HCM Average Control Delay			11.9	HCM Level of Service		B							
HCM Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		12.0							
Intersection Capacity Utilization			66.4%	ICU Level of Service		C							
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

1011: SR 204 & Rio Road

2035 PM Concept B

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			 		 					
Volume (vph)	422	1223	211	52	1423	20	374	50	26	45	72	671
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4217	1553	1736	2935	1553	3367	1827	1553	1736	1827	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	449	1301	224	57	1547	22	462	62	32	48	77	722
RTOR Reduction (vph)	0	0	79	0	0	7	0	0	25	0	0	0
Lane Group Flow (vph)	449	1301	145	57	1547	15	462	62	7	48	77	722
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Actuated Green, G (s)	34.5	71.1	71.1	8.7	45.3	45.3	23.7	29.2	29.2	7.0	12.5	140.0
Effective Green, g (s)	34.5	71.1	71.1	8.7	45.3	45.3	23.7	29.2	29.2	7.0	12.5	140.0
Actuated g/C Ratio	0.25	0.51	0.51	0.06	0.32	0.32	0.17	0.21	0.21	0.05	0.09	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	830	2142	789	108	950	503	570	381	324	87	163	1553
v/s Ratio Prot	0.13	c0.31		0.03	c0.53		c0.14	0.03		0.03	0.04	
v/s Ratio Perm			0.09			0.01			0.00			c0.46
v/c Ratio	0.54	0.61	0.18	0.53	1.63	0.03	0.81	0.16	0.02	0.55	0.47	0.46
Uniform Delay, d1	45.9	24.5	18.7	63.7	47.4	32.3	56.0	45.4	44.0	65.0	60.6	0.0
Progression Factor	1.00	1.00	1.00	0.90	1.23	1.24	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	1.3	0.5	3.8	286.8	0.1	8.5	0.2	0.0	7.4	2.2	1.0
Delay (s)	46.6	25.8	19.2	61.2	345.0	40.3	64.5	45.6	44.1	72.3	62.8	1.0
Level of Service	D	C	B	E	F	D	E	D	D	E	E	A
Approach Delay (s)		29.8			330.9			61.2			10.7	
Approach LOS		C			F			E			B	
Intersection Summary												
HCM Average Control Delay			127.9			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			83.7%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

										
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations										
Volume (veh/h)	0	1294	1391	56	0	104				
Sign Control		Free	Free		Stop					
Grade		0%	0%		0%					
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77				
Hourly flow rate (vph)	0	1377	1434	58	0	135				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None		None							
Median storage (veh)										
Upstream signal (ft)	697									
pX, platoon unblocked					0.80					
vC, conflicting volume	1434				1893	478				
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	1434				1245	478				
tC, single (s)	4.2				6.9	7.0				
tC, 2 stage (s)										
tF (s)	2.2				3.5	3.3				
p0 queue free %	100				100	74				
cM capacity (veh/h)	460				131	528				
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1		
Volume Total	459	459	459	478	478	478	58	135		
Volume Left	0	0	0	0	0	0	0	0		
Volume Right	0	0	0	0	0	0	58	135		
cSH	1700	1700	1700	1700	1700	1700	1700	528		
Volume to Capacity	0.27	0.27	0.27	0.28	0.28	0.28	0.03	0.26		
Queue Length 95th (ft)	0	0	0	0	0	0	0	25		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1		
Lane LOS	B									
Approach Delay (s)	0.0				0.0			14.1		
Approach LOS	B									
Intersection Summary										
Average Delay	0.6									
Intersection Capacity Utilization	40.0%			ICU Level of Service		A				
Analysis Period (min)	15									

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1294	1418	77	0	29		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	1377	1462	79	0	38		
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								
vC, conflicting volume	1462				1921	487		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1462				1921	487		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	93		
cM capacity (veh/h)	448				58	521		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	459	459	459	487	487	487	79	38
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	79	38
cSH	1700	1700	1700	1700	1700	1700	1700	521
Volume to Capacity	0.27	0.27	0.27	0.29	0.29	0.29	0.05	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4
Lane LOS	B							
Approach Delay (s)	0.0				0.0			12.4
Approach LOS	B							
Intersection Summary								
Average Delay				0.2				
Intersection Capacity Utilization				37.4%	ICU Level of Service		A	
Analysis Period (min)				15				

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B

1014: SR 204 & East Mall Driveway

8/23/2011

													
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations													
Volume (veh/h)	0	1294	1421	82	0	74							
Sign Control		Free	Free		Stop								
Grade		0%	0%		0%								
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77							
Hourly flow rate (vph)	0	1377	1465	85	0	96							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None		None										
Median storage veh													
Upstream signal (ft)	545												
pX, platoon unblocked	0.76				0.76	0.76							
vC, conflicting volume	1465				1924	488							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	517				1119	0							
tC, single (s)	4.2				6.9	7.0							
tC, 2 stage (s)													
tF (s)	2.2				3.5	3.3							
p0 queue free %	100				100	88							
cM capacity (veh/h)	786				151	821							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1					
Volume Total	459	459	459	488	488	488	85	96					
Volume Left	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	0	0	85	96					
cSH	1700	1700	1700	1700	1700	1700	1700	821					
Volume to Capacity	0.27	0.27	0.27	0.29	0.29	0.29	0.05	0.12					
Queue Length 95th (ft)	0	0	0	0	0	0	0	10					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0					
Lane LOS								A					
Approach Delay (s)	0.0				0.0			10.0					
Approach LOS	A												
Intersection Summary													
Average Delay	0.3												
Intersection Capacity Utilization	38.7%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B

1015: SR 204 & Apache Ave

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 						 		
Volume (vph)	89	1134	71	213	1297	125	135	109	109	183	156	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4218		3367	4219		1736	1827	1553	3367	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4218		3367	4219		1736	1827	1553	3367	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	102	1303	82	234	1425	137	169	136	136	197	168	76
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	115	0	0	65
Lane Group Flow (vph)	102	1381	0	234	1556	0	169	136	21	197	168	11
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	9.6	66.2		15.7	72.3		14.0	21.4	21.4	12.7	20.1	20.1
Effective Green, g (s)	9.6	66.2		15.7	72.3		14.0	21.4	21.4	12.7	20.1	20.1
Actuated g/C Ratio	0.07	0.47		0.11	0.52		0.10	0.15	0.15	0.09	0.14	0.14
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	231	1995		378	2179		174	279	237	305	262	223
v/s Ratio Prot	0.03	0.33		c0.07	c0.37		c0.10	0.07		0.06	c0.09	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.44	0.69		0.62	0.71		0.97	0.49	0.09	0.65	0.64	0.05
Uniform Delay, d1	62.6	28.9		59.3	25.9		62.8	54.3	50.9	61.5	56.5	51.7
Progression Factor	1.45	0.34		1.13	0.42		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	1.7		1.4	1.0		59.5	2.8	0.3	4.6	7.1	0.2
Delay (s)	92.2	11.5		68.6	12.0		122.3	57.1	51.3	66.1	63.7	51.9
Level of Service	F	B		E	B		F	E	D	E	E	D
Approach Delay (s)	17.0			19.4			80.3			62.7		
Approach LOS	B			B			F			E		
Intersection Summary												
HCM Average Control Delay	29.6			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	140.0			Sum of lost time (s)			24.0					
Intersection Capacity Utilization	68.5%			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												
Volume (vph)	406	840	180	288	1132	166	88	181	148	296	209	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3367	4217	1509	1736	4217	1532	1736	1691		1736	1827	1532
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.58	1.00		0.11	1.00	1.00
Satd. Flow (perm)	3367	4217	1509	1736	4217	1532	1060	1691		192	1827	1532
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	446	923	198	303	1192	175	111	229	187	417	294	585
RTOR Reduction (vph)	0	0	106	0	0	121	0	21	0	0	0	257
Lane Group Flow (vph)	446	923	92	303	1192	54	111	395	0	417	294	328
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	18.0	35.0	35.0	23.0	40.0	40.0	40.5	32.0		64.0	49.5	49.5
Effective Green, g (s)	18.0	35.0	35.0	23.0	40.0	40.0	40.5	32.0		64.0	49.5	49.5
Actuated g/C Ratio	0.13	0.25	0.25	0.16	0.29	0.29	0.29	0.23		0.46	0.35	0.35
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0		2.5	2.0	2.0
Lane Grp Cap (vph)	433	1054	377	285	1205	438	348	387		375	646	542
v/s Ratio Prot	0.13	0.22		c0.17	c0.28		0.02	0.23		c0.21	0.16	
v/s Ratio Perm			0.06			0.03	0.07			c0.30		0.21
v/c Ratio	1.03	0.88	0.24	1.06	0.99	0.12	0.32	1.02		1.11	0.46	0.61
Uniform Delay, d1	61.0	50.4	41.9	58.5	49.8	37.0	37.8	54.0		44.2	34.9	37.2
Progression Factor	1.19	1.07	1.77	0.93	0.94	0.67	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	45.7	8.0	1.2	66.8	21.4	0.5	0.4	51.2		80.3	0.2	1.3
Delay (s)	118.2	62.0	75.6	120.9	68.2	25.4	38.2	105.2		124.6	35.0	38.5
Level of Service	F	E	E	F	E	C	D	F		F	D	D
Approach Delay (s)		79.7			73.3			91.1			65.4	
Approach LOS		E			E			F			E	
Intersection Summary												
HCM Average Control Delay			75.1			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			89.2%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	EBU	EBT	EBR	NBL	NBR2	SBR	SWL
Lane Configurations							
Volume (vph)	0	1168	116	149	136	1437	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	0.97	1.00	0.76	1.00
Frt		1.00	0.85	1.00	0.85	0.85	1.00
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		4217	1553	3367	1553	2994	1736
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		4217	1553	3367	1553	2994	1736
Peak-hour factor, PHF	0.91	0.91	0.91	0.79	0.79	0.95	0.95
Adj. Flow (vph)	0	1284	127	189	172	1513	23
RTOR Reduction (vph)	0	0	19	0	19	300	0
Lane Group Flow (vph)	0	1284	108	189	153	1213	23
Heavy Vehicles (%)	4%	23%	4%	4%	4%	23%	4%
Turn Type	Prot		Perm	Prot	custom	custom	
Protected Phases	5	2		3	1 3		1
Permitted Phases			2		8	6	
Actuated Green, G (s)		98.8	98.8	15.8	29.2	112.2	7.4
Effective Green, g (s)		98.8	98.8	15.8	29.2	112.2	7.4
Actuated g/C Ratio		0.71	0.71	0.11	0.21	0.80	0.05
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)		5.0	5.0	3.0		3.0	3.0
Lane Grp Cap (vph)		2976	1096	380	324	2399	92
v/s Ratio Prot		0.30		0.06	c0.10		0.01
v/s Ratio Perm			0.07			c0.41	
v/c Ratio		0.43	0.10	0.50	0.47	0.51	0.25
Uniform Delay, d1		8.7	6.5	58.4	48.6	4.6	63.6
Progression Factor		0.31	0.11	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1	0.1	1.0	1.1	0.8	1.4
Delay (s)		2.8	0.8	59.4	49.7	5.4	65.1
Level of Service		A	A	E	D	A	E
Approach Delay (s)		2.7					65.1
Approach LOS		A					E
Intersection Summary							
HCM Average Control Delay			10.0		HCM Level of Service		B
HCM Volume to Capacity ratio			0.51				
Actuated Cycle Length (s)			140.0		Sum of lost time (s)		12.0
Intersection Capacity Utilization			46.1%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

															
Movement	EBL	EBT	WBT	WBR	SBL	SBR									
Lane Configurations															
Volume (veh/h)	35	810	674	0	0	0									
Sign Control		Free	Free		Stop										
Grade		0%	0%		0%										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80									
Hourly flow rate (vph)	38	880	733	0	0	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)	1257														
pX, platoon unblocked															
vC, conflicting volume	733			1102		244									
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	733			1102		244									
tC, single (s)	4.2			6.9		7.0									
tC, 2 stage (s)															
tF (s)	2.2			3.5		3.3									
p0 queue free %	96			100		100									
cM capacity (veh/h)	855			194		750									
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3								
Volume Total	38	293	293	293	244	244	244								
Volume Left	38	0	0	0	0	0	0								
Volume Right	0	0	0	0	0	0	0								
cSH	855	1700	1700	1700	1700	1700	1700								
Volume to Capacity	0.04	0.17	0.17	0.17	0.14	0.14	0.14								
Queue Length 95th (ft)	3	0	0	0	0	0	0								
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	0.0	0.0								
Lane LOS	A														
Approach Delay (s)	0.4			0.0											
Approach LOS															
Intersection Summary															
Average Delay			0.2												
Intersection Capacity Utilization			23.0%		ICU Level of Service		A								
Analysis Period (min)			15												

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Volume (veh/h)	0	797	13	7	662	0	12	0	4	47	4	0				
Sign Control		Free			Free			Stop			Stop					
Grade		0%			0%			0%			0%					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.75	0.75	0.80	0.80	0.80				
Hourly flow rate (vph)	0	866	14	8	720	0	16	0	5	59	5	0				
Pedestrians																
Lane Width (ft)																
Walking Speed (ft/s)																
Percent Blockage																
Right turn flare (veh)																
Median type	Raised			Raised												
Median storage (veh)	1			1												
Upstream signal (ft)				1072												
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99				
vC, conflicting volume	720			880			1131	1608	296	1029	1615	240				
vC1, stage 1 conf vol							873	873		735	735					
vC2, stage 2 conf vol							258	735		294	880					
vCu, unblocked vol	699			880			1113	1593	296	1010	1600	217				
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0				
tC, 2 stage (s)							6.6	5.6		6.6	5.6					
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3				
p0 queue free %	100			99			94	100	99	80	98	100				
cM capacity (veh/h)	875			751			251	224	695	296	221	777				
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1							
Volume Total	347	347	187	8	240	240	240	21	64							
Volume Left	0	0	0	8	0	0	0	16	59							
Volume Right	0	0	14	0	0	0	0	5	0							
cSH	1700	1700	1700	751	1700	1700	1700	299	288							
Volume to Capacity	0.20	0.20	0.11	0.01	0.14	0.14	0.14	0.07	0.22							
Queue Length 95th (ft)	0	0	0	1	0	0	0	6	21							
Control Delay (s)	0.0	0.0	0.0	9.8	0.0	0.0	0.0	18.0	21.0							
Lane LOS				A				C	C							
Approach Delay (s)	0.0			0.1				18.0	21.0							
Approach LOS								C	C							
Intersection Summary																
Average Delay			1.1													
Intersection Capacity Utilization			25.7%		ICU Level of Service		A									
Analysis Period (min)			15													

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B

1022: SR 204 & Mercy Blvd

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	628	118	76	564	103	101	44	67	154	46	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4220		1736	4217	1553	1736	1661		1736	1635	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.48	1.00		0.60	1.00	
Satd. Flow (perm)	1736	4220		1736	4217	1553	886	1661		1105	1635	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	111	683	128	80	594	108	117	51	78	181	54	126
RTOR Reduction (vph)	0	13	0	0	0	46	0	49	0	0	75	0
Lane Group Flow (vph)	111	798	0	80	594	62	117	80	0	181	105	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	14.3	83.5		11.8	81.0	81.0	26.7	26.7		26.7	26.7	
Effective Green, g (s)	14.3	83.5		11.8	81.0	81.0	26.7	26.7		26.7	26.7	
Actuated g/C Ratio	0.10	0.60		0.08	0.58	0.58	0.19	0.19		0.19	0.19	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	2517		146	2440	899	169	317		211	312	
v/s Ratio Prot	c0.06	c0.19		0.05	0.14			0.05			0.06	
v/s Ratio Perm						0.04	0.13			c0.16		
v/c Ratio	0.63	0.32		0.55	0.24	0.07	0.69	0.25		0.86	0.34	
Uniform Delay, d1	60.3	14.1		61.5	14.5	13.0	52.8	48.2		54.8	49.0	
Progression Factor	1.29	0.53		1.21	0.76	0.72	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.3	0.3		3.9	0.2	0.1	11.6	0.4		27.4	0.6	
Delay (s)	84.0	7.8		78.2	11.2	9.5	64.4	48.6		82.2	49.6	
Level of Service	F	A		E	B	A	E	D		F	D	
Approach Delay (s)		17.0			17.8			56.1			66.0	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM Average Control Delay		29.1			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.46										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		54.7%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B

1023: SR 204 & Largo Blvd

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	564	113	268	496	96	121	125	197	134	161	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4220		1736	4220		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.35	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1736	4220		1736	4220		648	1827	1553	954	1827	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	177	581	116	295	545	105	133	137	216	179	215	168
RTOR Reduction (vph)	0	17	0	0	16	0	0	0	184	0	0	116
Lane Group Flow (vph)	177	680	0	295	634	0	133	137	32	179	215	52
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	19.4	56.1		29.0	65.7		29.9	20.9	20.9	31.9	21.9	21.9
Effective Green, g (s)	19.4	56.1		29.0	65.7		29.9	20.9	20.9	31.9	21.9	21.9
Actuated g/C Ratio	0.14	0.40		0.21	0.47		0.21	0.15	0.15	0.23	0.16	0.16
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	241	1691		360	1980		208	273	232	273	286	243
v/s Ratio Prot	0.10	c0.16		c0.17	0.15		0.04	0.07		c0.05	c0.12	
v/s Ratio Perm							0.10		0.02	0.10		0.03
v/c Ratio	0.73	0.40		0.82	0.32		0.64	0.50	0.14	0.66	0.75	0.22
Uniform Delay, d1	57.8	30.0		53.0	23.2		47.3	54.8	51.7	47.6	56.5	51.6
Progression Factor	0.99	0.65		0.67	1.05		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	0.7		13.0	0.4		6.3	1.5	0.3	5.6	10.6	0.4
Delay (s)	67.7	20.1		48.8	24.7		53.7	56.2	52.0	53.1	67.1	52.0
Level of Service	E	C		D	C		D	E	D	D	E	D
Approach Delay (s)		29.7			32.2			53.6			58.1	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM Average Control Delay		40.2			HCM Level of Service			D				
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		63.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B

1024: SR 204 & Idlewood Drive

8/23/2011

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑↑↑	↗		↑↑↑↗				↗			↗		
Volume (veh/h)	0	757	138	0	835	33	0	0	94	0	0	25		
Sign Control		Free			Free			Stop			Stop			
Grade		0%			0%			0%			0%			
Peak Hour Factor	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75		
Hourly flow rate (vph)	0	780	142	0	918	36	0	0	103	0	0	33		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type	None			None										
Median storage veh														
Upstream signal (ft)	651			1109										
pX, platoon unblocked	0.94							0.94	0.94					
vC, conflicting volume	954				780				1120	1734	260	1196	1716	324
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	712				780				889	1545	260	970	1526	39
tC, single (s)	4.2				4.2				7.6	6.6	7.0	7.6	6.6	7.0
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	86	100	100	97
cM capacity (veh/h)	815				820				212	104	733	165	107	953
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	260	260	260	142	367	367	220	103	33					
Volume Left	0	0	0	0	0	0	0	0	0					
Volume Right	0	0	0	142	0	0	36	103	33					
cSH	1700	1700	1700	1700	1700	1700	1700	733	953					
Volume to Capacity	0.15	0.15	0.15	0.08	0.22	0.22	0.13	0.14	0.03					
Queue Length 95th (ft)	0	0	0	0	0	0	0	12	3					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	8.9					
Lane LOS								B	A					
Approach Delay (s)	0.0					0.0				10.7	8.9			
Approach LOS								B	A					
Intersection Summary														
Average Delay	0.7													
Intersection Capacity Utilization	27.1%			ICU Level of Service			A							
Analysis Period (min)	15													

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B

1025: SR 204 & Deerfield Road

8/23/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	225	559	67	138	638	242	59	31	68	235	11	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	1736	4219		1736	4217	1553	1736	1639		1649	1660	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	1736	4219		1736	4217	1553	1736	1639		1649	1660	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	242	601	72	141	651	247	64	34	74	250	12	182
RTOR Reduction (vph)	0	9	0	0	0	142	0	57	0	0	0	161
Lane Group Flow (vph)	242	664	0	141	651	105	64	51	0	130	132	21
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	24.8	67.9		16.6	59.7	59.7	15.0	15.0		16.5	16.5	16.5
Effective Green, g (s)	24.8	67.9		16.6	59.7	59.7	15.0	15.0		16.5	16.5	16.5
Actuated g/C Ratio	0.18	0.49		0.12	0.43	0.43	0.11	0.11		0.12	0.12	0.12
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	308	2046		206	1798	662	186	176		194	196	183
v/s Ratio Prot	c0.14	0.16		0.08	c0.15		c0.04	0.03		0.08	c0.08	
v/s Ratio Perm						0.07						0.01
v/c Ratio	0.79	0.32		0.68	0.36	0.16	0.34	0.29		0.67	0.67	0.12
Uniform Delay, d1	55.1	22.0		59.2	27.2	24.7	57.9	57.6		59.1	59.2	55.2
Progression Factor	0.89	0.75		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.7	0.4		9.1	0.6	0.5	1.1	0.9		8.8	8.8	0.3
Delay (s)	60.5	17.0		68.2	27.8	25.2	59.1	58.5		67.9	68.0	55.5
Level of Service	E	B		E	C	C	E	E		E	E	E
Approach Delay (s)	28.5			32.7			58.7			62.8		
Approach LOS	C			C			E			E		
Intersection Summary												
HCM Average Control Delay	38.1			HCM Level of Service								
HCM Volume to Capacity ratio	0.50											
Actuated Cycle Length (s)	140.0			Sum of lost time (s)			24.0					
Intersection Capacity Utilization	54.9%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	150	0	32	756	0	24	0	1198	0	0	230	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	300	0	64	859	0	27	0	1274	0	0	256	69
RTOR Reduction (vph)	0	0	48	0	0	20	0	0	0	0	0	26
Lane Group Flow (vph)	300	0	16	859	0	7	0	1274	0	0	256	43
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type	Perm		Prot	custom								Perm
Protected Phases	4		8				2				6	
Permitted Phases			4		8						6	
Actuated Green, G (s)	22.3		22.3		22.3		55.7				55.7	
Effective Green, g (s)	22.3		22.3		22.3		55.7				55.7	
Actuated g/C Ratio	0.25		0.25		0.25		0.62				0.62	
Clearance Time (s)	6.0		6.0		6.0		6.0				6.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0				3.0	
Lane Grp Cap (vph)	430		385		1213		385		2610		2610	
v/s Ratio Prot	0.17		c0.18				c0.30				0.06	
v/s Ratio Perm			0.01		0.00						0.03	
v/c Ratio	0.70		0.04		0.71		0.02		0.49		0.10	
Uniform Delay, d1	30.8		25.7		30.9		25.6		9.4		7.0	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.28	
Incremental Delay, d2	4.9		0.0		1.9		0.0		0.7		0.1	
Delay (s)	35.7		25.8		32.8		25.6		10.0		9.0	
Level of Service	D		C		C		C		B		A	
Approach Delay (s)	33.9				32.6				10.0		10.5	
Approach LOS	C				C				B		B	
Intersection Summary												
HCM Average Control Delay			20.1		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)		12.0					
Intersection Capacity Utilization			59.2%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	110	89	0	1247	125	126	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553		4217	1553	1736	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553		4217	1553	1736	4217
Peak-hour factor, PHF	0.88	0.88	0.94	0.94	0.94	0.90	0.90
Adj. Flow (vph)	125	101	0	1327	133	140	202
RTOR Reduction (vph)	0	91	0	0	58	0	0
Lane Group Flow (vph)	125	10	0	1327	75	140	202
Heavy Vehicles (%)	4%	4%	4%	23%	4%	4%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	8.7	8.7		50.8	50.8	12.5	69.3
Effective Green, g (s)	8.7	8.7		50.8	50.8	12.5	69.3
Actuated g/C Ratio	0.10	0.10		0.56	0.56	0.14	0.77
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	325	150		2380	877	241	3247
v/s Ratio Prot				c0.31		c0.08	0.05
v/s Ratio Perm	c0.04	0.01			0.05		
v/c Ratio	0.38	0.07		0.56	0.09	0.58	0.06
Uniform Delay, d1	38.1	37.0		12.5	9.0	36.3	2.5
Progression Factor	1.00	1.00		0.64	0.25	1.00	1.00
Incremental Delay, d2	0.8	0.2		0.8	0.2	3.5	0.0
Delay (s)	38.9	37.1		8.8	2.4	39.8	2.5
Level of Service	D	D		A	A	D	A
Approach Delay (s)	38.1			8.2			17.8
Approach LOS	D			A			B
Intersection Summary							
HCM Average Control Delay			13.1	HCM Level of Service			B
HCM Volume to Capacity ratio			0.54				
Actuated Cycle Length (s)			90.0	Sum of lost time (s)			18.0
Intersection Capacity Utilization			49.4%	ICU Level of Service			A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1011: SR 204 & Rio Road

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	422	1223	211	52	1423	20	374	50	26	45	72	671
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4217	1553	1736	4217	1553	3367	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	3367	4217	1553	1736	4217	1553	3367	1827	1553	1309	1827	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	449	1301	224	57	1547	22	462	62	32	48	77	722
RTOR Reduction (vph)	0	0	113	0	0	9	0	0	26	0	0	0
Lane Group Flow (vph)	449	1301	111	57	1547	13	462	62	6	48	77	722
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	pm+pt		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8	4		Free
Actuated Green, G (s)	20.5	59.1	59.1	6.7	45.3	45.3	20.8	23.6	23.6	14.6	8.7	119.3
Effective Green, g (s)	20.5	59.1	59.1	6.7	45.3	45.3	20.8	23.6	23.6	14.6	8.7	119.3
Actuated g/C Ratio	0.17	0.50	0.50	0.06	0.38	0.38	0.17	0.20	0.20	0.12	0.07	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	579	2089	769	97	1601	590	587	361	307	181	133	1553
v/s Ratio Prot	c0.13	0.31		0.03	c0.37		c0.14	0.03		0.01	0.04	
v/s Ratio Perm			0.07			0.01			0.00	0.02		c0.46
v/c Ratio	0.78	0.62	0.14	0.59	0.97	0.02	0.79	0.17	0.02	0.27	0.58	0.46
Uniform Delay, d1	47.2	22.0	16.4	55.0	36.3	23.1	47.1	39.7	38.5	47.3	53.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	1.4	0.4	8.8	15.8	0.1	6.9	0.2	0.0	0.8	6.0	1.0
Delay (s)	53.6	23.4	16.8	63.7	52.0	23.2	54.0	40.0	38.6	48.0	59.5	1.0
Level of Service	D	C	B	E	D	C	D	D	D	D	E	A
Approach Delay (s)		29.5			52.1			51.6			9.0	
Approach LOS		C			D			D			A	
Intersection Summary												
HCM Average Control Delay			35.8									HCM Level of Service D
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			119.3									Sum of lost time (s) 18.0
Intersection Capacity Utilization			71.9%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1012: SR 204 & West Mall Driveway

8/29/2011

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1294	1391	56	0	104		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	1377	1434	58	0	135		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh								
Upstream signal (ft)		697						
pX, platoon unblocked					0.80			
vC, conflicting volume	1434				1893	478		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1434				1237	478		
tC, single (s)	4.2				6.9	7.0		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	74		
cM capacity (veh/h)	460				132	528		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	459	459	459	478	478	478	58	135
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	58	135
cSH	1700	1700	1700	1700	1700	1700	1700	528
Volume to Capacity	0.27	0.27	0.27	0.28	0.28	0.28	0.03	0.26
Queue Length 95th (ft)	0	0	0	0	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1
Lane LOS								B
Approach Delay (s)	0.0				0.0			14.1
Approach LOS								B
Intersection Summary								
Average Delay			0.6					
Intersection Capacity Utilization			40.0%	ICU Level of Service			A	
Analysis Period (min)			15					

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	0	1294	1418	77	0	29		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77		
Hourly flow rate (vph)	0	1377	1462	79	0	38		
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								
vC, conflicting volume	1462			1921		487		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1462			1921		487		
tC, single (s)	4.2			6.9		7.0		
tC, 2 stage (s)								
tF (s)	2.2			3.5		3.3		
p0 queue free %	100			100		93		
cM capacity (veh/h)	448			58		521		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	459	459	459	487	487	487	79	38
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	79	38
cSH	1700	1700	1700	1700	1700	1700	1700	521
Volume to Capacity	0.27	0.27	0.27	0.29	0.29	0.29	0.05	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4
Lane LOS	B							
Approach Delay (s)	0.0			0.0		12.4		
Approach LOS	B							
Intersection Summary								
Average Delay			0.2					
Intersection Capacity Utilization			37.4%		ICU Level of Service		A	
Analysis Period (min)			15					

												
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations												
Volume (veh/h)	0	1294	1421	82	0	74						
Sign Control		Free	Free		Stop							
Grade		0%	0%		0%							
Peak Hour Factor	0.94	0.94	0.97	0.97	0.77	0.77						
Hourly flow rate (vph)	0	1377	1465	85	0	96						
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None		None									
Median storage (veh)												
Upstream signal (ft)	545											
pX, platoon unblocked	0.77					0.77	0.77					
vC, conflicting volume	1465					1924	488					
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544					1142	0					
tC, single (s)	4.2					6.9	7.0					
tC, 2 stage (s)												
tF (s)	2.2					3.5	3.3					
p0 queue free %	100					100	88					
cM capacity (veh/h)	773					146	827					
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1				
Volume Total	459	459	459	488	488	488	85	96				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	0	85	96				
cSH	1700	1700	1700	1700	1700	1700	1700	827				
Volume to Capacity	0.27	0.27	0.27	0.29	0.29	0.29	0.05	0.12				
Queue Length 95th (ft)	0	0	0	0	0	0	0	10				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9				
Lane LOS	A											
Approach Delay (s)	0.0			0.0		9.9						
Approach LOS	A											
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			38.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1015: SR 204 & Apache Ave

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	1134	71	213	1297	125	135	109	109	183	156	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4218		3367	4219		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.47	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	3367	4218		3367	4219		854	1827	1553	1029	1827	1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	102	1303	82	234	1425	137	169	136	136	197	168	76
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	116	0	0	65
Lane Group Flow (vph)	102	1381	0	234	1556	0	169	136	20	197	168	11
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	9.3	61.6		15.2	67.5		29.2	19.2	19.2	29.2	19.2	19.2
Effective Green, g (s)	9.3	61.6		15.2	67.5		29.2	19.2	19.2	29.2	19.2	19.2
Actuated g/C Ratio	0.07	0.47		0.12	0.52		0.22	0.15	0.15	0.22	0.15	0.15
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	241	1999		394	2191		260	270	229	286	270	229
v/s Ratio Prot	0.03	0.33		c0.07	c0.37		0.05	0.07		c0.05	0.09	
v/s Ratio Perm							0.10		0.01	c0.10		0.01
v/c Ratio	0.42	0.69		0.59	0.71		0.65	0.50	0.09	0.69	0.62	0.05
Uniform Delay, d1	57.8	26.7		54.5	23.8		43.8	51.0	47.8	44.9	52.0	47.6
Progression Factor	1.00	1.00		0.75	1.06		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.0		1.4	1.1		5.7	3.1	0.3	6.8	6.2	0.2
Delay (s)	59.0	28.7		42.2	26.3		49.5	54.1	48.2	51.6	58.2	47.7
Level of Service	E	C		D	C		D	D	D	D	E	D
Approach Delay (s)		30.8			28.4			50.5			53.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			34.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				24.0		
Intersection Capacity Utilization			68.7%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1016: SR 204 & Middleground Road

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	406	840	180	288	1132	166	88	181	148	296	209	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4217	1510	1736	4217	1532	1736	1827	1529	3367	1827	1533
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.51	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4217	1510	1736	4217	1532	929	1827	1529	3367	1827	1533
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	446	923	198	303	1192	175	111	229	187	417	294	585
RTOR Reduction (vph)	0	0	142	0	0	116	0	0	120	0	0	299
Lane Group Flow (vph)	446	923	56	303	1192	59	111	229	67	417	294	286
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8			4
Actuated Green, G (s)	21.2	36.5	36.5	28.3	43.6	43.6	30.7	21.4	21.4	19.8	31.9	31.9
Effective Green, g (s)	21.2	36.5	36.5	28.3	43.6	43.6	30.7	21.4	21.4	19.8	31.9	31.9
Actuated g/C Ratio	0.16	0.28	0.28	0.22	0.34	0.34	0.24	0.16	0.16	0.15	0.25	0.25
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	2.5	3.0	3.0	2.5	2.0	2.0
Lane Grp Cap (vph)	549	1184	424	378	1414	514	277	301	252	513	448	376
v/s Ratio Prot	0.13	0.22		c0.17	c0.28		0.03	0.13		c0.12	0.16	
v/s Ratio Perm			0.04			0.04	0.07		0.04			c0.19
v/c Ratio	0.81	0.78	0.13	0.80	0.84	0.11	0.40	0.76	0.26	0.81	0.66	0.76
Uniform Delay, d1	52.5	43.0	34.9	48.2	40.0	29.9	40.5	51.9	47.4	53.3	44.1	45.5
Progression Factor	0.69	0.95	3.10	1.12	0.90	0.57	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9	3.9	0.5	10.0	5.4	0.4	0.7	10.8	0.6	9.3	2.6	8.0
Delay (s)	43.2	44.7	108.6	63.7	41.4	17.4	41.2	62.6	48.0	62.6	46.8	53.5
Level of Service	D	D	F	E	D	B	D	E	D	E	D	D
Approach Delay (s)		52.3			42.9			52.9			54.9	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			50.0			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				24.0		
Intersection Capacity Utilization			73.0%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	EBU	EBT	EBR	NBL	NBR2	SBR	SWL
Lane Configurations							
Volume (vph)	0	1168	116	149	136	1437	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		0.91	1.00	0.97	1.00	0.76	0.97
Frt		1.00	0.85	1.00	0.85	0.85	1.00
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		4217	1553	3367	1553	2994	3367
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		4217	1553	3367	1553	2994	3367
Peak-hour factor, PHF	0.91	0.91	0.91	0.79	0.79	0.95	0.95
Adj. Flow (vph)	0	1284	127	189	172	1513	23
RTOR Reduction (vph)	0	0	39	0	16	315	0
Lane Group Flow (vph)	0	1284	88	189	156	1198	23
Heavy Vehicles (%)	4%	23%	4%	4%	4%	23%	4%
Turn Type	Prot		Perm	Prot	custom	custom	
Protected Phases	5	2		3	1 3		1
Permitted Phases			2		8	6	
Actuated Green, G (s)		90.3	90.3	15.1	27.7	102.9	6.6
Effective Green, g (s)		90.3	90.3	15.1	27.7	102.9	6.6
Actuated g/C Ratio		0.69	0.69	0.12	0.21	0.79	0.05
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)		5.0	5.0	3.0		3.0	3.0
Lane Grp Cap (vph)	2929	1079	391	331	2370	171	
v/s Ratio Prot	0.30			0.06	c0.10		0.01
v/s Ratio Perm			0.06			c0.40	
v/c Ratio		0.44	0.08	0.48	0.47	0.51	0.13
Uniform Delay, d1		8.7	6.4	53.8	44.8	4.7	59.0
Progression Factor		0.23	0.10	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	0.1	0.9	1.1	0.8	0.4
Delay (s)		2.3	0.7	54.7	45.8	5.5	59.3
Level of Service		A	A	D	D	A	E
Approach Delay (s)		2.1					59.3
Approach LOS		A					E
Intersection Summary							
HCM Average Control Delay		9.3		HCM Level of Service		A	
HCM Volume to Capacity ratio		0.52					
Actuated Cycle Length (s)		130.0		Sum of lost time (s)		12.0	
Intersection Capacity Utilization		46.1%		ICU Level of Service		A	
Analysis Period (min)		15					
c Critical Lane Group							

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Volume (veh/h)	35	810	674	0	0	0	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80	
Hourly flow rate (vph)	38	880	733	0	0	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)			1257				
pX, platoon unblocked							
vC, conflicting volume	733				1102	244	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	733				1102	244	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	96				100	100	
cM capacity (veh/h)	855				194	750	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3
Volume Total	38	293	293	293	244	244	244
Volume Left	38	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	855	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.17	0.17	0.17	0.14	0.14	0.14
Queue Length 95th (ft)	3	0	0	0	0	0	0
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	0.4				0.0		
Approach LOS							
Intersection Summary							
Average Delay		0.2					
Intersection Capacity Utilization		23.0%		ICU Level of Service		A	
Analysis Period (min)		15					

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1020: SR 204 & Mohawk Street 3

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑			↕			↵	
Volume (veh/h)	0	797	13	7	662	0	12	0	4	47	4	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	0	866	14	8	720	0	16	0	5	59	5	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)								1072				
pX, platoon unblocked												
vC, conflicting volume	720			880			1131	1608	296	1029	1615	240
vC1, stage 1 conf vol							873	873		735	735	
vC2, stage 2 conf vol							258	735		294	880	
vCu, unblocked vol	720			880			1131	1608	296	1029	1615	240
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			94	100	99	80	98	100
cM capacity (veh/h)	865			751			249	222	695	290	219	755
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	347	347	187	8	240	240	240	21	64			
Volume Left	0	0	0	8	0	0	0	16	59			
Volume Right	0	0	14	0	0	0	0	5	0			
cSH	1700	1700	1700	751	1700	1700	1700	297	283			
Volume to Capacity	0.20	0.20	0.11	0.01	0.14	0.14	0.14	0.07	0.23			
Queue Length 95th (ft)	0	0	0	1	0	0	0	6	21			
Control Delay (s)	0.0	0.0	0.0	9.8	0.0	0.0	0.0	18.1	21.4			
Lane LOS				A				C	C			
Approach Delay (s)	0.0			0.1				18.1	21.4			
Approach LOS								C	C			
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			25.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1022: SR 204 & Mercy Blvd

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑↑↑		↵	↑↑↑	↵	↵	↵		↵	↵	
Volume (vph)	102	628	118	76	564	103	101	44	67	154	46	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4220		1736	4217	1553	1736	1661		1736	1635	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.51	1.00		0.49	1.00	
Satd. Flow (perm)	1736	4220		1736	4217	1553	938	1661		901	1635	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	111	683	128	80	594	108	117	51	78	181	54	126
RTOR Reduction (vph)	0	18	0	0	0	58	0	71	0	0	112	0
Lane Group Flow (vph)	111	793	0	80	594	50	117	58	0	181	68	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	11.6	49.1		8.7	46.2	46.2	16.2	9.2		20.2	11.2	
Effective Green, g (s)	11.6	49.1		8.7	46.2	46.2	16.2	9.2		20.2	11.2	
Actuated g/C Ratio	0.12	0.49		0.09	0.46	0.46	0.16	0.09		0.20	0.11	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	2072		151	1948	717	208	153		257	183	
v/s Ratio Prot	c0.06	c0.19		0.05	0.14		0.04	0.04		c0.06	0.04	
v/s Ratio Perm						0.03	0.05			c0.08		
v/c Ratio	0.55	0.38		0.53	0.30	0.07	0.56	0.38		0.70	0.37	
Uniform Delay, d1	41.7	16.0		43.7	16.8	15.0	37.7	42.7		35.7	41.1	
Progression Factor	1.00	1.00		0.84	0.84	1.53	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	0.5		3.1	0.4	0.2	3.5	1.6		8.5	1.3	
Delay (s)	45.0	16.5		39.8	14.5	23.0	41.1	44.3		44.2	42.4	
Level of Service	D	B		D	B	C	D	D		D	D	
Approach Delay (s)		19.9			18.3			42.8			43.3	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM Average Control Delay			25.5		HCM Level of Service			C				
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)			18.0				
Intersection Capacity Utilization			54.7%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1023: SR 204 & Largo Blvd

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	564	113	268	496	96	121	125	197	134	161	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4220		1736	4220		1736	1827	1553	1736	1827	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.44	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	1736	4220		1736	4220		810	1827	1553	1143	1827	1553
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	177	581	116	295	545	105	133	137	216	179	215	168
RTOR Reduction (vph)	0	27	0	0	22	0	0	0	179	0	0	139
Lane Group Flow (vph)	177	670	0	295	628	0	133	137	37	179	215	29
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	15.7	23.6		26.4	34.3		25.7	17.0	17.0	26.3	17.3	17.3
Effective Green, g (s)	15.7	23.6		26.4	34.3		25.7	17.0	17.0	26.3	17.3	17.3
Actuated g/C Ratio	0.16	0.24		0.26	0.34		0.26	0.17	0.17	0.26	0.17	0.17
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	996		458	1447		289	311	264	354	316	269
v/s Ratio Prot	0.10	c0.16		c0.17	0.15		0.04	0.07		c0.05	c0.12	
v/s Ratio Perm							0.08		0.02	0.09		0.02
v/c Ratio	0.65	0.67		0.64	0.43		0.46	0.44	0.14	0.51	0.68	0.11
Uniform Delay, d1	39.6	34.7		32.6	25.4		30.0	37.2	35.3	30.3	38.8	34.8
Progression Factor	0.81	0.98		0.53	0.73		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.8	3.3		2.9	0.9		1.2	1.0	0.2	1.1	5.9	0.2
Delay (s)	36.7	37.3		20.3	19.5		31.2	38.2	35.5	31.4	44.7	35.0
Level of Service	D	D		C	B		C	D	D	C	D	D
Approach Delay (s)		37.2			19.7			35.1			37.6	
Approach LOS		D			B			D			D	
Intersection Summary												
HCM Average Control Delay			31.2			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			63.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1024: SR 204 & Idlewood Drive

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	757	138	0	835	33	0	0	94	0	0	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Hourly flow rate (vph)	0	780	142	0	918	36	0	0	103	0	0	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		651			1109							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	954			780			1120	1734	260	1196	1716	324
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	748			780			924	1574	260	1004	1555	82
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
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	86	100	100	96
cM capacity (veh/h)	797			820			201	101	733	157	104	903
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	260	260	260	142	367	367	220	103	33			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	0	142	0	0	36	103	33			
cSH	1700	1700	1700	1700	1700	1700	1700	733	903			
Volume to Capacity	0.15	0.15	0.15	0.08	0.22	0.22	0.13	0.14	0.04			
Queue Length 95th (ft)	0	0	0	0	0	0	0	12	3			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	9.1			
Lane LOS								B	A			
Approach Delay (s)	0.0				0.0			10.7	9.1			
Approach LOS								B	A			
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			27.1%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1025: SR 204 & Deerfield Road

8/29/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	225	559	67	138	638	242	59	31	68	235	11	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	3367	4219		1736	4217	1553	1736	1639		1649	1660	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	3367	4219		1736	4217	1553	1736	1639		1649	1660	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	242	601	72	141	651	247	64	34	74	250	12	182
RTOR Reduction (vph)	0	13	0	0	0	158	0	63	0	0	0	159
Lane Group Flow (vph)	242	660	0	141	651	89	64	45	0	130	132	23
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	12.0	35.0		13.1	36.1	36.1	15.0	15.0		12.9	12.9	12.9
Effective Green, g (s)	12.0	35.0		13.1	36.1	36.1	15.0	15.0		12.9	12.9	12.9
Actuated g/C Ratio	0.12	0.35		0.13	0.36	0.36	0.15	0.15		0.13	0.13	0.13
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	404	1477		227	1522	561	260	246		213	214	200
v/s Ratio Prot	0.07	c0.16		c0.08	0.15		c0.04	0.03		0.08	c0.08	
v/s Ratio Perm						0.06						0.02
v/c Ratio	0.60	0.45		0.62	0.43	0.16	0.25	0.18		0.61	0.62	0.12
Uniform Delay, d1	41.7	25.0		41.1	24.1	21.7	37.5	37.1		41.2	41.2	38.5
Progression Factor	0.82	0.71		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	0.9		5.2	0.9	0.6	0.5	0.4		5.1	5.2	0.3
Delay (s)	36.3	18.7		46.3	25.0	22.3	38.0	37.5		46.3	46.4	38.8
Level of Service	D	B		D	C	C	D	D		D	D	D
Approach Delay (s)		23.3			27.3			37.7			43.2	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay		29.3			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.47										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			24.0				
Intersection Capacity Utilization		50.6%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept B - With Improvements

1026: Truman Parkway & SR 204

8/29/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	150	0	32	756	0	24	0	1198	0	0	230	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	300	0	64	859	0	27	0	1274	0	0	256	69
RTOR Reduction (vph)	0	0	47	0	0	20	0	0	0	0	0	30
Lane Group Flow (vph)	300	0	17	859	0	7	0	1274	0	0	256	39
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	18.5		18.5	18.5		18.5		39.5			39.5	39.5
Effective Green, g (s)	18.5		18.5	18.5		18.5		39.5			39.5	39.5
Actuated g/C Ratio	0.26		0.26	0.26		0.26		0.56			0.56	0.56
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	459		410	1293		410		2380			2380	876
v/s Ratio Prot	0.17			c0.18				c0.30			0.06	
v/s Ratio Perm			0.01			0.00						0.03
v/c Ratio	0.65		0.04	0.66		0.02		0.54			0.11	0.04
Uniform Delay, d1	22.9		19.2	23.0		19.0		9.5			7.1	6.8
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.63	3.24
Incremental Delay, d2	3.3		0.0	1.3		0.0		0.9			0.1	0.1
Delay (s)	26.2		19.2	24.3		19.0		10.4			11.6	22.2
Level of Service	C		B	C		B		B			B	C
Approach Delay (s)	25.0			24.1				10.4			13.8	
Approach LOS	C			C				B			B	
Intersection Summary												
HCM Average Control Delay			16.9			HCM Level of Service		B				
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)		12.0				
Intersection Capacity Utilization			59.2%			ICU Level of Service		B				
Analysis Period (min)			15									
c Critical Lane Group												

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations							
Volume (vph)	110	89	0	1247	125	126	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1553		4217	1553	1736	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1553		4217	1553	1736	4217
Peak-hour factor, PHF	0.88	0.88	0.94	0.94	0.94	0.90	0.90
Adj. Flow (vph)	125	101	0	1327	133	140	202
RTOR Reduction (vph)	0	91	0	0	65	0	0
Lane Group Flow (vph)	125	10	0	1327	68	140	202
Heavy Vehicles (%)	4%	4%	4%	23%	4%	4%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	6.8	6.8		35.7	35.7	9.5	51.2
Effective Green, g (s)	6.8	6.8		35.7	35.7	9.5	51.2
Actuated g/C Ratio	0.10	0.10		0.51	0.51	0.14	0.73
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	327	151		2151	792	236	3084
v/s Ratio Prot				c0.31		c0.08	0.05
v/s Ratio Perm	c0.04	0.01			0.04		
v/c Ratio	0.38	0.06		0.62	0.09	0.59	0.07
Uniform Delay, d1	29.6	28.7		12.3	8.8	28.4	2.7
Progression Factor	1.00	1.00		0.57	0.16	1.00	1.00
Incremental Delay, d2	0.7	0.2		1.2	0.2	4.0	0.0
Delay (s)	30.4	28.9		8.1	1.6	32.4	2.7
Level of Service	C	C		A	A	C	A
Approach Delay (s)	29.7			7.5			14.9
Approach LOS	C			A			B
Intersection Summary							
HCM Average Control Delay			11.2		HCM Level of Service		B
HCM Volume to Capacity ratio			0.58				
Actuated Cycle Length (s)			70.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			49.4%		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												
Volume (vph)	422	1223	211	0	0	0	0	424	26	45	124	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					4988	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					4988	1553	1736	1827	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.81	0.81	1.00	0.93	0.93	0.93
Adj. Flow (vph)	449	1301	224	0	0	0	0	523	26	48	133	0
RTOR Reduction (vph)	0	0	90	0	0	0	0	0	24	0	0	0
Lane Group Flow (vph)	449	1301	134	0	0	0	0	523	2	48	133	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	33.0	96.0	96.0					14.0	14.0	32.0	32.0	
Effective Green, g (s)	33.0	96.0	96.0					14.0	14.0	32.0	32.0	
Actuated g/C Ratio	0.21	0.60	0.60					0.09	0.09	0.20	0.20	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	358	2530	932					436	136	347	365	
v/s Ratio Prot	c0.26	c0.31						c0.10		0.03	c0.07	
v/s Ratio Perm			0.09						0.00			
v/c Ratio	1.25	0.51	0.14					1.20	0.02	0.14	0.36	
Uniform Delay, d1	63.5	18.5	14.0					73.0	66.7	52.7	55.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.00	0.02	
Incremental Delay, d2	135.4	0.8	0.3					110.0	0.0	0.2	0.6	
Delay (s)	198.9	19.3	14.3					183.0	66.8	0.2	1.4	
Level of Service	F	B	B					F	E	A	A	
Approach Delay (s)		59.6			0.0			177.5			1.1	
Approach LOS		E			A			F			A	
Intersection Summary												
HCM Average Control Delay			79.6		HCM Level of Service				E			
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)				24.0			
Intersection Capacity Utilization			90.3%		ICU Level of Service				E			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1012: SR 204 WB & Rio Road

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	52	1423	20	374	472	0	0	117	671
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	4.0
Lane Util. Factor				1.00	0.95	1.00	0.97	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	2935	1553	3367	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	2935	1553	3367	1827			3471	1553
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	57	1547	22	462	583	0	0	126	722
RTOR Reduction (vph)	0	0	0	0	0	7	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	57	1547	15	462	583	0	0	126	722
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Free
Protected Phases				1!	6		3 5!	3 5!				4
Permitted Phases						6						Free
Actuated Green, G (s)				10.0	73.0	73.0	53.0	53.0			16.0	160.0
Effective Green, g (s)				10.0	73.0	73.0	53.0	53.0			16.0	160.0
Actuated g/C Ratio				0.06	0.46	0.46	0.33	0.33			0.10	1.00
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				109	1339	709	1115	605			347	1553
v/s Ratio Prot				0.03	c0.53		0.14	c0.32			0.04	
v/s Ratio Perm						0.01						c0.46
v/c Ratio				0.52	1.16	0.02	0.41	0.96			0.36	0.46
Uniform Delay, d1				72.7	43.5	23.9	41.5	52.6			67.2	0.0
Progression Factor				1.30	0.45	0.51	0.89	0.13			1.00	1.00
Incremental Delay, d2				4.0	78.0	0.1	0.1	5.1			2.9	1.0
Delay (s)				98.8	97.6	12.2	36.9	12.1			70.2	1.0
Level of Service				F	F	B	D	B			E	A
Approach Delay (s)		0.0			96.5			23.0			11.3	
Approach LOS		A			F			C			B	
Intersection Summary												
HCM Average Control Delay			54.1		HCM Level of Service						D	
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)						12.0	
Intersection Capacity Utilization			90.3%		ICU Level of Service						E	
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1013: SR 204 WB & West Mall Driveway

2035 PM Concept C

8/25/2011

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	1391	56	0	104
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1434	58	0	135
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		689				
pX, platoon unblocked						
vC, conflicting volume	1434				1434	478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1434				1434	478
tC, single (s)	4.6				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	74
cM capacity (veh/h)	376				122	528
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	478	478	478	58	135	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	58	135	
cSH	1700	1700	1700	1700	528	
Volume to Capacity	0.28	0.28	0.28	0.03	0.26	
Queue Length 95th (ft)	0	0	0	0	25	
Control Delay (s)	0.0	0.0	0.0	0.0	14.1	
Lane LOS					B	
Approach Delay (s)	0.0				14.1	
Approach LOS					B	
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			40.0%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1418	77	0	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1462	79	0	38
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						
vC, conflicting volume	1462				1462	487
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1462				1462	487
tC, single (s)	4.6				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	93
cM capacity (veh/h)	366				117	521
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	487	487	487	79	38	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	79	38	
cSH	1700	1700	1700	1700	521	
Volume to Capacity	0.29	0.29	0.29	0.05	0.07	
Queue Length 95th (ft)	0	0	0	0	6	
Control Delay (s)	0.0	0.0	0.0	0.0	12.4	
Lane LOS					B	
Approach Delay (s)	0.0				12.4	
Approach LOS					B	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			37.4%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Volume (veh/h)	0	0	1421	82	0	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.97	0.97	0.77	0.77
Hourly flow rate (vph)	0	0	1465	85	0	96
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			545			
pX, platoon unblocked	0.79				0.79	0.79
vC, conflicting volume	1465				1465	488
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647				647	0
tC, single (s)	4.6				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	635				314	849
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	488	488	488	85	96	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	85	96	
cSH	1700	1700	1700	1700	849	
Volume to Capacity	0.29	0.29	0.29	0.05	0.11	
Queue Length 95th (ft)	0	0	0	0	10	
Control Delay (s)	0.0	0.0	0.0	0.0	9.8	
Lane LOS					A	
Approach Delay (s)	0.0				9.8	
Approach LOS					A	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			38.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1016: SR 204 EB & Apache Ave

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	1134	71	0	0	0	0	244	109	183	369	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.91	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					4988	1553	3367	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					4988	1553	3367	1827	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	102	1303	82	0	0	0	0	305	136	197	397	0
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	123	0	0	0
Lane Group Flow (vph)	102	1303	46	0	0	0	0	305	13	197	397	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	17.0	74.8	74.8					15.5	15.5	51.7	51.7	
Effective Green, g (s)	17.0	74.8	74.8					15.5	15.5	51.7	51.7	
Actuated g/C Ratio	0.11	0.47	0.47					0.10	0.10	0.32	0.32	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	184	1971	726					483	150	1088	590	
v/s Ratio Prot	0.06	c0.31						c0.06		0.06	c0.22	
v/s Ratio Perm			0.03						0.01			
v/c Ratio	0.55	0.66	0.06					0.63	0.09	0.18	0.67	
Uniform Delay, d1	67.9	32.8	23.4					69.5	65.8	38.9	46.8	
Progression Factor	0.84	0.87	1.21					1.00	1.00	0.00	0.07	
Incremental Delay, d2	3.3	1.6	0.2					2.7	0.3	0.1	2.3	
Delay (s)	60.4	30.2	28.4					72.2	66.1	0.1	5.5	
Level of Service	E	C	C					E	E	A	A	
Approach Delay (s)		32.2			0.0			70.3			3.7	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM Average Control Delay			32.1		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)					18.0		
Intersection Capacity Utilization			76.1%		ICU Level of Service					D		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1017: SR 204 WB & Apache Ave

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	213	1297	125	135	198	0	0	339	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	0.97	1.00			0.91	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	3367	1827			4988	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	3367	1827			4988	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	234	1425	137	169	248	0	0	365	76
RTOR Reduction (vph)	0	0	0	0	0	53	0	0	0	0	0	67
Lane Group Flow (vph)	0	0	0	234	1425	84	169	248	0	0	365	9
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				27.2	85.0	85.0	38.5	38.5			18.5	18.5
Effective Green, g (s)				27.2	85.0	85.0	38.5	38.5			18.5	18.5
Actuated g/C Ratio				0.17	0.53	0.53	0.24	0.24			0.12	0.12
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				295	2240	825	810	440			577	180
v/s Ratio Prot				c0.13	c0.34		0.05	c0.14			c0.07	
v/s Ratio Perm						0.05						0.01
v/c Ratio				0.79	0.64	0.10	0.21	0.56			0.63	0.05
Uniform Delay, d1				63.7	26.6	18.6	48.6	53.4			67.5	62.9
Progression Factor				1.12	0.33	0.03	0.07	0.10			1.00	1.00
Incremental Delay, d2				6.0	0.6	0.1	0.1	1.4			5.2	0.5
Delay (s)				77.6	9.3	0.6	3.6	6.8			72.7	63.4
Level of Service				E	A	A	A	A			E	E
Approach Delay (s)		0.0			17.6			5.5			71.1	
Approach LOS		A			B			A			E	
Intersection Summary												
HCM Average Control Delay			24.6	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			76.1%	ICU Level of Service				D				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1018: SR 204 EB & Middleground Road

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	406	840	180	0	0	0	0	269	148	296	497	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3287		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3287		1736	1827	
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.92	0.92	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	446	923	198	0	0	0	0	341	187	417	700	0
RTOR Reduction (vph)	0	0	136	0	0	0	0	47	0	0	0	0
Lane Group Flow (vph)	446	923	62	0	0	0	0	481	0	417	700	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	38.0	50.3	50.3					22.0		69.7	69.7	
Effective Green, g (s)	38.0	50.3	50.3					22.0		69.7	69.7	
Actuated g/C Ratio	0.24	0.31	0.31					0.14		0.44	0.44	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					2.5				
Lane Grp Cap (vph)	412	1326	488					452		756	796	
v/s Ratio Prot	c0.26	c0.22						c0.15		0.24	c0.38	
v/s Ratio Perm			0.04									
v/c Ratio	1.08	0.70	0.13					1.07		0.55	0.88	
Uniform Delay, d1	61.0	48.1	39.2					69.0		33.5	41.3	
Progression Factor	1.03	1.08	3.08					1.00		0.17	0.11	
Incremental Delay, d2	64.2	2.5	0.4					60.7		0.5	6.5	
Delay (s)	126.9	54.3	121.2					129.7		6.1	11.1	
Level of Service	F	D	F					F		A	B	
Approach Delay (s)		83.4			0.0			129.7			9.3	
Approach LOS		F			A			F			A	
Intersection Summary												
HCM Average Control Delay			65.2	HCM Level of Service				E				
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				24.0				
Intersection Capacity Utilization			98.5%	ICU Level of Service				F				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1019: SR 204 WB & Middleground Road

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	288	1132	166	88	587	0	0	505	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frbp, ped/bikes				1.00	1.00	0.99	1.00	1.00			1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1530	1736	1827			3471	1530
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1530	1736	1827			3471	1530
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.79	0.79	0.79	0.71	0.71	0.71
Adj. Flow (vph)	0	0	0	303	1192	175	111	743	0	0	711	585
RTOR Reduction (vph)	0	0	0	0	0	106	0	0	0	0	0	379
Lane Group Flow (vph)	0	0	0	303	1192	69	111	743	0	0	711	206
Confl. Peds. (#/hr)			2			1			3			1
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				33.7	46.0	46.0	66.0	66.0			30.0	30.0
Effective Green, g (s)				33.7	46.0	46.0	66.0	66.0			30.0	30.0
Actuated g/C Ratio				0.21	0.29	0.29	0.41	0.41			0.19	0.19
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				366	1212	440	716	754			651	287
v/s Ratio Prot				0.17	c0.28		0.06	c0.41			c0.20	
v/s Ratio Perm						0.05						0.13
v/c Ratio				0.83	0.98	0.16	0.16	0.99			1.09	0.72
Uniform Delay, d1				60.4	56.6	42.5	29.5	46.5			65.0	61.0
Progression Factor				0.75	0.70	0.26	0.48	0.17			1.00	1.00
Incremental Delay, d2				12.6	20.5	0.7	0.1	15.9			63.0	14.4
Delay (s)				57.7	60.2	11.6	14.1	23.8			128.0	75.5
Level of Service				E	E	B	B	C			F	E
Approach Delay (s)		0.0			54.6			22.5			104.3	
Approach LOS		A			D			C			F	
Intersection Summary												
HCM Average Control Delay			64.3	HCM Level of Service				E				
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			98.5%	ICU Level of Service					F			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept C

1020: SR 204 EB & Arts Drive

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1168	116	0	0	0	0	149	136	58	22	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0	6.0	
Lane Util. Factor		0.91						0.95	1.00	1.00	1.00	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		4219						3471	1553	1736	1827	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		4219						3471	1553	1736	1827	
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95
Adj. Flow (vph)	0	1284	127	0	0	0	0	189	172	61	23	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	141	0	0	0
Lane Group Flow (vph)	0	1405	0	0	0	0	0	189	31	61	23	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot								Perm	Split		
Protected Phases	5!	2						3		1!	1!	
Permitted Phases									3			
Actuated Green, G (s)		104.0						27.0	27.0	11.0	11.0	
Effective Green, g (s)		104.0						27.0	27.0	11.0	11.0	
Actuated g/C Ratio		0.65						0.17	0.17	0.07	0.07	
Clearance Time (s)		6.0						6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2742						586	262	119	126	
v/s Ratio Prot		c0.33						c0.05		c0.04	0.01	
v/s Ratio Perm									0.02			
v/c Ratio		0.51						0.32	0.12	0.51	0.18	
Uniform Delay, d1		14.7						58.5	56.4	71.9	70.3	
Progression Factor		0.63						1.00	1.00	0.05	0.04	
Incremental Delay, d2		0.5						1.5	0.9	3.7	0.7	
Delay (s)		9.8						59.9	57.3	7.6	3.5	
Level of Service		A						E	E	A	A	
Approach Delay (s)		9.8			0.0			58.7			6.5	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM Average Control Delay			19.1		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			160.0		Sum of lost time (s)					18.0		
Intersection Capacity Utilization			51.9%		ICU Level of Service					A		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept C

1021: SR 204 WB & Arts Drive

8/25/2011

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR	NWL2	NWL	NWR
Lane Configurations				↑↑↑↑	↱↱		↱↱		
Volume (vph)	0	0	0	1437	149	0	80	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0		6.0		
Lane Util. Factor				0.91	0.97		0.97		
Frt				1.00	1.00		1.00		
Flt Protected				1.00	0.95		0.95		
Satd. Flow (prot)				4217	3367		3367		
Flt Permitted				1.00	0.95		0.95		
Satd. Flow (perm)				4217	3367		3367		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.79	0.79	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	1513	189	0	84	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1513	189	0	84	0	0
Heavy Vehicles (%)	23%	23%	4%	23%	4%	4%	4%	23%	23%
Turn Type	custom								
Protected Phases					6	5 3!			
Permitted Phases							1!		
Actuated Green, G (s)					104.0	44.0		11.0	
Effective Green, g (s)					104.0	44.0		11.0	
Actuated g/C Ratio					0.65	0.28		0.07	
Clearance Time (s)					6.0			6.0	
Vehicle Extension (s)					3.0			3.0	
Lane Grp Cap (vph)					2741	926		231	
v/s Ratio Prot					c0.36	c0.06			
v/s Ratio Perm							0.02		
v/c Ratio					0.55	0.20		0.36	
Uniform Delay, d1					15.3	44.6		71.2	
Progression Factor					1.29	0.07		0.85	
Incremental Delay, d2					0.8	0.1		0.9	
Delay (s)					20.6	3.4		61.1	
Level of Service					C	A		E	
Approach Delay (s)	0.0			20.6	3.4			61.1	
Approach LOS	A			C	A			E	
Intersection Summary									
HCM Average Control Delay			20.7	HCM Level of Service				C	
HCM Volume to Capacity ratio			0.45						
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				12.0	
Intersection Capacity Utilization			48.7%	ICU Level of Service				A	
Analysis Period (min)	15								
! Phase conflict between lane groups.									
c Critical Lane Group									

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↗
Volume (veh/h)	879	24	0	0	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	955	26	0	0	0	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)				1051		
pX, platoon unblocked						
vC, conflicting volume			955		968	332
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			955		968	332
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			703		248	658
Direction, Lane #	EB 1	EB 2	EB 3	NB 1		
Volume Total	382	382	217	21		
Volume Left	0	0	0	0		
Volume Right	0	0	26	21		
cSH	1700	1700	1700	658		
Volume to Capacity	0.22	0.22	0.13	0.03		
Queue Length 95th (ft)	0	0	0	3		
Control Delay (s)	0.0	0.0	0.0	10.7		
Lane LOS				B		
Approach Delay (s)	0.0		10.7			
Approach LOS				B		
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			27.5%	ICU Level of Service		A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↑		↑
Volume (veh/h)	0	0	681	138	0	127
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.80	0.80
Hourly flow rate (vph)	0	0	740	150	0	159
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			1096			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	740				740	247
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				540	21
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	84
cM capacity (veh/h)	959				443	993
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	247	247	247	150	159	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	150	159	
cSH	1700	1700	1700	1700	993	
Volume to Capacity	0.15	0.15	0.15	0.09	0.16	
Queue Length 95th (ft)	0	0	0	0	14	
Control Delay (s)	0.0	0.0	0.0	0.0	9.3	
Lane LOS					A	
Approach Delay (s)	0.0				9.3	
Approach LOS					A	
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			27.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2035 PM Concept C

1025: SR 204 EB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Volume (vph)	149	628	118	0	0	0	0	145	67	154	122	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3307		1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3307		1736	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	162	683	128	0	0	0	0	169	78	181	144	0
RTOR Reduction (vph)	0	0	76	0	0	0	0	36	0	0	0	0
Lane Group Flow (vph)	162	683	52	0	0	0	0	211	0	181	144	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm							Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2									
Actuated Green, G (s)	34.0	65.1	65.1					16.0		60.9	60.9	
Effective Green, g (s)	34.0	65.1	65.1					16.0		60.9	60.9	
Actuated g/C Ratio	0.21	0.41	0.41					0.10		0.38	0.38	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	369	1716	632					331		661	695	
v/s Ratio Prot	c0.09	c0.16						c0.06		c0.10	0.08	
v/s Ratio Perm			0.03									
v/c Ratio	0.44	0.40	0.08					0.64		0.27	0.21	
Uniform Delay, d1	54.7	33.6	29.1					69.2		34.3	33.3	
Progression Factor	0.89	0.88	1.07					1.00		0.18	0.13	
Incremental Delay, d2	0.7	0.6	0.2					4.0		0.2	0.1	
Delay (s)	49.6	30.2	31.5					73.2		6.3	4.4	
Level of Service	D	C	C					E		A	A	
Approach Delay (s)		33.6			0.0			73.2			5.4	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM Average Control Delay			34.0	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)					24.0			
Intersection Capacity Utilization			54.3%	ICU Level of Service					A			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept C

1026: SR 204 WB & Mercy Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  						 	
Volume (vph)	0	0	0	76	564	103	148	146	0	0	200	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.95	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1736	4217	1553	1736	1827			3289	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1736	4217	1553	1736	1827			3289	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	80	594	108	172	170	0	0	235	126
RTOR Reduction (vph)	0	0	0	0	0	78	0	0	0	0	41	0
Lane Group Flow (vph)	0	0	0	80	594	30	172	170	0	0	320	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						
Actuated Green, G (s)				12.9	44.0	44.0	56.0	56.0			42.0	
Effective Green, g (s)				12.9	44.0	44.0	56.0	56.0			42.0	
Actuated g/C Ratio				0.08	0.28	0.28	0.35	0.35			0.26	
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				140	1160	427	608	639			863	
v/s Ratio Prot				0.05	c0.14		c0.10	0.09			c0.10	
v/s Ratio Perm						0.02						
v/c Ratio				0.57	0.51	0.07	0.28	0.27			0.37	
Uniform Delay, d1				70.9	48.9	42.9	37.5	37.3			48.2	
Progression Factor				1.09	0.47	0.33	0.13	0.11			1.00	
Incremental Delay, d2				5.2	1.5	0.3	0.2	0.2			1.2	
Delay (s)				82.6	24.4	14.5	5.2	4.4			49.4	
Level of Service				F	C	B	A	A			D	
Approach Delay (s)		0.0			29.0			4.8			49.4	
Approach LOS		A			C			A			D	
Intersection Summary												
HCM Average Control Delay			28.4	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)						18.0		
Intersection Capacity Utilization			54.3%	ICU Level of Service				A				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept C

1027: SR 204 EB & Largo Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	564	113	0	0	0	0	246	197	134	429	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4217	1553					3471	1553	1736	1827	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4217	1553					3471	1553	1736	1827	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	177	581	116	0	0	0	0	270	216	179	572	0
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	179	0	0	0
Lane Group Flow (vph)	177	581	33	0	0	0	0	270	37	179	572	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm						Perm	Split		
Protected Phases	5!	2						3		1 4!	1 4!	
Permitted Phases			2						3			
Actuated Green, G (s)	30.0	46.2	46.2					19.5	19.5	76.3	76.3	
Effective Green, g (s)	30.0	46.2	46.2					19.5	19.5	76.3	76.3	
Actuated g/C Ratio	0.19	0.29	0.29					0.12	0.12	0.48	0.48	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Lane Grp Cap (vph)	326	1218	448					423	189	828	871	
v/s Ratio Prot	c0.10	c0.14						c0.08		0.10	c0.31	
v/s Ratio Perm			0.02						0.02			
v/c Ratio	0.54	0.48	0.07					0.64	0.20	0.22	0.66	
Uniform Delay, d1	58.8	46.9	41.4					66.9	63.2	24.4	31.9	
Progression Factor	0.70	0.70	0.58					1.00	1.00	0.15	0.10	
Incremental Delay, d2	1.7	1.3	0.3					3.2	0.5	0.1	1.6	
Delay (s)	42.8	34.2	24.5					70.0	63.7	3.8	4.7	
Level of Service	D	C	C					E	E	A	A	
Approach Delay (s)		34.6			0.0			67.2			4.5	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM Average Control Delay			31.4	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				24.0				
Intersection Capacity Utilization			61.9%	ICU Level of Service				B				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2035 PM Concept C

1028: SR 204 WB & Largo Blvd

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	268	496	96	121	297	0	0	295	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	0	0	0	295	545	105	133	326	0	0	393	168
RTOR Reduction (vph)	0	0	0	0	0	72	0	0	0	0	0	87
Lane Group Flow (vph)	0	0	0	295	545	33	133	326	0	0	393	81
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!				4
Permitted Phases						6						4
Actuated Green, G (s)				34.8	51.0	51.0	55.5	55.5			35.5	35.5
Effective Green, g (s)				34.8	51.0	51.0	55.5	55.5			35.5	35.5
Actuated g/C Ratio				0.22	0.32	0.32	0.35	0.35			0.22	0.22
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				378	1344	495	602	634			770	345
v/s Ratio Prot				c0.17	c0.13		0.08	c0.18			c0.11	
v/s Ratio Perm						0.02						0.05
v/c Ratio				0.78	0.41	0.07	0.22	0.51			0.51	0.23
Uniform Delay, d1				59.0	42.6	37.9	37.0	41.5			54.6	51.1
Progression Factor				0.50	0.41	0.04	0.09	0.04			1.00	1.00
Incremental Delay, d2				9.3	0.8	0.2	0.2	0.6			2.4	1.6
Delay (s)				38.8	18.3	1.8	3.3	2.2			57.0	52.7
Level of Service				D	B	A	A	A			E	D
Approach Delay (s)		0.0			22.9			2.6			55.7	
Approach LOS		A			C			A			E	
Intersection Summary												
HCM Average Control Delay			27.5	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			61.9%	ICU Level of Service				B				
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↗				↗
Volume (veh/h)	757	138	0	0	0	94
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.92	0.92	0.91	0.91
Hourly flow rate (vph)	780	142	0	0	0	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	652		1112			
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			780		780	260
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			524		524	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			959		447	1008
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1	
Volume Total	260	260	260	142	103	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	142	103	
cSH	1700	1700	1700	1700	1008	
Volume to Capacity	0.15	0.15	0.15	0.08	0.10	
Queue Length 95th (ft)	0	0	0	0	9	
Control Delay (s)	0.0	0.0	0.0	0.0	9.0	
Lane LOS					A	
Approach Delay (s)	0.0				9.0	
Approach LOS					A	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			27.1%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↗		↗
Volume (veh/h)	0	0	835	33	0	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.91	0.91	0.75	0.75
Hourly flow rate (vph)	0	0	918	36	0	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		652	1108			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	954				918	306
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	607				567	0
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	869				409	982
Direction, Lane #	WB 1	WB 2	WB 3	WB 4	SB 1	
Volume Total	306	306	306	36	33	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	36	33	
cSH	1700	1700	1700	1700	982	
Volume to Capacity	0.18	0.18	0.18	0.02	0.03	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	8.8	
Lane LOS					A	
Approach Delay (s)	0.0				8.8	
Approach LOS					A	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			26.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1031: SR 204 EB & Deerfield Road

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	225	559	67	0	0	0	0	90	68	235	149	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00					0.95		0.95	0.95	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	0.99	
Satd. Flow (prot)	1736	4217	1553					3247		1649	1715	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	0.99	
Satd. Flow (perm)	1736	4217	1553					3247		1649	1715	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	242	601	72	0	0	0	0	98	74	250	159	0
RTOR Reduction (vph)	0	0	39	0	0	0	0	65	0	0	0	0
Lane Group Flow (vph)	242	601	33	0	0	0	0	107	0	200	209	0
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Perm								Split		
Protected Phases	5!	2								3	1 4!	1 4!
Permitted Phases			2									
Actuated Green, G (s)	43.0	72.4	72.4							20.0	49.6	49.6
Effective Green, g (s)	43.0	72.4	72.4							20.0	49.6	49.6
Actuated g/C Ratio	0.27	0.45	0.45							0.12	0.31	0.31
Clearance Time (s)	6.0	6.0	6.0							6.0		
Vehicle Extension (s)	3.0	3.0	3.0							3.0		
Lane Grp Cap (vph)	467	1908	703							406	511	532
v/s Ratio Prot	c0.14	c0.14								c0.03	0.12	c0.12
v/s Ratio Perm			0.02									
v/c Ratio	0.52	0.31	0.05							0.26	0.39	0.39
Uniform Delay, d1	49.7	28.0	24.5							63.3	43.3	43.4
Progression Factor	1.23	1.40	3.19							1.00	0.09	0.17
Incremental Delay, d2	0.9	0.4	0.1							1.6	0.5	0.4
Delay (s)	61.9	39.6	78.2							64.9	4.4	7.6
Level of Service	E	D	E							E	A	A
Approach Delay (s)		48.5		0.0						64.9		6.1
Approach LOS		D		A						E		A
Intersection Summary												
HCM Average Control Delay			38.8	HCM Level of Service					D			
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)					24.0			
Intersection Capacity Utilization			58.7%	ICU Level of Service					B			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1032: SR 204 WB & Deerfield Road

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	138	638	242	59	256	0	0	246	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor				1.00	0.91	1.00	1.00	1.00			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1736	4217	1553	1736	1827			3471	1553
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1736	4217	1553	1736	1827			3471	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	141	651	247	64	278	0	0	262	182
RTOR Reduction (vph)	0	0	0	0	0	173	0	0	0	0	0	154
Lane Group Flow (vph)	0	0	0	141	651	74	64	278	0	0	262	28
Heavy Vehicles (%)	4%	23%	4%	4%	23%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Prot		Perm	Split					Perm
Protected Phases				1!	6		3 5!	3 5!			4	
Permitted Phases						6						4
Actuated Green, G (s)				18.6	48.0	48.0	69.0	69.0			25.0	25.0
Effective Green, g (s)				18.6	48.0	48.0	69.0	69.0			25.0	25.0
Actuated g/C Ratio				0.12	0.30	0.30	0.43	0.43			0.16	0.16
Clearance Time (s)				6.0	6.0	6.0					6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Lane Grp Cap (vph)				202	1265	466	749	788			542	243
v/s Ratio Prot				c0.08	c0.15		0.04	c0.15			c0.08	
v/s Ratio Perm						0.05						0.02
v/c Ratio				0.70	0.51	0.16	0.09	0.35			0.48	0.12
Uniform Delay, d1				68.0	46.4	41.2	26.9	30.5			61.6	58.0
Progression Factor				1.00	1.00	1.00	0.42	0.06			1.00	1.00
Incremental Delay, d2				10.0	1.5	0.7	0.0	0.2			3.1	1.0
Delay (s)				78.0	47.9	41.9	11.2	2.0			64.7	59.0
Level of Service				E	D	D	B	A			E	E
Approach Delay (s)		0.0			50.5			3.7			62.3	
Approach LOS		A			D			A			E	
Intersection Summary												
HCM Average Control Delay			44.6	HCM Level of Service					D			
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			58.7%	ICU Level of Service					B			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1033: Truman Parkway & SR 204

2035 PM Concept C

8/25/2011

												
Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				  				  			  	
Volume (vph)	150	0	32	756	0	24	0	1198	0	0	230	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Lane Util. Factor	1.00		1.00	0.94		1.00		0.91			0.91	1.00
Frt	1.00		0.85	1.00		0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (prot)	1736		1553	4894		1553		4217			4217	1553
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	1.00
Satd. Flow (perm)	1736		1553	4894		1553		4217			4217	1553
Peak-hour factor, PHF	0.50	0.50	0.50	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	300	0	64	859	0	27	0	1274	0	0	256	69
RTOR Reduction (vph)	0	0	47	0	0	20	0	0	0	0	0	30
Lane Group Flow (vph)	300	0	17	859	0	7	0	1274	0	0	256	39
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	23%	4%	4%	23%	4%
Turn Type			Perm	Prot		custom						Perm
Protected Phases	4			8				2			6	
Permitted Phases			4			8						6
Actuated Green, G (s)	18.5		18.5	18.5		18.5		39.5			39.5	39.5
Effective Green, g (s)	18.5		18.5	18.5		18.5		39.5			39.5	39.5
Actuated g/C Ratio	0.26		0.26	0.26		0.26		0.56			0.56	0.56
Clearance Time (s)	6.0		6.0	6.0		6.0		6.0			6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	459		410	1293		410		2380			2380	876
v/s Ratio Prot	0.17			c0.18				c0.30			0.06	
v/s Ratio Perm			0.01			0.00						0.03
v/c Ratio	0.65		0.04	0.66		0.02		0.54			0.11	0.04
Uniform Delay, d1	22.9		19.2	23.0		19.0		9.5			7.1	6.8
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.62	3.24
Incremental Delay, d2	3.3		0.0	1.3		0.0		0.9			0.1	0.1
Delay (s)	26.2		19.2	24.3		19.0		10.4			11.6	22.1
Level of Service	C		B	C		B		B			B	C
Approach Delay (s)	25.0				24.1			10.4			13.8	
Approach LOS	C				C			B			B	
Intersection Summary												
HCM Average Control Delay			16.9		HCM Level of Service						B	
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			59.2%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1034: White Bluff Connector & SR 204

2035 PM Concept C

8/25/2011

							
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Lane Configurations	 			  			  
Volume (vph)	110	89	0	1247	125	126	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00		0.91	1.00	1.00	0.91
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3273	1509		4217	1509	1687	4217
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3273	1509		4217	1509	1687	4217
Peak-hour factor, PHF	0.88	0.88	0.94	0.94	0.94	0.90	0.90
Adj. Flow (vph)	125	101	0	1327	133	140	202
RTOR Reduction (vph)	0	91	0	0	66	0	0
Lane Group Flow (vph)	125	10	0	1327	67	140	202
Heavy Vehicles (%)	7%	7%	4%	23%	7%	7%	23%
Turn Type	custom		Prot		Perm	Prot	
Protected Phases			5	2		1	6
Permitted Phases	8	8			2		
Actuated Green, G (s)	6.9	6.9		35.4	35.4	9.7	51.1
Effective Green, g (s)	6.9	6.9		35.4	35.4	9.7	51.1
Actuated g/C Ratio	0.10	0.10		0.51	0.51	0.14	0.73
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	323	149		2133	763	234	3078
v/s Ratio Prot				c0.31		c0.08	0.05
v/s Ratio Perm	c0.04	0.01			0.04		
v/c Ratio	0.39	0.07		0.62	0.09	0.60	0.07
Uniform Delay, d1	29.6	28.6		12.5	9.0	28.3	2.7
Progression Factor	1.00	1.00		0.57	0.16	1.00	1.00
Incremental Delay, d2	0.8	0.2		1.2	0.2	4.1	0.0
Delay (s)	30.3	28.8		8.3	1.6	32.4	2.7
Level of Service	C	C		A	A	C	A
Approach Delay (s)	29.7			7.7			14.9
Approach LOS	C			A			B
Intersection Summary							
HCM Average Control Delay			11.4		HCM Level of Service		B
HCM Volume to Capacity ratio			0.59				
Actuated Cycle Length (s)			70.0		Sum of lost time (s)		18.0
Intersection Capacity Utilization			49.4%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

Appendix G – Evaluation of Lane Reduction Measures for the Elevated Express Lanes Alternative Memorandum

To: Michael Adams,
Chatham County-Savannah MPC/CORE MPO

From: Robinson Nicol, Jacobs Engineering Group, Inc. (JEG)

Date: September 16, 2011

Subject: SR 204 Corridor Study - Evaluation of Lane Reduction Measures for the Elevated Express Lanes Alternative

Referenced Projects: P.I. # 0009314 Special Studies Contract: SR 204 Corridor Study

cc: Grady Smith, JEG
Randall Farwell, JEG
David Kasbo, JEG
Kyle Huffman, JEG

As part of the SR 204 Corridor Study, Jacobs Engineering Group, Inc. (JEG) is evaluating lane reduction measures for the Elevated Express Lanes Alternative. This alternative retains existing lane geometry with added bike lanes and sidewalks on the at-grade portion of the corridor and proposes two express lanes in each direction on an elevated structure located in the median. A traffic analysis was performed in order to see if the number of at-grade lanes could be reduced to accommodate the additional bike lanes and sidewalks without expanding the existing footprint. For analysis purposes, the additional improvements summarized on page 4-40 of the *Preliminary Traffic Analysis Report Part II: Assessment of Future Conditions* were included in this concept. Additionally, a potential interchange connecting the at-grade and elevated portions of this alternative was considered at Arts Drive. Therefore, the lanes reduction analysis was performed with and without the interchange.

Lane reduction measures or “road diets” can provide benefits to both vehicles and pedestrians. By reducing the number of travel lanes, vehicle interactions during lane changes would be reduced which could potentially reduce the number of sideswipe crashes along the corridor. Also, the additional space can be used for pedestrian facilities within the existing footprint.

In order to determine lane requirements, an analysis was performed to determine generalized segment Level of Service (LOS) along the corridor for design year 2035. Average daily traffic (ADT) volumes used in this analysis were approved by the Georgia Department of Transportation (GDOT) Office of Planning on August 16, 2011. The ADT volumes for each segment between Rio Road and Truman Parkway were compared to generalized LOS tables prepared by the Georgia Regional Transportation Authority (GRTA) for use in reviewing Developments of Regional Impact (DRI). These tables are used by GRTA to perform generalized assessment of traffic conditions based on ADT volumes on roadway segments adjacent to proposed developments. The analysis compares results of a 6-lane section with a 4-lane section to determine if reducing the number of lanes would result in acceptable LOS (LOS D or better). To be most conservative, it was assumed that no traffic would divert away from the at-grade lanes if a road diet was implemented. The results of this analysis are summarized in Table 1 (with interchange) and Table 2 (without interchange).

Table 1 – Generalized Roadway LOS with Arts Drive Interchange

SR 204 Roadway Segment	Rio Rd to Apache Ave	Apache Ave to Middleground Rd	Middleground Rd to Arts Dr	Arts Dr to Mohawk St	Mohawk St to Mercy Blvd	Mercy Blvd to Largo Dr	Largo Dr to Idlewood Dr	Idlewood Dr to Deerfield Rd	Deerfield Rd to Truman Pkwy	Truman Pkwy to White Bluff Connector
2035 ADT Volume (veh)	37,664	36,917	31,192	18,568	17,034	17,942	19,867	19,735	23,964	24,486
*LOS 6-Lane Section	D	D	C	C	C	C	C	C	C	C
*LOS 4-Lane Section	F	F	D	C	C	C	C	C	D	D

**Based on LOS thresholds for Class II Arterial*

Note: LOS A and LOS B cannot be achieved according to methodology

As shown in Table 1, the segments of Rio Road to Apache Avenue and Apache Avenue to Middleground Road are expected to have unacceptable LOS (LOS F) with a 4-lane section and Arts Drive interchange according to the analysis. However, all the segments from Middleground Road to Truman Parkway are expected to operate with acceptable LOS (LOS D or better) with a 4-lane section and Arts Drive interchange. All segments are expected to have acceptable LOS with a 6-lane section. These analysis results are also summarized in Figure 1.

Table 2 – Generalized Roadway LOS without Arts Drive Interchange

SR 204 Roadway Segment	Rio Rd to Apache Ave	Apache Ave to Middleground Rd	Middleground Rd to Arts Dr	Arts Dr to Mohawk St	Mohawk St to Mercy Blvd	Mercy Blvd to Largo Dr	Largo Dr to Idlewood Dr	Idlewood Dr to Deerfield Rd	Deerfield Rd to Truman Pkwy	Truman Pkwy to White Bluff Connector
2035 ADT Volume (veh)	37,664	36,917	31,192	32,568	31,034	31,942	33,867	33,735	37,964	34,159
*LOS 6-Lane Section	D	D	C	C	C	C	C	C	D	C
*LOS 4-Lane Section	F	F	D	E	D	D	E	E	F	E

**Based on LOS thresholds for Class II Arterial*

Note: LOS A and LOS B cannot be achieved according to methodology

As shown in Table 2, the segments of Rio Road to Apache Avenue, Apache Avenue to Middleground Road, Arts Drive to Mohawk Street, Largo Drive to Idlewood Drive, Idlewood Drive to Deerfield Road, Deerfield Road to Truman Parkway, and Truman Parkway to White Bluff Connector are expected to have unacceptable LOS (LOS E or worse) with a 4-lane section and no interchange at Arts Drive according to the analysis. However, the segments from Middleground Road to Arts Drive, Mohawk Street to Mercy Boulevard, and Mercy Boulevard to Largo Drive are expected to operate with acceptable LOS (LOS D or better) with a 4-lane section and no interchange at Arts Drive. All segments are expected to have acceptable LOS with a 6-lane section. These analysis results are also summarized in Figure 2.

An analysis of peak hour traffic conditions was performed using Synchro software to determine expected intersection LOS for the 4-lane and 6-lane scenarios. The results of the capacity analysis are summarized in Table 3 (with interchange) and Table 4 (without interchange).

Six-Lane Section with Interchange at Arts Drive

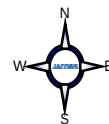


Four-Lane Section with Interchange at Arts Drive



Legend

- LOS D or Better
- LOS E
- LOS F
- ◆ Study Intersections



Evaluation of Lane Reduction Measures
for the Elevated Express Lanes Alternative

Figure 1 GRTA DRI Tables Class II Arterials
Level Of Service
With Interchange at Arts Drive

September 2011



Six-Lane Section without Interchange at Arts Drive

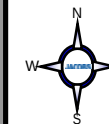


Four-Lane Section without Interchange at Arts Drive



Legend

- LOS D or Better
- LOS E
- LOS F
- ◆ Study Intersections



Evaluation of Lane Reduction Measures
for the Elevated Express Lanes Alternative

Figure 2 GRTA DRI Tables Class II Arterials
Level Of Service
Without Interchange at Arts Drive

September 2011





Table 3 – Intersection LOS Summary with Arts Drive Interchange

Intersection		2035 Intersection LOS 6-lane Section				2035 Intersection LOS 4-lane Section			
		AM Peak		PM Peak		AM Peak		PM Peak	
		LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
SR 204 @ Rio Road (s)	Eastbound Approach	C	25	C	30	F	101	E	67
	Westbound Approach	C	29	D	52	D	41	F	127
	Northbound Approach	D	44	D	52	D	43	D	51
	Southbound Approach	B	12	A	9	B	11	A	9
	Overall	C	27	D	36	E	74	E	75
SR 204 @ West Mall Driveway (u)	Southbound Approach	B	12	B	14	B	14	C	20
SR 204 @ Central Mall Driveway (u)	Southbound Approach	B	11	B	12	B	14	C	16
SR 204 @ Easy Mall Driveway (u)	Southbound Approach	A	9	A	10	A	10	B	12
SR 204 @ Apache Avenue (s)	Eastbound Approach	D	44	C	31	F	130	D	41
	Westbound Approach	C	28	C	28	C	30	C	23
	Northbound Approach	D	50	D	51	E	64	E	74
	Southbound Approach	D	46	D	54	E	60	E	80
	Overall	D	40	C	34	F	90	D	41
SR 204 @ Middleground Road (s)	Eastbound Approach	D	44	D	53	D	45	E	62
	Westbound Approach	D	40	D	43	D	49	E	67
	Northbound Approach	D	48	D	53	E	59	E	62
	Southbound Approach	D	55	D	55	F	84	F	96
	Overall	D	46	D	50	E	56	E	73
SR 204 @ Arts Drive (s)	Eastbound Approach	A	1	A	2	D	41	B	15
	Westbound Approach	B	13	A	6	B	10	B	10
	Northbound Approach	D	48	D	50	C	26	C	27
	Overall	A	8	A	9	C	26	B	14
SR 204 @ Mohawk Street (u)	Eastbound Left	A	10	A	9	A	10	A	9
	Westbound Left	A	9	A	10	A	9	A	10
	Northbound Approach	C	17	C	18	C	18	C	19
	Southbound Left/Thru	C	23	C	21	C	24	C	21
SR 204 @ Mercy Boulevard (s)	Eastbound Approach	B	18	B	20	C	25	C	23
	Westbound Approach	B	12	B	18	B	15	B	17
	Northbound Approach	D	45	D	43	D	42	D	46
	Southbound Approach	D	44	D	43	D	42	D	51
SR 204 @ Largo Drive (s)	Overall	C	23	C	26	C	25	C	28
	Eastbound Approach	B	19	D	37	C	28	D	46
	Westbound Approach	B	18	B	20	B	17	C	24
	Northbound Approach	D	35	D	35	D	35	D	39
	Southbound Approach	C	35	D	38	C	35	D	43
SR 204 @ Idlewood (u)	Overall	C	26	C	31	C	29	D	37
	Northbound Approach	B	12	B	11	B	14	B	12
	Southbound Approach	A	10	A	9	A	9	A	10
SR 204 @ Deerfield Road (s)	Eastbound Approach	C	23	C	23	C	26	C	28
	Westbound Approach	C	23	C	27	B	15	C	29
	Northbound Approach	D	39	D	38	D	39	D	43
	Southbound Approach	D	44	D	43	D	44	D	50
	Overall	C	28	C	29	C	26	C	33
SR 204 @ Truman Parkway (s)	Eastbound Approach	C	27	C	25	D	35	C	22
	Westbound Approach	C	26	C	24	D	42	C	32
	Northbound Approach	A	8	B	10	B	13	B	18
	Southbound Approach	B	13	B	14	B	16	B	11
	Overall	B	15	B	17	C	23	C	22
SR 204 @ White Bluff Connector (s)	Westbound Approach	C	30	C	30	D	43	C	30
	Northbound Approach	A	6	A	8	A	8	B	13
	Southbound Approach	B	15	B	15	C	20	B	15
	Overall	A	9	B	11	B	12	B	16



As shown in Table 3, the intersections of SR 204 at Rio Road, SR 204 at Apache Avenue, and SR 204 at Middleground Road are expected to experience unacceptable LOS (LOS E or worse) with a 4-lane section and Arts Drive interchange. The remaining intersections to the east from Middleground Road to White Bluff Connector are expected to operate with acceptable LOS (LOS D or better) with a 4-lane section and Arts Drive interchange. All intersections are expected to have acceptable LOS with a 6-lane section.

Table 4 – Intersection LOS Summary without Arts Drive Interchange

Intersection		2035 Intersection LOS 6-lane Section				2035 Intersection LOS 4-lane Section			
		AM Peak		PM Peak		AM Peak		PM Peak	
		LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
SR 204 @ Rio Road (s)	Eastbound Approach	C	25	C	30	F	101	E	67
	Westbound Approach	C	29	D	52	D	41	F	127
	Northbound Approach	D	44	D	52	D	43	D	51
	Southbound Approach	B	12	A	9	B	11	A	9
	Overall	C	27	C	36	E	74	E	75
SR 204 @ West Mall Driveway (u)	Southbound Approach	B	12	B	14	B	14	C	20
SR 204 @ Central Mall Driveway (u)	Southbound Approach	B	11	B	12	B	14	C	16
SR 204 @ Easy Mall Driveway (u)	Southbound Approach	A	9	A	10	A	10	B	12
SR 204 @ Apache Avenue (s)	Eastbound Approach	D	44	C	31	F	130	D	41
	Westbound Approach	C	27	C	25	C	29	C	23
	Northbound Approach	D	50	D	51	E	64	E	74
	Southbound Approach	D	46	D	54	E	60	E	80
	Overall	D	40	C	33	F	90	D	41
SR 204 @ Middleground Road (s)	Eastbound Approach	D	45	D	53	D	46	E	62
	Westbound Approach	C	35	D	35	D	50	E	61
	Northbound Approach	D	48	D	53	E	59	E	62
	Southbound Approach	D	55	D	55	F	84	F	96
	Overall	D	45	D	48	E	56	E	70
SR 204 @ Arts Drive (s)	Eastbound Approach	A	1	A	2	D	38	C	30
	Westbound Approach	B	12	A	5	A	9	B	13
	Northbound Approach	D	44	D	50	C	24	C	27
	Overall	A	8	A	8	C	25	C	22
SR 204 @ Mohawk Street (u)	Eastbound Left	B	12	B	11	B	12	B	12
	Westbound Left	B	13	B	13	B	13	B	13
	Northbound Approach	D	33	D	30	E	36	D	34
	Southbound Left/Thru	E	47	D	34	F	64	E	48
SR 204 @ Mercy Boulevard (s)	Eastbound Approach	B	13	B	17	B	17	C	24
	Westbound Approach	B	19	B	15	B	16	B	13
	Northbound Approach	D	53	D	54	F	96	E	77
	Southbound Approach	E	57	D	52	F	84	E	72
	Overall	C	23	C	22	C	30	C	28
SR 204 @ Largo Drive (s)	Eastbound Approach	B	19	D	37	C	28	E	58
	Westbound Approach	B	15	C	29	C	20	D	52
	Northbound Approach	D	53	D	48	E	67	E	61
	Southbound Approach	D	53	D	53	E	68	E	69
	Overall	C	28	D	37	C	34	E	57
SR 204 @ Idlewood (u)	Northbound Approach	A	10	A	10	B	12	B	11
	Southbound Approach	A	9	A	10	A	9	B	11
SR 204 @ Deerfield Road (s)	Eastbound Approach	C	31	D	37	C	28	C	31
	Westbound Approach	C	24	C	30	C	28	D	36
	Northbound Approach	D	55	D	53	E	79	E	70
	Southbound Approach	E	60	E	60	F	81	F	80
	Overall	C	33	D	37	D	37	D	41
SR 204 @ Truman Parkway (s)	Eastbound Approach	C	22	B	18	C	30	C	23
	Westbound Approach	C	25	C	23	D	47	D	44
	Northbound Approach	B	12	B	15	C	24	C	34
	Southbound Approach	A	8	B	11	B	14	C	22
	Overall	B	16	B	17	C	31	C	34
SR 204 @ White Bluff Connector (s)	Westbound Approach	C	30	C	30	D	48	D	48
	Northbound Approach	A	5	A	7	A	5	A	7
	Southbound Approach	A	7	A	9	A	10	B	12
	Overall	A	8	A	9	A	10	B	12

As shown in Table 4, the intersections of SR 204 at Rio Road, SR 204 at Apache Avenue, SR 204 at Middleground Road, SR 204 at Arts Drive, SR 204 at Mohawk Street, SR 204 at Mercy Boulevard, SR 204 at Largo Drive, and SR 204 at Deerfield Road are expected to experience unacceptable LOS (LOS E or worse) on at least one approach during a peak period with a 4-lane section and no interchange at Arts Drive. The remaining intersections to the east from Truman Parkway to White Bluff Connector are expected to operate with acceptable LOS (LOS D or better) with a 4-lane section and no interchange at Arts Drive. All intersections are expected to have acceptable LOS with a 6-lane section and no interchange at Arts Drive with the exception of the southbound approaches of Mohawk Street, Mercy Boulevard, and Deerfield Road.

Conclusion

From the results of the analysis, a minimum of six at-grade lanes is required for acceptable traffic operations Rio Road to Middleground Road, regardless of whether or not an interchange is included at Arts Drive. From Arts Drive to White Bluff Connector, a lane reduction from six to four at-grade lanes is not expected to have unacceptable traffic operations as long as the Arts Drive interchange is included. However if the interchange at Arts Drive is not included, several segments and intersections are expected to have unacceptable traffic operations from Arts Drive to White Bluff Connector. A reduction in the number of lanes should be considered at logical locations and the effects of lane continuity and driver expectation should be considered before being implemented.

Appendix H – Preliminary Toll Traffic & Gross Toll Revenue Estimates

Date 09 August, 2011

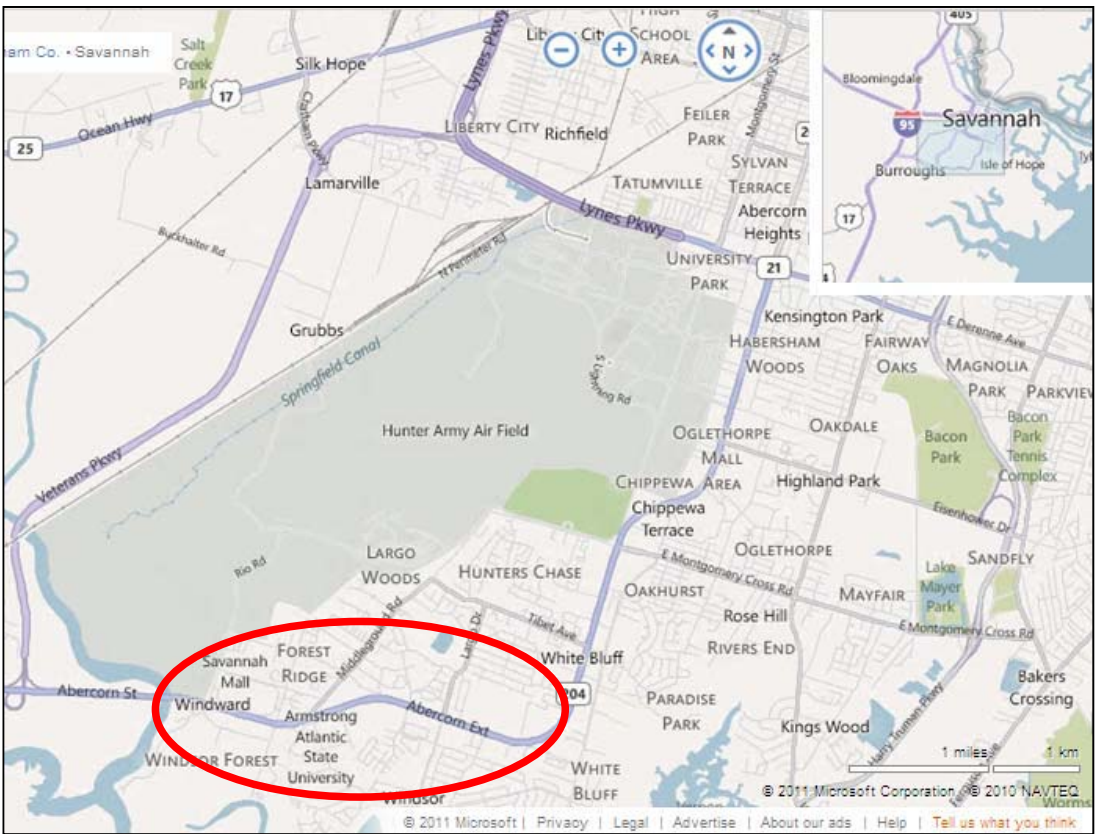
To Randall Farwell

From Liz Horta, Joe Sobleskie

Subject Savannah, GA, SR 204 Express Lanes – Level 1, Preliminary Toll Traffic & Gross Toll Revenue Estimates

This memo presents a summary of the Level 1 preliminary assumptions and resulting estimated toll traffic and gross toll revenues for two tolled alternatives for 2.4 miles of express lanes on SR204 in Savannah, Georgia. Figure 1 illustrates the location of the project corridor.

Figure 1: Location Map

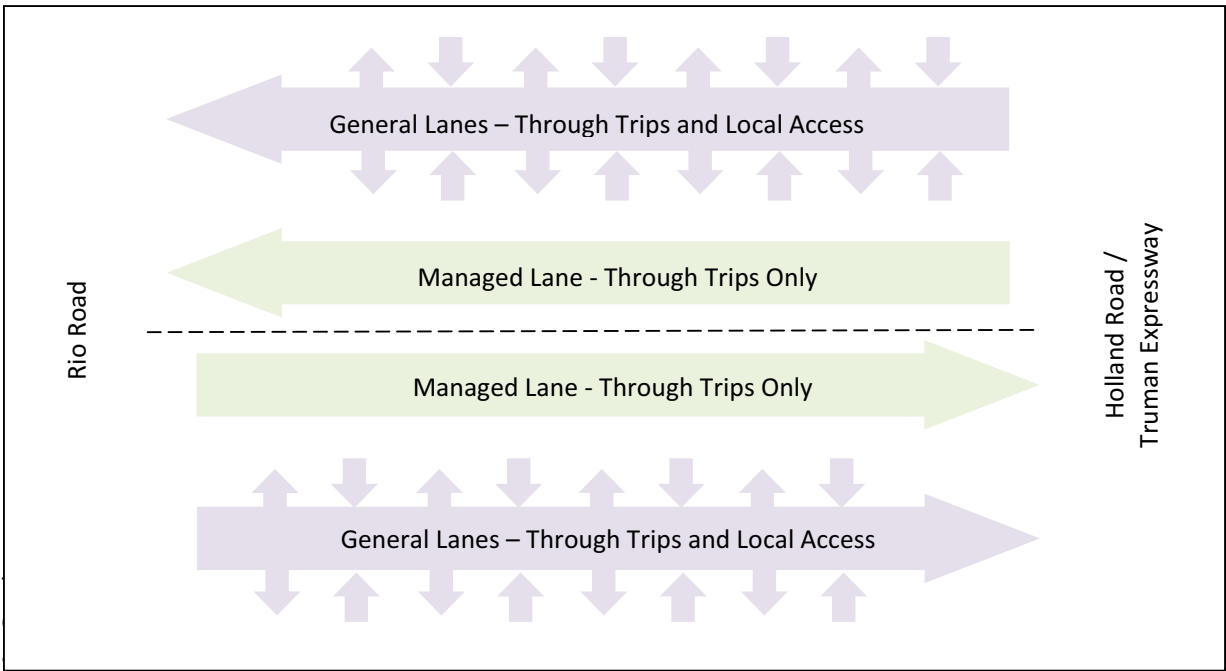


Definition of Alternatives Modeled

Two alternatives have been presented for review as tolled lanes. Both alternatives would span the same portion of the corridor and service the same through movement, but each provides a different number of lanes and differs in the level of local access provided by the express lanes.

The first alternative studied, the “Managed Lane Alternative,” would provide one lane of express travel in each direction, with access on its western end just west of Rio Road, and at its eastern end at the Truman Parkway Extension from both local SR 204 general purpose lanes as well as from the Truman Expressway by direct flyover ramps. The express lanes would be constructed mainly at-grade, with grade-separated express lanes at select intersections. Figure 2 illustrates the basic movements serviced by the managed lane alternative and the general purpose lanes.

Figure 2: SR 204 Travel Movements: Managed Lane Alternative



The second alternative presented for review, the “Viaduct Alternative,” consists of continuous elevated lanes, providing two lanes for express travel in each direction. Similarly to the managed lanes alternative, this elevated viaduct would allow access just west of Rio Road, and at the Truman Parkway Extension from both local SR 204 general purpose lanes as well as the Truman Parkway by direct flyover ramps. In addition, this alternative would provide intermediate access to and from the elevated viaduct via ramps serving Arts Drive.

Figure 3 illustrates how the viaduct alternative services the same through movements as the managed lane alternative, with additional service for trips of a more local nature through the access at Arts Drive. A summary of the assumptions for the tolled express lane alternatives is provided in Table 1.

Figure 3: SR 204 Travel Movements: Viaduct Alternative

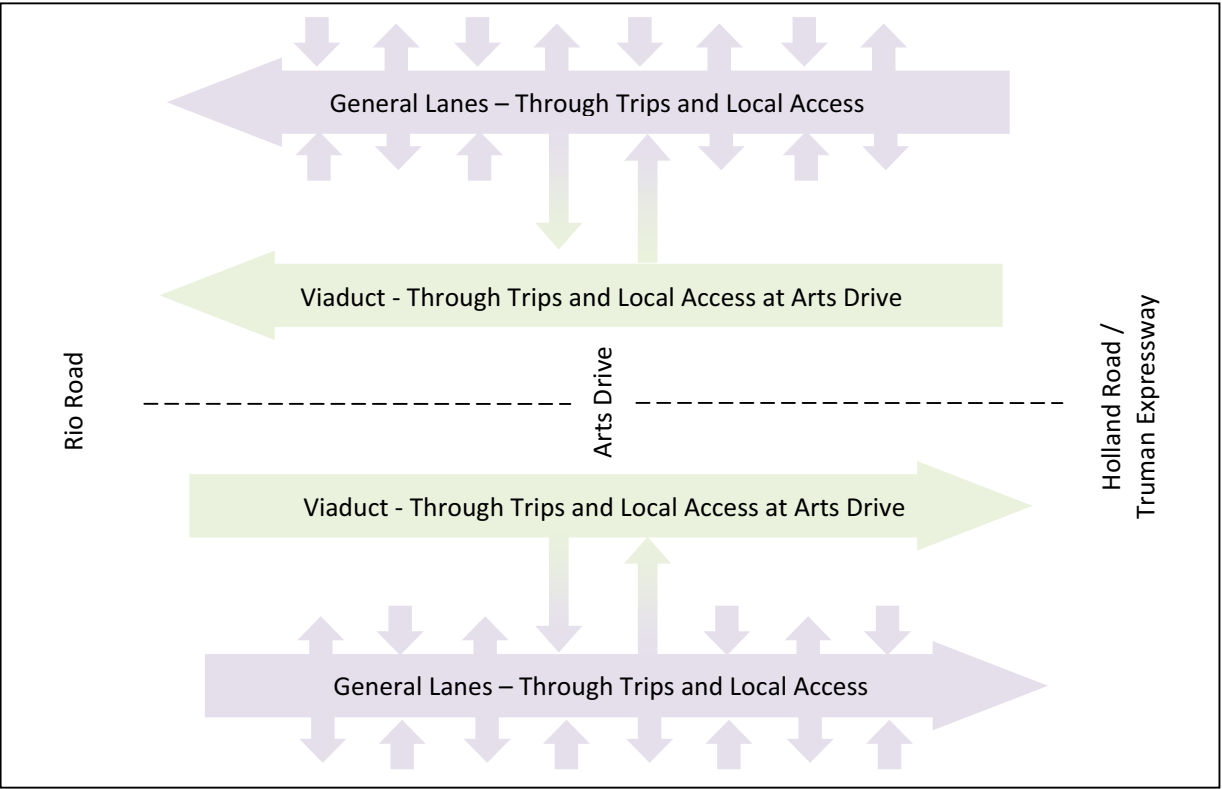


Table 1: Summary of Tolerated Express Lane Alternatives Assumptions

Alternative	Number of Lanes in Each Direction	Intermediate Access Ramps?
Managed Lane	1	No
Viaduct	2	Yes

Both alternatives for the proposed express lanes would be constructed such that all traffic signals between Rio Road and Holland Ave / Truman Parkway Extension would be bypassed by the express lanes. The number of traffic signals bypassed would vary by alternative. Table 2 provides a breakdown of existing signals as well as planned signals for the two alternatives. It should be noted that a traffic signal will be incorporated at the southern tie-in with Truman Parkway Extension, and that while drivers utilizing the direct connection to the Extension would bypass this intersection, drivers to and from the north on SR 204 would be required to obey the traffic signal. Currently, there are a total of seven signalized intersections along the study route. Under the managed lanes alternative there are plans to reduce this number to five

signalized intersections for the general purpose lanes, while under the viaduct alternative the number of signalized intersections along this span for the general purpose lanes is expected to increase to nine.

Table 2: Signalized Intersections by Alternative

Signalized Intersections by Alternative	Rio Rd	Apache Ave	Middleground Rd	Arts Dr	Mohawk St	Mercy Blvd	Largo Dr	Deerfield Rd	Holland Ave / Truman	Total
Existing	x	x	x	x		x	x	x		7
	No Toll Lanes									
Managed Lane	x		x			x		x	x	5
	Continuous Toll Lanes									
Viaduct	x	x	x	x	x	x	x	x	x	9
	Toll Segment A			Bypass	Toll Segment B					

Data Collection

Existing count data for the corridor was collected and compiled at several screen line locations throughout the corridor. Additionally, travel time runs were conducted and used as a basis for the estimation of the travel time savings that might be offered by the toll lanes.

Traffic Volumes

Table 3 presents a summary of traffic volumes in the corridor as gathered from counts conducted in September of 2010. Figure 4 presents a comparison of eastbound hourly traffic profiles for an average weekday throughout the corridor, and Figure 5 shows a similar comparison of hourly traffic profiles for the westbound direction of travel. These weekday profiles show higher traffic levels during the morning and evening commutes, with steady traffic volumes throughout the midday. Figure 6 and Figure 7 show typical Saturday (weekend) hourly traffic profiles, which have a more gradual early day volume increase, midday flattening, and late afternoon decrease in traffic volumes. Eastbound traffic volumes are weighted toward the earlier portion of the day (heading into Savannah), and westbound traffic volumes are weighted toward the afternoon and evening (leaving Savannah).

Table 3: Year 2010 Traffic Count Volumes on SR204

Traffic Count Location	Year 2010 ADT
East of Rio Road	36,152
East of Arts Drive	31,855
East of Deerfield Road	42,641
North of Holland Drive	42,948

Figure 4: Eastbound Hourly Traffic Profiles, Weekday

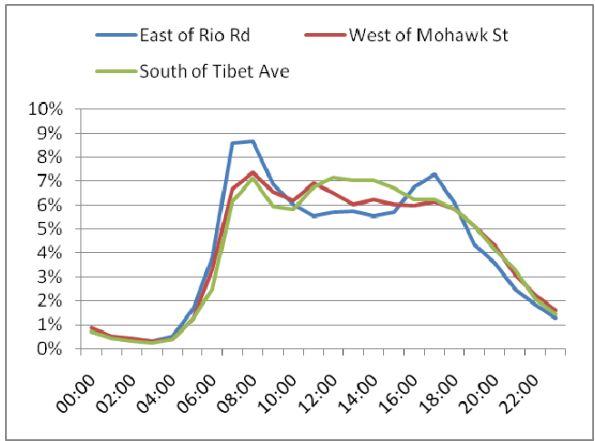


Figure 6: Eastbound Hourly Traffic Profiles, Saturday

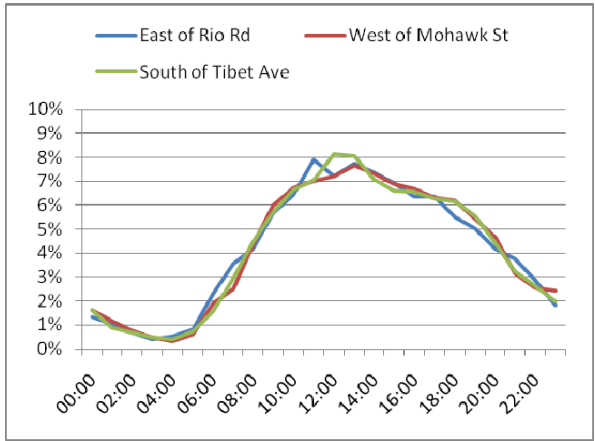


Figure 5: Westbound Hourly Traffic Profiles, Weekday

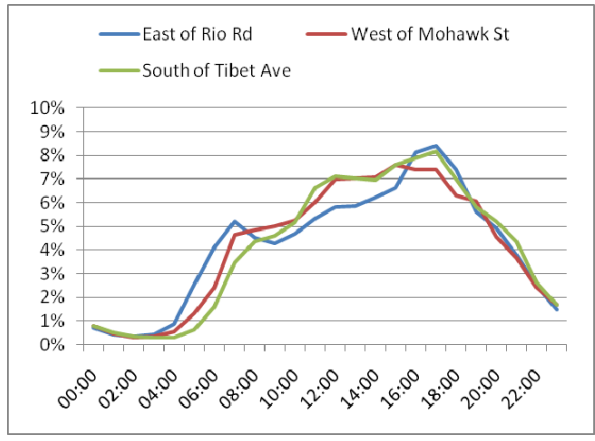
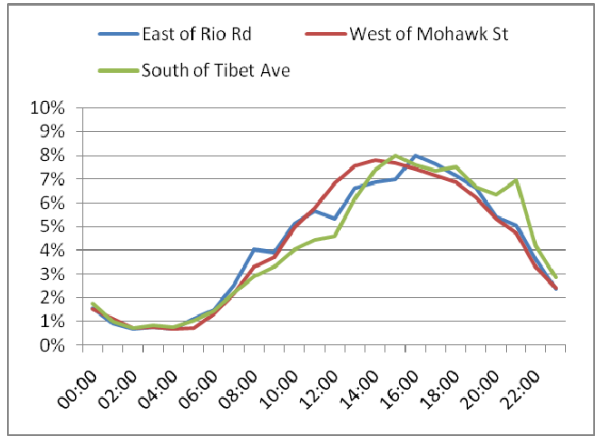


Figure 7: Westbound Hourly Traffic Profiles, Saturday



Travel Times

Travel time runs were initially conducted in the 2.4-mile project corridor during September 2010, with supplemental runs in March 2011. Table 4 shows a summary of the March 2011 travel time runs. Based on these data, travel times for the full length of the corridor range from 2.3 minutes off-peak in the eastbound direction during the AM peak on a Saturday to 5.0 minutes peak in the westbound direction during the evening peak on a weekday.

Table 4: Summary of March 2011 Travel Time Run Data in the 2.4-mile SR 204 Project Corridor

Direction	Segment	Average Travel Times (minutes)			
		Weekday			Saturday
		AM	MD	PM	
EB	Rio Road to Arts Drive	1.7	1.6	1.7	2.3
EB	Arts Drive to Holland Dr	1.6	2.7	2.7	2.3
WB	Holland Drive to Arts Drive	2.1	2.8	2.7	2.8
WB	Arts Drive to Rio Road	1.9	2.2	2.2	N/A

Methodology and Assumptions

Toll traffic and revenue estimates were prepared based on outputs from the Savannah regional model and post-processing analyses of tolling potential of the projects. The outputs of the regional model included traffic volumes of potential toll lane customers by origin-destination pair. A post-processing spreadsheet model was developed to approximate the number of these potential customers who would choose to use the express lanes, by considering approximated customer values of time and time savings offered by the toll lanes and the toll rate itself.

The following is a list of assumptions used to analyze toll traffic and revenue along the 2.4 miles of express lanes, for both the managed lanes and viaduct alternatives:

- Vehicles with two or more passengers are not charged a toll (HOV2+)
 - Five percent of vehicles were assumed to have two occupants
 - Two percent of vehicles were assumed to have three or more occupants
- No larger vehicles than those of 2-axle 6-tire vehicles

The following assumptions were made regarding the development of toll revenue estimates

- Opening year 2015
- Toll Rates, as shown in Table 5



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Table 5: Assumed Toll Rates

Traffic Hour	Full Distance Toll	Per Mile Toll Rate
Off Peak	\$0.25	\$0.10
Shoulder	\$0.50	~\$0.21
Peak	\$0.75	~\$0.31

- Electronic Transponder Market share, as shown in Table 6.

Table 6: Assumed Electronic Transponder Market Share*

Year of Operation	Electronic Transponder Market Share
1 st	40%
2 nd	75%
3 rd and Beyond	90%

*Assumes that X percent of the customers in a given year who use the express lanes have a transponder, and that the remaining customers are charged a toll via a video capture of their license plate, with post-travel invoicing.

- Ramp-up of 85 percent of collectable revenues would be realized in the first year, and 100 percent thereafter. (Traffic levels in the first few years after opening are influenced by many factors, including current trip making characteristics, as well as those changes that will occur because of the presence of the new toll facility. The process of traffic reaching its full potential over a given time, without considering nominal growth, is considered “ramp-up.” Ramp-up is often defined as the time it takes for the drivers to become aware of a new (toll) facility, change old habits and become aware of any potential benefits from using the new (toll) facility.)

Estimated Toll Traffic and Gross Toll Revenues

Table 7 and Table 8 present the estimated average day and annual toll trips for the managed lane alternative and viaduct alternative, respectively. It is estimated that the managed lane alternative would carry roughly 850,000 toll lane trips in the opening year; the viaduct alternative on the other hand, is estimated to transport 2,632,000 toll lane trips in 2015.

Table 9 and Table 10 present the estimated toll revenues that might be generated by the estimated toll lane trips. It is estimated that the managed lane alternative would generate roughly \$274,000 in the opening year; the viaduct alternative on the other hand, is estimated to collect \$744,000 in 2015.



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Table 7: Estimated Toll Lane Trips: Managed Lane Alternative (in thousands)

Estimated Toll Lane Trips (in thousands)							
Calendar Year	Average Day						Annual Toll Lane Trips
	Weekday		Saturday		Sunday		
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	
2015	1.0	1.5	0.8	1.6	0.6	1.0	850.0
2016	1.5	2.3	1.2	2.4	0.9	1.6	1,300.0
2017	1.7	2.6	1.4	2.7	1.0	1.7	1,455.0
2018	1.7	2.7	1.4	2.7	1.0	1.8	1,490.0
2019	1.7	2.7	1.4	2.8	1.1	1.8	1,526.0
2020	1.8	2.8	1.5	2.9	1.1	1.9	1,561.0
2021	1.8	2.9	1.5	3.0	1.1	1.9	1,597.0
2022	1.8	2.9	1.5	3.0	1.1	2.0	1,632.0
2023	1.9	3.0	1.5	3.1	1.1	2.0	1,667.0
2024	1.9	3.1	1.6	3.2	1.2	2.1	1,703.0
2025	1.9	3.2	1.6	3.3	1.2	2.1	1,738.0
2026	2.0	3.2	1.6	3.3	1.2	2.2	1,774.0
2027	2.0	3.3	1.6	3.4	1.2	2.2	1,809.0
2028	2.0	3.4	1.7	3.5	1.2	2.3	1,845.0
2029	2.0	3.4	1.7	3.6	1.3	2.3	1,880.0
2030	2.1	3.5	1.7	3.6	1.3	2.4	1,916.0
2031	2.1	3.6	1.8	3.7	1.3	2.4	1,951.0
2032	2.1	3.7	1.8	3.8	1.3	2.5	1,986.0
2033	2.2	3.7	1.8	3.8	1.3	2.5	2,022.0
2034	2.2	3.8	1.8	3.9	1.3	2.6	2,057.0
2035	2.2	3.9	1.9	4.0	1.4	2.6	2,093.0

Notes:
1) Managed Lane toll trips are through movement only, while Viaduct toll trips include through movement *plus* shorter movements utilizing intersection at Arts Drive
2) It was assumed that HOV vehicles with 2 or more people would not be charged a toll. These HOV volumes are included in Toll Lane Trips.
3) Numbers may not add due to rounding



Table 8: Estimated Toll Lane Trips: Viaduct Alternative (in thousands)

Estimated Toll Lane Trips (in thousands)							
Calendar Year	Average Day						Annual Toll Lane Trips
	Weekday		Saturday		Sunday		
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	
2015	3.4	4.5	2.5	4.1	1.9	2.8	2,632.0
2016	5.1	6.8	3.8	6.0	2.8	4.2	3,938.0
2017	5.6	7.5	4.2	6.7	3.1	4.6	4,358.0
2018	5.7	7.7	4.3	6.8	3.2	4.7	4,438.0
2019	5.8	7.8	4.3	7.0	3.2	4.8	4,518.0
2020	5.8	8.0	4.4	7.2	3.3	4.9	4,598.0
2021	5.9	8.2	4.5	7.3	3.3	5.0	4,678.0
2022	6.0	8.3	4.5	7.5	3.4	5.2	4,757.0
2023	6.0	8.5	4.6	7.6	3.4	5.3	4,837.0
2024	6.1	8.6	4.7	7.8	3.5	5.4	4,917.0
2025	6.2	8.8	4.7	8.0	3.5	5.5	4,997.0
2026	6.3	9.0	4.8	8.1	3.6	5.6	5,076.0
2027	6.3	9.1	4.9	8.3	3.6	5.7	5,156.0
2028	6.4	9.3	4.9	8.4	3.7	5.8	5,236.0
2029	6.5	9.4	5.0	8.6	3.7	5.9	5,316.0
2030	6.5	9.6	5.1	8.8	3.8	6.0	5,396.0
2031	6.6	9.8	5.1	8.9	3.8	6.1	5,475.0
2032	6.7	9.9	5.2	9.1	3.9	6.2	5,555.0
2033	6.8	10.1	5.3	9.2	3.9	6.3	5,635.0
2034	6.8	10.2	5.3	9.4	4.0	6.4	5,715.0
2035	6.9	10.4	5.4	9.5	4.0	6.6	5,794.0

Notes:

1) Managed Lane toll trips are through movement only, while Viaduct toll trips include through movement *plus* shorter movements utilizing intersection at Arts Drive

2) It was assumed that HOV vehicles with 2 or more people would not be charged a toll. These HOV volumes are included in Toll Lane Trips.

3) Numbers may not add due to rounding



Table 9: Estimated Toll Lane Revenues: Managed Lane Alternative (in thousands)

Estimated Toll Lane Revenues (in thousands)							
Calendar Year	Average Day						Annual Toll Revenue
	Weekday		Saturday		Sunday		
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	
2015	\$0.3	\$0.7	\$0.1	\$0.3	\$0.1	\$0.2	\$274.0
2016	0.5	1.1	0.2	0.5	0.1	0.3	467.0
2017	0.6	1.3	0.2	0.5	0.1	0.3	539.0
2018	0.6	1.3	0.2	0.5	0.1	0.3	552.0
2019	0.6	1.4	0.2	0.6	0.1	0.3	566.0
2020	0.6	1.4	0.2	0.6	0.1	0.4	580.0
2021	0.6	1.4	0.2	0.6	0.2	0.4	593.0
2022	0.7	1.5	0.2	0.6	0.2	0.4	607.0
2023	0.7	1.5	0.2	0.6	0.2	0.4	621.0
2024	0.7	1.5	0.2	0.6	0.2	0.4	635.0
2025	0.7	1.6	0.2	0.7	0.2	0.4	648.0
2026	0.7	1.6	0.2	0.7	0.2	0.4	662.0
2027	0.7	1.6	0.2	0.7	0.2	0.4	676.0
2028	0.7	1.7	0.2	0.7	0.2	0.4	689.0
2029	0.7	1.7	0.3	0.7	0.2	0.4	703.0
2030	0.7	1.7	0.3	0.7	0.2	0.4	717.0
2031	0.8	1.8	0.3	0.7	0.2	0.5	730.0
2032	0.8	1.8	0.3	0.8	0.2	0.5	744.0
2033	0.8	1.9	0.3	0.8	0.2	0.5	758.0
2034	0.8	1.9	0.3	0.8	0.2	0.5	771.0
2035	0.8	1.9	0.3	0.8	0.2	0.5	785.0

Notes:

1) Managed Lane toll trips are through movement only, while Viaduct toll trips include through movement *plus* shorter movements utilizing intersection at Arts Drive

2) Numbers may not add due to rounding



Table 10: Estimated Toll Lane Revenues: Viaduct Alternative (in thousands)

Estimated Toll Lane Revenues (in thousands)							
Calendar Year	Average Day						Annual Toll Revenue
	Weekday		Saturday		Sunday		
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	
2015	\$0.9	\$1.7	\$0.3	\$0.6	\$0.2	\$0.4	\$744.0
2016	1.5	2.7	0.5	1.0	0.3	0.6	1,198.0
2017	1.8	3.0	0.6	1.1	0.4	0.7	1,359.0
2018	1.8	3.1	0.6	1.2	0.4	0.8	1,394.0
2019	1.8	3.2	0.6	1.2	0.4	0.8	1,428.0
2020	1.9	3.3	0.6	1.2	0.4	0.8	1,462.0
2021	1.9	3.3	0.6	1.3	0.4	0.8	1,496.0
2022	1.9	3.4	0.6	1.3	0.5	0.9	1,531.0
2023	2.0	3.5	0.7	1.3	0.5	0.9	1,565.0
2024	2.0	3.6	0.7	1.4	0.5	0.9	1,599.0
2025	2.0	3.7	0.7	1.4	0.5	0.9	1,633.0
2026	2.1	3.8	0.7	1.4	0.5	0.9	1,668.0
2027	2.1	3.9	0.7	1.5	0.5	1.0	1,702.0
2028	2.1	3.9	0.7	1.5	0.5	1.0	1,736.0
2029	2.2	4.0	0.7	1.5	0.5	1.0	1,770.0
2030	2.2	4.1	0.8	1.6	0.5	1.0	1,805.0
2031	2.2	4.2	0.8	1.6	0.5	1.1	1,839.0
2032	2.3	4.3	0.8	1.7	0.6	1.1	1,873.0
2033	2.3	4.4	0.8	1.7	0.6	1.1	1,907.0
2034	2.3	4.4	0.8	1.7	0.6	1.1	1,942.0
2035	2.4	4.5	0.8	1.8	0.6	1.2	1,976.0

Notes:

1) Managed Lane toll trips are through movement only, while Viaduct toll trips include through movement *plus* shorter movements utilizing intersection at Arts Drive

2) Numbers may not add due to rounding