

Town of Medley NW 116th Way Corridor Study – APPENDIX



Prepared for:
Town of Medley

Prepared By:



Calvin, Giordano & Associates, Inc.

Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS

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CGA Project No. 09-2426

June 2010

APPENDIX A



PHOTO 1

Westbound NW 102nd Avenue at NW 116th Way – Insufficient roadway striping



PHOTO 2

Northbound on NW 107nd Avenue – Trucks using roadway that prohibits trucks



PHOTO 3

Facing SE on NW South River Road and NW 116th Way – vehicles queuing over the bridge between South River and Okeechobee



PHOTO 4

NE bound on NW 116th Way south of NW South River– traffic queues on the two right lanes

PHOTO 5



Facing NW on NW South River Road and NW 116th Way – vehicles blocking the intersection

PHOTO 6



Eastbound NW 116th Way east of NW South River Drive - Poor pavement conditions



PHOTO 7

Southbound NW South River Drive north of NW 116th Way – Poor pavement conditions



PHOTO 8

Northbound NW South River Drive south of NW 116th Way – Poor pavement conditions



PHOTO 9

Northbound NW 106th Terrace south of NW 116th Way – Insufficient roadway striping



PHOTO 10

NE bound on NW 116th Way south of NW South River– PM traffic queue



PHOTO 11

Facing SE on NW South River Road and NW 116th Way – vehicles maneuvering around blocked intersection



PHOTO 12

NE bound on NW 116th Way south of NW South River– PM traffic queues to the rail road tracks

APPENDIX B

KMF TRAFFIC GROUP, LLC

Page 1

AUTOMATIC TRAFFIC RECORDER
 NW 102nd RD
 295' North of 116th Way
 Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
 Stuart, FL 34997
 Phone and Fax (772) 221-7971

Site Code: CGA-503
 25 52' 16.30" N
 80 21' 54.02" W

Start Time	10-Nov-09 Tue	SB	NB	Total
12:00 AM		1	1	2
12:15		1	2	3
12:30		0	2	2
12:45		2	1	3
01:00		2	0	2
01:15		0	0	0
01:30		0	3	3
01:45		0	1	1
02:00		0	1	1
02:15		0	0	0
02:30		2	0	2
02:45		2	1	3
03:00		2	0	2
03:15		0	0	0
03:30		0	2	2
03:45		3	0	3
04:00		0	0	0
04:15		1	2	3
04:30		1	0	1
04:45		2	1	3
05:00		11	0	11
05:15		1	5	6
05:30		5	2	7
05:45		8	2	10
06:00		9	5	14
06:15		5	1	6
06:30		21	11	32
06:45		23	12	35
07:00		22	6	28
07:15		27	14	41
07:30		38	22	60
07:45		54	17	71
08:00		28	15	43
08:15		18	18	36
08:30		40	19	59
08:45		44	11	55
09:00		32	17	49
09:15		26	13	39
09:30		33	27	60
09:45		23	19	42
10:00		34	21	55
10:15		22	21	43
10:30		18	25	43
10:45		23	18	41
11:00		23	21	44
11:15		28	30	58
11:30		31	33	64
11:45		16	27	43
Total		682	449	1131
Percent		60.3%	39.7%	
Peak		07:15	11:00	07:15
Vol.		147	111	215
P.H.F.		0.681	0.841	0.757

KMF TRAFFIC GROUP, LLC

Page 2

AUTOMATIC TRAFFIC RECORDER
NW 102nd RD
295' North of 116th Way
Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 16.30" N
80 21' 54.02" W

Start Time	10-Nov-09 Tue	SB	NB	Total
12:00 PM		28	27	55
12:15		34	18	52
12:30		23	31	54
12:45		30	33	63
01:00		32	25	57
01:15		23	33	56
01:30		40	31	71
01:45		29	23	52
02:00		28	26	54
02:15		18	32	50
02:30		22	27	49
02:45		27	22	49
03:00		19	38	57
03:15		26	23	49
03:30		26	31	57
03:45		28	25	53
04:00		25	28	53
04:15		12	20	32
04:30		20	58	78
04:45		17	21	38
05:00		10	30	40
05:15		12	16	28
05:30		7	47	54
05:45		8	32	40
06:00		12	43	55
06:15		4	31	35
06:30		4	27	31
06:45		5	12	17
07:00		5	20	25
07:15		8	12	20
07:30		1	18	19
07:45		1	13	14
08:00		1	9	10
08:15		5	4	9
08:30		3	1	4
08:45		0	2	2
09:00		2	3	5
09:15		3	5	8
09:30		2	7	9
09:45		3	3	6
10:00		5	2	7
10:15		0	2	2
10:30		1	0	1
10:45		1	2	3
11:00		1	1	2
11:15		1	2	3
11:30		8	7	15
11:45		0	0	0
Total		620	923	1543
Percent		40.2%	59.8%	
Peak		12:45	17:30	12:45
Vol.		125	153	247
P.H.F.		0.781	0.814	0.870
Total		1302	1372	2674
Percent		48.7%	51.3%	

ADT

ADT 2,674

AADT 2,674

KMF TRAFFIC GROUP, LLC

Page 1

AUTOMATIC TRAFFIC RECORDER

NW South River Dr.

450' North of NW 116 Way

Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM

Stuart, FL 34997

Phone and Fax (772) 221-7971

Site Code: CGA-503

25 52' 46.26"N

80 21' 28.58"W

Start Time	10-Nov-09 Tue	SB	NB	Total
12:00 AM		4	0	4
12:15		2	0	2
12:30		0	1	1
12:45		0	1	1
01:00		0	1	1
01:15		4	0	4
01:30		2	2	4
01:45		2	1	3
02:00		1	1	2
02:15		0	2	2
02:30		0	0	0
02:45		0	2	2
03:00		0	3	3
03:15		1	2	3
03:30		1	5	6
03:45		5	7	12
04:00		2	5	7
04:15		1	6	7
04:30		3	12	15
04:45		8	15	23
05:00		6	9	15
05:15		8	12	20
05:30		10	13	23
05:45		10	17	27
06:00		12	32	44
06:15		13	25	38
06:30		17	36	53
06:45		13	28	41
07:00		16	30	46
07:15		24	26	50
07:30		21	40	61
07:45		16	26	42
08:00		31	28	59
08:15		33	36	69
08:30		35	30	65
08:45		23	29	52
09:00		26	49	75
09:15		26	28	54
09:30		32	42	74
09:45		34	40	74
10:00		27	39	66
10:15		30	31	61
10:30		40	45	85
10:45		40	48	88
11:00		48	29	77
11:15		49	41	90
11:30		32	44	76
11:45		37	46	83
Total		745	965	1710
Percent		43.6%	56.4%	
Peak		10:30	10:00	10:30
Vol.		177	163	340
P.H.F.		0.903	0.849	0.944

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AUTOMATIC TRAFFIC RECORDER
NW South River Dr.
450' North of NW 116 Way
Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 46.26"N
80 21' 28.58"W

Start Time	10-Nov-09 Tue	SB	NB	Total
12:00 PM		39	38	77
12:15		36	49	85
12:30		48	54	102
12:45		56	44	100
01:00		52	44	96
01:15		37	38	75
01:30		25	38	63
01:45		38	34	72
02:00		35	30	65
02:15		33	35	68
02:30		38	38	76
02:45		36	42	78
03:00		39	40	79
03:15		25	35	60
03:30		31	34	65
03:45		29	35	64
04:00		25	34	59
04:15		37	29	66
04:30		36	29	65
04:45		46	34	80
05:00		46	27	73
05:15		30	28	58
05:30		31	18	49
05:45		19	20	39
06:00		26	17	43
06:15		26	18	44
06:30		15	7	22
06:45		12	7	19
07:00		14	6	20
07:15		7	7	14
07:30		6	7	13
07:45		4	4	8
08:00		5	3	8
08:15		0	7	7
08:30		9	3	12
08:45		2	4	6
09:00		1	2	3
09:15		7	4	11
09:30		0	1	1
09:45		2	3	5
10:00		2	5	7
10:15		2	4	6
10:30		2	9	11
10:45		2	2	4
11:00		2	3	5
11:15		1	4	5
11:30		2	1	3
11:45		0	0	0
Total		1016	975	1991
Percent		51.0%	49.0%	
Peak		12:30	12:15	12:15
Vol.		193	191	383
P.H.F.		0.862	0.884	0.939
Grand Total		1761	1940	3701
Percent		47.6%	52.4%	
ADT		ADT 3,701	AADT 3,701	

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Page 1

AUTOMATIC TRAFFIC RECORDER
 NW 116TH Way (Volume Report)
 1,480' West of NW 102nd RD
 Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
 Stuart, FL 34997
 Phone and Fax (772) 221-7971

Site Code: CGA-503
 25 52' 10.78" N
 80 22' 07.17" W

Start Time	10-Nov-09 Tue	EB	WB	Total
12:00 AM		40	17	57
12:15		19	9	28
12:30		23	17	40
12:45		17	6	23
01:00		19	8	27
01:15		13	8	21
01:30		10	6	16
01:45		11	12	23
02:00		8	5	13
02:15		6	6	12
02:30		8	3	11
02:45		13	2	15
03:00		8	2	10
03:15		17	5	22
03:30		12	5	17
03:45		16	14	30
04:00		18	10	28
04:15		22	11	33
04:30		20	23	43
04:45		37	29	66
05:00		47	27	74
05:15		42	37	79
05:30		75	74	149
05:45		122	88	210
06:00		112	72	184
06:15		132	109	241
06:30		202	130	332
06:45		234	170	404
07:00		215	180	395
07:15		223	155	378
07:30		257	183	440
07:45		288	197	485
08:00		275	211	486
08:15		317	211	528
08:30		238	184	422
08:45		242	194	436
09:00		219	191	410
09:15		162	169	331
09:30		160	175	335
09:45		175	149	324
10:00		171	143	314
10:15		173	120	293
10:30		181	142	323
10:45		167	141	308
11:00		159	131	290
11:15		180	137	317
11:30		163	146	309
11:45		168	170	338
Total		5436	4234	9670
Percent		56.2%	43.8%	
Peak		07:30	07:45	07:30
Vol.		1137	803	1939
P.H.F.		0.897	0.951	0.918

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Page 2

AUTOMATIC TRAFFIC RECORDER
NW 116TH Way (Volume Report)
1,480' West of NW 102nd RD
Location Counted: 11/10/09 (Tuesday)

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Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 10.78" N
80 22' 07.17" W

Start Time	10-Nov-09 Tue	EB	WB	Total
12:00 PM		220	154	374
12:15		200	178	378
12:30		192	136	328
12:45		156	163	319
01:00		182	162	344
01:15		162	189	351
01:30		169	158	327
01:45		181	148	329
02:00		175	166	341
02:15		195	177	372
02:30		194	197	391
02:45		220	171	391
03:00		162	197	359
03:15		217	182	399
03:30		199	239	438
03:45		209	223	432
04:00		223	205	428
04:15		210	241	451
04:30		222	237	459
04:45		216	266	482
05:00		261	318	579
05:15		241	329	570
05:30		221	256	477
05:45		198	258	456
06:00		206	207	413
06:15		160	217	377
06:30		153	169	322
06:45		143	177	320
07:00		151	136	287
07:15		129	87	216
07:30		103	98	201
07:45		108	74	182
08:00		94	58	152
08:15		66	87	153
08:30		51	54	105
08:45		68	55	123
09:00		75	48	123
09:15		71	47	118
09:30		61	56	117
09:45		57	40	97
10:00		61	53	114
10:15		57	36	93
10:30		44	51	95
10:45		38	26	64
11:00		54	24	78
11:15		48	26	74
11:30		43	31	74
11:45		34	27	61
Total		6900	6834	13734
Percent		50.2%	49.8%	
Peak		16:30	16:45	16:45
Vol.		940	1169	2108
P.H.F.		0.900	0.888	0.910
Total		12336	11068	23404
Percent		52.7%	47.3%	

ADT

ADT 23,404

AADT 23,404

KMF TRAFFIC GROUP, LLC

Page 1

AUTOMATIC TRAFFIC RECORDER
NW 116TH Way (WB Volume Report)
150' West of Railroad Track
Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 31.25" N
80 21' 35.69" W

Start Time	10-Nov-09 Tue	WB
12:00 AM		15
12:15		10
12:30		15
12:45		5
01:00		10
01:15		7
01:30		6
01:45		9
02:00		10
02:15		7
02:30		3
02:45		9
03:00		5
03:15		7
03:30		11
03:45		17
04:00		22
04:15		17
04:30		30
04:45		51
05:00		44
05:15		37
05:30		87
05:45		119
06:00		61
06:15		123
06:30		183
06:45		206
07:00		201
07:15		192
07:30		217
07:45		240
08:00		286
08:15		262
08:30		258
08:45		227
09:00		256
09:15		192
09:30		172
09:45		176
10:00		150
10:15		151
10:30		157
10:45		158
11:00		151
11:15		136
11:30		149
11:45		182
Total		5039
Peak		07:45
Vol.		1046
P.H.F.		0.914

KMF TRAFFIC GROUP, LLC

AUTOMATIC TRAFFIC RECORDER
 NW 116TH Way (WB Volume Report)
 150' West of Railroad Track
 Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
 Stuart, FL 34997
 Phone and Fax (772) 221-7971

Site Code: CGA-503
 25 52' 31.25" N
 80 21' 35.69" W

Start Time	10-Nov-09 Tue	WB
12:00 PM		149
12:15		157
12:30		171
12:45		189
01:00		164
01:15		188
01:30		162
01:45		151
02:00		109
02:15		185
02:30		209
02:45		179
03:00		175
03:15		180
03:30		185
03:45		192
04:00		157
04:15		210
04:30		194
04:45		213
05:00		261
05:15		249
05:30		201
05:45		224
06:00		179
06:15		174
06:30		150
06:45		133
07:00		126
07:15		64
07:30		99
07:45		70
08:00		59
08:15		68
08:30		55
08:45		54
09:00		37
09:15		52
09:30		60
09:45		38
10:00		40
10:15		40
10:30		53
10:45		28
11:00		29
11:15		29
11:30		20
11:45		0
Total		6111
Peak		17:00
Vol.		935
P.H.F.		0.896
Total		11150
Percent		
ADT	ADT 11,150	AADT 11,150

KMF TRAFFIC GROUP, LLC

Page 1

AUTOMATIC TRAFFIC RECORDER
NW 116TH Way (EB)
150' West of Railroad Track
Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 31.25" N
80 21' 35.69" W

Start Time	10-Nov-09 Tue	EB
12:00 AM		40
12:15		20
12:30		21
12:45		12
01:00		22
01:15		7
01:30		8
01:45		9
02:00		10
02:15		12
02:30		18
02:45		15
03:00		20
03:15		15
03:30		23
03:45		17
04:00		21
04:15		32
04:30		22
04:45		25
05:00		36
05:15		28
05:30		62
05:45		98
06:00		101
06:15		120
06:30		182
06:45		185
07:00		195
07:15		210
07:30		217
07:45		240
08:00		275
08:15		243
08:30		217
08:45		227
09:00		208
09:15		192
09:30		162
09:45		172
10:00		165
10:15		151
10:30		194
10:45		177
11:00		175
11:15		192
11:30		200
11:45		182
Total		5175
Peak		07:30
Vol.		975
P.H.F.		0.886

KMF TRAFFIC GROUP, LLC

AUTOMATIC TRAFFIC RECORDER
NW 116TH Way (EB)
150' West of Railroad Track
Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 31.25" N
80 21' 35.69" W

Start Time	10-Nov-09 Tue	EB
12:00 PM		206
12:15		200
12:30		187
12:45		180
01:00		200
01:15		160
01:30		162
01:45		170
02:00		180
02:15		190
02:30		209
02:45		227
03:00		160
03:15		199
03:30		245
03:45		192
04:00		235
04:15		210
04:30		263
04:45		244
05:00		310
05:15		283
05:30		231
05:45		190
06:00		232
06:15		155
06:30		162
06:45		129
07:00		134
07:15		121
07:30		118
07:45		98
08:00		89
08:15		63
08:30		60
08:45		69
09:00		78
09:15		73
09:30		60
09:45		61
10:00		53
10:15		59
10:30		53
10:45		40
11:00		60
11:15		47
11:30		39
11:45		35
Total		7121
Peak		16:30
Vol.		1100
P.H.F.		0.887
Total		12296
Percent		
ADT	ADT 12,296	AADT 12,296

KMF TRAFFIC GROUP, LLC

Page 1

AUTOMATIC TRAFFIC RECORDER

NW 116TH Way

Between NW101st RD and NW102nd RD

Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM

Stuart, FL 34997

Phone and Fax (772) 221-7971

Site Code: CGA-503

25 52' 18.63" N

80 21' 47.23" W

Start Time	10-Nov-09 Tue	WB	EB	Total
12:00 AM		14	38	52
12:15		10	19	29
12:30		15	24	39
12:45		5	10	15
01:00		10	26	36
01:15		10	9	19
01:30		4	7	11
01:45		16	8	24
02:00		8	8	16
02:15		6	8	14
02:30		2	14	16
02:45		8	10	18
03:00		7	12	19
03:15		3	12	15
03:30		8	13	21
03:45		20	9	29
04:00		16	16	32
04:15		12	23	35
04:30		26	26	52
04:45		38	19	57
05:00		32	34	66
05:15		52	28	80
05:30		92	60	152
05:45		83	89	172
06:00		101	90	191
06:15		140	112	252
06:30		194	138	332
06:45		190	172	362
07:00		162	174	336
07:15		215	180	395
07:30		218	212	430
07:45		267	236	503
08:00		240	216	456
08:15		254	234	488
08:30		250	214	464
08:45		221	204	425
09:00		218	192	410
09:15		200	170	370
09:30		156	156	312
09:45		174	168	342
10:00		154	178	332
10:15		148	158	306
10:30		168	184	352
10:45		164	170	334
11:00		150	172	322
11:15		136	182	318
11:30		157	190	347
11:45		172	184	356
Total		4946	4808	9754
Percent		50.7%	49.3%	
Peak		07:45	07:45	07:45
Vol.		1011	900	1911
P.H.F.		0.947	0.953	0.950

KMF TRAFFIC GROUP, LLC

Page 2

AUTOMATIC TRAFFIC RECORDER
NW 116TH Way
Between NW101st RD and NW102nd RD
Location Counted: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 18.63" N
80 21' 47.23" W

Start Time	10-Nov-09 Tue	WB	EB	Total
12:00 PM		166	210	376
12:15		182	195	377
12:30		169	184	353
12:45		151	178	329
01:00		214	172	386
01:15		184	198	382
01:30		146	160	306
01:45		140	169	309
02:00		186	175	361
02:15		203	190	393
02:30		206	204	410
02:45		166	227	393
03:00		180	158	338
03:15		178	198	376
03:30		208	248	456
03:45		187	197	384
04:00		180	236	416
04:15		219	209	428
04:30		208	264	472
04:45		258	246	504
05:00		324	312	636
05:15		276	283	559
05:30		233	230	463
05:45		232	192	424
06:00		220	232	452
06:15		196	155	351
06:30		156	162	318
06:45		162	131	293
07:00		121	139	260
07:15		90	121	211
07:30		92	110	202
07:45		74	102	176
08:00		76	92	168
08:15		72	66	138
08:30		60	62	122
08:45		56	68	124
09:00		47	75	122
09:15		48	78	126
09:30		51	58	109
09:45		44	64	108
10:00		44	59	103
10:15		38	62	100
10:30		53	60	113
10:45		25	38	63
11:00		28	63	91
11:15		28	46	74
11:30		30	39	69
11:45		26	35	61
Total		6633	7152	13785
Percent		48.1%	51.9%	
Peak		16:45	16:30	16:30
Vol.		1091	1105	2171
P.H.F.		0.842	0.885	0.853
Total		11579	11960	23539
Percent		49.2%	50.8%	

ADT

ADT 23,539

AADT 23,539

KMF TRAFFIC GROUP, LLC

Page 1

AUTOMATIC TRAFFIC RECORDER
 NW 102nd RD
 680' South of NW 116th Way
 Location Countred: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
 Stuart, FL 34997
 Phone and Fax (772) 221-7971

Site Code: CGA-503
 25 51' 11.76" N
 80 21' 45.23" W

Start Time	10-Nov-09 Tue	SB	NB	Total
12:00 AM		1	1	2
12:15		0	3	3
12:30		3	1	4
12:45		1	0	1
01:00		1	4	5
01:15		0	2	2
01:30		1	0	1
01:45		3	0	3
02:00		1	3	4
02:15		1	0	1
02:30		0	0	0
02:45		1	0	1
03:00		0	1	1
03:15		1	1	2
03:30		4	0	4
03:45		5	2	7
04:00		0	3	3
04:15		5	2	7
04:30		4	4	8
04:45		14	2	16
05:00		4	2	6
05:15		10	5	15
05:30		12	7	19
05:45		35	9	44
06:00		18	19	37
06:15		28	14	42
06:30		30	11	41
06:45		51	20	71
07:00		29	22	51
07:15		42	22	64
07:30		48	29	77
07:45		49	47	96
08:00		44	38	82
08:15		62	24	86
08:30		64	30	94
08:45		52	28	80
09:00		35	32	67
09:15		37	18	55
09:30		33	20	53
09:45		23	29	52
10:00		29	29	58
10:15		21	18	39
10:30		25	28	53
10:45		29	31	60
11:00		21	34	55
11:15		34	37	71
11:30		26	33	59
11:45		28	35	63
Total		965	700	1665
Percent		58.0%	42.0%	
Peak		08:00	07:45	07:45
Vol.		222	139	358
P.H.F.		0.867	0.739	0.932

KMF TRAFFIC GROUP, LLC

Page 2

AUTOMATIC TRAFFIC RECORDER
NW 102nd RD
680' South of NW 116th Way
Location Countred: 11/10/09 (Tuesday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 51' 11.76" N
80 21' 45.23" W

Start Time	10-Nov-09 Tue	SB	NB	Total
12:00 PM		25	51	76
12:15		33	39	72
12:30		22	33	55
12:45		37	27	64
01:00		27	47	74
01:15		28	45	73
01:30		23	47	70
01:45		35	35	70
02:00		24	37	61
02:15		27	39	66
02:30		21	59	80
02:45		34	39	73
03:00		20	59	79
03:15		27	28	55
03:30		16	59	75
03:45		22	72	94
04:00		23	68	91
04:15		16	49	65
04:30		20	98	118
04:45		18	64	82
05:00		28	109	137
05:15		34	93	127
05:30		24	84	108
05:45		25	54	79
06:00		18	34	52
06:15		15	36	51
06:30		12	30	42
06:45		10	22	32
07:00		4	21	25
07:15		9	8	17
07:30		3	13	16
07:45		1	6	7
08:00		2	3	5
08:15		5	5	10
08:30		3	2	5
08:45		1	3	4
09:00		1	5	6
09:15		2	9	11
09:30		2	2	4
09:45		1	2	3
10:00		1	7	8
10:15		2	1	3
10:30		1	3	4
10:45		2	2	4
11:00		0	1	1
11:15		0	0	0
11:30		1	5	6
11:45		0	2	2
Total		705	1557	2262
Percent		31.2%	68.8%	
Peak		12:15	16:30	16:30
Vol.		119	364	464
P.H.F.		0.804	0.835	0.847
Total		1670	2257	3927
Percent		42.5%	57.5%	

ADT

ADT 3,927

AADT 3,927

KMF TRAFFIC GROUP, LLC

Page 1

AUTOMATIC TRAFFIC RECORDER
NW South River Dr.
350' South of NW 116th Way
Location Counted: 11/05/09 (Thursday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 41.25" N
80 21' 21.66" W

Start Time	05-Nov-09 Thu	SB	NB	Total
12:00 AM		3	1	4
12:15		2	0	2
12:30		0	2	2
12:45		2	2	4
01:00		0	3	3
01:15		0	3	3
01:30		1	1	2
01:45		1	0	1
02:00		0	0	0
02:15		2	0	2
02:30		0	2	2
02:45		4	2	6
03:00		2	2	4
03:15		2	3	5
03:30		3	4	7
03:45		1	0	1
04:00		2	3	5
04:15		2	1	3
04:30		4	2	6
04:45		7	0	7
05:00		6	6	12
05:15		7	12	19
05:30		7	5	12
05:45		8	7	15
06:00		12	14	26
06:15		18	17	35
06:30		15	11	26
06:45		34	9	43
07:00		28	23	51
07:15		20	20	40
07:30		48	23	71
07:45		59	21	80
08:00		61	17	78
08:15		56	27	83
08:30		71	25	96
08:45		72	34	106
09:00		55	16	71
09:15		49	20	69
09:30		72	29	101
09:45		55	36	91
10:00		50	31	81
10:15		51	41	92
10:30		66	57	123
10:45		41	53	94
11:00		42	37	79
11:15		52	48	100
11:30		38	39	77
11:45		44	41	85
Total		1175	750	1925
Percent		61.0%	39.0%	
Peak		08:00	10:30	10:30
Vol.		260	195	396
P.H.F.		0.903	0.855	0.805

KMF TRAFFIC GROUP, LLC

Page 2

AUTOMATIC TRAFFIC RECORDER
NW South River Dr.
350' South of NW 116th Way
Location Counted: 11/05/09 (Thursday)

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 41.25" N
80 21' 21.66" W

Start Time	05-Nov-09 Thu	SB	NB	Total
12:00 PM		42	39	81
12:15		52	44	96
12:30		53	40	93
12:45		49	61	110
01:00		43	48	91
01:15		63	45	108
01:30		54	62	116
01:45		48	47	95
02:00		52	59	111
02:15		63	45	108
02:30		53	42	95
02:45		50	46	96
03:00		54	51	105
03:15		40	60	100
03:30		51	48	99
03:45		55	48	103
04:00		42	42	84
04:15		49	49	98
04:30		37	81	118
04:45		39	47	86
05:00		30	63	93
05:15		18	53	71
05:30		21	59	80
05:45		24	48	72
06:00		27	57	84
06:15		18	47	65
06:30		23	56	79
06:45		20	37	57
07:00		32	20	52
07:15		18	37	55
07:30		6	21	27
07:45		6	16	22
08:00		11	10	21
08:15		7	12	19
08:30		4	7	11
08:45		1	8	9
09:00		4	5	9
09:15		2	7	9
09:30		7	4	11
09:45		2	4	6
10:00		4	5	9
10:15		3	6	9
10:30		2	5	7
10:45		2	3	5
11:00		4	2	6
11:15		0	3	3
11:30		3	3	6
11:45		0	0	0
Total		1288	1602	2890
Percent		44.6%	55.4%	
Peak		14:15	16:30	13:15
Vol.		220	244	430
P.H.F.		0.873	0.753	0.927
Grand Total		2463	2352	4815
Percent		51.2%	48.8%	

ADT

ADT 4,815

AADT 4,815

KMF Traffic Group, LLC

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Stuart, FL 34997

Voice and Fax: (772) 221-7971

TURNING MOVEMENT COUNT

NW 106th St. and NW 107th Ave.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

File Name : 107and106

Site Code : CGA-503

Start Date : 11/5/2009

Page No : 1

Groups Printed- ALL TRAFFIC

Start Time	NW 106th St. WB		NW 107th Ave, NB		NW 106th St. EB		Int. Total
	Thru	Left	Right	Left	Right	Thru	
07:00 AM	49	32	32	1	0	187	301
07:15 AM	94	41	40	2	1	225	403
07:30 AM	196	54	52	3	1	227	533
07:45 AM	239	74	76	4	5	254	652
Total	578	201	200	10	7	893	1889
08:00 AM	200	46	55	3	9	220	533
08:15 AM	180	46	106	18	10	213	573
08:30 AM	149	68	90	11	7	219	544
08:45 AM	82	38	67	9	13	153	362
Total	611	198	318	41	39	805	2012
*** BREAK ***							
04:00 PM	155	51	71	14	11	163	465
04:15 PM	175	54	67	22	5	108	431
04:30 PM	229	65	74	21	7	154	550
04:45 PM	233	84	88	25	7	230	667
Total	792	254	300	82	30	655	2113
05:00 PM	285	105	64	30	12	250	746
05:15 PM	270	110	83	35	14	251	763
05:30 PM	230	83	70	17	15	200	615
05:45 PM	182	62	60	8	7	118	437
Total	967	360	277	90	48	819	2561
Grand Total	2948	1013	1095	223	124	3172	8575
Apprch %	74.4	25.6	83.1	16.9	3.8	96.2	
Total %	34.4	11.8	12.8	2.6	1.4	37	

KMF Traffic Group, LLC

WWW.KMFTRAFFIC.COM

Stuart, FL 34997

Voice and Fax: (772) 221-7971

TURNING MOVEMENT COUNT

NW 106th St. and NW 107th Ave.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

File Name : 107and106

Site Code : CGA-503

Start Date : 11/5/2009

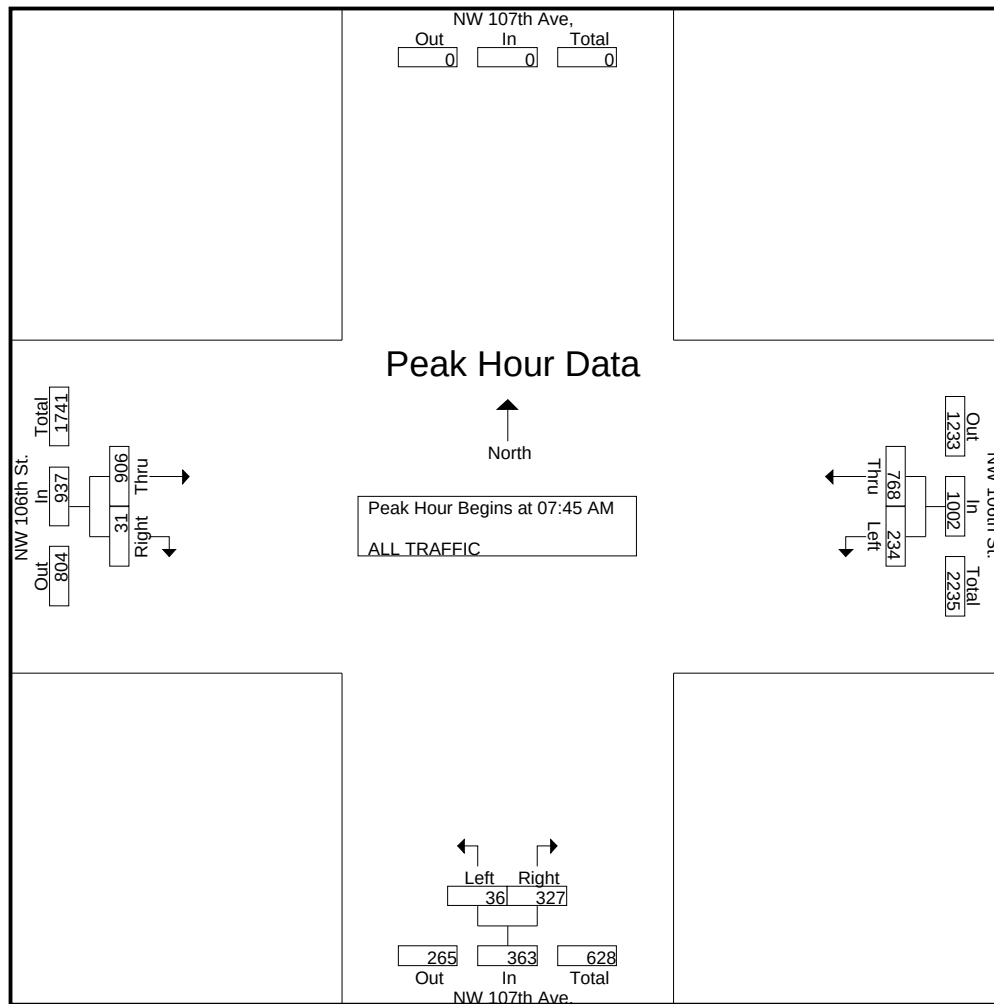
Page No : 2

	SB	NW 106th St. WB			NW 107th Ave, NB			NW 106th St. EB			
Start Time	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

07:45 AM	0	239	74	313	76	4	80	5	254	259	652
08:00 AM	0	200	46	246	55	3	58	9	220	229	533
08:15 AM	0	180	46	226	106	18	124	10	213	223	573
08:30 AM	0	149	68	217	90	11	101	7	219	226	544
Total Volume	0	768	234	1002	327	36	363	31	906	937	2302
% App. Total		76.6	23.4		90.1	9.9		3.3	96.7		
PHF	.000	.803	.791	.800	.771	.500	.732	.775	.892	.904	.883



KMF Traffic Group, LLC

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Stuart, FL 34997

Voice and Fax: (772) 221-7971

TURNING MOVEMENT COUNT

NW 106th St. and NW 107th Ave.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

File Name : 107and106

Site Code : CGA-503

Start Date : 11/5/2009

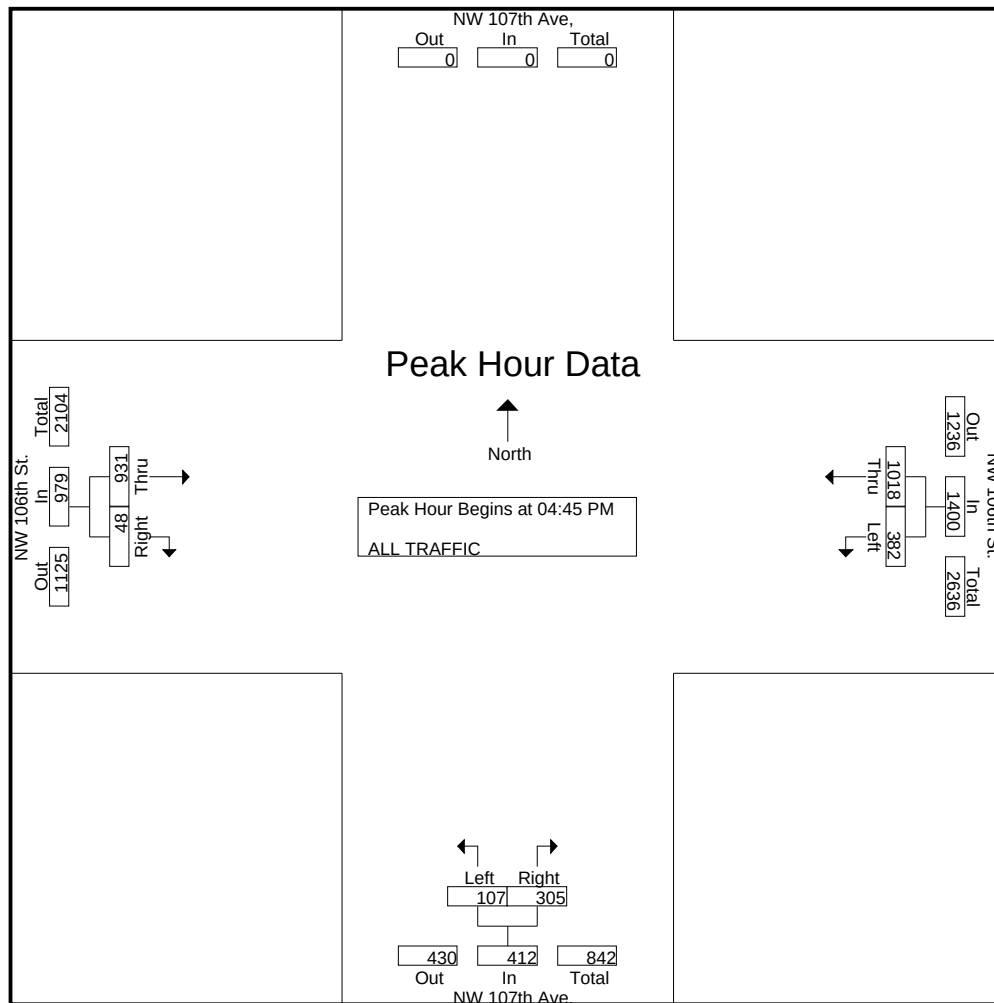
Page No : 3

	SB	NW 106th St. WB			NW 107th Ave, NB			NW 106th St. EB			
Start Time	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

04:45 PM	0	233	84	317	88	25	113	7	230	237	667
05:00 PM	0	285	105	390	64	30	94	12	250	262	746
05:15 PM	0	270	110	380	83	35	118	14	251	265	763
05:30 PM	0	230	83	313	70	17	87	15	200	215	615
Total Volume	0	1018	382	1400	305	107	412	48	931	979	2791
% App. Total		72.7	27.3		74	26		4.9	95.1		
PHF	.000	.893	.868	.897	.866	.764	.873	.800	.927	.924	.914



End of Report

KMF Traffic Group, LLC

WWW.KMFTRAFFIC.COM

Stuart, FL 34997

Voice and Fax: (772) 221-7971

MANUAL TRAFFIC COUNT

NW 106th St. and NW 108th Ave

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

File Name : 108 and 106

Site Code : CGA-503

Start Date : 11/5/2009

Page No : 1

Groups Printed- ALL TRAFFIC

Start Time	NW 106th ST WB		NW 108th Ave. NB		NW 106th ST EB		Int. Total
	Thru	Left	Right	Left	Right	Thru	
07:00 AM	81	34	7	0	11	180	313
07:15 AM	133	26	12	1	14	214	400
07:30 AM	157	27	9	4	9	219	425
07:45 AM	180	53	7	1	35	252	528
Total	551	140	35	6	69	865	1666
08:00 AM	149	51	5	2	27	224	458
08:15 AM	156	36	10	1	22	213	438
08:30 AM	148	35	12	3	27	214	439
08:45 AM	82	29	8	4	15	158	296
Total	535	151	35	10	91	809	1631

*** BREAK ***

04:00 PM	151	15	36	6	3	138	349
04:15 PM	171	14	14	6	8	99	312
04:30 PM	225	11	31	6	5	130	408
04:45 PM	226	19	26	9	3	180	463
Total	773	59	107	27	19	547	1532
05:00 PM	321	8	55	26	6	195	611
05:15 PM	292	5	22	11	3	178	511
05:30 PM	239	12	38	13	5	168	475
05:45 PM	176	10	16	8	3	109	322
Total	1028	35	131	58	17	650	1919
Grand Total	2887	385	308	101	196	2871	6748
Apprch %	88.2	11.8	75.3	24.7	6.4	93.6	
Total %	42.8	5.7	4.6	1.5	2.9	42.5	

KMF Traffic Group, LLC

WWW.KMFTRAFFIC.COM

Stuart, FL 34997

Voice and Fax: (772) 221-7971

MANUAL TRAFFIC COUNT

NW 106th St. and NW 108th Ave

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

File Name : 108 and 106

Site Code : CGA-503

Start Date : 11/5/2009

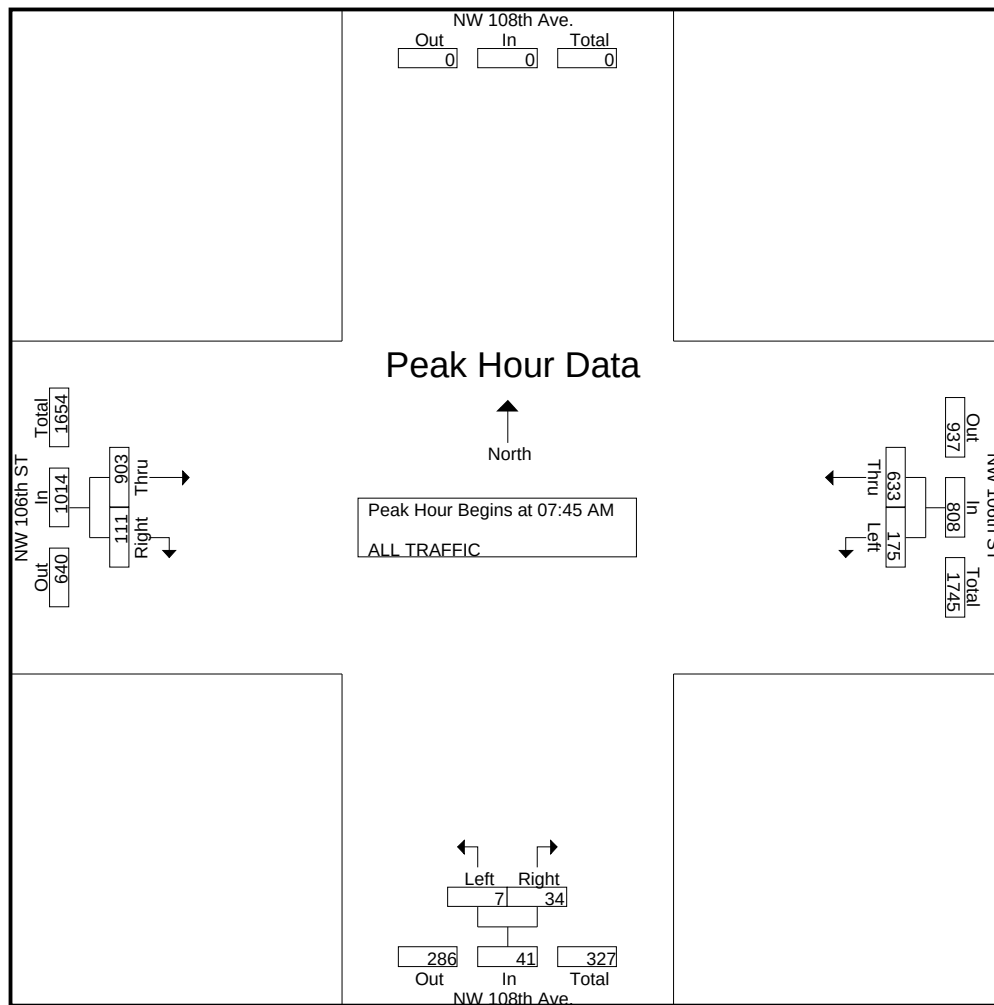
Page No : 2

	NW 106th ST WB			NW 108th Ave. NB			NW 106th ST EB			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

07:45 AM	180	53	233	7	1	8	35	252	287	528
08:00 AM	149	51	200	5	2	7	27	224	251	458
08:15 AM	156	36	192	10	1	11	22	213	235	438
08:30 AM	148	35	183	12	3	15	27	214	241	439
Total Volume	633	175	808	34	7	41	111	903	1014	1863
% App. Total	78.3	21.7		82.9	17.1		10.9	89.1		
PHF	.879	.825	.867	.708	.583	.683	.793	.896	.883	.882



KMF Traffic Group, LLC

WWW.KMFTRAFFIC.COM

Stuart, FL 34997

Voice and Fax: (772) 221-7971

MANUAL TRAFFIC COUNT

NW 106th St. and NW 108th Ave

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

File Name : 108 and 106

Site Code : CGA-503

Start Date : 11/5/2009

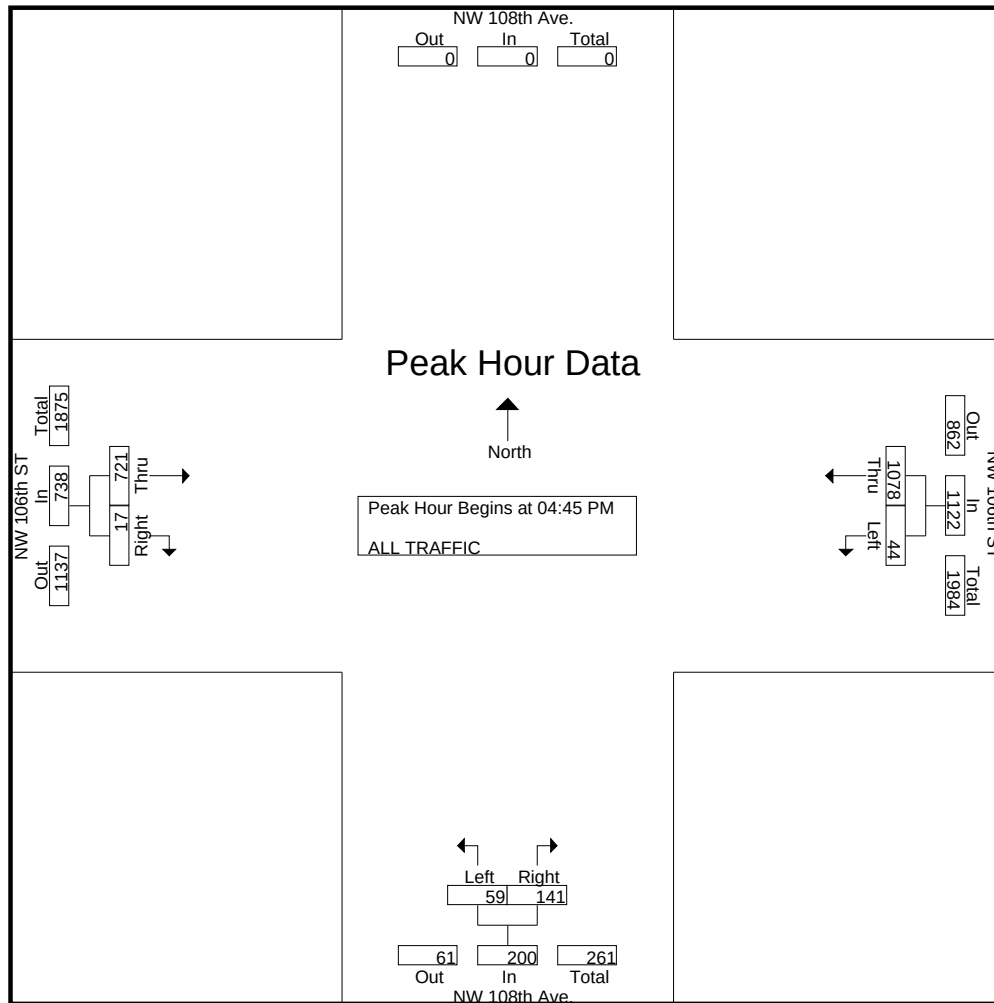
Page No : 3

	NW 106th ST WB			NW 108th Ave. NB			NW 106th ST EB			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

04:45 PM	226	19	245	26	9	35	3	180	183	463
05:00 PM	321	8	329	55	26	81	6	195	201	611
05:15 PM	292	5	297	22	11	33	3	178	181	511
05:30 PM	239	12	251	38	13	51	5	168	173	475
Total Volume	1078	44	1122	141	59	200	17	721	738	2060
% App. Total	96.1	3.9		70.5	29.5		2.3	97.7		
PHF	.840	.579	.853	.641	.567	.617	.708	.924	.918	.843



End of Report

KMF Traffic Group, LLC

WWW.KMFTRAFFIC.COM
Stuart, FL 34997
Voice and Fax: (772) 221-7971

MANUAL TRAFFIC COUNT

NW 116th Way and NW 102nd RD

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Tuesday)

File Name : 102 and 116

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 1

Groups Printed- ALL TRAFFIC -

	NW 102nd RD SB			NW 116th Way WB			NW 102nd RD NB			NW 116th Way EB			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	13	0	10	8	131	10	3	3	26	32	166	9	411
07:15 AM	6	2	8	24	213	5	5	0	16	86	202	10	577
07:30 AM	6	3	12	31	189	9	6	7	42	65	204	14	588
07:45 AM	4	3	7	24	221	9	5	6	32	83	222	21	637
Total	29	8	37	87	754	33	19	16	116	266	794	54	2213
08:00 AM	12	7	5	8	226	11	8	5	28	84	221	29	644
08:15 AM	7	0	4	12	230	11	6	2	22	76	235	24	629
08:30 AM	16	3	11	14	165	18	15	7	27	76	215	18	585
08:45 AM	14	5	10	12	214	9	4	2	28	61	226	21	606
Total	49	15	30	46	835	49	33	16	105	297	897	92	2464
*** BREAK ***													
04:00 PM	5	3	12	10	169	7	9	4	66	32	236	3	556
04:15 PM	5	1	8	10	216	3	10	0	62	15	204	6	540
04:30 PM	12	7	43	7	204	2	9	6	71	13	232	7	613
04:45 PM	12	4	15	8	221	8	6	2	57	19	238	5	595
Total	34	15	78	35	810	20	34	12	256	79	910	21	2304
05:00 PM	11	4	22	8	267	7	6	6	57	33	251	5	677
05:15 PM	15	2	18	8	268	4	2	2	75	36	249	3	682
05:30 PM	8	6	18	9	236	3	10	1	99	17	220	2	629
05:45 PM	7	2	12	2	242	4	4	1	41	24	207	2	548
Total	41	14	70	27	1013	18	22	10	272	110	927	12	2536
Grand Total	153	52	215	195	3412	120	108	54	749	752	3528	179	9517
Apprch %	36.4	12.4	51.2	5.2	91.5	3.2	11.9	5.9	82.2	16.9	79.1	4	
Total %	1.6	0.5	2.3	2	35.9	1.3	1.1	0.6	7.9	7.9	37.1	1.9	
ALL TRAFFIC	143	50	208	188	3356	115	92	51	733	736	3478	175	9325
% ALL TRAFFIC	93.5	96.2	96.7	96.4	98.4	95.8	85.2	94.4	97.9	97.9	98.6	97.8	98
	10	2	7	7	56	5	16	3	16	16	50	4	192
%	6.5	3.8	3.3	3.6	1.6	4.2	14.8	5.6	2.1	2.1	1.4	2.2	2

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Voice and Fax: (772) 221-7971

MANUAL TRAFFIC COUNT

NW 116th Way and NW 102nd RD

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Tuesday)

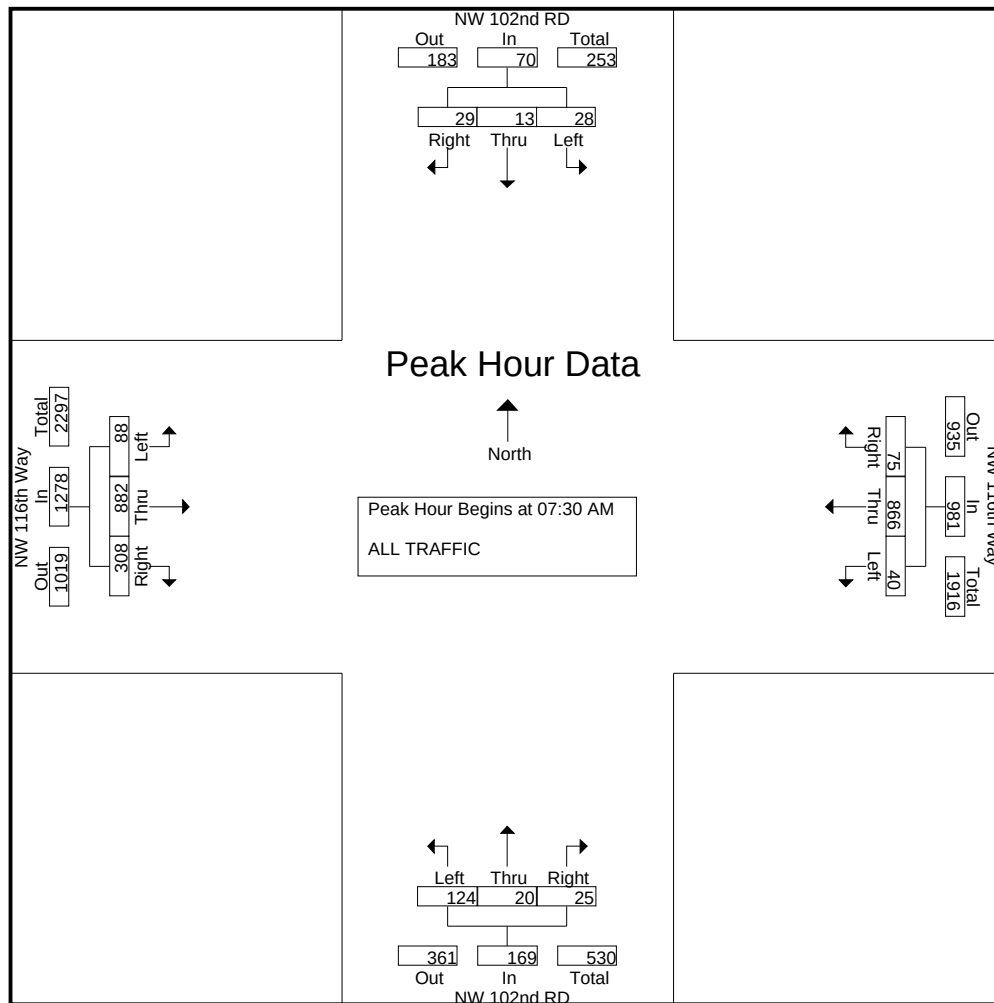
File Name : 102 and 116

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 2

	NW 102nd RD SB				NW 116th Way WB				NW 102nd RD NB				NW 116th Way EB				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	6	3	12	21	31	189	9	229	6	7	42	55	65	204	14	283	588
07:45 AM	4	3	7	14	24	221	9	254	5	6	32	43	83	222	21	326	637
08:00 AM	12	7	5	24	8	226	11	245	8	5	28	41	84	221	29	334	644
08:15 AM	7	0	4	11	12	230	11	253	6	2	22	30	76	235	24	335	629
Total Volume	29	13	28	70	75	866	40	981	25	20	124	169	308	882	88	1278	2498
% App. Total	41.4	18.6				88.3			14.8	11.8	73.4		24.1				
PHF	.604	.464	.583	.729	.605	.941	.909	.966	.781	.714	.738	.768	.917	.938	.759	.954	.970



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MANUAL TRAFFIC COUNT

NW 116th Way and NW 102nd RD

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Tuesday)

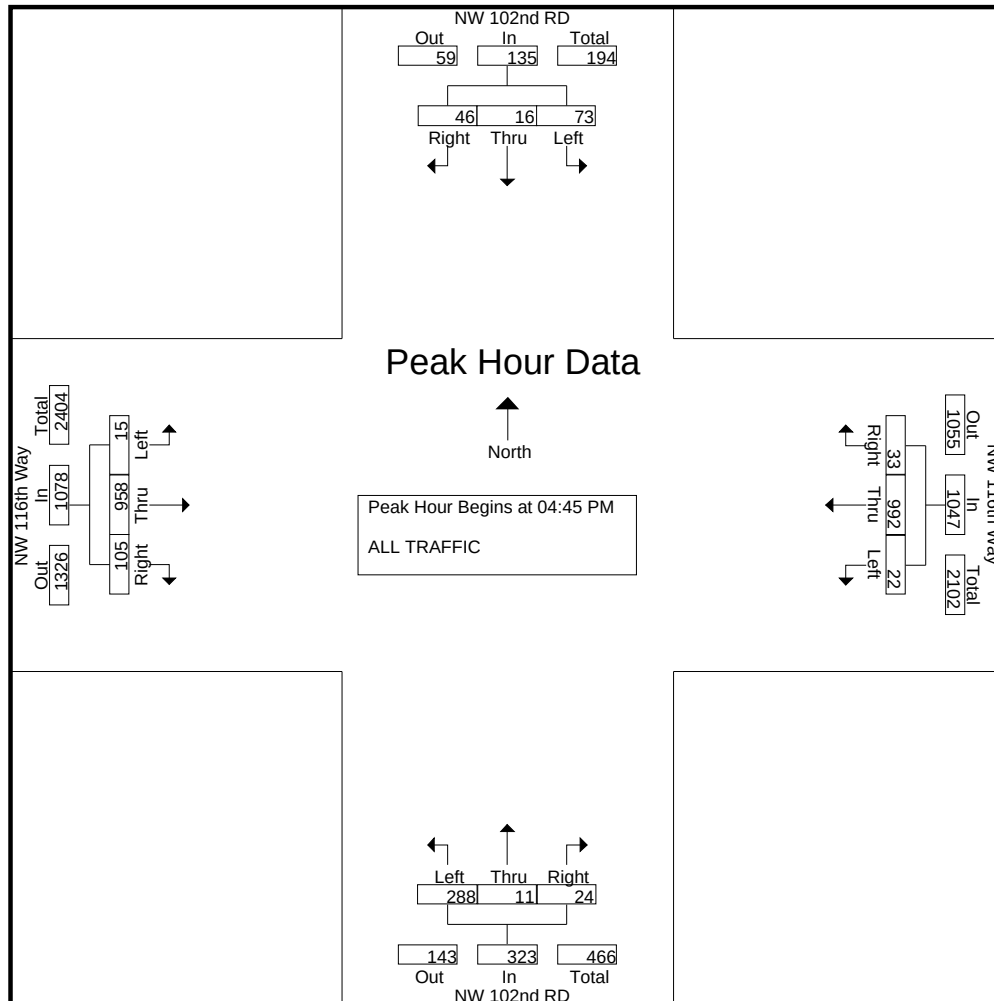
File Name : 102 and 116

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 3

	NW 102nd RD SB				NW 116th Way WB				NW 102nd RD NB				NW 116th Way EB				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	12	4	15	31	8	221	8	237	6	2	57	65	19	238	5	262	595
05:00 PM	11	4	22	37	8	267	7	282	6	6	57	69	33	251	5	289	677
05:15 PM	15	2	18	35	8	268	4	280	2	2	75	79	36	249	3	288	682
05:30 PM	8	6	18	32	9	236	3	248	10	1	99	110	17	220	2	239	629
Total Volume	46	16	73	135	33	992	22	1047	24	11	288	323	105	958	15	1078	2583
% App. Total	34.1	11.9	54.1			94.7					89.2			88.9			
PHF	.767	.667	.830	.912	.917	.925	.688	.928	.600	.458	.727	.734	.729	.954	.750	.933	.947



End of Report

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MANUAL TRAFFIC COUNT

NW 116th Way and NW 101st Rd.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Tuesday)

File Name : 101 MANUAL COUNT

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 1

Groups Printed- ALL TRAFFIC

Start Time	NW 101 RD SB			NW 116 WAY WB			NW 101 RD NB			NW 116 WAY EB			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	2	1	6	3	157	1	2	0	0	1	158	10	341
07:15 AM	7	3	4	8	186	6	1	0	1	1	180	12	409
07:30 AM	3	0	5	7	223	2	0	0	1	2	217	7	467
07:45 AM	1	1	4	9	261	2	2	0	0	0	223	17	520
Total	13	5	19	27	827	11	5	0	2	4	778	46	1737
08:00 AM	4	0	12	10	222	2	1	0	1	0	188	8	448
08:15 AM	1	1	7	14	255	4	0	0	1	3	222	15	523
08:30 AM	5	1	10	7	219	2	1	0	1	1	205	18	470
08:45 AM	3	2	6	5	177	4	1	1	1	2	162	13	377
Total	13	4	35	36	873	12	3	1	4	6	777	54	1818

*** BREAK ***

04:00 PM	2	0	6	7	157	2	1	0	2	0	236	2	415
04:15 PM	4	1	10	7	215	2	5	0	1	1	225	6	477
04:30 PM	4	0	9	6	187	2	1	0	3	0	261	6	479
04:45 PM	6	1	14	5	240	2	2	1	3	2	239	9	524
Total	16	2	39	25	799	8	9	1	9	3	961	23	1895
05:00 PM	10	3	23	7	289	1	12	20	7	1	317	5	695
05:15 PM	3	6	14	4	246	1	5	0	6	1	269	5	560
05:30 PM	3	0	5	0	224	2	2	0	4	0	236	7	483
05:45 PM	3	1	9	0	238	2	3	0	2	0	207	3	468
Total	19	10	51	11	997	6	22	20	19	2	1029	20	2206
Grand Total	61	21	144	99	3496	37	39	22	34	15	3545	143	7656
Apprch %	27	9.3	63.7	2.7	96.3	1	41.1	23.2	35.8	0.4	95.7	3.9	
Total %	0.8	0.3	1.9	1.3	45.7	0.5	0.5	0.3	0.4	0.2	46.3	1.9	

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MANUAL TRAFFIC COUNT

NW 116th Way and NW 101st Rd.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Tuesday)

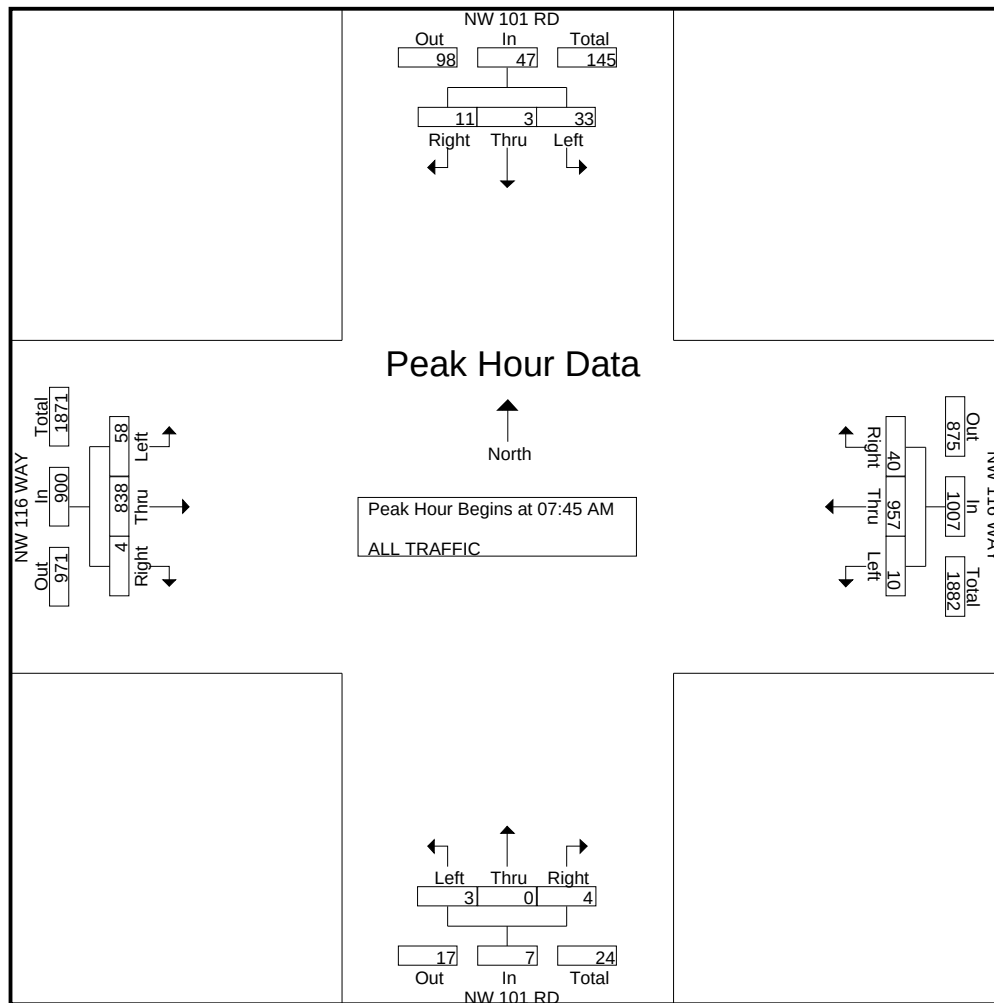
File Name : 101 MANUAL COUNT

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 2

	NW 101 RD SB				NW 116 WAY WB				NW 101 RD NB				NW 116 WAY EB				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	1	1	4	6	9	261	2	272	2	0	0	2	0	223	17	240	520
08:00 AM	4	0	12	16	10	222	2	234	1	0	1	2	0	188	8	196	448
08:15 AM	1	1	7	9	14	255	4	273	0	0	1	1	3	222	15	240	523
08:30 AM	5	1	10	16	7	219	2	228	1	0	1	2	1	205	18	224	470
Total Volume	11	3	33	47	40	957	10	1007	4	0	3	7	4	838	58	900	1961
% App. Total	23.4		70.2						57.1		42.9		93.1				
PHF	.550	.750	.688	.734	.714	.917	.625	.922	.500	.000	.750	.875	.333	.939	.806	.938	.937



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MANUAL TRAFFIC COUNT

NW 116th Way and NW 101st Rd.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Tuesday)

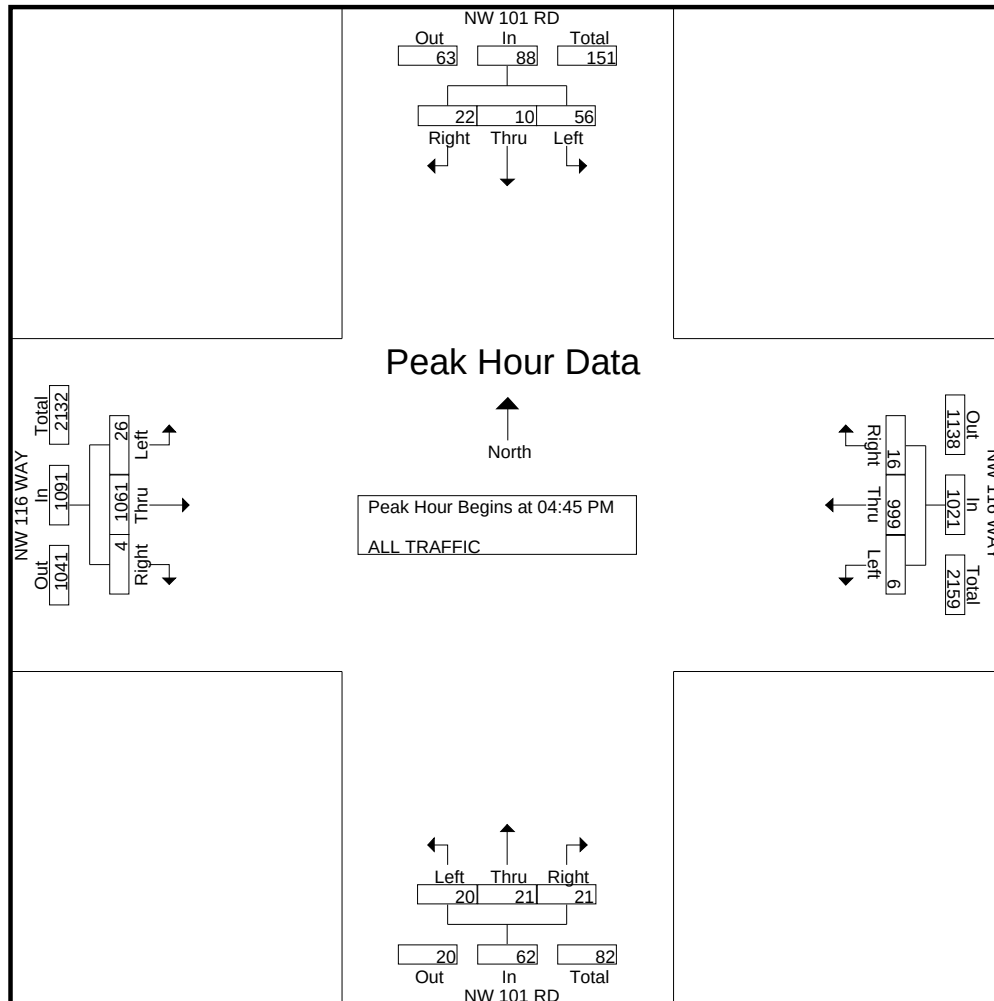
File Name : 101 MANUAL COUNT

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 3

	NW 101 RD SB				NW 116 WAY WB				NW 101 RD NB				NW 116 WAY EB				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	6	1	14	21	5	240	2	247	2	1	3	6	2	239	9	250	524
05:00 PM	10	3	23	36	7	289	1	297	12	20	7	39	1	317	5	323	695
05:15 PM	3	6	14	23	4	246	1	251	5	0	6	11	1	269	5	275	560
05:30 PM	3	0	5	8	0	224	2	226	2	0	4	6	0	236	7	243	483
Total Volume	22	10	56	88	16	999	6	1021	21	21	20	62	4	1061	26	1091	2262
% App. Total		11.4	63.6			97.8			33.9	33.9	32.3			97.3			
PHF	.550	.417	.609	.611	.571	.864	.750	.859	.438	.263	.714	.397	.500	.837	.722	.844	.814



End of Report

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MANUAL TRAFFIC COUNT

NW 116th Way and NW 100th Rd.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Thursday)

File Name : NW100

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 1

Groups Printed- ALL TRAFFIC

	NW 100th Rd. SB			NW 116th Way WB			NW 100th Rd. NB			NW 116th Way EB			Int. Total
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	4	2	5	9	154	17	1	0	3	2	157	7	361
07:15 AM	3	0	4	14	195	13	6	3	2	1	177	7	425
07:30 AM	2	0	5	12	229	15	2	0	1	8	196	18	488
07:45 AM	1	1	6	15	270	19	2	0	1	6	203	20	544
Total	10	3	20	50	848	64	11	3	7	17	733	52	1818
08:00 AM	4	0	6	15	229	16	4	2	1	7	179	15	478
08:15 AM	6	0	2	22	266	21	2	1	1	1	210	18	550
08:30 AM	5	1	6	12	223	15	0	0	0	1	201	14	478
08:45 AM	1	0	8	34	183	16	3	0	2	0	162	7	416
Total	16	1	22	83	901	68	9	3	4	9	752	54	1922
*** BREAK ***													
04:00 PM	7	0	22	9	155	10	3	0	4	2	233	8	453
04:15 PM	10	2	9	8	209	6	2	0	5	1	238	1	491
04:30 PM	1	0	23	5	188	10	3	0	6	1	270	7	514
04:45 PM	6	1	15	9	238	7	0	0	3	1	247	7	534
Total	24	3	69	31	790	33	8	0	18	5	988	23	1992
05:00 PM	10	1	25	5	280	8	3	2	7	0	346	6	693
05:15 PM	8	3	12	6	239	7	1	1	4	0	286	2	569
05:30 PM	6	0	16	5	215	3	4	0	5	0	242	1	497
05:45 PM	9	0	8	2	231	5	0	0	0	0	214	5	474
Total	33	4	61	18	965	23	8	3	16	0	1088	14	2233
Grand Total	83	11	172	182	3504	188	36	9	45	31	3561	143	7965
Apprch %	31.2	4.1	64.7	4.7	90.4	4.9	40	10	50	0.8	95.3	3.8	
Total %	1	0.1	2.2	2.3	44	2.4	0.5	0.1	0.6	0.4	44.7	1.8	

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MANUAL TRAFFIC COUNT

NW 116th Way and NW 100th Rd.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Thursday)

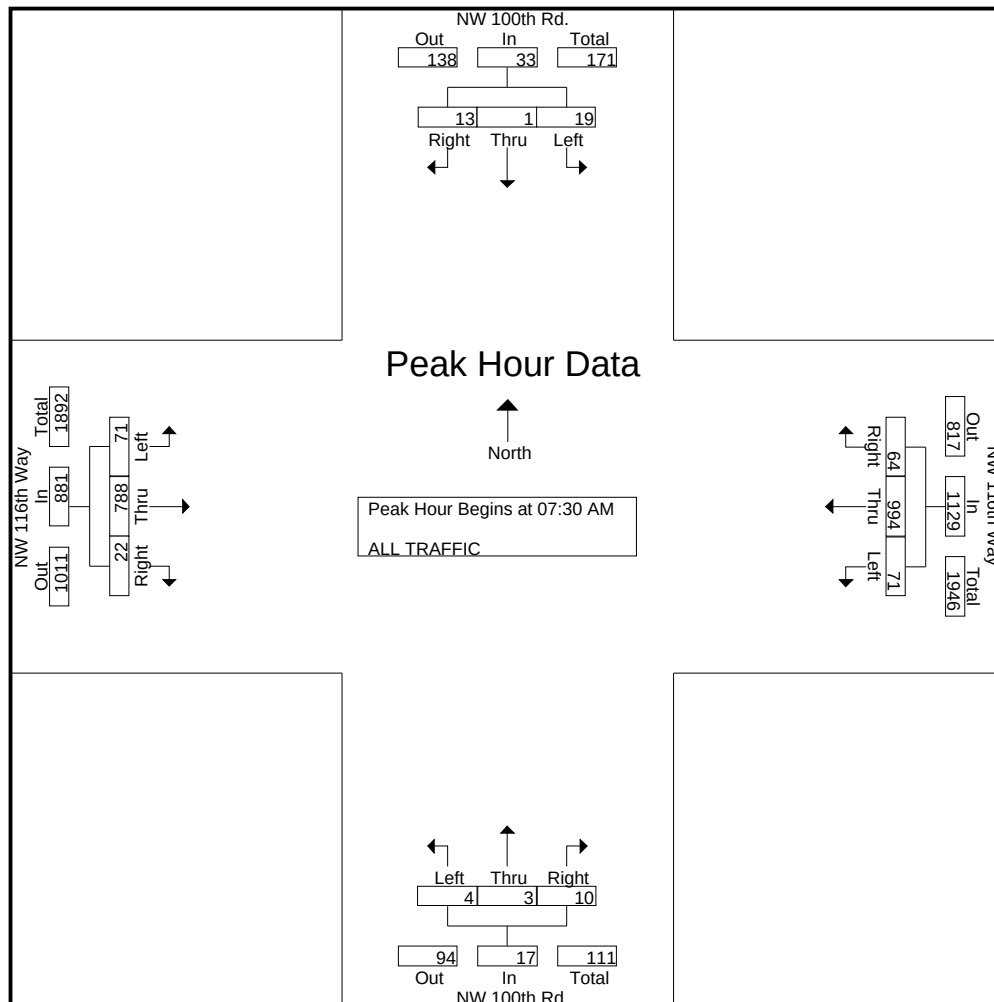
File Name : NW100

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 2

	NW 100th Rd. SB				NW 116th Way WB				NW 100th Rd. NB				NW 116th Way EB				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	2	0	5	7	12	229	15	256	2	0	1	3	8	196	18	222	488
07:45 AM	1	1	6	8	15	270	19	304	2	0	1	3	6	203	20	229	544
08:00 AM	4	0	6	10	15	229	16	260	4	2	1	7	7	179	15	201	478
08:15 AM	6	0	2	8	22	266	21	309	2	1	1	4	1	210	18	229	550
Total Volume	13	1	19	33	64	994	71	1129	10	3	4	17	22	788	71	881	2060
% App. Total	39.4	3	57.6		5.7	88	6.3		58.8	17.6	23.5		2.5	89.4	8.1		
PHF	.542	.250	.792	.825	.727	.920	.845	.913	.625	.375	1.000	.607	.688	.938	.888	.962	.936



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MANUAL TRAFFIC COUNT

NW 116th Way and NW 100th Rd.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/10/09 (Thursday)

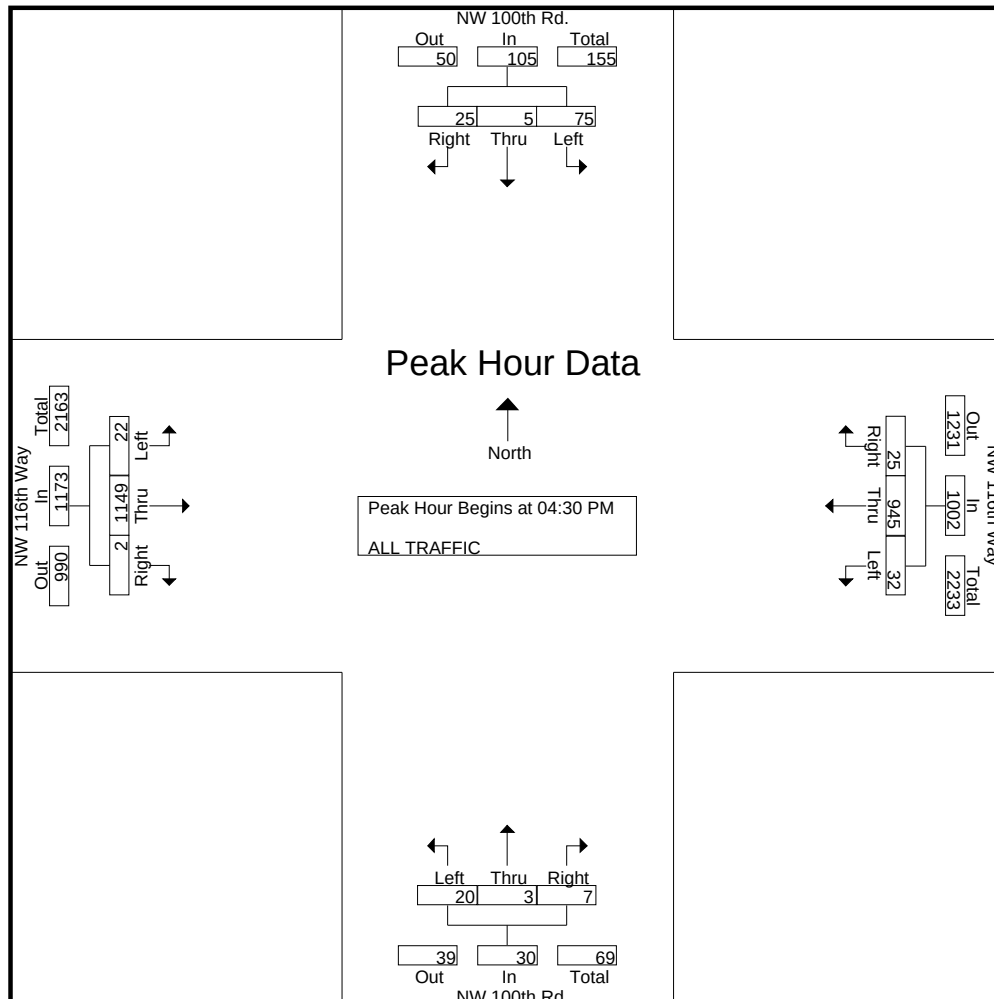
File Name : NW100

Site Code : CGA-503

Start Date : 11/10/2009

Page No : 3

	NW 100th Rd. SB				NW 116th Way WB				NW 100th Rd. NB				NW 116th Way EB				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	0	23	24	5	188	10	203	3	0	6	9	1	270	7	278	514
04:45 PM	6	1	15	22	9	238	7	254	0	0	3	3	1	247	7	255	534
05:00 PM	10	1	25	36	5	280	8	293	3	2	7	12	0	346	6	352	693
05:15 PM	8	3	12	23	6	239	7	252	1	1	4	6	0	286	2	288	569
Total Volume	25	5	75	105	25	945	32	1002	7	3	20	30	2	1149	22	1173	2310
% App. Total	23.8	4.8	71.4		2.5	94.3	3.2		23.3	10	66.7		0.2	98	1.9		
PHF	.625	.417	.750	.729	.694	.844	.800	.855	.583	.375	.714	.625	.500	.830	.786	.833	.833



End of Report

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TURNING MOVEMENT COUNT

NW 116th Way and NW S River Dr.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

File Name : 116way SRiver

Site Code : CGA-503

Start Date : 11/5/2009

Page No : 1

Groups Printed- ALL TRAFFIC

	S RIVER SB				NW 116 WAY WB				S RIVER NB				NW 116 WAY EB				
Start Time																	Int. Total
07:00 AM	4	7	4	0	8	209	34	0	8	5	5	0	12	166	13	0	475
07:15 AM	5	9	5	0	10	219	40	0	18	6	9	0	13	153	13	0	500
07:30 AM	3	7	7	0	21	296	38	0	4	7	6	0	9	189	17	0	604
07:45 AM	5	10	6	0	18	283	46	0	7	11	12	0	4	165	30	0	597
Total	17	33	22	0	57	1007	158	0	37	29	32	0	38	673	73	0	2176
08:00 AM	11	18	6	0	25	261	32	4	4	3	4	0	11	207	18	0	604
08:15 AM	11	6	8	0	26	267	36	0	5	12	4	0	6	172	14	0	567
08:30 AM	5	18	8	0	19	253	44	0	7	11	10	0	15	215	11	0	616
08:45 AM	9	19	3	0	17	224	26	0	14	11	12	0	7	128	7	0	477
Total	36	61	25	0	87	1005	138	4	30	37	30	0	39	722	50	0	2264
*** BREAK ***																	
04:00 PM	7	4	14	0	10	164	22	0	21	14	17	0	4	250	13	0	540
04:15 PM	4	4	10	0	12	217	8	0	30	12	23	0	2	241	13	0	576
04:30 PM	8	7	11	0	23	186	11	0	23	10	23	0	7	310	8	0	627
04:45 PM	14	4	7	0	10	203	10	0	27	7	17	0	7	227	7	0	540
Total	33	19	42	0	55	770	51	0	101	43	80	0	20	1028	41	0	2283
05:00 PM	16	11	9	0	14	201	18	0	20	11	16	0	3	308	18	0	645
05:15 PM	13	8	15	0	13	222	13	0	22	11	17	0	2	320	16	0	672
05:30 PM	16	10	10	0	6	192	10	0	19	12	21	0	3	300	18	0	617
05:45 PM	9	11	8	0	21	162	5	1	11	7	12	0	3	317	13	0	580
Total	54	40	42	0	54	777	46	1	72	41	66	0	11	1245	65	0	2514
Grand Total	140	153	131	0	253	3559	393	5	240	150	208	0	108	3668	229	0	9237
Apprch %	33	36.1	30.9	0	6	84.5	9.3	0.1	40.1	25.1	34.8	0	2.7	91.6	5.7	0	
Total %	1.5	1.7	1.4	0	2.7	38.5	4.3	0.1	2.6	1.6	2.3	0	1.2	39.7	2.5	0	

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TURNING MOVEMENT COUNT

NW 116th Way and NW S River Dr.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

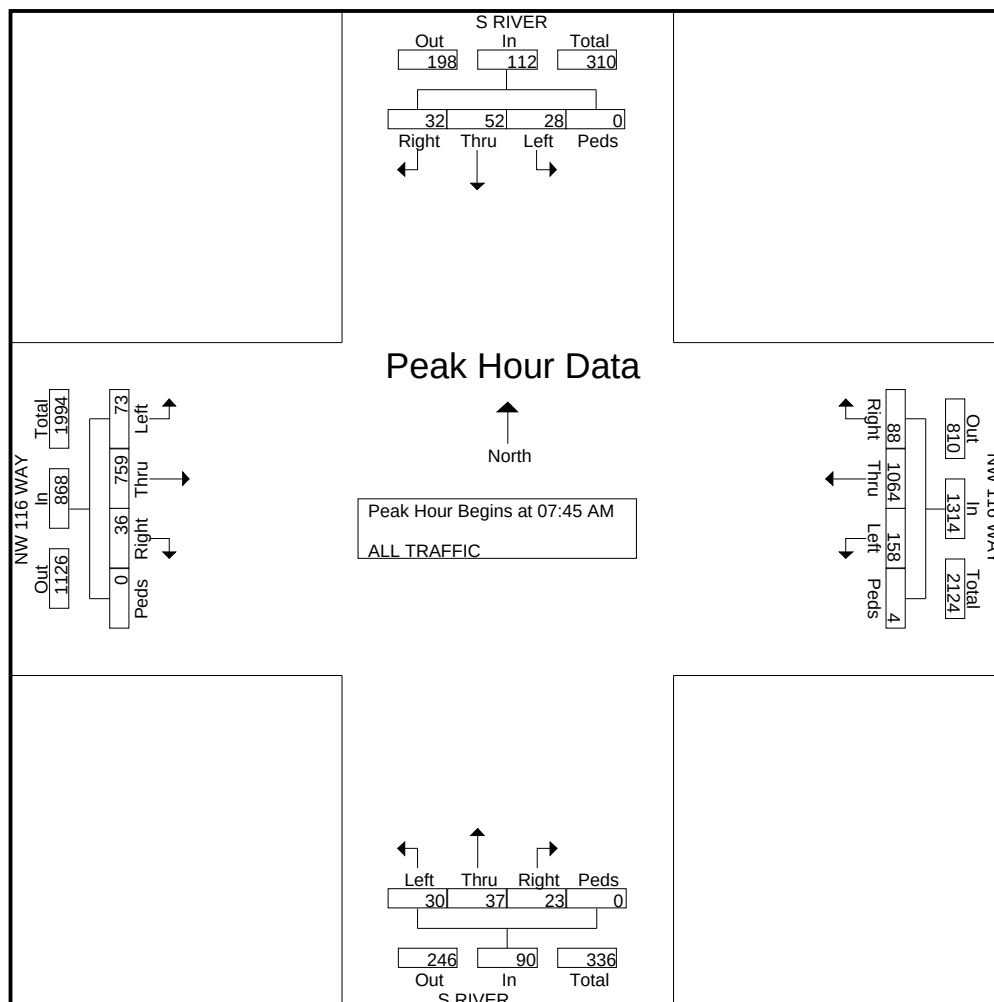
File Name : 116way SRiver

Site Code : CGA-503

Start Date : 11/5/2009

Page No : 2

	S RIVER SB					NW 116 WAY WB					S RIVER NB					NW 116 WAY EB					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	5	10	6	0	21	18	283	46	0	347	7	11	12	0	30	4	165	30	0	199	597
08:00 AM	11	18	6	0	35	25	261	32	4	322	4	3	4	0	11	11	207	18	0	236	604
08:15 AM	11	6	8	0	25	26	267	36	0	329	5	12	4	0	21	6	172	14	0	192	567
08:30 AM	5	18	8	0	31	19	253	44	0	316	7	11	10	0	28	15	215	11	0	241	616
Total Volume	32	52	28	0	112	88	1064	158	4	1314	23	37	30	0	90	36	759	73	0	868	2384
% App. Total	28.6	46.4	25	0		6.7	81	12	0.3		25.6	41.1	33.3	0		4.1	87.4	8.4	0		
PHF	.727	.722	.875	.000	.800	.846	.940	.859	.250	.947	.821	.771	.625	.000	.750	.600	.883	.608	.000	.900	.968



KMF Traffic Group, LLC

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Stuart, FL 34997

Voice and Fax: (772) 221-7971

TURNING MOVEMENT COUNT

NW 116th Way and NW S River Dr.

(7:00-9:00 AM and 4:00-6:00 PM)

Location Counted: 11/5/09 (Thursday)

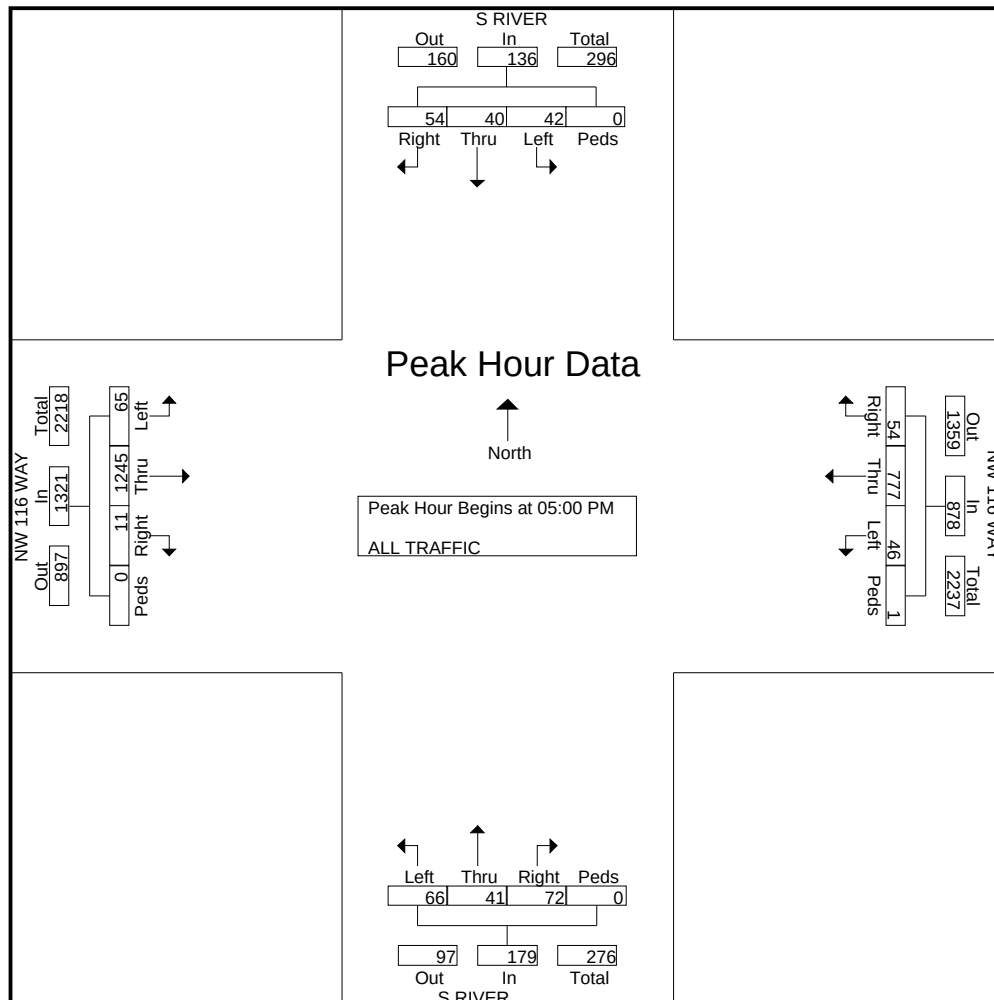
File Name : 116way SRiver

Site Code : CGA-503

Start Date : 11/5/2009

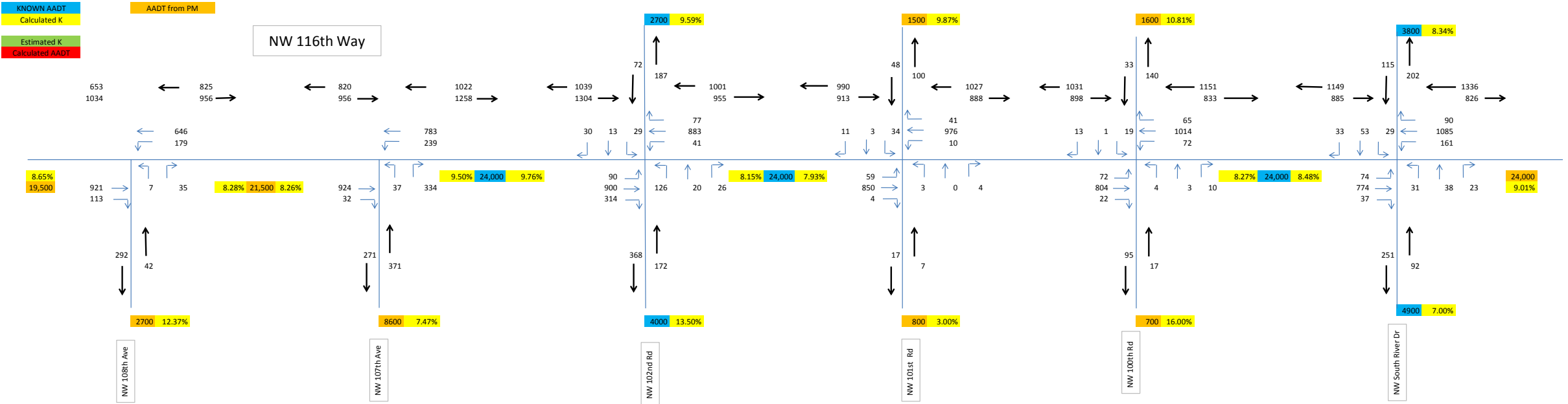
Page No : 3

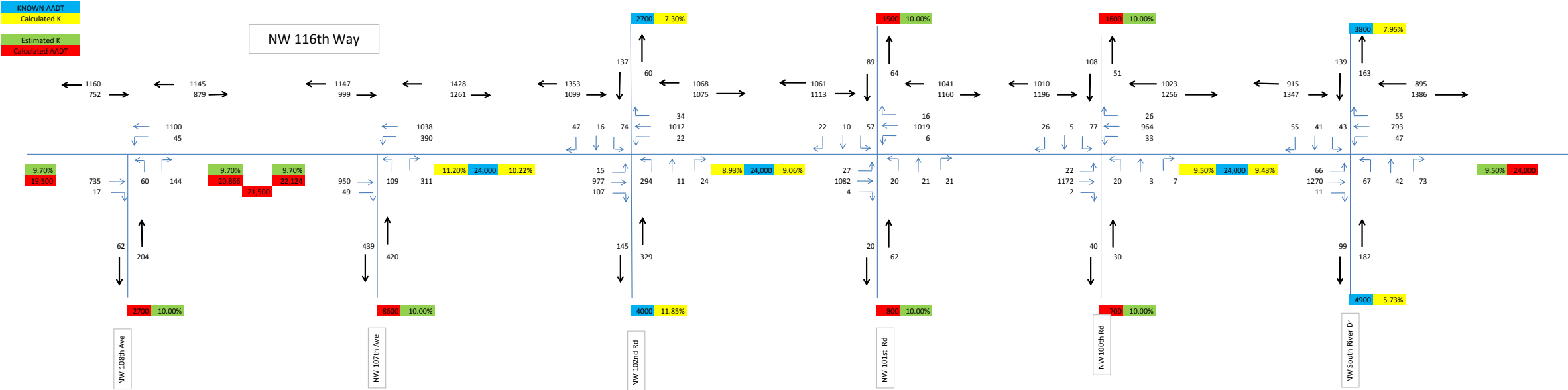
	S RIVER SB					NW 116 WAY WB					S RIVER NB					NW 116 WAY EB					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	16	11	9	0	36	14	201	18	0	233	20	11	16	0	47	3	308	18	0	329	645
05:15 PM	13	8	15	0	36	13	222	13	0	248	22	11	17	0	50	2	320	16	0	338	672
05:30 PM	16	10	10	0	36	6	192	10	0	208	19	12	21	0	52	3	300	18	0	321	617
05:45 PM	9	11	8	0	28	21	162	5	1	189	11	7	12	0	30	3	317	13	0	333	580
Total Volume	54	40	42	0	136	54	777	46	1	878	72	41	66	0	179	11	1245	65	0	1321	2514
% App. Total	39.7	29.4	30.9	0		6.2	88.5	5.2	0.1		40.2	22.9	36.9	0		0.8	94.2	4.9	0		
PHF	.844	.909	.700	.000	.944	.643	.875	.639	.250	.885	.818	.854	.786	.000	.861	.917	.973	.903	.000	.977	.935



End of Report

APPENDIX C





Turning Movement Counts													
		EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	NBL	NBT	NBR
NW 116th Way at NW South River Dr	Raw Counts	73	759	36	158	1064	88	28	52	32	30	37	23
	Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
	Adjusted Existing Volumes	74	774	37	161	1085	90	29	53	33	31	38	23
NW 116th Way at NW 100th Rd	Raw Counts	71	788	22	71	994	64	19	1	13	4	3	10
	Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
	Adjusted Existing Volumes	72	804	22	72	1014	65	19	1	13	4	3	10
NW 116th Way at 101st Rd	Raw Counts	58	833	4	10	957	40	33	3	11	3	0	4
	Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
	Adjusted Existing Volumes	59	850	4	10	976	41	34	3	11	3	0	4
NW 116th Way at 102nd Rd	Raw Counts	88	882	308	40	866	75	28	13	29	124	20	25
	Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
	Adjusted Existing Volumes	90	900	314	41	883	77	29	13	30	126	20	26
NW 116th Way at NW 107th Ave	Raw Counts		906	31	234	768					36		327
	Seasonal Factor		1.02	1.02	1.02	1.02					1.02		1.02
	Adjusted Existing Volumes		924	32	239	783					37		334
NW 116th Way at NW 108th Ave	Raw Counts		903	111	175	633					7		34
	Seasonal Factor		1.02	1.02	1.02	1.02					1.02		1.02
	Adjusted Existing Volumes		921	113	179	646					7		35

			Turning Movement Counts											
			EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	NBL	NBT	NBR
NW 116th Way at NW South River Dr		Raw Counts	65	1245	11	46	777	54	42	40	54	66	41	72
		Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
		Adjusted Existing Volumes	66	1270	11	47	793	55	43	41	55	67	42	73
NW 116th Way at NW 100th Rd		Raw Counts	22	1149	2	32	945	25	75	5	25	20	3	7
		Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
		Adjusted Existing Volumes	22	1172	2	33	964	26	77	5	26	20	3	7
NW 116th Way at 101st Rd		Raw Counts	26	1061	4	6	999	16	56	10	22	20	21	21
		Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
		Adjusted Existing Volumes	27	1082	4	6	1019	16	57	10	22	20	21	21
NW 116th Way at 102nd Rd		Raw Counts	15	958	105	22	992	33	73	16	46	288	11	24
		Seasonal Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
		Adjusted Existing Volumes	15	977	107	22	1012	34	74	16	47	294	11	24
NW 116th Way at NW 107th Ave		Raw Counts		931	48	382	1018					107		305
		Seasonal Factor		1.02	1.02	1.02	1.02					1.02		1.02
		Adjusted Existing Volumes		950	49	390	1038					109		311
NW 116th Way at NW 108th Ave		Raw Counts		721	17	44	1078					59		141
		Seasonal Factor		1.02	1.02	1.02	1.02					1.02		1.02
		Adjusted Existing Volumes		735	17	45	1100					60		144

APPENDIX D

KMF TRAFFIC GROUP, LLC

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AUTOMATIC TRAFFIC RECORDER

NW 116TH Way (EB)

1,480 West of NW 102nd RD

Location Counted: 11/10/09 (Tuesday)

Stuart, FL 34997

Phone and Fax (772) 221-7971

Site Code: CGA-503

25 52' 31.25" N

80 22' 07.17" W

EB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	Total
11/10/09	3	4	6	13	9	5	0	0	0	0	0	40
00:15	0	0	2	8	4	3	2	1	0	0	0	20
00:30	2	4	5	2	4	3	0	1	0	0	0	21
00:45	3	0	1	4	2	2	0	0	0	0	0	12
	8	8	14	27	19	13	2	2	0	0	0	93
01:00	0	0	6	6	5	4	1	0	0	0	0	22
01:15	0	1	1	2	2	1	0	0	0	0	0	7
01:30	1	2	1	0	1	1	1	1	0	0	0	8
01:45	1	0	2	1	2	0	2	1	0	0	0	9
	2	3	10	9	10	6	4	2	0	0	0	46
02:00	0	2	2	2	2	2	0	0	0	0	0	10
02:15	1	0	1	2	2	2	2	2	0	0	0	12
02:30	0	3	1	2	2	2	4	4	0	0	0	18
02:45	3	2	2	3	2	1	1	1	0	0	0	15
	4	7	6	9	8	7	7	7	0	0	0	55
03:00	1	2	3	5	4	4	1	0	0	0	0	20
03:15	4	1	2	4	2	0	2	0	0	0	0	15
03:30	3	2	4	6	2	0	4	2	0	0	0	23
03:45	2	0	3	6	2	3	0	1	0	0	0	17
	10	5	12	21	10	7	7	3	0	0	0	75
04:00	1	3	4	4	5	0	2	2	0	0	0	21
04:15	0	3	2	10	12	3	2	0	0	0	0	32
04:30	3	0	5	4	3	4	1	2	0	0	0	22
04:45	2	3	1	5	3	4	3	3	1	0	0	25
	6	9	12	23	23	11	8	7	1	0	0	100
05:00	4	4	5	10	8	2	3	0	0	0	0	36
05:15	3	2	2	4	7	6	1	2	0	1	0	28
05:30	4	6	12	4	12	14	5	3	2	0	0	62
05:45	5	5	18	22	29	8	6	4	1	0	0	98
	16	17	37	40	56	30	15	9	3	1	0	224
06:00	11	8	19	22	15	12	11	2	1	0	0	101
06:15	11	6	22	23	31	22	4	1	0	0	0	120
06:30	10	14	31	32	46	30	16	1	1	1	0	182
06:45	9	9	29	42	48	29	15	4	0	0	0	185
	41	37	101	119	140	93	46	8	2	1	0	588
07:00	10	12	35	48	43	27	14	5	1	0	0	195
07:15	16	12	32	68	56	20	5	0	1	0	0	210
07:30	11	11	32	80	46	19	13	4	1	0	0	217
07:45	21	19	38	75	54	24	8	1	0	0	0	240
	58	54	137	271	199	90	40	10	3	0	0	862
08:00	25	25	52	76	59	27	10	1	0	0	0	275
08:15	12	17	56	79	47	20	10	1	1	0	0	243
08:30	23	14	46	61	52	11	8	1	1	0	0	217
08:45	30	13	43	53	59	20	9	0	0	0	0	227
	90	69	197	269	217	78	37	3	2	0	0	962
09:00	23	18	49	67	32	14	3	2	0	0	0	208
09:15	21	21	37	56	38	13	3	3	0	0	0	192
09:30	14	26	49	42	21	7	2	1	0	0	0	162
09:45	24	26	43	46	21	7	4	0	1	0	0	172
	82	91	178	211	112	41	12	6	1	0	0	734
10:00	20	23	42	42	22	8	4	4	0	0	0	165
10:15	16	25	41	34	21	7	7	0	0	0	0	151
10:30	23	26	45	50	38	7	4	1	0	0	0	194
10:45	24	28	46	38	24	12	2	3	0	0	0	177
	83	102	174	164	105	34	17	8	0	0	0	687
11:00	23	28	43	46	24	8	3	0	0	0	0	175
11:15	23	26	45	50	33	11	4	0	0	0	0	192
11:30	21	33	43	53	34	11	3	2	0	0	0	200
11:45	23	28	41	38	35	12	5	0	0	0	0	182
	90	115	172	187	126	42	15	2	0	0	0	749
Total	490	517	1050	1350	1025	452	210	67	12	2	0	5175

KMF TRAFFIC GROUP, LLC

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AUTOMATIC TRAFFIC RECORDER

NW 116TH Way (EB)

1,480 West of NW 102nd RD

Location Counted: 11/10/09 (Tuesday)

Stuart, FL 34997

Phone and Fax (772) 221-7971

Site Code: CGA-503

25 52' 31.25" N

80 22' 07.17" W

EB

Start Time	1	36	41	46	51	56	61	66	71	76	81	Total
	35	40	45	50	55	60	65	70	75	80	85	
12 PM	12	21	43	53	50	18	8	1	0	0	0	206
12:15	18	25	44	43	46	17	5	2	0	0	0	200
12:30	21	21	46	48	34	14	3	0	0	0	0	187
12:45	22	23	38	45	30	17	3	1	0	1	0	180
	73	90	171	189	160	66	19	4	0	1	0	773
13:00	23	28	37	65	25	18	4	0	0	0	0	200
13:15	22	16	42	43	20	13	4	0	0	0	0	160
13:30	16	17	42	43	29	10	5	0	0	0	0	162
13:45	27	25	34	40	25	17	2	0	0	0	0	170
	88	86	155	191	99	58	15	0	0	0	0	692
14:00	23	21	50	31	29	15	9	2	0	0	0	180
14:15	20	18	45	55	32	16	3	1	0	0	0	190
14:30	20	23	46	58	35	20	6	0	1	0	0	209
14:45	26	29	47	56	45	18	4	1	1	0	0	227
	89	91	188	200	141	69	22	4	2	0	0	806
15:00	17	21	38	39	24	13	5	2	0	0	1	160
15:15	18	28	43	60	32	10	8	0	0	0	0	199
15:30	23	39	44	59	47	23	9	1	0	0	0	245
15:45	20	19	41	53	38	16	5	0	0	0	0	192
	78	107	166	211	141	62	27	3	0	0	1	796
16:00	27	29	48	58	47	22	4	0	0	0	0	235
16:15	19	22	44	52	38	27	4	2	2	0	0	210
16:30	26	37	51	65	37	40	5	2	0	0	0	263
16:45	27	27	49	58	49	26	6	2	0	0	0	244
	99	115	192	233	171	115	19	6	2	0	0	952
17:00	33	35	61	89	54	24	11	3	0	0	0	310
17:15	14	37	86	66	47	28	3	2	0	0	0	283
17:30	16	19	55	71	46	21	3	0	0	0	0	231
17:45	8	20	51	50	46	14	0	1	0	0	0	190
	71	111	253	276	193	87	17	6	0	0	0	1014
18:00	19	44	65	53	28	17	5	1	0	0	0	232
18:15	10	14	39	47	29	14	2	0	0	0	0	155
18:30	7	15	44	38	38	18	1	1	0	0	0	162
18:45	7	18	24	40	27	12	1	0	0	0	0	129
	43	91	172	178	122	61	9	2	0	0	0	678
19:00	9	16	23	35	29	14	7	0	0	1	0	134
19:15	5	7	27	47	18	15	2	0	0	0	0	121
19:30	3	12	29	28	32	12	2	0	0	0	0	118
19:45	5	5	30	27	24	6	1	0	0	0	0	98
	22	40	109	137	103	47	12	0	0	1	0	471
20:00	4	8	26	26	14	9	2	0	0	0	0	89
20:15	3	7	13	20	13	6	1	0	0	0	0	63
20:30	2	4	13	10	21	6	4	0	0	0	0	60
20:45	1	12	7	24	15	6	4	0	0	0	0	69
	10	31	59	80	63	27	11	0	0	0	0	281
21:00	0	4	24	23	13	9	5	0	0	0	0	78
21:15	1	8	14	26	15	7	2	0	0	0	0	73
21:30	1	6	15	10	14	9	5	0	0	0	0	60
21:45	1	8	16	15	12	7	2	0	0	0	0	61
	3	26	69	74	54	32	14	0	0	0	0	272
22:00	2	4	11	14	12	6	3	0	1	0	0	53
22:15	1	11	10	11	18	5	2	1	0	0	0	59
22:30	1	4	14	13	8	3	7	2	1	0	0	53
22:45	3	5	9	6	9	3	5	0	0	0	0	40
	7	24	44	44	47	17	17	3	2	0	0	205
23:00	0	1	14	17	14	6	2	6	0	0	0	60
23:15	5	3	11	11	11	4	0	1	1	0	0	47
23:30	1	4	7	9	10	6	1	1	0	0	0	39
23:45	3	5	7	9	0	0	0	0	0	0	0	24
	9	13	39	46	35	16	3	8	1	0	0	170
Total	592	825	1617	1859	1329	657	185	36	7	2	1	7110

Grand Total	1082	1342	2667	3209	2354	1109	395	103	19	4	1	12285
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15th Percentile : 38 MPH
50th Percentile : 47 MPH
85th Percentile : 55 MPH
95th Percentile : 60 MPH

Mean Speed(Average) : 46 MPH
10 MPH Pace Speed : 41-50 MPH
Number in Pace : 5876
Percent in Pace : 47.8%
Number of Vehicles > 35 MPH : 11203
Percent of Vehicles > 35 MPH : 91.2%

KMF TRAFFIC GROUP, LLC

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Stuart, FL 34997

Phone and Fax (772) 221-7971

Page 1

AUTOMATIC TRAFFIC RECORDER
NW 116TH Way (WB Speed Report)
150' West of Railroad Track
Location Counted: 11/10/09 (Tuesday)

Site Code: CGA-503

25 52' 31.25" N

80 21' 35.69" W

WB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
11/10/09	5	5	3	0	1	1	0	0	0	15
00:15	7	3	0	0	0	0	0	0	0	10
00:30	9	3	2	0	1	0	0	0	0	15
00:45	3	1	0	1	0	0	0	0	0	5
	24	12	5	1	2	1	0	0	0	45
01:00	3	1	4	1	1	0	0	0	0	10
01:15	3	3	0	1	0	0	0	0	0	7
01:30	3	2	1	0	0	0	0	0	0	6
01:45	3	2	2	2	0	0	0	0	0	9
	12	8	7	4	1	0	0	0	0	32
02:00	6	4	0	0	0	0	0	0	0	10
02:15	2	3	2	0	0	0	0	0	0	7
02:30	1	2	0	0	0	0	0	0	0	3
02:45	4	1	4	0	0	0	0	0	0	9
	13	10	6	0	0	0	0	0	0	29
03:00	3	1	1	0	0	0	0	0	0	5
03:15	3	1	2	1	0	0	0	0	0	7
03:30	6	3	2	0	0	0	0	0	0	11
03:45	7	5	4	0	1	0	0	0	0	17
	19	10	9	1	1	0	0	0	0	40
04:00	12	3	7	0	0	0	0	0	0	22
04:15	10	1	3	3	0	0	0	0	0	17
04:30	15	9	4	1	1	0	0	0	0	30
04:45	19	19	8	3	2	0	0	0	0	51
	56	32	22	7	3	0	0	0	0	120
05:00	23	7	7	2	5	0	0	0	0	44
05:15	21	6	8	1	1	0	0	0	0	37
05:30	36	22	23	6	0	0	0	0	0	87
05:45	42	38	27	10	1	0	1	0	0	119
	122	73	65	19	7	0	1	0	0	287
06:00	36	11	9	2	2	1	0	0	0	61
06:15	45	39	31	8	0	0	0	0	0	123
06:30	82	48	40	8	3	2	0	0	0	183
06:45	92	54	46	10	4	0	0	0	0	206
	255	152	126	28	9	3	0	0	0	573
07:00	59	64	50	20	7	1	0	0	0	201
07:15	61	69	41	14	5	2	0	0	0	192
07:30	92	55	49	15	6	0	0	0	0	217
07:45	104	78	44	10	3	1	0	0	0	240
	316	266	184	59	21	4	0	0	0	850
08:00	111	85	65	19	6	0	0	0	0	286
08:15	99	81	67	9	6	0	0	0	0	262
08:30	95	71	55	29	4	3	1	0	0	258
08:45	106	63	44	13	1	0	0	0	0	227
	411	300	231	70	17	3	1	0	0	1033
09:00	111	72	51	14	7	1	0	0	0	256
09:15	83	56	41	6	4	2	0	0	0	192
09:30	84	39	43	4	2	0	0	0	0	172
09:45	83	55	27	9	1	1	0	0	0	176
	361	222	162	33	14	4	0	0	0	796
10:00	74	42	21	11	2	0	0	0	0	150
10:15	76	45	21	9	0	0	0	0	0	151
10:30	96	35	20	6	0	0	0	0	0	157
10:45	79	37	29	11	2	0	0	0	0	158
	325	159	91	37	4	0	0	0	0	616
11:00	63	47	25	12	3	1	0	0	0	151
11:15	81	31	16	7	1	0	0	0	0	136
11:30	78	35	29	6	1	0	0	0	0	149
11:45	96	51	23	9	3	0	0	0	0	182
	318	164	93	34	8	1	0	0	0	618
Total	2232	1408	1001	293	87	16	2	0	0	5039

KMF TRAFFIC GROUP, LLC

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AUTOMATIC TRAFFIC RECORDER
NW 116TH Way (WB Speed Report)
150' West of Railroad Track
Location Counted: 11/10/09 (Tuesday)

Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 31.25" N
80 21' 35.69" W

WB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
12 PM	68	44	24	10	3	0	0	0	0	149
12:15	86	33	21	14	2	1	0	0	0	157
12:30	92	44	26	8	1	0	0	0	0	171
12:45	99	54	32	4	0	0	0	0	0	189
	345	175	103	36	6	1	0	0	0	666
13:00	87	42	29	5	0	1	0	0	0	164
13:15	88	63	29	3	5	0	0	0	0	188
13:30	76	48	30	6	1	1	0	0	0	162
13:45	70	42	28	10	1	0	0	0	0	151
	321	195	116	24	7	2	0	0	0	665
14:00	61	28	13	5	2	0	0	0	0	109
14:15	93	56	30	2	3	1	0	0	0	185
14:30	100	58	34	12	3	0	2	0	0	209
14:45	84	48	33	9	4	1	0	0	0	179
	338	190	110	28	12	2	2	0	0	682
15:00	77	56	30	10	1	1	0	0	0	175
15:15	79	47	34	16	2	1	1	0	0	180
15:30	69	42	50	20	4	0	0	0	0	185
15:45	60	59	43	24	5	1	0	0	0	192
	285	204	157	70	12	3	1	0	0	732
16:00	42	55	37	18	5	0	0	0	0	157
16:15	85	65	48	12	0	0	0	0	0	210
16:30	64	59	54	14	2	0	1	0	0	194
16:45	67	71	53	18	4	0	0	0	0	213
	258	250	192	62	11	0	1	0	0	774
17:00	84	85	70	14	8	0	0	0	0	261
17:15	80	86	71	11	1	0	0	0	0	249
17:30	51	70	56	20	4	0	0	0	0	201
17:45	81	67	58	15	3	0	0	0	0	224
	296	308	255	60	16	0	0	0	0	935
18:00	60	59	40	18	2	0	0	0	0	179
18:15	56	59	48	10	1	0	0	0	0	174
18:30	43	57	36	11	3	0	0	0	0	150
18:45	59	38	25	8	3	0	0	0	0	133
	218	213	149	47	9	0	0	0	0	636
19:00	35	42	38	8	3	0	0	0	0	126
19:15	35	17	9	3	0	0	0	0	0	64
19:30	39	32	16	8	4	0	0	0	0	99
19:45	38	23	7	2	0	0	0	0	0	70
	147	114	70	21	7	0	0	0	0	359
20:00	40	14	4	1	0	0	0	0	0	59
20:15	48	16	4	0	0	0	0	0	0	68
20:30	19	19	15	1	1	0	0	0	0	55
20:45	16	21	10	5	2	0	0	0	0	54
	123	70	33	7	3	0	0	0	0	236
21:00	12	14	9	2	0	0	0	0	0	37
21:15	19	19	7	5	2	0	0	0	0	52
21:30	26	17	12	5	0	0	0	0	0	60
21:45	13	14	9	1	1	0	0	0	0	38
	70	64	37	13	3	0	0	0	0	187
22:00	14	12	10	4	0	0	0	0	0	40
22:15	13	11	10	5	1	0	0	0	0	40
22:30	25	15	9	1	2	1	0	0	0	53
22:45	13	7	6	2	0	0	0	0	0	28
	65	45	35	12	3	1	0	0	0	161
23:00	8	11	5	3	0	1	1	0	0	29
23:15	11	11	5	1	0	1	0	0	0	29
23:30	6	8	5	1	0	0	0	0	0	20
23:45	4	6	8	3	0	0	0	0	0	21
	29	36	23	8	0	2	1	0	0	99
Total	2495	1864	1280	388	89	11	5	0	0	6132
Grand Total	4727	3272	2281	681	176	27	7	0	0	11171

Stats
15th Percentile : 13 MPH
50th Percentile : 37 MPH
85th Percentile : 44 MPH
95th Percentile : 48 MPH

Mean Speed(Average) : 31 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 5553
Percent in Pace : 49.7%
Number of Vehicles > 35 MPH : 6444
Percent of Vehicles > 35 MPH : 57.7%

KMF TRAFFIC GROUP, LLC

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AUTOMATIC TRAFFIC RECORDER

NW 116TH Way (Speed Report)

1,480 West of NW 102nd RD

Location Counted: 11/10/09 (Tuesday)

Stuart, FL 34997

Phone and Fax (772) 221-7971

Site Code: CGA-503

25 52' 31.25" N

80 22' 07.17" W

EB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	Total
11/10/09	3	4	6	13	9	5	0	0	0	0	0	0	40
00:15	0	0	2	8	4	3	1	1	0	0	0	0	19
00:30	2	4	5	2	4	3	2	1	0	0	0	0	23
00:45	3	0	6	4	2	2	0	0	0	0	0	0	17
	8	8	19	27	19	13	3	2	0	0	0	0	99
01:00	0	0	6	6	5	1	1	0	0	0	0	0	19
01:15	0	1	1	5	5	1	0	0	0	0	0	0	13
01:30	1	2	2	1	1	1	1	1	0	0	0	0	10
01:45	1	0	2	1	2	2	2	1	0	0	0	0	11
	2	3	11	13	13	5	4	2	0	0	0	0	53
02:00	0	2	2	2	1	1	0	0	0	0	0	0	8
02:15	1	0	1	1	1	2	0	0	0	0	0	0	6
02:30	0	3	1	2	0	2	0	0	0	0	0	0	8
02:45	3	2	2	3	2	0	1	0	0	0	0	0	13
	4	7	6	8	4	5	1	0	0	0	0	0	35
03:00	1	0	3	1	2	1	0	0	0	0	0	0	8
03:15	4	1	4	4	2	0	2	0	0	0	0	0	17
03:30	2	1	2	3	1	0	2	1	0	0	0	0	12
03:45	2	0	3	6	2	3	0	0	0	0	0	0	16
	9	2	12	14	7	4	4	1	0	0	0	0	53
04:00	1	3	4	4	5	0	1	0	0	0	0	0	18
04:15	0	3	1	5	8	3	2	0	0	0	0	0	22
04:30	3	0	5	4	3	4	0	1	0	0	0	0	20
04:45	2	3	9	10	3	4	2	3	1	0	0	0	37
	6	9	19	23	19	11	5	4	1	0	0	0	97
05:00	4	8	5	14	11	2	3	0	0	0	0	0	47
05:15	3	2	5	7	7	12	3	2	0	1	0	0	42
05:30	4	6	12	8	12	23	5	3	2	0	0	0	75
05:45	5	5	18	32	39	12	6	4	1	0	0	0	122
	16	21	40	61	69	49	17	9	3	1	0	0	286
06:00	11	8	25	24	19	12	10	2	1	0	0	0	112
06:15	11	6	27	30	31	22	4	1	0	0	0	0	132
06:30	21	17	35	34	46	30	16	1	1	1	0	0	202
06:45	11	13	36	63	56	38	15	2	0	0	0	0	234
	54	44	123	151	152	102	45	6	2	1	0	0	680
07:00	12	14	43	51	48	27	14	5	1	0	0	0	215
07:15	16	16	39	70	56	20	5	0	1	0	0	0	223
07:30	11	14	40	83	63	28	13	4	1	0	0	0	257
07:45	31	29	49	75	61	34	8	1	0	0	0	0	288
	70	73	171	279	228	109	40	10	3	0	0	0	983
08:00	25	25	52	76	59	27	10	1	0	0	0	0	275
08:15	22	27	66	81	69	40	10	1	1	0	0	0	317
08:30	23	14	47	71	52	21	8	1	1	0	0	0	238
08:45	30	23	49	55	59	17	9	0	0	0	0	0	242
	100	89	214	283	239	105	37	3	2	0	0	0	1072
09:00	23	28	49	68	32	14	3	2	0	0	0	0	219
09:15	21	21	37	43	33	4	3	0	0	0	0	0	162
09:30	14	26	49	42	21	5	2	1	0	0	0	0	160
09:45	24	19	43	46	28	10	4	0	1	0	0	0	175
	82	94	178	199	114	33	12	3	1	0	0	0	716
10:00	20	18	48	42	26	8	5	4	0	0	0	0	171
10:15	16	27	41	41	28	13	7	0	0	0	0	0	173
10:30	23	26	33	50	38	7	4	0	0	0	0	0	181
10:45	19	28	46	34	23	12	2	3	0	0	0	0	167
	78	99	168	167	115	40	18	7	0	0	0	0	692
11:00	15	25	38	46	24	8	3	0	0	0	0	0	159
11:15	23	26	45	40	31	11	4	0	0	0	0	0	180
11:30	21	26	38	39	24	11	4	0	0	0	0	0	163
11:45	14	18	41	43	35	12	5	0	0	0	0	0	168
	73	95	162	168	114	42	16	0	0	0	0	0	670
Total	502	544	1123	1393	1093	518	202	47	12	2	0	0	5436

KMF TRAFFIC GROUP, LLC

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AUTOMATIC TRAFFIC RECORDER
NW 116TH Way (Speed Report)
1,480 West of NW 102nd RD
Location Counted: 11/10/09 (Tuesday)

Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503
25 52' 31.25" N
80 22' 07.17" W

EB

Start Time	1	36	41	46	51	56	61	66	71	76	81	86	Total
	35	40	45	50	55	60	65	70	75	80	85	90	
12 PM	12	26	48	53	56	16	8	1	0	0	0	0	220
12:15	18	25	44	43	46	17	5	2	0	0	0	0	200
12:30	21	21	46	53	34	14	3	0	0	0	0	0	192
12:45	17	17	30	40	30	17	3	1	0	1	0	0	156
	68	89	168	189	166	64	19	4	0	1	0	0	768
13:00	15	13	37	70	25	18	4	0	0	0	0	0	182
13:15	22	16	44	43	20	13	4	0	0	0	0	0	162
13:30	16	17	49	43	29	10	5	0	0	0	0	0	169
13:45	27	26	34	50	25	17	2	0	0	0	0	0	181
	80	72	164	206	99	58	15	0	0	0	0	0	694
14:00	23	16	50	31	29	15	9	2	0	0	0	0	175
14:15	20	18	45	60	32	16	3	1	0	0	0	0	195
14:30	20	18	46	52	35	20	2	0	1	0	0	0	194
14:45	26	29	47	56	45	11	4	1	1	0	0	0	220
	89	81	188	199	141	62	18	4	2	0	0	0	784
15:00	17	23	38	39	24	13	5	2	0	0	1	0	162
15:15	18	28	53	70	32	10	6	0	0	0	0	0	217
15:30	13	22	37	59	47	11	9	1	0	0	0	0	199
15:45	20	19	43	58	48	16	5	0	0	0	0	0	209
	68	92	171	226	151	50	25	3	0	0	1	0	787
16:00	17	27	48	58	47	22	4	0	0	0	0	0	223
16:15	19	22	44	52	38	27	4	2	2	0	0	0	210
16:30	26	16	51	65	37	20	5	2	0	0	0	0	222
16:45	14	16	49	58	49	22	6	2	0	0	0	0	216
	76	81	192	233	171	91	19	6	2	0	0	0	871
17:00	23	25	51	77	47	24	11	3	0	0	0	0	261
17:15	14	22	79	66	37	18	3	2	0	0	0	0	241
17:30	16	19	55	71	36	21	3	0	0	0	0	0	221
17:45	8	20	51	50	46	17	5	1	0	0	0	0	198
	61	86	236	264	166	80	22	6	0	0	0	0	921
18:00	19	30	53	53	28	17	5	1	0	0	0	0	206
18:15	10	14	39	47	34	14	2	0	0	0	0	0	160
18:30	7	15	44	38	36	11	1	1	0	0	0	0	153
18:45	7	18	34	44	27	12	1	0	0	0	0	0	143
	43	77	170	182	125	54	9	2	0	0	0	0	662
19:00	9	17	29	45	29	14	7	0	0	1	0	0	151
19:15	5	13	29	47	18	15	2	0	0	0	0	0	129
19:30	3	12	29	28	22	7	2	0	0	0	0	0	103
19:45	10	10	30	27	24	6	1	0	0	0	0	0	108
	27	52	117	147	93	42	12	0	0	1	0	0	491
20:00	5	12	26	26	14	9	2	0	0	0	0	0	94
20:15	3	7	16	20	13	6	1	0	0	0	0	0	66
20:30	2	4	13	10	15	3	4	0	0	0	0	0	51
20:45	1	12	7	24	15	6	3	0	0	0	0	0	68
	11	35	62	80	57	24	10	0	0	0	0	0	279
21:00	0	4	24	23	13	9	2	0	0	0	0	0	75
21:15	1	8	14	26	15	7	0	0	0	0	0	0	71
21:30	1	6	16	10	14	9	5	0	0	0	0	0	61
21:45	1	8	16	15	12	3	2	0	0	0	0	0	57
	3	26	70	74	54	28	9	0	0	0	0	0	264
22:00	2	4	14	20	12	5	3	0	1	0	0	0	61
22:15	1	11	10	11	18	5	0	1	0	0	0	0	57
22:30	1	4	14	13	8	3	1	0	0	0	0	0	44
22:45	3	5	9	6	9	3	3	0	0	0	0	0	38
	7	24	47	50	47	16	7	1	1	0	0	0	200
23:00	0	1	14	17	14	6	2	0	0	0	0	0	54
23:15	5	3	11	12	11	4	0	1	1	0	0	0	48
23:30	1	4	11	9	10	6	1	1	0	0	0	0	43
23:45	1	2	12	4	2	5	0	0	0	0	0	0	26
	7	10	48	42	37	21	3	2	1	0	0	0	171
Total	540	725	1633	1892	1307	590	168	28	6	2	1	0	6892

Grand Total Stats	1042	1269	2756	3285	2400	1108	370	75	18	4	1	0	12328
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15th Percentile : 39 MPH
50th Percentile : 47 MPH
85th Percentile : 55 MPH
95th Percentile : 60 MPH

Mean Speed(Average) : 46 MPH
10 MPH Pace Speed : 41-50 MPH
Number in Pace : 6041
Percent in Pace : 49.0%
Number of Vehicles > 35 MPH : 11286
Percent of Vehicles > 35 MPH : 91.5%

KMF TRAFFIC GROUP, LLC

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AUTOMATIC TRAFFIC RECORDER

NW 116TH Way (Speed Report)

1,480 West of NW 102nd RD

Location Counted: 11/10/09 (Tuesday)

Stuart, FL 34997

Phone and Fax (772) 221-7971

Site Code: CGA-503

25 52' 31.25" N

80 22' 07.17" W

WB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	Total
11/10/09	1	2	6	5	1	1	0	1	0	0	0	0	17
00:15	1	1	6	0	1	0	0	0	0	0	0	0	9
00:30	4	3	6	2	1	1	0	0	0	0	0	0	17
00:45	2	1	2	0	1	0	0	0	0	0	0	0	6
	8	7	20	7	4	2	0	1	0	0	0	0	49
01:00	0	0	1	4	1	1	1	0	0	0	0	0	8
01:15	2	3	2	0	0	1	0	0	0	0	0	0	8
01:30	0	1	1	2	1	1	0	0	0	0	0	0	6
01:45	5	3	2	1	1	0	0	0	0	0	0	0	12
	7	7	6	7	3	3	1	0	0	0	0	0	34
02:00	2	1	1	1	0	0	0	0	0	0	0	0	5
02:15	0	2	0	3	0	1	0	0	0	0	0	0	6
02:30	0	1	1	1	0	0	0	0	0	0	0	0	3
02:45	0	1	0	0	0	1	0	0	0	0	0	0	2
	2	5	2	5	0	2	0	0	0	0	0	0	16
03:00	0	1	1	0	0	0	0	0	0	0	0	0	2
03:15	3	0	1	1	0	0	0	0	0	0	0	0	5
03:30	3	1	0	1	0	0	0	0	0	0	0	0	5
03:45	2	5	6	1	0	0	0	0	0	0	0	0	14
	8	7	8	3	0	0	0	0	0	0	0	0	26
04:00	1	4	2	0	1	1	1	0	0	0	0	0	10
04:15	1	3	3	0	1	3	0	0	0	0	0	0	11
04:30	3	4	5	6	3	1	0	0	1	0	0	0	23
04:45	1	6	9	7	1	4	1	0	0	0	0	0	29
	6	17	19	13	6	9	2	0	1	0	0	0	73
05:00	3	7	6	10	1	0	0	0	0	0	0	0	27
05:15	7	7	10	10	1	2	0	0	0	0	0	0	37
05:30	13	19	19	12	7	3	0	1	0	0	0	0	74
05:45	7	19	25	16	15	4	0	2	0	0	0	0	88
	30	52	60	48	24	9	0	3	0	0	0	0	226
06:00	9	20	19	12	5	5	2	0	0	0	0	0	72
06:15	17	21	35	15	14	6	0	0	1	0	0	0	109
06:30	31	27	33	25	9	1	3	1	0	0	0	0	130
06:45	28	38	50	28	15	8	3	0	0	0	0	0	170
	85	106	137	80	43	20	8	1	1	0	0	0	481
07:00	34	47	43	28	18	7	3	0	0	0	0	0	180
07:15	34	26	46	25	16	5	2	1	0	0	0	0	155
07:30	32	37	48	43	13	8	0	2	0	0	0	0	183
07:45	28	45	57	31	26	8	2	0	0	0	0	0	197
	128	155	194	127	73	28	7	3	0	0	0	0	715
08:00	35	51	54	39	22	7	3	0	0	0	0	0	211
08:15	44	49	54	45	12	6	1	0	0	0	0	0	211
08:30	45	37	36	32	26	7	1	0	0	0	0	0	184
08:45	41	48	47	27	23	6	1	0	1	0	0	0	194
	165	185	191	143	83	26	6	0	1	0	0	0	800
09:00	30	56	55	25	12	8	4	1	0	0	0	0	191
09:15	35	35	57	24	14	2	2	0	0	0	0	0	169
09:30	41	39	50	29	13	3	0	0	0	0	0	0	175
09:45	31	33	45	22	13	4	1	0	0	0	0	0	149
	137	163	207	100	52	17	7	1	0	0	0	0	684
10:00	35	34	38	22	6	4	4	0	0	0	0	0	143
10:15	28	30	34	20	4	3	1	0	0	0	0	0	120
10:30	34	41	34	21	10	2	0	0	0	0	0	0	142
10:45	32	31	42	26	8	2	0	0	0	0	0	0	141
	129	136	148	89	28	11	5	0	0	0	0	0	546
11:00	33	28	38	16	11	5	0	0	0	0	0	0	131
11:15	27	36	37	23	8	4	1	0	1	0	0	0	137
11:30	30	29	41	25	16	4	1	0	0	0	0	0	146
11:45	32	28	54	32	11	12	1	0	0	0	0	0	170
	122	121	170	96	46	25	3	0	1	0	0	0	584
Total	827	961	1162	718	362	152	39	9	4	0	0	0	4234

KMF TRAFFIC GROUP, LLC

WWW.KMFTRAFFIC.COM

AUTOMATIC TRAFFIC RECORDER

NW 116TH Way (Speed Report)

1,480 West of NW 102nd RD

Location Counted: 11/10/09 (Tuesday)

Stuart, FL 34997
Phone and Fax (772) 221-7971

Site Code: CGA-503

25 52' 31.25" N

80 22' 07.17" W

WB

Start Time	1	36	41	46	51	56	61	66	71	76	81	86	Total
	35	40	45	50	55	60	65	70	75	80	85	90	
12 PM	18	21	51	39	17	5	3	0	0	0	0	0	154
12:15	30	43	54	28	18	5	0	0	0	0	0	0	178
12:30	16	17	45	38	15	4	1	0	0	0	0	0	136
12:45	25	33	51	34	18	2	0	0	0	0	0	0	163
	89	114	201	139	68	16	4	0	0	0	0	0	631
13:00	34	40	41	27	17	3	0	0	0	0	0	0	162
13:15	33	39	34	53	21	6	2	0	1	0	0	0	189
13:30	10	29	54	36	22	6	0	1	0	0	0	0	158
13:45	29	19	39	40	14	5	2	0	0	0	0	0	148
	106	127	168	156	74	20	4	1	1	0	0	0	657
14:00	27	36	48	35	14	5	1	0	0	0	0	0	166
14:15	26	33	52	40	19	5	2	0	0	0	0	0	177
14:30	29	34	51	40	33	7	3	0	0	0	0	0	197
14:45	13	36	38	34	38	9	3	0	0	0	0	0	171
	95	139	189	149	104	26	9	0	0	0	0	0	711
15:00	29	47	47	35	22	14	1	2	0	0	0	0	197
15:15	28	39	46	35	24	10	0	0	0	0	0	0	182
15:30	34	38	59	57	33	15	2	1	0	0	0	0	239
15:45	16	44	77	41	30	12	2	1	0	0	0	0	223
	107	168	229	168	109	51	5	4	0	0	0	0	841
16:00	21	27	55	62	27	10	2	1	0	0	0	0	205
16:15	30	51	76	53	24	5	2	0	0	0	0	0	241
16:30	25	49	74	58	26	5	0	0	0	0	0	0	237
16:45	32	64	74	51	35	8	1	1	0	0	0	0	266
	108	191	279	224	112	28	5	2	0	0	0	0	949
17:00	52	73	100	59	27	6	1	0	0	0	0	0	318
17:15	71	83	101	54	15	5	0	0	0	0	0	0	329
17:30	32	51	74	61	31	7	0	0	0	0	0	0	256
17:45	42	77	73	44	17	4	1	0	0	0	0	0	258
	197	284	348	218	90	22	2	0	0	0	0	0	1161
18:00	35	52	60	34	20	2	2	2	0	0	0	0	207
18:15	26	57	57	54	21	2	0	0	0	0	0	0	217
18:30	20	32	54	41	13	3	4	1	1	0	0	0	169
18:45	20	49	60	37	9	1	0	1	0	0	0	0	177
	101	190	231	166	63	8	6	4	1	0	0	0	770
19:00	12	19	56	24	16	6	2	1	0	0	0	0	136
19:15	13	16	27	18	9	1	3	0	0	0	0	0	87
19:30	12	18	35	17	14	2	0	0	0	0	0	0	98
19:45	9	21	19	19	1	1	2	1	1	0	0	0	74
	46	74	137	78	40	10	7	2	1	0	0	0	395
20:00	8	13	17	11	7	0	2	0	0	0	0	0	58
20:15	11	20	36	16	4	0	0	0	0	0	0	0	87
20:30	3	14	12	8	11	5	1	0	0	0	0	0	54
20:45	5	4	15	14	10	5	2	0	0	0	0	0	55
	27	51	80	49	32	10	5	0	0	0	0	0	254
21:00	2	7	14	15	9	1	0	0	0	0	0	0	48
21:15	3	7	14	11	7	4	0	1	0	0	0	0	47
21:30	3	14	18	11	5	4	1	0	0	0	0	0	56
21:45	5	7	16	7	3	2	0	0	0	0	0	0	40
	13	35	62	44	24	11	1	1	0	0	0	0	191
22:00	4	6	24	11	7	1	0	0	0	0	0	0	53
22:15	1	11	11	11	2	0	0	0	0	0	0	0	36
22:30	4	7	15	11	8	3	1	2	0	0	0	0	51
22:45	1	5	9	5	4	2	0	0	0	0	0	0	26
	10	29	59	38	21	6	1	2	0	0	0	0	166
23:00	0	3	5	3	3	3	0	3	0	3	1	0	24
23:15	1	2	4	4	2	6	2	3	1	1	0	0	26
23:30	5	1	5	1	4	8	4	1	1	0	0	1	31
23:45	4	0	2	3	5	4	0	0	0	0	0	0	18
	10	6	16	11	14	21	6	7	2	4	1	1	99
Total	909	1408	1999	1440	751	229	55	23	5	4	1	1	6825

Grand
Total
Stats

1736	2369	3161	2158	1113	381	94	32	9	4	1	1	11059
------	------	------	------	------	-----	----	----	---	---	---	---	-------

15th Percentile : 34 MPH
50th Percentile : 43 MPH
85th Percentile : 50 MPH
95th Percentile : 55 MPH

Mean Speed(Average) : 41 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 5530
Percent in Pace : 50.0%
Number of Vehicles > 35 MPH : 9323
Percent of Vehicles > 35 MPH : 84.3%

APPENDIX E

NW 116th Way W. of NW South River Dr

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	15	Total
EB	23	2,536	5,769	566	2,060	73	5	558	22	30	27	4	2	622	12,297
WB	64	6,324	2,118	308	835	206	12	378	184	23	13	5	7	673	11,150
Total	88	8,862	7,890	878	2,900	285	24	944	215	63	51	21	22	1,310	23,447
Class 4-13		5403													
T24 Percentage		23.04%													
Peak Hour T%		12%													

NW 116th Way W. of NW 102nd Rd

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	15	Total
EB	23	1,967	6,240	567	2,065	72	5	568	22	30	27	4	2	744	12,336
WB	31	3,616	3,817	418	1,469	98	38	705	68	61	20	11	11	705	11,068
Total	55	5,585	10,060	989	3,539	176	50	1,281	99	101	58	27	26	1,464	23,404
Class 4-13		6346													
T24 Percentage		27.12%													
Peak Hour T%		14%													

NW 102nd Rd N. of NW 116th Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	15	Total
SB	31	242	369	95	252	155	3	24	43	1	0	0	1	86	1,302
NB	48	149	424	107	296	136	37	23	74	2	0	0	0	76	1,372
Total	80	393	796	206	553	297	47	55	126	13	11	12	14	177	2,674
Class 4-13		1334													
T24 Percentage		49.89%													
Peak Hour T%		25%													

NW 102nd Rd S. of NW 116th Way

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	15	Total
SB	9	1,071	246	9	100	83	4	31	45	1	0	0	0	71	1,670
NB	20	976	508	123	266	134	2	58	97	3	1	0	2	65	2,255
Total	30	2,049	757	136	371	223	13	97	151	14	12	12	15	151	3,925
Class 4-13		1044													
T24 Percentage		26.60%													
Peak Hour T%		13%													



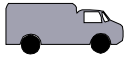
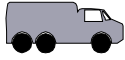
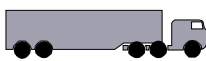
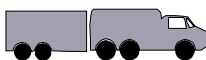
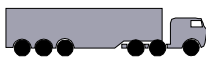
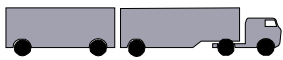
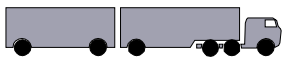
FHWA CLASSIFICATION SCHEME "F"			
CLASS GROUP		DESCRIPTION	NO. OF AXLES
1		MOTORCYCLES	2
2		ALL CARS	2
		CARS W/ 1-AXLE TRAILER	3
		CARS W/ 2-AXLE TRAILER	4
3		PICK-UPS & VANS 1 & 2 AXLE TRAILERS	2, 3, & 4
4		BUSES	2 & 3
5		2-AXLE, SINGLE UNIT	2
6		3-AXLE, SINGLE UNIT	3
7		4-AXLE, SINGLE UNIT	4
8		2-AXLE, TRACTOR, 1-AXLE TRAILER (2S1)	3
		2-AXLE, TRACTOR, 2-AXLE TRAILER (2S2)	4
		3-AXLE, TRACTOR, 1-AXLE TRAILER (3S1)	4
9		3-AXLE, TRACTOR, 2-AXLE TRAILER (3S2)	5
		3-AXLE, TRUCK, W/ 2-AXLE TRAILER	5
10		TRACTOR W/ SINGLE TRAILER	6 & 7
11		5-AXLE MULTI-TRAILER	5
12		6-AXLE MULTI-TRAILER	6
13	ANY 7 OR MORE AXLE		7 or more
14	NOT USED		
15	UNKNOWN VEHICLE TYPE		

Figure 2.2 FHWA Vehicle Classification Scheme "F"

APPENDIX F

Print Date:
7/11/2009

Miami-Dade County Traffic Signals

Print Time:
8:08 PM



TOD Schedule Report for NW 102 Rd&NW 116 Way

Active Phase Bank: Phase Bank

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	8 - 10 - 10	8 - 6 - 0	3	0
2 WBT	8 - 8 - 7	8 - 8 - 15	8 - 8 - 7	1 - 1 - 1	30 - 35 - 40	0 - 25 - 0	4	0.6
3 SBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	10 - 13 - 10	10 - 7 - 0	3	0
4 NBT	0 - 0 - 7	0 - 0 - 15	7 - 7 - 7	2.5 - 2.5 - 2.5	21 - 25 - 20	21 - 17 - 0	4	1.4
5 WBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	8 - 10 - 10	8 - 6 - 0	3	0
6 EBT	8 - 8 - 7	8 - 8 - 15	8 - 8 - 7	1 - 1 - 1	30 - 35 - 40	0 - 25 - 0	4	0.6
7 NBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	10 - 13 - 10	10 - 7 - 0	3	0
8 SBT	0 - 0 - 7	0 - 0 - 15	7 - 7 - 7	2.5 - 2.5 - 2.5	21 - 25 - 20	21 - 17 - 0	4	1.4

Last In Service Date:

Permitted Phases

Default 12345678
External Permit 0 -----
External Permit 1 -----
External Permit 2 -----

Current	Plan	Cycle	1	2	3	4	5	6	7	8	Ring Offset	Offset
TOD Schedule			EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT		

Local TOD Schedule

Time	Plan	DOW
0000	Flash	Su M T W Th F S
0600	Free	Su M T W Th F S
2000	Flash	Su M T W Th F S

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	Su M T W Th F S
0600	TOD OUTPUTS	-----2-	Su M T W Th F S
0700	TOD OUTPUTS	-----1	Su M T W Th F S
0900	TOD OUTPUTS	-----	Su M T W Th F S
1530	TOD OUTPUTS	-----2-	Su M T W Th F S
1745	TOD OUTPUTS	-----	Su M T W Th F S
1900	TOD OUTPUTS	-----2-	Su M T W Th F S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	Su M T W Th F S
0600	TOD OUTPUTS	-----2-	Su M T W Th F S
0700	TOD OUTPUTS	-----1	Su M T W Th F S
0900	TOD OUTPUTS	-----	Su M T W Th F S
1530	TOD OUTPUTS	-----2-	Su M T W Th F S
1745	TOD OUTPUTS	-----	Su M T W Th F S
1900	TOD OUTPUTS	-----2-	Su M T W Th F S

*Settings

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA



TOD Schedule Report for Hia-Hialeah Garden Blvd&Okeechobee Rd&NW

Active Phase Bank: Phase Bank

Phase		Walk			Don't Walk			Min Initial			Veh Ext			Max Limit			Max 2			Yellow	Red											
		Phase Bank																														
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3													
1	EBL	0	-	0	-	0	-	0	-	0	5	-	5	-	5	3	-	3	-	3	9	-	8	-	9	26	-	8	-	26	3.9	0
2	WBT	0	-	0	-	0	-	0	-	0	20	-	20	-	20	1	-	1	-	1	30	-	31	-	30	0	-	28	-	0	4.7	1.3
3	SBL	0	-	0	-	0	-	0	-	0	5	-	5	-	5	5	-	5	-	5	9	-	8	-	9	50	-	8	-	50	3.9	0
4	NBT	0	-	0	-	0	-	0	-	0	10	-	10	-	10	3.5	-	3.5	-	3.5	14	-	14	-	14	60	-	13	-	60	4	2
5	WBL	0	-	0	-	0	-	0	-	0	5	-	5	-	5	3	-	3	-	3	9	-	8	-	9	26	-	8	-	26	3.9	0
6	EBT	0	-	0	-	0	-	0	-	0	20	-	20	-	20	1	-	1	-	1	30	-	31	-	30	0	-	28	-	0	4.7	1.3
7	NBL	0	-	0	-	0	-	0	-	0	5	-	5	-	5	3	-	3	-	3	9	-	8	-	14	50	-	8	-	14	3.9	0
8	SBT	0	-	0	-	0	-	0	-	0	10	-	10	-	10	3.5	-	3.5	-	3.5	14	-	14	-	14	60	-	13	-	60	4	2

Last In Service Date:

Permitted Phases

	12345678
Default	12345678
External Permit 0	-----
External Permit 1	12345678
External Permit 2	12345678

		Green Time											
Current	Plan	Cycle	1	2	3	4	5	6	7	8		Ring Offset	Offset
TOD Schedule			EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT			
3		80	8	28	9	15	8	28	9	15		0	28
4		120	14	32	26	28	14	32	26	28		0	21
5		180	19	49	50	42	19	49	14	78		0	45
6		130	17	32	30	31	17	32	14	47		0	11
8		110	11	32	16	31	11	32	16	31		0	38
10		120	13	37	18	32	13	37	18	32		0	21
13		180	17	43	25	75	17	43	25	75		0	88

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T Th F S
0430	Free	W
0600	3	M T W Th F
0630	Free	Su S
0630	4	M T W Th F
0700	5	M T W Th F
0800	3	Su S
0900	6	M T W Th F
0930	8	M T W Th F
1000	8	Su S
1500	10	M T W Th F
1530	13	M T W Th F
1800	10	M T W Th F
1900	8	M T W Th F
1930	Free	Su S
2000	Free	M T W Th F
2300	10	Th

TOD Schedule Report for Hia-Hialeah Garden Blvd&Okeechobee Rd&NW

Current Time of Day Function

<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----2-	Su M T W Th F S
0630	TOD OUTPUTS	-----1	Su S
0800	TOD OUTPUTS	-----	Su S
1930	TOD OUTPUTS	-----1	Su S

Local Time of Day Function

<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----2-	Su M T W Th F S
0600	TOD OUTPUTS	-----	M T W Th F
0630	TOD OUTPUTS	-----1	Su S
0700	TOD OUTPUTS	-----3--	M T W Th F
0800	TOD OUTPUTS	-----	Su S
0930	TOD OUTPUTS	-----	M T W Th F
1930	TOD OUTPUTS	-----1	Su S
2000	TOD OUTPUTS	-----1	M T W Th F

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

Print Date:
7/11/2009

Miami-Dade County Traffic Signals

Print Time:
8:15 PM



TOD Schedule Report for NW 107 Av&NW 106 St

Active Phase Bank: Phase Bank

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	8 - 8 - 8	8 - 8 - 8	8 - 8 - 8	1 - 1 - 1	35 - 40 - 25	0 - 0 - 0	4	0.4
3	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	0 - 0 - 0	0 - 0 - 0	7 - 10 - 7	2.5 - 3 - 2.5	17 - 20 - 12	20 - 0 - 0	4	0.4
5 WBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	8 - 12 - 6	12 - 0 - 0	3	0
6 EBT	8 - 8 - 8	8 - 8 - 8	8 - 8 - 8	1 - 1 - 1	35 - 40 - 25	0 - 0 - 0	4	0.4
7	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date:

Permitted Phases

12345678

Default -2-456--
External Permit 0 -----
External Permit 1 -----
External Permit 2 -----

Current	1	2	3	4	5	6	7	8		
TOD Schedule	Plan	Cycle	WBT	NBT	WBL	EBT	Ring Offset	Offset		

Local TOD Schedule

Time	Plan	DOW
0000	Flash	Su M T W Th F S
0600	Free	Su M T W Th F S
2100	Flash	Su M T W Th F S

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	Su M T W Th F S
0600	TOD OUTPUTS	----3--	Su M T W Th F S
0640	TOD OUTPUTS	-----	Su M T W Th F S
0700	TOD OUTPUTS	-----1	Su M T W Th F S
0900	TOD OUTPUTS	-----	Su M T W Th F S
1530	TOD OUTPUTS	-----1	Su M T W Th F S
1800	TOD OUTPUTS	-----	Su M T W Th F S
1900	TOD OUTPUTS	----3--	Su M T W Th F S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	Su M T W Th F S
0600	TOD OUTPUTS	----3--	Su M T W Th F S
0640	TOD OUTPUTS	-----	Su M T W Th F S
0700	TOD OUTPUTS	-----1	Su M T W Th F S
0900	TOD OUTPUTS	-----	Su M T W Th F S
1530	TOD OUTPUTS	-----1	Su M T W Th F S
1800	TOD OUTPUTS	-----	Su M T W Th F S
1900	TOD OUTPUTS	----3--	Su M T W Th F S

* Settings

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA



TOD Schedule Report for South River Dr&NW 116 Way

Active Phase Bank: Phase Bank

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 SWT	0 - 0 - 0	0 - 0 - 0	14 - 14 - 14	1 - 1 - 1	35 - 0 - 0	0 - 0 - 0	4	0.3
3 SEL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	8 - 8 - 8	18 - 0 - 0	3	0
4 NWT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	18 - 18 - 18	30 - 0 - 0	4	1.2
5 SWL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	3 - 3 - 3	15 - 15 - 15	54 - 0 - 0	3	0
6 NET	0 - 0 - 0	0 - 0 - 0	14 - 14 - 14	1 - 1 - 1	35 - 0 - 0	0 - 0 - 0	4	0.3
7 NWL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	8 - 8 - 8	18 - 0 - 0	3	0
8 SET	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	18 - 18 - 18	30 - 0 - 0	4	1.2

Last In Service Date:

Permitted Phases

	12345678
Default	-2345678
External Permit 0	-----
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

Green Time												
Current	Plan	Cycle	1	2	3	4	5	6	7	8	Ring Offset	Offset
TOD Schedule			SWT	SEL	NWT	SWL	NET	NWL	SET			
3		80	0	42	11	15	6	33	11	15	0	62
4		120	0	79	11	18	22	54	11	18	0	106
5		180	0	132	13	23	54	75	13	23	0	171
6		130	0	87	11	20	29	55	11	20	0	101
8		110	0	61	15	22	10	48	15	22	0	9
10		120	0	67	17	24	12	52	17	24	0	98
13		180	0	119	19	30	18	98	19	30	0	39

Local TOD Schedule

Time	Plan	DOW
0000	Flash	Su M T Th F S
0430	Flash	W
0600	3	M T W Th F
0630	Flash	Su S
0630	4	M T W Th F
0700	5	M T W Th F
0800	3	Su S
0900	6	M T W Th F
0930	8	M T W Th F
1000	8	Su S
1500	10	M T W Th F
1530	13	M T W Th F
1800	10	M T W Th F
1900	8	M T W Th F
1930	Flash	Su S
2300	Flash	M T W F
2300	10	Th

TOD Schedule Report for South River Dr&NW 116 Way

Current Time of Day Function

<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	Su M T W Th F S

Local Time of Day Function

<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	Su M T W Th F S

* Settings

Blank - FREE - Phase Bank 1, Max 1
 Blank - Plan - Phase Bank 1, Max 2
 1 - Phase Bank 2, Max 1
 2 - Phase Bank 2, Max 2
 3 - Phase Bank 3, Max 1
 4 - Phase Bank 3, Max 2
 5 - EXTERNAL PERMIT 1
 6 - EXTERNAL PERMIT 2
 7 - X-PED OMIT
 8 - TBA

APPENDIX G

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

Existing Conditions (2009)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	921	113	179	646	7	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4517	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4517	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1047	128	203	734	8	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1175	0	203	734	8	40
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	25			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	43.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

Existing Conditions (2009)

Timing Plan: AM

	→	↘	↙	←	↖	↗				
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗				
Volume (veh/h)	921	113	179	646	7	35				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				
Hourly flow rate (vph)	1047	128	203	734	8	40				
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)					681					
pX, platoon unblocked										
vC, conflicting volume			1175				1762		413	
vC1, stage 1 conf vol							1111			
vC2, stage 2 conf vol							652			
vCu, unblocked vol			1175				1762		413	
tC, single (s)			4.4				7.1		7.2	
tC, 2 stage (s)							6.1			
tF (s)			2.3				3.6		3.4	
p0 queue free %			62				94		93	
cM capacity (veh/h)			532				140		558	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	419	419	338	203	245	245	245	8	40	
Volume Left	0	0	0	203	0	0	0	8	0	
Volume Right	0	0	128	0	0	0	0	0	40	
cSH	1700	1700	1700	532	1700	1700	1700	140	558	
Volume to Capacity	0.25	0.25	0.20	0.38	0.14	0.14	0.14	0.06	0.07	
Queue Length 95th (ft)	0	0	0	45	0	0	0	4	6	
Control Delay (s)	0.0	0.0	0.0	15.9	0.0	0.0	0.0	32.2	11.9	
Lane LOS				C				D		B
Approach Delay (s)	0.0				3.5				15.3	
Approach LOS									C	
Intersection Summary										
Average Delay			1.8							
Intersection Capacity Utilization			43.6%		ICU Level of Service				A	
Analysis Period (min)			15							

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Existing Conditions (2009)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Volume (vph)	924	32	239	783	37	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	210
Storage Lanes		0	1		1	1
Taper Length (ft)		25	80		25	95
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.995					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4567	0	1597	4590	1597	1429
Flt Permitted			0.201		0.950	
Satd. Flow (perm)	4567	0	338	4590	1597	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	8					296
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1050	36	272	890	42	380
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1086	0	272	890	42	380
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	10.0
Minimum Split (s)	23.4		9.0	23.4	20.5	20.5
Total Split (s)	44.4	0.0	15.0	44.4	24.4	24.4
Total Split (%)	53.0%	0.0%	17.9%	53.0%	29.1%	29.1%
Maximum Green (s)	40.0		12.0	40.0	20.0	20.0
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	4.4
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Recall Mode	Max		None	Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Existing Conditions (2009)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	40.2		54.9	53.5	13.0	13.0
Actuated g/C Ratio	0.53		0.73	0.71	0.17	0.17
v/c Ratio	0.45		0.65	0.27	0.15	0.77
Control Delay	12.2		13.5	4.6	27.6	19.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.2		13.5	4.6	27.6	19.2
LOS	B		B	A	C	B
Approach Delay	12.2			6.6	20.0	
Approach LOS	B			A	C	
Queue Length 50th (ft)	99		27	37	17	35
Queue Length 95th (ft)	167		102	80	42	121
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			210
Base Capacity (vph)	2440		448	3366	426	598
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.45		0.61	0.26	0.10	0.64

Intersection Summary

Area Type: Other

Cycle Length: 83.8

Actuated Cycle Length: 75.4

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 50.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: NW 116th Way & NW 107th Ave

← ø2		↖ ø4
44.4 s		24.4 s
↙ ø5	→ ø6	
15 s	44.4 s	

HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

Existing Conditions (2009)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Volume (vph)	924	32	239	783	37	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	4.4
Lane Util. Factor	0.91		1.00	0.91	1.00	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)	4567		1597	4590	1597	1429
Flt Permitted	1.00		0.20	1.00	0.95	1.00
Satd. Flow (perm)	4567		338	4590	1597	1429
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	1050	36	272	890	42	380
RTOR Reduction (vph)	4	0	0	0	0	245
Lane Group Flow (vph)	1082	0	272	890	42	135
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Actuated Green, G (s)	40.2		53.5	53.5	13.0	13.0
Effective Green, g (s)	40.2		53.5	53.5	13.0	13.0
Actuated g/C Ratio	0.53		0.71	0.71	0.17	0.17
Clearance Time (s)	4.4		3.0	4.4	4.4	4.4
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Lane Grp Cap (vph)	2438		412	3261	276	247
v/s Ratio Prot	0.24		c0.09	0.19	0.03	
v/s Ratio Perm			c0.38			c0.09
v/c Ratio	0.44		0.66	0.27	0.15	0.55
Uniform Delay, d1	10.7		5.2	3.9	26.5	28.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		3.1	0.2	0.3	2.5
Delay (s)	11.3		8.2	4.1	26.7	30.9
Level of Service	B		A	A	C	C
Approach Delay (s)	11.3			5.1	30.5	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			11.6		HCM Level of Service	B
HCM Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			75.3		Sum of lost time (s)	7.4
Intersection Capacity Utilization			50.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	29	13	30	126	20	26	90	900	314	41	883	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.894			0.916			0.961			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1359	0	1597	1540	0	1597	4411	0	1597	4535	0
Flt Permitted	0.952			0.556			0.240			0.188		
Satd. Flow (perm)	1447	1359	0	935	1540	0	404	4411	0	316	4535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			27			99			16	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	30	13	31	130	21	27	93	928	324	42	910	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	44	0	130	48	0	93	1252	0	42	989	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	16.0	30.4	0.0	16.0	30.4	0.0	13.0	39.6	0.0	13.0	39.6	0.0
Total Split (%)	16.2%	30.7%	0.0%	16.2%	30.7%	0.0%	13.1%	40.0%	0.0%	13.1%	40.0%	0.0%
Maximum Green (s)	13.0	25.0		13.0	25.0		10.0	35.0		10.0	35.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)								8.0			8.0	

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	11.2	7.5		16.9	11.8		47.7	43.4		45.5	40.8	
Actuated g/C Ratio	0.16	0.11		0.24	0.17		0.69	0.63		0.66	0.59	
v/c Ratio	0.13	0.25		0.40	0.17		0.24	0.45		0.14	0.37	
Control Delay	20.7	20.8		24.4	17.4		7.7	11.0		7.2	12.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.7	20.8		24.4	17.4		7.7	11.0		7.2	12.0	
LOS	C	C		C	B		A	B		A	B	
Approach Delay		20.7			22.5			10.7			11.8	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	10	6		45	7		15	130		7	105	
Queue Length 95th (ft)	29	36		90	38		38	200		21	164	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	389	521		390	585		459	2797		410	2676	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.08		0.33	0.08		0.20	0.45		0.10	0.37	

Intersection Summary

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 69.3

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

			
ø1	ø2	ø3	ø4
13 s	39.6 s	16 s	30.4 s
			
ø5	ø6	ø7	ø8
13 s	39.6 s	16 s	30.4 s

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	29	13	30	126	20	26	90	900	314	41	883	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Flt Protected	1.00	0.89		1.00	0.92		1.00	0.96		1.00	0.99	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1359		1597	1540		1597	4412		1597	4535	
Satd. Flow (perm)	1448	1359		934	1540		403	4412		317	4535	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	30	13	31	130	21	27	93	928	324	42	910	79
RTOR Reduction (vph)	0	29	0	0	23	0	0	42	0	0	7	0
Lane Group Flow (vph)	30	15	0	130	25	0	93	1210	0	42	982	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	6.6	4.2		15.5	10.1		47.2	42.2		43.4	40.3	
Effective Green, g (s)	6.6	4.2		15.5	10.1		47.2	42.2		43.4	40.3	
Actuated g/C Ratio	0.09	0.06		0.21	0.14		0.64	0.57		0.59	0.55	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	129	77		271	211		339	2523		240	2476	
v/s Ratio Prot	0.01	0.01		c0.05	0.02		c0.02	c0.27		0.01	0.22	
v/s Ratio Perm	0.01			c0.05			0.16			0.10		
v/c Ratio	0.23	0.19		0.48	0.12		0.27	0.48		0.17	0.40	
Uniform Delay, d1	31.2	33.2		25.1	27.9		5.4	9.3		6.6	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.9		0.5	0.2		0.2	0.7		0.1	0.5	
Delay (s)	31.6	34.1		25.6	28.1		5.5	10.0		6.7	10.2	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		33.1			26.3			9.7			10.0	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM Average Control Delay			11.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			73.8			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			53.9%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	34	3	11	3	0	4	59	850	4	10	976	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25		50	25		25	75		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.91
Frt		0.880			0.923			0.999			0.994	
Flt Protected	0.950				0.979		0.950				0.999	
Satd. Flow (prot)	1597	1480	0	0	1519	0	1597	4586	0	0	4558	0
Flt Permitted	0.950				0.979		0.950				0.999	
Satd. Flow (perm)	1597	1480	0	0	1519	0	1597	4586	0	0	4558	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		729			295			921			930	
Travel Time (s)		14.2			5.7			17.9			18.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	36	3	12	3	0	4	63	904	4	11	1038	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	15	0	0	7	0	63	908	0	0	1093	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	50.3%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	34	3	11	3	0	4	59	850	4	10	976	41
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	36	3	12	3	0	4	63	904	4	11	1038	44
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked												
vC, conflicting volume	1513	2115	368	1413	2135	304	1082			909		
vC1, stage 1 conf vol	1081	1081		1032	1032							
vC2, stage 2 conf vol	431	1034		381	1103							
vCu, unblocked vol	1513	2115	368	1413	2135	304	1082			909		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	77	98	98	98	100	99	89			98		
cM capacity (veh/h)	158	133	599	160	118	661	580			680		
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3		
Volume Total	36	15	7	63	362	362	185	270	519	303		
Volume Left	36	0	3	63	0	0	0	11	0	0		
Volume Right	0	12	4	0	0	0	4	0	0	44		
cSH	158	342	282	580	1700	1700	1700	680	1700	1700		
Volume to Capacity	0.23	0.04	0.03	0.11	0.21	0.21	0.11	0.02	0.31	0.18		
Queue Length 95th (ft)	21	3	2	9	0	0	0	1	0	0		
Control Delay (s)	34.5	16.0	18.1	12.0	0.0	0.0	0.0	0.6	0.0	0.0		
Lane LOS	D	C	C	B				A				
Approach Delay (s)	29.1		18.1	0.8				0.1				
Approach LOS	D		C									
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			50.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	19	1	13	4	3	10	72	804	22	72	1014	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.860			0.882			0.996			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1446	0	1597	1483	0	1597	4572	0	1597	4549	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1446	0	1597	1483	0	1597	4572	0	1597	4549	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	20	1	14	4	3	11	77	855	23	77	1079	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	15	0	4	14	0	77	878	0	77	1148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 42.7%

ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

5: NW 100th Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	19	1	13	4	3	10	72	804	22	72	1014	65
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	20	1	14	4	3	11	77	855	23	77	1079	69
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1717	2298	394	1547	2321	297	1148			879		
vC1, stage 1 conf vol	1266	1266		1020	1020							
vC2, stage 2 conf vol	451	1032		527	1301							
vCu, unblocked vol	1717	2298	394	1547	2321	297	1148			879		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	81	99	98	97	96	98	86			89		
cM capacity (veh/h)	109	94	575	138	79	668	545			699		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	20	15	4	14	77	342	342	194	77	431	431	285
Volume Left	20	0	4	0	77	0	0	0	77	0	0	0
Volume Right	0	14	0	11	0	0	0	23	0	0	0	69
cSH	109	421	138	245	545	1700	1700	1700	699	1700	1700	1700
Volume to Capacity	0.19	0.04	0.03	0.06	0.14	0.20	0.20	0.11	0.11	0.25	0.25	0.17
Queue Length 95th (ft)	16	3	2	4	12	0	0	0	9	0	0	0
Control Delay (s)	45.4	13.9	32.0	20.6	12.7	0.0	0.0	0.0	10.8	0.0	0.0	0.0
Lane LOS	E	B	D	C	B				B			
Approach Delay (s)	32.0		23.3		1.0				0.7			
Approach LOS	D		C									
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			42.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	29	53	33	31	38	23	74	774	37	161	1085	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.943			0.993	0.850		0.993			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1586	0	1597	1586	1358	1597	4558	0	1597	3156	0
Flt Permitted	0.729			0.507			0.230			0.306		
Satd. Flow (perm)	1226	1586	0	852	1586	1358	387	4558	0	515	3156	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			1	22		5			13	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	30	55	34	32	39	24	76	798	38	166	1119	93
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	30	89	0	32	41	22	76	836	0	166	1212	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	16.0	28.2	0.0	16.0	28.2	28.2	79.3	79.3	0.0	57.0	136.3	0.0
Total Split (%)	8.9%	15.6%	0.0%	8.9%	15.6%	15.6%	43.9%	43.9%	0.0%	31.6%	75.5%	0.0%
Maximum Green (s)	13.0	23.0		13.0	23.0	23.0	75.0	75.0		54.0	132.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	22.2	13.5		22.8	13.8	13.8	135.9	135.9		149.6	148.3	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.12	0.07		0.13	0.08	0.08	0.75	0.75		0.83	0.82	
v/c Ratio	0.18	0.67		0.23	0.34	0.18	0.26	0.24		0.34	0.47	
Control Delay	66.3	92.0		67.9	82.6	27.3	11.7	7.8		5.7	6.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	66.3	92.0		67.9	82.6	27.3	11.7	7.8		5.7	6.0	
LOS	E	F		E	F	C	B	A		A	A	
Approach Delay		85.5			64.8			8.1			6.0	
Approach LOS		F			E			A			A	
Queue Length 50th (ft)	31	88		34	48	0	26	103		34	196	
Queue Length 95th (ft)	63	151		68	92	32	68	158		68	302	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	199	214		174	203	192	292	3434		750	2596	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.15	0.42		0.18	0.20	0.11	0.26	0.24		0.22	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.8

Intersection LOS: B

Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 ø2	 ø3	 ø4
136.3 s	16 s	28.2 s
 ø5	 ø6	 ø7
57 s	79.3 s	16 s
		28.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

Existing Conditions (2009)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	29	53	33	31	38	23	74	774	37	161	1085	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Flt Protected	1.00	0.94		1.00	0.99	0.85	1.00	0.99		1.00	0.99	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1585		1597	1586	1358	1597	4559		1597	3158	
Satd. Flow (perm)	1226	1585		853	1586	1358	386	4559		515	3158	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	30	55	34	32	39	24	76	798	38	166	1119	93
RTOR Reduction (vph)	0	13	0	0	1	20	0	1	0	0	2	0
Lane Group Flow (vph)	30	76	0	32	40	2	76	835	0	166	1210	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	20.0	13.5		20.6	13.8	13.8	135.3	135.3		147.7	147.7	
Effective Green, g (s)	20.0	13.5		20.6	13.8	13.8	135.3	135.3		147.7	147.7	
Actuated g/C Ratio	0.11	0.07		0.11	0.08	0.08	0.75	0.75		0.82	0.82	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	149	119		125	121	104	289	3417		478	2584	
v/s Ratio Prot	0.01	c0.05		c0.01	0.03			0.18		0.02	c0.38	
v/s Ratio Perm	0.02			0.02		0.00	0.20			0.27		
v/c Ratio	0.20	0.64		0.26	0.33	0.02	0.26	0.24		0.35	0.47	
Uniform Delay, d1	72.7	81.1		72.3	79.0	77.1	7.0	6.9		3.6	4.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	9.5		0.4	1.2	0.0	2.2	0.2		0.4	0.6	
Delay (s)	73.0	90.6		72.7	80.2	77.1	9.3	7.1		4.0	5.4	
Level of Service	E	F		E	F	E	A	A		A	A	
Approach Delay (s)		86.2			76.9			7.3			5.3	
Approach LOS		F			E			A			A	
Intersection Summary												
HCM Average Control Delay			12.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)				12.5		
Intersection Capacity Utilization			64.4%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

Existing Conditions (2009)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	735	17	45	1100	60	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4576	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4576	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	875	20	54	1310	71	171
Shared Lane Traffic (%)						
Lane Group Flow (vph)	895	0	54	1310	71	171
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

Existing Conditions (2009)

Timing Plan: PM

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑↱		↱	↑↑↑	↱	↱			
Volume (veh/h)	735	17	45	1100	60	144			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84			
Hourly flow rate (vph)	875	20	54	1310	71	171			
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn flare (veh)									
Median type	None		Raised						
Median storage veh			1						
Upstream signal (ft)			681						
pX, platoon unblocked					0.96				
vC, conflicting volume			895		1429		302		
vC1, stage 1 conf vol					885				
vC2, stage 2 conf vol					544				
vCu, unblocked vol			895		1292		302		
tC, single (s)			4.4		7.1		7.2		
tC, 2 stage (s)					6.1				
tF (s)			2.3		3.6		3.4		
p0 queue free %			92		71		74		
cM capacity (veh/h)			688		245		663		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	350	350	195	54	437	437	437	71	171
Volume Left	0	0	0	54	0	0	0	71	0
Volume Right	0	0	20	0	0	0	0	0	171
cSH	1700	1700	1700	688	1700	1700	1700	245	663
Volume to Capacity	0.21	0.21	0.11	0.08	0.26	0.26	0.26	0.29	0.26
Queue Length 95th (ft)	0	0	0	6	0	0	0	29	26
Control Delay (s)	0.0	0.0	0.0	10.7	0.0	0.0	0.0	25.7	12.3
Lane LOS				B				D	
Approach Delay (s)	0.0			0.4				16.2	
Approach LOS								C	
Intersection Summary									
Average Delay				1.8					
Intersection Capacity Utilization				31.3%		ICU Level of Service			A
Analysis Period (min)				15					

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Existing Conditions (2009)

Timing Plan: PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↵
Volume (vph)	950	49	390	1038	109	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	210
Storage Lanes		0	1		1	1
Taper Length (ft)		25	80		25	95
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.993					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4558	0	1597	4590	1597	1429
Flt Permitted			0.196		0.950	
Satd. Flow (perm)	4558	0	330	4590	1597	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	13					297
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1044	54	429	1141	120	342
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1098	0	429	1141	120	342
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	10.0
Minimum Split (s)	23.4		9.0	23.4	20.5	20.5
Total Split (s)	44.4	0.0	15.0	44.4	24.4	24.4
Total Split (%)	53.0%	0.0%	17.9%	53.0%	29.1%	29.1%
Maximum Green (s)	40.0		12.0	40.0	20.0	20.0
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	4.4
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Recall Mode	Max		None	Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Existing Conditions (2009)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	40.1		56.5	55.1	12.5	12.5
Actuated g/C Ratio	0.52		0.74	0.72	0.16	0.16
v/c Ratio	0.46		0.97	0.34	0.46	0.71
Control Delay	12.4		50.3	4.6	34.6	14.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.4		50.3	4.6	34.6	14.8
LOS	B		D	A	C	B
Approach Delay	12.4			17.1	19.9	
Approach LOS	B			B	B	
Queue Length 50th (ft)	103		91	52	52	19
Queue Length 95th (ft)	173		#329	110	99	98
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			210
Base Capacity (vph)	2396		443	3310	419	594
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.46		0.97	0.34	0.29	0.58

Intersection Summary

Area Type: Other

Cycle Length: 83.8

Actuated Cycle Length: 76.4

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 15.9

Intersection LOS: B

Intersection Capacity Utilization 60.1%

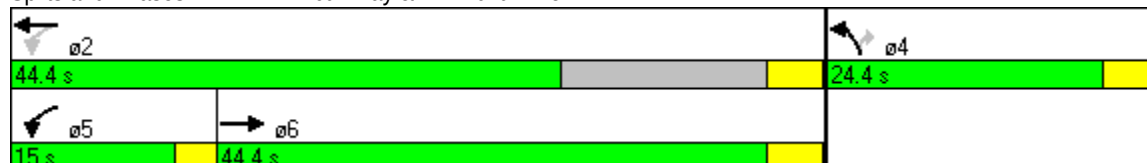
ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: NW 116th Way & NW 107th Ave



HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

Existing Conditions (2009)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Volume (vph)	950	49	390	1038	109	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	4.4
Lane Util. Factor	0.91		1.00	0.91	1.00	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)	4556		1597	4590	1597	1429
Flt Permitted	1.00		0.20	1.00	0.95	1.00
Satd. Flow (perm)	4556		329	4590	1597	1429
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1044	54	429	1141	120	342
RTOR Reduction (vph)	6	0	0	0	0	248
Lane Group Flow (vph)	1092	0	429	1141	120	94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Actuated Green, G (s)	40.1		55.1	55.1	12.5	12.5
Effective Green, g (s)	40.1		55.1	55.1	12.5	12.5
Actuated g/C Ratio	0.52		0.72	0.72	0.16	0.16
Clearance Time (s)	4.4		3.0	4.4	4.4	4.4
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Lane Grp Cap (vph)	2391		436	3310	261	234
v/s Ratio Prot	0.24		c0.15	0.25	c0.08	
v/s Ratio Perm			c0.55			0.07
v/c Ratio	0.46		0.98	0.34	0.46	0.40
Uniform Delay, d1	11.3		12.9	4.0	28.9	28.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		38.5	0.3	1.3	1.1
Delay (s)	12.0		51.4	4.2	30.2	29.7
Level of Service	B		D	A	C	C
Approach Delay (s)	12.0			17.1	29.8	
Approach LOS	B			B	C	
Intersection Summary						
HCM Average Control Delay			17.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.86			
Actuated Cycle Length (s)			76.4		Sum of lost time (s)	7.4
Intersection Capacity Utilization			60.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	16	47	294	11	24	15	977	107	22	1012	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.889			0.899			0.985			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1351	0	1597	1512	0	1597	4521	0	1597	4567	0
Flt Permitted	0.930			0.645			0.211			0.199		
Satd. Flow (perm)	1414	1351	0	1085	1512	0	355	4521	0	335	4567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			25			29			8	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	78	17	49	309	12	25	16	1028	113	23	1065	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	66	0	309	37	0	16	1141	0	23	1101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	10.0	22.4	0.0	10.0	22.4	0.0	9.0	29.6	0.0	9.0	29.6	0.0
Total Split (%)	14.1%	31.5%	0.0%	14.1%	31.5%	0.0%	12.7%	41.7%	0.0%	12.7%	41.7%	0.0%
Maximum Green (s)	7.0	17.0		7.0	17.0		6.0	25.0		6.0	25.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)								8.0			8.0	

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	12.5	7.5		12.0	7.5		29.1	26.5		29.2	26.6	
Actuated g/C Ratio	0.24	0.15		0.23	0.15		0.57	0.52		0.57	0.52	
v/c Ratio	0.22	0.28		0.92	0.15		0.05	0.48		0.07	0.46	
Control Delay	14.7	13.9		55.5	14.7		6.6	10.2		6.8	10.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.7	13.9		55.5	14.7		6.6	10.2		6.8	10.1	
LOS	B	B		E	B		A	B		A	B	
Approach Delay		14.4			51.1			10.2			10.1	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)	15	5		~134	3		2	78		3	76	
Queue Length 95th (ft)	47	36		#219	27		9	161		12	155	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	373	489		336	528		350	2358		342	2376	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.13		0.92	0.07		0.05	0.48		0.07	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 71

Actuated Cycle Length: 51.2

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 15.5

Intersection LOS: B

Intersection Capacity Utilization 52.5%

ICU Level of Service A

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

	ø1		ø2		ø3		ø4
9 s		29.6 s		10 s		22.4 s	
	ø5		ø6		ø7		ø8
9 s		29.6 s		10 s		22.4 s	

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	16	47	294	11	24	15	977	107	22	1012	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Flt	1.00	0.89		1.00	0.90		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1351		1597	1511		1597	4522		1597	4568	
Flt Permitted	0.93	1.00		0.65	1.00		0.21	1.00		0.20	1.00	
Satd. Flow (perm)	1414	1351		1085	1511		354	4522		334	4568	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	78	17	49	309	12	25	16	1028	113	23	1065	36
RTOR Reduction (vph)	0	45	0	0	22	0	0	15	0	0	4	0
Lane Group Flow (vph)	78	21	0	309	15	0	16	1126	0	23	1097	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	10.6	4.3		14.4	6.2		27.5	26.6		27.5	26.6	
Effective Green, g (s)	10.6	4.3		14.4	6.2		27.5	26.6		27.5	26.6	
Actuated g/C Ratio	0.19	0.08		0.26	0.11		0.49	0.48		0.49	0.48	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	271	104		354	167		194	2148		184	2170	
v/s Ratio Prot	0.03	0.02		c0.13	0.01		0.00	c0.25		c0.00	0.24	
v/s Ratio Perm	0.02			c0.10			0.04			0.06		
v/c Ratio	0.29	0.20		0.87	0.09		0.08	0.52		0.12	0.51	
Uniform Delay, d1	19.5	24.2		19.5	22.4		7.5	10.3		7.5	10.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.7		19.9	0.2		0.1	0.9		0.1	0.8	
Delay (s)	19.7	24.9		39.4	22.5		7.5	11.2		7.6	11.0	
Level of Service	B	C		D	C		A	B		A	B	
Approach Delay (s)		22.1			37.6			11.1			10.9	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM Average Control Delay			14.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			56.0			Sum of lost time (s)				13.6		
Intersection Capacity Utilization			52.5%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	57	10	22	20	21	21	27	1082	4	6	1019	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25		50	25		25	75		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.91
Frt		0.896			0.954			0.999			0.998	
Flt Protected	0.950				0.984		0.950					
Satd. Flow (prot)	1597	1507	0	0	1578	0	1597	4586	0	0	4581	0
Flt Permitted	0.950				0.984		0.950					
Satd. Flow (perm)	1597	1507	0	0	1578	0	1597	4586	0	0	4581	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		729			295			921			930	
Travel Time (s)		14.2			5.7			17.9			18.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	70	12	27	25	26	26	33	1336	5	7	1258	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	39	0	0	77	0	33	1341	0	0	1285	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 41.0% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	57	10	22	20	21	21	27	1082	4	6	1019	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	70	12	27	25	26	26	33	1336	5	7	1258	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked	0.95	0.95		0.95	0.95	0.95				0.95		
vC, conflicting volume	1834	2690	429	1872	2698	448	1278			1341		
vC1, stage 1 conf vol	1283	1283		1405	1405							
vC2, stage 2 conf vol	551	1407		467	1293							
vCu, unblocked vol	1691	2593	429	1732	2601	231	1278			1172		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	41	88	95	78	72	96	93			99		
cM capacity (veh/h)	118	100	545	114	93	701	483			506		
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3		
Volume Total	70	40	77	33	534	534	272	322	629	334		
Volume Left	70	0	25	33	0	0	0	7	0	0		
Volume Right	0	27	26	0	0	0	5	0	0	20		
cSH	118	227	144	483	1700	1700	1700	506	1700	1700		
Volume to Capacity	0.59	0.17	0.53	0.07	0.31	0.31	0.16	0.01	0.37	0.20		
Queue Length 95th (ft)	74	15	65	6	0	0	0	1	0	0		
Control Delay (s)	72.6	24.1	55.5	13.0	0.0	0.0	0.0	0.5	0.0	0.0		
Lane LOS	F	C	F	B				A				
Approach Delay (s)	55.2		55.5	0.3				0.1				
Approach LOS	F		F									
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			41.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	77	5	26	20	3	7	22	1172	2	33	964	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.874			0.900						0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1470	0	1597	1513	0	1597	4590	0	1597	4572	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1470	0	1597	1513	0	1597	4590	0	1597	4572	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	93	6	31	24	4	8	27	1412	2	40	1161	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	37	0	24	12	0	27	1414	0	40	1192	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 45.0%

ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

5: NW 100th Rd & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	77	5	26	20	3	7	22	1172	2	33	964	26
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	93	6	31	24	4	8	27	1412	2	40	1161	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage veh								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1791	2724	403	1967	2739	472	1193			1414		
vC1, stage 1 conf vol	1257	1257		1466	1466							
vC2, stage 2 conf vol	534	1467		501	1272							
vCu, unblocked vol	1791	2724	403	1967	2739	472	1193			1414		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	17	92	94	73	96	98	95			91		
cM capacity (veh/h)	112	76	567	89	83	510	523			425		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	93	37	24	12	27	565	565	285	40	465	465	264
Volume Left	93	0	24	0	27	0	0	0	40	0	0	0
Volume Right	0	31	0	8	0	0	0	2	0	0	0	31
cSH	112	278	89	200	523	1700	1700	1700	425	1700	1700	1700
Volume to Capacity	0.83	0.13	0.27	0.06	0.05	0.33	0.33	0.17	0.09	0.27	0.27	0.16
Queue Length 95th (ft)	120	11	25	5	4	0	0	0	8	0	0	0
Control Delay (s)	114.0	20.0	60.1	24.2	12.3	0.0	0.0	0.0	14.3	0.0	0.0	0.0
Lane LOS	F	C	F	C	B				B			
Approach Delay (s)	87.0		48.1		0.2				0.5			
Approach LOS	F		E									
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			45.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	43	41	55	67	42	73	66	1270	11	47	793	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.914			0.954	0.850		0.999			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1537	0	1597	1524	1358	1597	4586	0	1597	3163	0
Flt Permitted	0.712			0.371			0.314			0.165		
Satd. Flow (perm)	1197	1537	0	624	1524	1358	528	4586	0	277	3163	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			11	58		1			8	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	46	44	59	71	45	78	70	1351	12	50	844	59
Shared Lane Traffic (%)						26%						
Lane Group Flow (vph)	46	103	0	71	65	58	70	1363	0	50	903	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	22.0	35.2	0.0	22.0	35.2	35.2	102.3	102.3	0.0	21.0	123.3	0.0
Total Split (%)	12.2%	19.5%	0.0%	12.2%	19.5%	19.5%	56.7%	56.7%	0.0%	11.6%	68.3%	0.0%
Maximum Green (s)	19.0	30.0		19.0	30.0	30.0	98.0	98.0		18.0	119.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	24.6	13.5		30.1	17.9	17.9	134.8	134.8		144.2	142.9	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.14	0.07		0.17	0.10	0.10	0.75	0.75		0.80	0.79	
v/c Ratio	0.25	0.72		0.43	0.40	0.31	0.18	0.40		0.18	0.36	
Control Delay	64.5	80.9		70.7	70.0	19.4	10.0	9.7		6.4	6.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	64.5	80.9		70.7	70.0	19.4	10.0	9.7		6.4	6.5	
LOS	E	F		E	E	B	B	A		A	A	
Approach Delay		75.8			55.1			9.7			6.5	
Approach LOS		E			E			A			A	
Queue Length 50th (ft)	47	84		74	65	0	23	203		11	144	
Queue Length 95th (ft)	84	151		120	118	51	57	299		28	232	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	243	282		207	262	274	394	3426		353	2505	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.19	0.37		0.34	0.25	0.21	0.18	0.40		0.14	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 15.4

Intersection LOS: B

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 Ø2	 Ø3	 Ø4
123.3 s	22 s	35.2 s
 Ø5	 Ø7	 Ø8
21 s	22 s	35.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

Existing Conditions (2009)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	43	41	55	67	42	73	66	1270	11	47	793	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Frt	1.00	0.91		1.00	0.95	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1537		1597	1524	1358	1597	4584		1597	3163	
Flt Permitted	0.71	1.00		0.37	1.00	1.00	0.31	1.00		0.16	1.00	
Satd. Flow (perm)	1198	1537		625	1524	1358	527	4584		277	3163	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	46	44	59	71	45	78	70	1351	12	50	844	59
RTOR Reduction (vph)	0	30	0	0	10	52	0	0	0	0	2	0
Lane Group Flow (vph)	46	73	0	71	55	6	70	1363	0	50	901	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	22.0	14.1		28.8	17.9	17.9	133.6	133.6		142.2	142.2	
Effective Green, g (s)	22.0	14.1		28.8	17.9	17.9	133.6	133.6		142.2	142.2	
Actuated g/C Ratio	0.12	0.08		0.16	0.10	0.10	0.74	0.74		0.79	0.79	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	163	120		163	151	135	390	3393		259	2492	
v/s Ratio Prot	0.01	c0.05		c0.03	0.04			c0.30		0.01	c0.28	
v/s Ratio Perm	0.02			0.04		0.00	0.13			0.15		
v/c Ratio	0.28	0.61		0.44	0.36	0.04	0.18	0.40		0.19	0.36	
Uniform Delay, d1	71.7	80.6		66.9	76.0	73.5	7.0	8.7		5.1	5.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	7.7		0.7	1.1	0.1	1.0	0.4		0.4	0.4	
Delay (s)	72.0	88.2		67.6	77.1	73.6	8.0	9.0		5.5	6.1	
Level of Service	E	F		E	E	E	A	A		A	A	
Approach Delay (s)		83.2			72.6			9.0			6.1	
Approach LOS		F			E			A			A	
Intersection Summary												
HCM Average Control Delay			16.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)				16.8		
Intersection Capacity Utilization			57.2%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

APPENDIX H



SEARCH REPORT BY: Agency or Type of Report, Budget Limits and Type of Project

Report Date: 2/25/2010

Time: 2:22 PM

The Transportation Improvement Program (TIP) is the short range element of the Long Range Transportation Plan (LRTP). It consists of a five-year program of projects of which one year is current (the annual element) and four are proposed. Projects included in the TIP are required to be prioritized and financially constrained and must include transportation management system strategies proposed for implementation during the time frame of the TIP. The TIP also identifies all sources of funding that are known or anticipated to be available during the program period. The Transportation Plan documents are adopted by the Governing Board of the Metropolitan Planning Organization (MPO), and accepted by the state and federal agencies involved in local transportation planning and implementation, i.e. the Florida Department of Transportation, the Federal Highway Administration, and the Federal Transit Administration. Projects approved by the MPO Board in the TIP are subsequently implemented by the Board of County Commissioners and, when required, by federal and/or state agencies.

This report includes a selection of transportation projects from the current Transportation Improvement Program adopted by the Miami Urbanized Area Metropolitan Planning Organization, as requested by the user. The complete document can be found at the MPO web site (www.miamidade.gov/mpo).

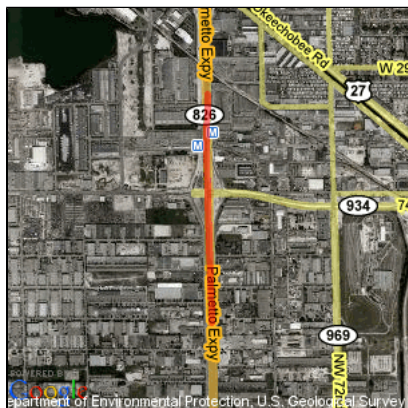
By using the following criteria, you selected 8 TIP projects to be included in this report

Agency/Report Type: Selection by Municipality: MEDLEY

Budget Limits: All \$ amounts

Type of Project: All

<i>InteracTIP – Funding Source Legend</i>					
<i>CODE</i>	<i>NAME</i>	<i>CODE</i>	<i>NAME</i>	<i>CODE</i>	<i>NAME</i>
ACCM	Advance Construction – Congestion Mitigation	FAA	Fed. Aviation Admin. Funds-Airport Improvements	PKBD	Turnpike Master Bond Fund
ACEN	Advance Construction/Equity Bonus for National Highways	FDOT	Florida Department of Transportation	PKM1	Turnpike Toll Maintenance
ACI	Advance Construction – Interstate	FDOT (CIGP)	County Incentive's Grant Program (FDOT-Discretionary)	PKY1	Turnpike Improvement
ACNH	Advance Construction – National Highway	FDOT (SE)	Surface Transportation Enhancement	PKYR	Turnpike Renewal and Replacement
ACOE	Army Corps of Engineers	FDOT D4	FDOT Dist. 4 (Funding allocated to So. Fl. Reg. Transp. Auth.)	PL	Metropolitan Miami-Dade Planning
ACSA	Advance Construction/Surface Transportation Program	FDOT DDR	District Dedicated Revenue (FDOT)	PORT	Miami-Dade Seaport
ACSE	Advance Construction – STP, Enhancement	FDOT DS	State Primary – Highways & PTO	PRIV	Private Sector
ACSH	Advance Construction – Safety, Hazard Elimination	FDxx	Federal Demonstration Projects	PTP	People's Transportation Program
ACSS	Advance Construction – Safety	FED FOR	Federal Formula	PTP Bond	People's Transportation Program – Bond
ACSU	Advance Construction SU	FHPP	Federal High Priority	RHH	Rail Highway Crossings Hazard
ACXA	Advance Constr. – Surface Transport. Any Area	FI Toll	Florida Toll Revenue Credits	RHP	Rail Highway Crossings Protections Devices
BCT	Broward County Transit	FPTF	Florida Ports Trust Funds	RIF	Road Impact Fee
BNBR	Amendment 4 Bonds (Bridges)	FRM4	Mandated Congressional Earmark Funding	S117	STP Earmarks – 2005
BNDS	State Bonds	FSJLD	Future Seaport Jr. Lien Debt	S129	STP Earmarks – 2008
BRRP	State Bridge Repair/Rehabilitation Program	FSRB	Future Seaport Revenue Bonds	SA	STP – Any Area
BRT	Federal Bridge Replacement – On System	FTA	Federal Transit Administration	SCF	Seaport Construction Funds
BRTD	Federal Bridge Replacement – Discretionary	FTA 5307	Federal Transit Administration – Section 5307	SE	Surface Transportation, Enhancement
BRTZ	Federal Bridge Replacement – Off System	FTA 5309	Federal Transit Administration – Section 5309	SGT	Secondary Gas Tax
CCTSS	Charter County System Surtax	FTA RAIL MOD	Federal Transit Agency Rail Modification	SH	Surface Transportation, Hazard Elimination
CD (Seaport)	Cash Donation	FTAT	Federal Transit Agency Transfer	SLA	Special Legislative Appropriation
CIGP	County Incentives Grant Program	FTRC	Florida Toll Revenue Credits	SN	Surface Transportation Mandatory Non-Urban
CIG-R	County Incentives Grant Program 4 Growth Management	GMR	General Revenue for SIS	SR	Surface Transportation, RR Hazard Elimination
CM	Congestion Mitigation for Air Quality	HPP	High Priority Projects	SR2E	Safe Routes to School, Either
CMAQ	Congestion Management Air Quality	HRR	High Risk Rural Road	SR2N	Safe Routes to School – Non Infrastructure
COE	Corp of Engineers	HSP	Highway Safety Program	SR2S	Safe Routes to School – Infrastructure
COR	Capital Outlay Reserve	IM	Interstate Maintenance/Rehabilitation	SRB	Seaport Revenue Bonds
D	State – Public Transportation Operations/Planning	IMAC	Interstate Maintenance (Advanced Construction/Regular)	SS	Surface Transportation Safety
DDR	District Dedicated Revenue (FDOT)	IMD	Interstate Maintenance – Discretionary	STP/FLEX(B)	STP/Flex – Broward County
DDR/LFF	District Dedicated Rev./Local Fund for Matching	IVH	Mandated Congressional Earmark Funding	STP/FLEX(M)	STP/Flex – Miami Dade County
DDRF	District Dedicated Revenue for Federal Matching	L	Local Funds	STP/FLEX(P)	STP/Flex – Palm Beach County
DI	State-Statewide Inter/Intrastate Highway	LF	Local Funds	SU	STP, Urban Areas > 200,000 Population
DIH	State in House Product Support	LFF	Local Funds for Federal Match	TCSP	Transportation, Community & System Preservation
DIRS	Advance Acquisition-Intrastate Corridor	LFNE	Local Funds not in Escrow	TDDR	Transportation Disadvantaged–Distr. Dedicated Rev.
DIS	Strategic Intermodal System	Liability Trust F	Liability Trust Fund	TDTF	Transportation Disadvantaged Trust Fund
DITS	Statewide ITS – State 100%	LOGT	Local Option Gas Tax	TIFI	Transportation Infrastructure Finance and Innovation Act
DL	Local Funds – PTO	MDTA	Miami-Dade Transit Agency	TOP	Transportation Outreach Program
DPTO	State PTO Funds	MDX	Miami-Dade Expressway Authority	TIMP	Transportation Improvement (Federal-100%)
DS	State Primary Highways and PTO	MG	Minimum Guarantee	TP	Turnpike District
DSB	Design-Build	MGBP	Minimum Guarantee – Bridge Supplemental	TOBD	I-95 Express (State – 100%)
DSB4	Miami-Dade Expressway Authority	MLF	Master Lease Financing	TRIP	Transportation Regional Incentive Program
DSBD	Toll Discretionary	MPO	Miami-Dade Metropolitan Planning Organization	XA	Surface Transportation Any Area
DU	State Primary / Federal Reimbursable	NH	Principal Arterials National Highway	XL	Surface Transportation Area < 200K Population
EB	Equity Bonus	NHAC	National Highway – Advanced Construction	XU	Surface Transportation Area > 200K Population
EBBP	Equity Bonus Bridge Program	NHTS	National Highway Traffic Safety		
EBNH	Equity Bonus Supplementing NH	NSTP	New Starts Transit Program		
<i>InteracTIP – Work Program Description Legend</i>					
<i>CODE</i>	<i>NAME</i>	<i>CODE</i>	<i>NAME</i>	<i>CODE</i>	<i>NAME</i>
ADM	Administration	INC	Alternative Contracting Incentives	PE	Planning and Design
BR	Bridge	LAR	Local Advance Reimbursement	PE/CST	Planning, Engineering & Construction
CAP	Capital	MNT	Maintenance	PLN	Planning
CEI	Construction Engineering Inspection	MISC	Miscellaneous Grant	R/R	Railroad
CST	Construction and Construction Engineering Inspection	OPS	Operations	ROW	Right of Way
DSB	Design/Build	PD	Preliminary Design	R/W	Right of Way
ENV	Environmental	PDE	Project Development and Environmental	RRU	Railroad & Utilities



DT2496522

SR 826/PALMETTO EXPY

Type of Work: LANDSCAPING

Type of Project: Expressway

Construction Year: 2011

Status:

Remarks/Comments:

From: N.W. 62 STREET

To: FEC RAILROAD

Agency Name: Florida Department of Transportation District 6

Next Step:

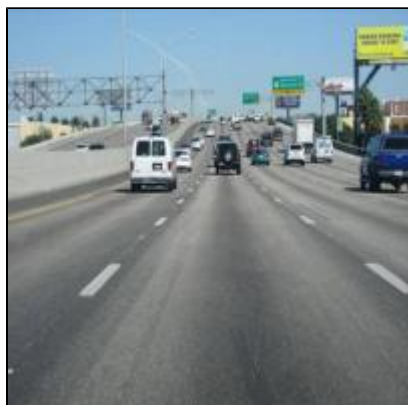
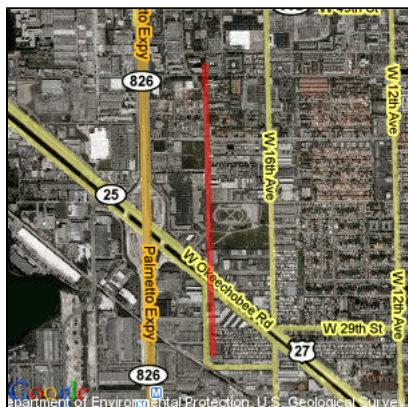
Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
CST	DDR	0	627	160	0	0	787
CST	DIH	0	16	0	0	0	16
PE	DDR	135	0	0	0	0	135
PE	DIH	10	0	0	0	0	10
Total		145	643	160	0	0	948

Project Description:

Contact Person
James Craig (Steven)

Phone No.
305 470-5231

Email Address
steven.james@dot.state.fl.us



DT2496532

SR 826/PALMETTO EXPY

Type of Work: LANDSCAPING

Type of Project: Expressway

Construction Year: 2010

Status:

Remarks/Comments:

From: FEC RAILROAD

To: WEST 41 STREET

Agency Name: Florida Department of Transportation District 6

Next Step:

Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
CST	DDR	0	0	0	1,338	0	1,338
CST	DIH	0	0	0	16	0	16
Total		0	0	0	1,354	0	1,354

Project Description:

Contact Person

James Craig (Steven)

Phone No.

305 470-5232

Email Address

steven.james@dot.state.fl.us

DT4056153 N.W. 87TH AVENUE

Type of Work:	NEW ROAD CONSTRUCTION	From:	NW 74TH STREET
Type of Project:	Arterial/Collector Road	To:	NW 103RD STREET
Construction Year:	N/A	Agency Name:	Florida Department of Transportation District 6
Status:		Next Step:	
Remarks/Comments:			



Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
ENV	ACSA	0	0	0	0	100	100
Total		0	0	0	0	100	100

Project Description:

Contact Person	Phone No.	Email Address
Ana Arvelo	305 470-5210	ana.arvelo@dot.state.fl.us



PW000031 NW 74 Street

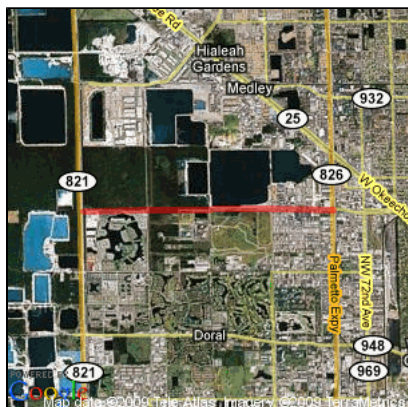
Type of Work:	New Construction: 4 lanes	From:	NW 87 Avenue
Type of Project:	Arterial/Collector Road	To:	NW 84 Avenue
Construction Year:	N/A	Agency Name:	MD Public Works
Status:	Design completed	Next Step:	
Remarks/Comments:	Additional funding by PTP.		

Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
Total		0	0	0	0	0	0

Project Description: Construction of 4 new lanes. Settlement Agreement R-480-04 . Prior Years Funding as follows: \$376,416 for PE/CST.

Contact Person	Phone No.	Email Address
Delfin Molins	(305) 375-1682	delfin@miamidade.gov



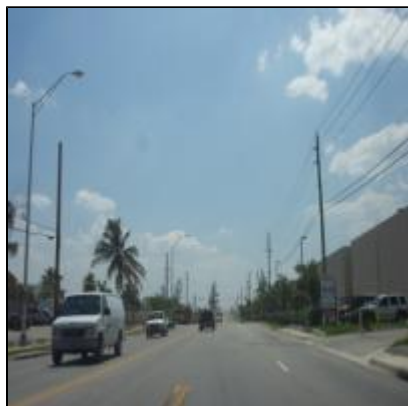


PW20040355 NW 74 Street

Type of Work:	New 6 lanes	From:	HEFT
Type of Project:	Arterial/Collector Road	To:	SR 826 (Palmetto)
Construction Year:	2010	Agency Name:	MD Public Works
Status:	Under design	Next Step:	
Remarks/Comments: Prior Years Funding as follows: \$2,485,000 for PE, \$20,597,000 for CST. Reimb. from FDOT for 4 to 6 lanes.			

Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
CST	PTP	34,519	7,500	4,493	0	0	46,512
Total		34,519	7,500	4,493	0	0	46,512

Project Description:



Contact Person

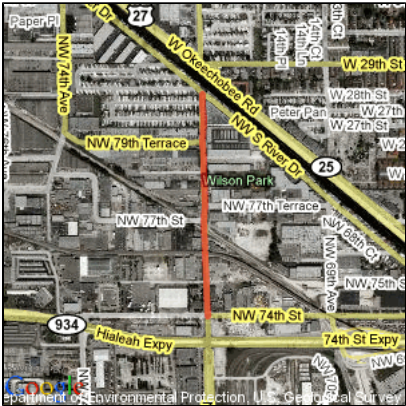
Delfin Molins

Phone No.

(305) 375-1682

Email Address

delfin@miamidade.gov



PW662347 NW 72 Avenue

Type of Work:	Widening: 2 to 4 lanes and bridge	From:	NW 74 Street
Type of Project:	Arterial/Collector Road	To:	Okeechobee Road
Construction Year:	N/A	Agency Name:	MD Public Works
Status:	Under construction	Next Step:	
Remarks/Comments:	Additional funding in Secondary Gas Tax.		

Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
Total		0	0	0	0	0	0

Project Description: R/W, Widen from 2 to 4 lanes and bridge.

Contact Person	Phone No.	Email Address
Delfin Molins	(305) 375-1682	delfin@miamidade.gov

Type of Work:	Widening: 2 to 4 lanes and bridge	From:	NW 74 Street
Type of Project:	Arterial/Collector Road	To:	Okeechobee Road
Construction Year:	N/A	Agency Name:	MD Public Works
Status:	Under construction	Next Step:	
Remarks/Comments:	Under construction. Additional funding in RIF 1.		

Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
Total		0	0	0	0	0	0

Project Description:	Widen from 2 to 4 lanes and bridge.
-----------------------------	-------------------------------------

Email Address

delfin@miamidade.gov



PW671133A

NW 106 Street and NW S River Drive Culvert

Type of Work:

Culvert

Type of Project:

Arterial/Collector Road

Construction Year:

N/A

Status:

Design completed

Remarks/Comments:

From:

To:

Agency Name:

MD Public Works

Next Step:

Phase	Fund Source	2009/10	2010/11	2011/12	2012/13	2013/14	Total
Total		0	0	0	0	0	0

Project Description:

Culvert

Contact Person

Delfin Molins

Phone No.

(305) 375-1682

Email Address

delfin@miamidade.gov

APPENDIX I

TMTOOL INPUT SHEET

Project Description:

SECTION NO:	Miami Dade County (87109000)	PREPARED BY:	CGA
FM NO.:		FILE:	BASED ON FIELD K & D
PROJECT LIMITS:	NW 116th Way Corridor Study	DATE:	2/17/2010
DESIGN YEAR:	2030		
INTERSECTION:	NW 116th Way at NW 100th Rd		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
Actual AADT:	2006				
Actual AADT:	2007				
Actual AADT:	2008				
Actual AADT:	2009	1,600	24,000	700	24,000
SERPM Volume:	2030				

Growth Rates:

	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
Historic +2030 Model Trend GR =				
TAZ GR =				
2005 to 2030 Model GR =				
Recommended Growth Rate:	1.20% CGR	1.10% CGR	1.00% CGR	1.10% CGR

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

- 1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound First Ten Years, Linear Thereafter

	YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
	2009		1,600		24,000		700		24,000
NO. YEARS	1	1.012	1,600	1.011	24,500	1.010	700	1.011	24,500
NO. YEARS	11	1.140	1,800	1.128	27,000	1.116	800	1.128	27,000
NO. YEARS	21	1.285	2,100	1.258	30,000	1.232	850	1.258	30,000

Percent Turns Calculated From Base Year AADTs:

JKTURNS	FROM NORTH LEG	FROM EAST LEG	FROM SOUTH LEG	FROM WEST LEG
2009 2-WAY ADT	1,600	24,000	700	24,000
RIGHT	THRU	THRU	THRU	THRU
24,000	700	24,000	1,600	24,000
49%	1%	91%	3%	91%
2010 2-WAY ADT	1,600	24,500	700	24,500
RIGHT	THRU	THRU	THRU	THRU
24,500	700	24,500	1,600	24,500
49%	1%	91%	3%	91%
2020 2-WAY ADT	1,800	27,000	800	27,000
RIGHT	THRU	THRU	THRU	THRU
27,000	800	27,000	1,800	27,000
49%	1%	91%	3%	91%
2030 2-WAY ADT	2,100	30,000	850	30,000
RIGHT	THRU	THRU	THRU	THRU
30,000	850	30,000	2,100	30,000
49%	1%	91%	3%	91%

Percent Turns Calculated From Base Year TMCs:

TURN STUDY	FROM NORTH LEG (Southbound)	FROM EAST LEG (Westbound)	FROM SOUTH LEG (Northbound)	FROM WEST LEG (Eastbound)	
A.M. 2-Way Pk Hr Vol:	173	1,984	112	1,929	
RIGHT	THRU	THRU	THRU	THRU	
7:30 - 8:30	13	1,014	3	804	2,099
% TURNS:	39%	88%	18%	90%	
P.M. 2-Way Pk Hr Vol:	159	2,279	70	2,206	
RIGHT	THRU	THRU	THRU	THRU	
4:30 - 5:30	26	964	3	1,172	2,357
% TURNS:	24%	94%	10%	98%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2009	39%	3%	58%	6%	88%	6%	59%	18%	24%	2%	90%	8%
2010	40%	3%	57%	6%	88%	6%	58%	16%	26%	2%	90%	8%
2020	41%	3%	57%	6%	88%	6%	58%	16%	27%	2%	90%	8%
2030	41%	3%	56%	6%	89%	6%	57%	15%	28%	2%	90%	8%
P.M.												
2009	24%	5%	71%	3%	94%	3%	23%	10%	67%	0%	98%	2%
2010	27%	4%	69%	3%	94%	3%	26%	9%	65%	0%	97%	2%
2020	27%	4%	69%	3%	94%	3%	26%	9%	64%	0%	97%	2%
2030	28%	4%	68%	3%	94%	3%	27%	9%	64%	1%	97%	3%

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 100th Rd
 PREPARED BY: CGA
 FILE: BASED ON FIELD K & D

DATE: 2/17/2010
 NOTES:
 0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	1,600	24,000	700	24,000
24 HR EST. AADT	2010	1,600	24,500	700	24,500
24 HR EST. AADT	2020	1,800	27,000	800	27,000
24 HR EST. AADT	2030	2,100	30,000	850	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	10.8%	9.9%	8.3%	9.5%	16.0%	10.0%	8.0%	9.2%
2010	Approach K30 factor	10.8%	9.9%	8.3%	9.5%	16.0%	10.0%	8.0%	9.2%
2020	Approach K30 factor	10.8%	9.9%	8.3%	9.5%	16.0%	10.0%	8.0%	9.2%
2030	Approach K30 factor	10.8%	9.9%	8.3%	9.5%	16.0%	10.0%	8.0%	9.2%
2009	APPROACH D FACTOR	19.1%	67.9%	58.0%	44.9%	15.2%	42.9%	46.6%	54.2%
2010	Approach D30 Factor	19.1%	67.9%	58.0%	44.9%	15.2%	42.9%	46.6%	54.2%
2020	Approach D30 Factor	19.1%	67.9%	58.0%	44.9%	15.2%	42.9%	46.6%	54.2%
2030	Approach D30 Factor	19.1%	67.9%	58.0%	44.9%	15.2%	42.9%	46.6%	54.2%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	13	1	19	63	1015	70	10	3	4	22	800	71
2010	EST. TURNS	13	1	19	65	1035	70	10	3	4	22	826	69
2020	EST. TURNS	15	1	21	72	1,140	82	11	3	5	28	903	78
2030	EST. TURNS	18	1	25	90	1264	88	12	3	6	30	1,005	93
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	26	5	77	26	968	33	7	3	20	2	1,173	23
2010	EST. TURNS	28	5	75	26	981	31	8	2	19	4	1,202	23
2020	EST. TURNS	33	5	84	29	1,079	35	9	3	22	6	1,316	26
2030	EST. TURNS	40	6	97	34	1202	40	10	3	23	8	1,464	31

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		33	137	170	1151	829	1980	17	93	110	898	1032	1930
2009	TURN SUMMARY	33	137	170	1148	829	1977	17	93	110	893	1032	1925
CONTROL LINK VOLUMES		33	137	170	1175	855	2030	17	93	110	917	1053	1970
2010	TURN SUMMARY	33	137	170	1170	855	2025	17	93	110	918	1053	1971
CONTROL LINK VOLUMES		37	153	190	1295	935	2230	19	111	130	1010	1160	2170
2020	TURN SUMMARY	37	153	190	1295	935	2230	19	111	130	1008	1160	2168
CONTROL LINK VOLUMES		43	187	230	1439	1041	2480	21	119	140	1123	1287	2410
2030	TURN SUMMARY	43	187	230	1442	1041	2483	21	119	140	1128	1287	2415
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		108	52	160	1023	1257	2280	30	40	70	1196	1014	2210
2009	TURN SUMMARY	108	52	160	1027	1257	2284	30	40	70	1198	1014	2212
CONTROL LINK VOLUMES		108	52	160	1044	1286	2330	30	40	70	1221	1029	2250
2010	TURN SUMMARY	108	52	160	1039	1286	2325	30	40	70	1230	1029	2259
CONTROL LINK VOLUMES		122	58	180	1151	1409	2560	34	46	80	1346	1134	2480
2020	TURN SUMMARY	122	58	180	1143	1409	2552	34	46	80	1348	1134	2482
CONTROL LINK VOLUMES		142	68	210	1279	1571	2850	36	54	90	1495	1265	2760
2030	TURN SUMMARY	142	68	210	1276	1571	2847	36	54	90	1504	1265	2769

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:	Miami Dade County (87109000)	PREPARED BY:	CGA
FM NO.:		FILE:	BASED ON FIELD K & D
PROJECT LIMITS:	NW 116th Way Corridor Study	DATE:	2/17/2010
DESIGN YEAR:	2030		
INTERSECTION:	NW 116th Way at NW 108th Ave		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
Actual AADT:	2006				
Actual AADT:	2007				
Actual AADT:	2008				
Actual AADT:	2009	0	21,500	2,700	19,500
SERPM Volume:	2030				

Growth Rates:

	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
Historic +2030 Model Trend GR =				
TAZ GR =				
2005 to 2030 Model GR =				
Recommended Growth Rate:	1.10% CGR	1.00% LGR	1.10% CGR	

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

- 1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound First Ten Years, Linear Thereafter

	YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
	2009				21,500		2,700		19,500
NO. YEARS	1	1.000		1.011	21,500	1.010	2,700	1.011	19,500
NO. YEARS	11	1.000		1.128	24,000	1.116	3,000	1.128	22,000
NO. YEARS	21	1.000		1.258	27,000	1.232	3,300	1.258	24,500

Percent Turns Calculated From Base Year AADTs:

JKTURNS	FROM NORTH LEG	FROM EAST LEG	FROM SOUTH LEG	FROM WEST LEG
2009 2-WAY ADT	1	21,500	2,700	19,500
RIGHT	THRU	THRU	THRU	THRU
19,500	2,700	21,500	1	19,500
45%	6%	88%	0%	89%
2010 2-WAY ADT	100	21,500	2,700	19,500
RIGHT	THRU	THRU	THRU	THRU
19,500	2,700	21,500	100	19,500
45%	6%	87%	0%	88%
2020 2-WAY ADT	100	24,000	3,000	22,000
RIGHT	THRU	THRU	THRU	THRU
22,000	3,000	24,000	100	22,000
45%	6%	88%	0%	89%
2030 2-WAY ADT	100	27,000	3,300	24,500
RIGHT	THRU	THRU	THRU	THRU
24,500	3,300	27,000	100	24,500
45%	6%	88%	0%	89%

Percent Turns Calculated From Base Year TMCs:

TURN STUDY	FROM NORTH LEG (Southbound)	FROM EAST LEG (Westbound)	FROM SOUTH LEG (Northbound)	FROM WEST LEG (Eastbound)	
A.M. 2-Way Pk Hr Vol:	6	1,783	336	1,689	
RIGHT	THRU	THRU	THRU	THRU	
7:45 - 8:45		646	179	113	921
% TURNS:	33%	33%	33%	0%	78%
P.M. 2-Way Pk Hr Vol:	6	2,026	268	1,914	
RIGHT	THRU	THRU	THRU	THRU	
4:45 - 5:45		1,100	45	144	60
% TURNS:	33%	33%	33%	0%	96%

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS	SB THRU	LEFT	RIGHT	WB THRU	LEFT	RIGHT	NB THRU	LEFT	RIGHT	EB THRU	LEFT
A.M.											
2009	33%	33%	33%	0%	78%	22%	81%	2%	16%	11%	89%
2010	34%	31%	35%	0%	79%	21%	78%	2%	19%	11%	89%
2020	35%	30%	35%	0%	79%	20%	78%	2%	20%	11%	89%
2030	35%	29%	36%	0%	80%	20%	77%	2%	21%	11%	89%
P.M.											
2009	33%	33%	33%	0%	96%	4%	70%	0%	29%	2%	98%
2010	34%	31%	35%	0%	95%	5%	68%	0%	31%	3%	97%
2020	35%	30%	35%	0%	95%	5%	68%	0%	32%	3%	96%
2030	35%	29%	36%	0%	95%	5%	67%	0%	32%	4%	96%

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 108th Ave
 PREPARED BY: CGA
 FILE: BASED ON FIELD K & D

DATE: 2/17/2010
 NOTES:

0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	21,500	2,700	19,500
24 HR EST. AADT	2010	21,500	2,700	19,500
24 HR EST. AADT	2020	24,000	3,000	22,000
24 HR EST. AADT	2030	27,000	3,300	24,500

K & D FACTORS:

		AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	8.3%	9.4%	12.4%	9.9%	8.7%	9.8%
2010	Approach K30 factor	8.3%	9.4%	12.4%	9.9%	8.7%	9.8%
2020	Approach K30 factor	8.3%	9.4%	12.4%	9.9%	8.7%	9.8%
2030	Approach K30 factor	8.3%	9.4%	12.4%	9.9%	8.7%	9.8%
2009	APPROACH D FACTOR	46.3%	56.6%	12.8%	76.5%	61.3%	39.3%
2010	Approach D30 Factor	46.3%	56.6%	12.8%	76.5%	61.3%	39.3%
2020	Approach D30 Factor	46.3%	56.6%	12.8%	76.5%	61.3%	39.3%
2030	Approach D30 Factor	46.3%	56.6%	12.8%	76.5%	61.3%	39.3%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS				647	181		34		7	115	919	
2010	EST. TURNS				646	179		33		8	117	920	
2020	EST. TURNS				731	190		36		10	131	1,031	
2030	EST. TURNS				808	216		41		11	140	1,161	
P.M. DESIGN HR. TURNS													
2009	EST. TURNS				1097	47		145		59	17	738	
2010	EST. TURNS				1095	45		143		61	19	740	
2020	EST. TURNS				1,236	49		154		73	22	827	
2030	EST. TURNS				1375	54		172		78	24	928	

LINK VOLUME CHECK

		EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		826	954	1780	43	297	340	1035	655	1690
2009	TURN SUMMARY	830	954	1784	43	297	340	1037	655	1692
CONTROL LINK VOLUMES		826	954	1780	43	297	340	1035	655	1690
2010	TURN SUMMARY	827	954	1781	43	297	340	1039	655	1694
CONTROL LINK VOLUMES		922	1068	1990	48	322	370	1168	742	1910
2020	TURN SUMMARY	924	1068	1992	48	322	370	1165	742	1907
CONTROL LINK VOLUMES		1037	1203	2240	53	357	410	1300	820	2120
2030	TURN SUMMARY	1027	1203	2230	53	357	410	1304	820	2124
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		1146	884	2030	205	65	270	753	1157	1910
2009	TURN SUMMARY	1146	884	2030	206	65	271	758	1157	1915
CONTROL LINK VOLUMES		1146	884	2030	205	65	270	753	1157	1910
2010	TURN SUMMARY	1143	884	2027	206	65	271	761	1157	1918
CONTROL LINK VOLUMES		1279	981	2260	228	72	300	850	1310	2160
2020	TURN SUMMARY	1287	981	2268	229	72	301	851	1310	2161
CONTROL LINK VOLUMES		1439	1101	2540	251	79	330	946	1454	2400
2030	TURN SUMMARY	1432	1101	2533	252	79	331	954	1454	2408

Note: Boxed number indicates manual adjustment.

TMTOL INPUT SHEET

Project Description:

SECTION NO:	Miami Dade County (87109000)	PREPARED BY:	CGA
FM NO.:		FILE:	BASED ON FIELD K & D
PROJECT LIMITS:	NW 116th Way Corridor Study	DATE:	2/17/2010
DESIGN YEAR:	2030		
INTERSECTION:	NW 116th Way at NW 107th Ave		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
Actual AADT:	2006				
Actual AADT:	2007				
Actual AADT:	2008				
Actual AADT:	2009	0	24,000	8,600	21,500
SERPM Volume:	2030				

Growth Rates:

	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
Historic +2030 Model Trend GR =				
TAZ GR =				
2005 to 2030 Model GR =				
Recommended Growth Rate:		1.10% CGR	2.20% CGR	1.10% CGR

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

- 1 = Compound Growth Throughout All Years
 2 = Linear Growth Throughout All Years
 3 = Blend of Compound First Ten Years, Linear Thereafter

	YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
	2009				24,000		8,600		21,500
NO. YEARS	1	1.010		1.011	24,500	1.022	8,800	1.011	21,500
NO. YEARS	11	1.116		1.128	27,000	1.270	11,000	1.128	24,000
NO. YEARS	21	1.232		1.258	30,000	1.579	13,500	1.258	27,000

Percent Turns Calculated From Base Year AADTs:

JKTURNS	FROM NORTH LEG	FROM EAST LEG	FROM SOUTH LEG	FROM WEST LEG
2009 2-WAY ADT	1	24,000	8,600	21,500
RIGHT	THRU	LEFT	RIGHT	THRU
21,500	8,600	24,000	1	21,500
40%	16%	44%	0%	74%
2010 2-WAY ADT	100	24,500	8,800	21,500
RIGHT	THRU	LEFT	RIGHT	THRU
21,500	8,800	24,500	100	21,500
39%	16%	45%	0%	73%
2020 2-WAY ADT	100	27,000	11,000	24,000
RIGHT	THRU	LEFT	RIGHT	THRU
24,000	11,000	27,000	100	24,000
39%	18%	44%	0%	71%
2030 2-WAY ADT	100	30,000	13,500	27,000
RIGHT	THRU	LEFT	RIGHT	THRU
27,000	13,500	30,000	100	27,000
38%	19%	43%	0%	69%

Percent Turns Calculated From Base Year TMCs:

TURN STUDY	FROM NORTH LEG (Southbound)	FROM EAST LEG (Westbound)	FROM SOUTH LEG (Northbound)	FROM WEST LEG (Eastbound)	
A.M. 2-Way Pk Hr Vol:	6	2,282	644	1,778	
RIGHT	THRU	LEFT	RIGHT	THRU	
7:45 - 8:45		783	239	334	924
% TURNS:	33%	33%	33%	0%	77%
P.M. 2-Way Pk Hr Vol:	6	2,691	861	2,148	
RIGHT	THRU	LEFT	RIGHT	THRU	
4:45 - 5:45		1,038	390	311	109
% TURNS:	33%	33%	33%	0%	73%

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2009	33%	33%	33%	0%	77%	23%	90%	0%	10%	3%	97%	0%
2010	34%	32%	34%	0%	76%	24%	86%	0%	14%	6%	94%	0%
2020	34%	31%	35%	0%	76%	24%	85%	0%	15%	7%	93%	0%
2030	34%	31%	35%	0%	75%	25%	84%	0%	16%	8%	92%	0%
P.M.												
2009	33%	33%	33%	0%	73%	27%	74%	0%	26%	5%	95%	0%
2010	34%	32%	34%	0%	72%	27%	72%	0%	28%	7%	93%	0%
2020	34%	31%	35%	0%	72%	28%	71%	0%	29%	8%	92%	0%
2030	34%	31%	35%	0%	72%	28%	70%	0%	29%	9%	91%	0%

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 107th Ave
 PREPARED BY: CGA
 FILE: BASED ON FIELD K & D

DATE: 2/17/2010
 NOTES:
 0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	24,000	8,600	21,500
24 HR EST. AADT	2010	24,500	8,800	21,500
24 HR EST. AADT	2020	27,000	11,000	24,000
24 HR EST. AADT	2030	30,000	13,500	27,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	9.5%	11.2%	7.5%	10.0%	8.3%	10.0%
2010	Approach K30 factor	9.5%	11.2%	7.5%	10.0%	8.3%	10.0%
2020	Approach K30 factor	9.5%	11.2%	7.5%	10.0%	8.3%	10.0%
2030	Approach K30 factor	9.5%	11.2%	7.5%	10.0%	8.3%	10.0%
2009	APPROACH D FACTOR	44.8%	53.1%	57.8%	48.9%	53.8%	46.6%
2010	Approach D30 Factor	44.8%	53.1%	57.8%	48.9%	53.8%	46.6%
2020	Approach D30 Factor	44.8%	53.1%	57.8%	48.9%	53.8%	46.6%
2030	Approach D30 Factor	44.8%	53.1%	57.8%	48.9%	53.8%	46.6%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS				785	235		333		37	32	923	
2010	EST. TURNS				780	236		346		42	42	939	
2020	EST. TURNS				849	280		412		62	63	1,006	
2030	EST. TURNS				934	327		482		93	98	1,088	
P.M. DESIGN HR. TURNS													
2009	EST. TURNS				1040	389		310		109	49	950	
2010	EST. TURNS				1045	390		330		104	58	960	
2020	EST. TURNS				1,135	471		391		148	90	1,030	
2030	EST. TURNS				1242	554		458		201	134	1,115	

LINK VOLUME CHECK

		EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		1023	1257	2280	372	268	640	957	823	1780
2009	TURN SUMMARY	1023	1257	2280	372	268	640	957	823	1780
CONTROL LINK VOLUMES		1044	1286	2330	381	279	660	957	823	1780
2010	TURN SUMMARY	1019	1286	2305	390	279	669	983	823	1806
CONTROL LINK VOLUMES		1151	1419	2570	476	344	820	1068	912	1980
2020	TURN SUMMARY	1131	1419	2550	477	344	821	1071	912	1983
CONTROL LINK VOLUMES		1279	1571	2850	584	426	1010	1202	1028	2230
2030	TURN SUMMARY	1264	1571	2835	577	426	1003	1188	1028	2216
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		1429	1261	2690	421	439	860	1000	1150	2150
2009	TURN SUMMARY	1431	1261	2692	422	439	861	1001	1150	2151
CONTROL LINK VOLUMES		1459	1291	2750	431	449	880	1000	1150	2150
2010	TURN SUMMARY	1437	1291	2728	437	449	886	1020	1150	2170
CONTROL LINK VOLUMES		1608	1422	3030	538	562	1100	1116	1284	2400
2020	TURN SUMMARY	1609	1422	3031	541	562	1103	1123	1284	2407
CONTROL LINK VOLUMES		1786	1574	3360	661	689	1350	1256	1444	2700
2030	TURN SUMMARY	1798	1574	3372	661	689	1350	1252	1444	2696

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:	Miami Dade County (87109000)	PREPARED BY:	CGA
FM NO.:		FILE:	BASED ON FIELD K & D
PROJECT LIMITS:	NW 116th Way Corridor Study	DATE:	2/17/2010
DESIGN YEAR:	2030		
INTERSECTION:	NW 116th Way at NW 102nd Rd		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
Actual AADT:	2006				
Actual AADT:	2007				
Actual AADT:	2008				
Actual AADT:	2009	2,700	24,000	4,000	24,000
SERPM Volume:	2030				

Growth Rates:

	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
Historic +2030 Model Trend GR =				
TAZ GR =				
2005 to 2030 Model GR =				
Recommended Growth Rate:	1.20% CGR	1.10% CGR	1.00% CGR	1.10% CGR

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

- 1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound First Ten Years, Linear Thereafter

	YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
	2009		2,700		24,000		4,000		24,000
NO. YEARS	1	1.012	2,700	1.011	24,500	1.010	4,000	1.011	24,500
NO. YEARS	11	1.140	3,100	1.128	27,000	1.116	4,500	1.128	27,000
NO. YEARS	21	1.285	3,500	1.258	30,000	1.232	4,900	1.258	30,000

Percent Turns Calculated From Base Year AADTs:

JKTURNS	FROM NORTH LEG	FROM EAST LEG	FROM SOUTH LEG	FROM WEST LEG
2009 2-WAY ADT	2,700	24,000	4,000	24,000
RIGHT	THRU	THRU	THRU	THRU
24,000	4,000	24,000	2,700	24,000
46%	8%	78%	5%	78%
2010 2-WAY ADT	2,700	24,500	4,000	24,500
RIGHT	THRU	THRU	THRU	THRU
24,500	4,000	24,500	2,700	24,500
46%	8%	79%	5%	79%
2020 2-WAY ADT	3,100	27,000	4,500	27,000
RIGHT	THRU	THRU	THRU	THRU
27,000	4,500	27,000	3,100	27,000
46%	8%	78%	5%	78%
2030 2-WAY ADT	3,500	30,000	4,900	30,000
RIGHT	THRU	THRU	THRU	THRU
30,000	4,900	30,000	3,500	30,000
46%	8%	78%	6%	78%

Percent Turns Calculated From Base Year TMCs:

TURN STUDY	FROM NORTH LEG (Southbound)	FROM EAST LEG (Westbound)	FROM SOUTH LEG (Northbound)	FROM WEST LEG (Eastbound)	
A.M. 2-Way Pk Hr Vol:	259	1,956	540	2,343	
RIGHT	THRU	THRU	THRU	THRU	
7:30 - 8:30	30	883	20	900	2,549
% TURNS:	42%	88%	12%	69%	7%
P.M. 2-Way Pk Hr Vol:	197	2,143	474	2,452	
RIGHT	THRU	THRU	THRU	THRU	
4:45 - 5:45	47	1,012	11	977	2,633
% TURNS:	34%	95%	3%	89%	1%

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2009	42%	18%	40%	8%	88%	4%	15%	12%	73%	24%	69%	7%
2010	42%	17%	41%	8%	87%	5%	18%	11%	71%	23%	70%	7%
2020	42%	17%	41%	8%	87%	5%	19%	11%	70%	23%	70%	7%
2030	42%	16%	41%	8%	87%	6%	20%	11%	69%	22%	71%	7%
P.M.												
2009	34%	12%	54%	3%	95%	2%	7%	3%	89%	10%	89%	1%
2010	35%	11%	53%	4%	93%	3%	11%	4%	85%	10%	88%	2%
2020	36%	11%	53%	4%	93%	3%	12%	4%	84%	10%	88%	2%
2030	36%	11%	53%	4%	92%	4%	14%	4%	82%	10%	87%	3%

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 102nd Rd
 PREPARED BY: CGA
 FILE: BASED ON FIELD K & D

DATE: 2/17/2010
 NOTES:

0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	2,700	24,000	4,000	24,000
24 HR EST. AADT	2010	2,700	24,500	4,000	24,500
24 HR EST. AADT	2020	3,100	27,000	4,500	27,000
24 HR EST. AADT	2030	3,500	30,000	4,900	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	9.6%	7.3%	8.2%	8.9%	13.5%	11.9%	9.8%	10.2%
2010	Approach K30 factor	9.6%	7.3%	8.2%	8.9%	13.5%	11.9%	9.8%	10.2%
2020	Approach K30 factor	9.6%	7.3%	8.2%	8.9%	13.5%	11.9%	9.8%	10.2%
2030	Approach K30 factor	9.6%	7.3%	8.2%	8.9%	13.5%	11.9%	9.8%	10.2%
2009	APPROACH D FACTOR	27.8%	69.5%	51.2%	49.8%	31.9%	69.4%	55.7%	44.8%
2010	Approach D30 Factor	27.8%	69.5%	51.2%	49.8%	31.9%	69.4%	55.7%	44.8%
2020	Approach D30 Factor	27.8%	69.5%	51.2%	49.8%	31.9%	69.4%	55.7%	44.8%
2030	Approach D30 Factor	27.8%	69.5%	51.2%	49.8%	31.9%	69.4%	55.7%	44.8%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	30	13	29	78	881	41	26	20	125	313	903	90
2010	EST. TURNS	31	12	29	75	903	48	30	18	125	308	919	94
2020	EST. TURNS	37	13	33	86	996	57	34	21	140	346	1,006	110
2030	EST. TURNS	42	14	37	97	1107	64	39	22	152	370	1,123	128
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	47	16	73	36	1011	21	24	12	294	104	975	16
2010	EST. TURNS	51	17	69	33	1040	27	35	9	287	97	996	21
2020	EST. TURNS	59	19	79	37	1,144	33	42	11	321	109	1,088	25
2030	EST. TURNS	70	21	87	41	1279	38	50	11	347	118	1,208	30

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		72	188	260	1001	959	1960	172	368	540	1304	1036	2340
2009	TURN SUMMARY	72	188	260	1000	959	1959	172	368	540	1307	1036	2343
CONTROL LINK VOLUMES		72	188	260	1022	978	2000	172	368	540	1331	1059	2390
2010	TURN SUMMARY	72	188	260	1027	978	2005	172	368	540	1322	1059	2381
CONTROL LINK VOLUMES		83	217	300	1126	1074	2200	194	416	610	1467	1173	2640
2020	TURN SUMMARY	83	217	300	1139	1074	2213	196	416	612	1462	1173	2635
CONTROL LINK VOLUMES		93	247	340	1251	1199	2450	211	449	660	1630	1300	2930
2030	TURN SUMMARY	93	247	340	1268	1199	2467	213	449	662	1621	1300	2921
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		137	63	200	1068	1072	2140	329	141	470	1099	1351	2450
2009	TURN SUMMARY	137	63	200	1067	1072	2139	329	141	470	1095	1351	2446
CONTROL LINK VOLUMES		137	63	200	1090	1100	2190	329	141	470	1122	1378	2500
2010	TURN SUMMARY	137	63	200	1100	1100	2200	332	141	473	1113	1378	2491
CONTROL LINK VOLUMES		157	73	230	1202	1208	2410	370	160	530	1236	1524	2760
2020	TURN SUMMARY	156	73	229	1214	1208	2422	373	160	533	1221	1524	2745
CONTROL LINK VOLUMES		178	82	260	1335	1345	2680	403	177	580	1374	1696	3070
2030	TURN SUMMARY	178	82	260	1358	1345	2703	408	177	585	1356	1696	3052

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:	Miami Dade County (87109000)	PREPARED BY:	CGA
FM NO.:		FILE:	BASED ON FIELD K & D
PROJECT LIMITS:	NW 116th Way Corridor Study	DATE:	2/17/2010
DESIGN YEAR:	2030		
INTERSECTION:	NW 116th Way at NW 101st Rd		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
Actual AADT:	2006				
Actual AADT:	2007				
Actual AADT:	2008				
Actual AADT:	2009	1,500	24,000	800	24,000
SERPM Volume:	2030				

Growth Rates:

	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
Historic +2030 Model Trend GR =				
TAZ GR =				
2005 to 2030 Model GR =				
Recommended Growth Rate:	1.20% CGR	1.10% CGR	1.00% CGR	1.10% CGR

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

- 1 = Compound Growth Throughout All Years
 2 = Linear Growth Throughout All Years
 3 = Blend of Compound First Ten Years, Linear Thereafter

		YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
		2009		1,500		24,000		800		24,000
NO. YEARS	1	2010	1.012	1,500	1.011	24,500	1.010	800	1.011	24,500
NO. YEARS	11	2020	1.140	1,700	1.128	27,000	1.116	900	1.128	27,000
NO. YEARS	21	2030	1.285	1,900	1.258	30,000	1.232	1,000	1.258	30,000

Percent Turns Calculated From Base Year AADTs:

JKTURNS	FROM NORTH LEG	FROM EAST LEG	FROM SOUTH LEG	FROM WEST LEG
2009 2-WAY ADT	1,500	24,000	800	24,000
RIGHT	THRU	THRU	THRU	THRU
24,000	800	24,000	1,500	24,000
49%	2%	91%	3%	91%
2010 2-WAY ADT	1,500	24,500	800	24,500
RIGHT	THRU	THRU	THRU	THRU
24,500	800	24,500	1,500	24,500
49%	2%	91%	3%	91%
2020 2-WAY ADT	1,700	27,000	900	27,000
RIGHT	THRU	THRU	THRU	THRU
27,000	900	27,000	1,700	27,000
49%	2%	91%	3%	91%
2030 2-WAY ADT	1,900	30,000	1,000	30,000
RIGHT	THRU	THRU	THRU	THRU
30,000	1,000	30,000	1,900	30,000
49%	2%	91%	3%	91%

Percent Turns Calculated From Base Year TMCs:

TURN STUDY	FROM NORTH LEG (Southbound)	FROM EAST LEG (Westbound)	FROM SOUTH LEG (Northbound)	FROM WEST LEG (Eastbound)	
A.M. 2-Way Pk Hr Vol:	148	1,915	24	1,903	
RIGHT	THRU	THRU	THRU	THRU	
7:45 - 8:45	11	34	41	976	10
% TURNS:	23%	6%	71%	4%	95%
P.M. 2-Way Pk Hr Vol:	153	2,201	82	2,174	
RIGHT	THRU	THRU	THRU	THRU	
4:45 - 5:45	22	10	57	16	1,019
% TURNS:	25%	11%	64%	2%	98%

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS

	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2009	23%	6%	71%	4%	95%	1%	57%	0%	43%	0%	93%	6%
2010	26%	6%	69%	4%	95%	1%	56%	0%	43%	1%	93%	6%
2020	26%	6%	68%	4%	95%	1%	56%	0%	44%	1%	93%	6%
2030	27%	5%	67%	4%	94%	1%	56%	1%	44%	1%	93%	6%
P.M.												
2009	25%	11%	64%	2%	98%	1%	34%	34%	32%	0%	97%	2%
2010	27%	10%	63%	2%	97%	1%	35%	31%	34%	1%	97%	3%
2020	28%	10%	62%	2%	97%	1%	36%	30%	34%	1%	96%	3%
2030	29%	10%	62%	2%	97%	1%	36%	29%	35%	1%	96%	3%

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 101st Rd
 PREPARED BY: CGA
 FILE: BASED ON FIELD K & D

DATE: 2/17/2010
 NOTES:
 0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	1,500	24,000	800	24,000
24 HR EST. AADT	2010	1,500	24,500	800	24,500
24 HR EST. AADT	2020	1,700	27,000	900	27,000
24 HR EST. AADT	2030	1,900	30,000	1,000	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	7.9%	9.1%
2010	Approach K30 factor	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	7.9%	9.1%
2020	Approach K30 factor	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	7.9%	9.1%
2030	Approach K30 factor	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	7.9%	9.1%
2009	APPROACH D FACTOR	32.4%	58.2%	53.6%	47.3%	29.2%	75.6%	48.0%	51.2%
2010	Approach D30 Factor	32.4%	58.2%	53.6%	47.3%	29.2%	75.6%	48.0%	51.2%
2020	Approach D30 Factor	32.4%	58.2%	53.6%	47.3%	29.2%	75.6%	48.0%	51.2%
2030	Approach D30 Factor	32.4%	58.2%	53.6%	47.3%	29.2%	75.6%	48.0%	51.2%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	11	3	34	43	973	7	4	0	3	3	855	59
2010	EST. TURNS	12	4	32	43	993	6	4	0	3	3	866	59
2020	EST. TURNS	14	3	37	49	1,095	12	4	0	4	7	954	67
2030	EST. TURNS	17	4	40	56	1219	11	5	0	4	6	1,061	73
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	22	10	57	15	1015	5	21	20	20	3	1,081	26
2010	EST. TURNS	24	9	56	18	1038	5	23	17	22	4	1,108	26
2020	EST. TURNS	28	11	62	21	1,145	5	26	19	25	4	1,220	30
2030	EST. TURNS	32	12	69	24	1268	6	30	19	29	5	1,350	34

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		48	102	150	1027	893	1920	7	13	20	913	987	1900
2009	TURN SUMMARY	48	102	150	1023	893	1916	7	13	20	917	987	1904
CONTROL LINK VOLUMES		48	102	150	1048	902	1950	7	13	20	932	1008	1940
2010	TURN SUMMARY	48	102	150	1042	902	1944	7	13	20	928	1008	1936
CONTROL LINK VOLUMES		54	116	170	1155	995	2150	8	22	30	1027	1113	2140
2020	TURN SUMMARY	54	116	170	1157	995	2152	8	22	30	1027	1113	2140
CONTROL LINK VOLUMES		61	129	190	1284	1106	2390	9	21	30	1141	1239	2380
2030	TURN SUMMARY	61	129	190	1285	1106	2391	9	21	30	1140	1239	2379
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		89	61	150	1041	1159	2200	62	18	80	1113	1057	2170
2009	TURN SUMMARY	89	61	150	1035	1159	2194	62	18	80	1109	1057	2166
CONTROL LINK VOLUMES		89	61	150	1063	1187	2250	62	18	80	1136	1084	2220
2010	TURN SUMMARY	89	61	150	1061	1187	2248	62	18	80	1138	1084	2222
CONTROL LINK VOLUMES		101	69	170	1171	1309	2480	70	20	90	1252	1198	2450
2020	TURN SUMMARY	101	69	170	1170	1309	2479	70	20	90	1254	1198	2452
CONTROL LINK VOLUMES		113	77	190	1301	1449	2750	78	22	100	1391	1329	2720
2030	TURN SUMMARY	113	77	190	1297	1449	2746	78	22	100	1389	1329	2718

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:	Miami Dade County (87109000)	PREPARED BY:	CGA
FM NO.:		FILE:	FORCED K & D
PROJECT LIMITS:	NW 116th Way Corridor Study	DATE:	2/17/2010
DESIGN YEAR:	2030		
INTERSECTION:	NW 116th Way at NW South River Dr		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
Actual AADT:	2006				
Actual AADT:	2007				
Actual AADT:	2008				
Actual AADT:	2009	3,800	24,000	4,900	24,000
SERPM Volume:	2030				

Growth Rates:

	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
Historic +2030 Model Trend GR =				
TAZ GR =				
2005 to 2030 Model GR =				
Recommended Growth Rate:	1.00% CGR	1.10% CGR	1.00% CGR	1.10% CGR

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

- 1 = Compound Growth Throughout All Years
 2 = Linear Growth Throughout All Years
 3 = Blend of Compound First Ten Years, Linear Thereafter

	YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
	2009		3,800		24,000		4,900		24,000
NO. YEARS	1	1.010	3,800	1.011	24,500	1.010	4,900	1.011	24,500
NO. YEARS	11	1.116	4,200	1.128	27,000	1.116	5,500	1.128	27,000
NO. YEARS	21	1.232	4,700	1.258	30,000	1.232	6,000	1.258	30,000

Percent Turns Calculated From Base Year AADTs:

JKTURNS	FROM NORTH LEG	FROM EAST LEG	FROM SOUTH LEG	FROM WEST LEG
2009 2-WAY ADT	3,800	24,000	4,900	24,000
RIGHT	THRU	THRU	THRU	THRU
24,000	4,900	24,000	3,800	24,000
45%	9%	73%	7%	73%
2010 2-WAY ADT	3,800	24,500	4,900	24,500
RIGHT	THRU	THRU	THRU	THRU
24,500	4,900	24,500	3,800	24,500
45%	9%	74%	7%	74%
2020 2-WAY ADT	4,200	27,000	5,500	27,000
RIGHT	THRU	THRU	THRU	THRU
27,000	5,500	27,000	4,200	27,000
45%	9%	74%	7%	74%
2030 2-WAY ADT	4,700	30,000	6,000	30,000
RIGHT	THRU	THRU	THRU	THRU
30,000	6,000	30,000	4,700	30,000
45%	9%	74%	7%	74%

Percent Turns Calculated From Base Year TMCs:

TURN STUDY	FROM NORTH LEG (Southbound)	FROM EAST LEG (Westbound)	FROM SOUTH LEG (Northbound)	FROM WEST LEG (Eastbound)	
A.M. 2-Way Pk Hr Vol:	317	2,162	343	2,034	
RIGHT	THRU	THRU	THRU	THRU	
7:45 - 8:45	33	1,085	38	774	2,428
% TURNS:	29%	81%	41%	87%	
P.M. 2-Way Pk Hr Vol:	302	2,281	281	2,262	
RIGHT	THRU	THRU	THRU	THRU	
5:00 - 6:00	55	793	42	1,270	2,563
% TURNS:	40%	89%	23%	94%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2009	29%	46%	25%	7%	81%	12%	25%	41%	34%	4%	87%	8%
2010	30%	42%	27%	7%	80%	12%	27%	38%	35%	5%	86%	9%
2020	31%	41%	28%	7%	80%	12%	28%	37%	35%	6%	86%	9%
2030	31%	40%	29%	8%	80%	12%	29%	36%	36%	6%	85%	9%
P.M.												
2009	40%	29%	31%	6%	89%	5%	40%	23%	37%	1%	94%	5%
2010	40%	27%	32%	7%	87%	6%	41%	21%	38%	2%	92%	6%
2020	40%	27%	33%	7%	87%	6%	41%	21%	38%	3%	92%	6%
2030	41%	26%	33%	7%	86%	7%	41%	20%	38%	3%	91%	6%

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW South River Dr
 PREPARED BY: CGA
 FILE: FORCED K & D

DATE: 2/17/2010
 NOTES:

0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	3,800	24,000	4,900	24,000
24 HR EST. AADT	2010	3,800	24,500	4,900	24,500
24 HR EST. AADT	2020	4,200	27,000	5,500	27,000
24 HR EST. AADT	2030	4,700	30,000	6,000	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.5%	9.4%
2010	Approach K30 factor	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.5%	9.4%
2020	Approach K30 factor	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.4%	9.5%
2030	Approach K30 factor	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.4%	9.5%
2009	APPROACH D FACTOR	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	43.5%	59.5%
2010	Approach D30 Factor	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	43.5%	59.4%
2020	Approach D30 Factor	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	43.1%	58.4%
2030	Approach D30 Factor	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	42.8%	57.3%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	33	53	29	92	1082	159	23	38	31	36	772	75
2010	EST. TURNS	34	50	31	96	1111	156	26	34	32	43	789	75
2020	EST. TURNS	39	53	35	106	1,221	182	30	37	37	52	862	80
2030	EST. TURNS	44	59	41	122	1357	193	35	40	40	55	954	87
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	55	41	43	54	792	46	73	42	67	11	1,269	65
2010	EST. TURNS	55	40	44	57	814	38	78	36	69	20	1,294	68
2020	EST. TURNS	65	44	48	61	921	45	88	39	82	26	1,427	76
2030	EST. TURNS	75	50	53	70	1049	50	97	44	93	27	1,580	88

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		115	205	320	1336	824	2160	92	248	340	885	1145	2030
2009	TURN SUMMARY	115	205	320	1332	824	2156	92	248	340	883	1145	2028
CONTROL LINK VOLUMES		115	205	320	1364	846	2210	92	248	340	902	1178	2080
2010	TURN SUMMARY	115	205	320	1363	846	2209	92	248	340	907	1178	2085
CONTROL LINK VOLUMES		127	223	350	1503	927	2430	103	287	390	983	1297	2280
2020	TURN SUMMARY	128	223	351	1509	927	2436	104	287	391	994	1297	2291
CONTROL LINK VOLUMES		142	248	390	1670	1030	2700	113	307	420	1079	1441	2520
2030	TURN SUMMARY	143	250	393	1672	1030	2702	116	307	423	1097	1441	2538
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		139	161	300	895	1385	2280	182	98	280	1347	913	2260
2009	TURN SUMMARY	139	161	300	892	1385	2277	182	98	280	1345	913	2258
CONTROL LINK VOLUMES		139	161	300	914	1416	2330	182	98	280	1373	937	2310
2010	TURN SUMMARY	139	161	300	909	1416	2325	182	98	280	1382	937	2319
CONTROL LINK VOLUMES		154	176	330	1007	1563	2570	204	116	320	1492	1068	2560
2020	TURN SUMMARY	157	176	333	1028	1563	2591	209	116	325	1529	1068	2597
CONTROL LINK VOLUMES		172	198	370	1119	1731	2850	223	117	340	1633	1217	2850
2030	TURN SUMMARY	178	201	379	1169	1731	2900	234	127	361	1695	1217	2912

Note: Boxed number indicates manual adjustment.

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 100th Rd
 PREPARED BY: CGA
 FILE: FORCED K & D

DATE: 2/17/2010
 NOTES:
 0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	1,600	24,000	700	24,000
24 HR EST. AADT	2010	1,600	24,500	700	24,500
24 HR EST. AADT	2020	1,800	27,000	800	27,000
24 HR EST. AADT	2030	2,100	30,000	850	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	10.8%	9.9%	8.3%	9.5%	16.0%	10.0%	8.0%	9.2%
2010	Approach K30 factor	10.8%	9.9%	8.3%	9.5%	16.0%	10.0%	8.0%	9.2%
2020	Approach K30 factor	10.8%	9.9%	8.3%	9.5%	16.0%	10.0%	8.0%	9.2%
2030	Approach K30 factor	10.8%	9.9%	8.4%	9.5%	16.0%	10.0%	8.0%	9.2%
2009	APPROACH D FACTOR	19.1%	67.9%	58.0%	44.9%	15.2%	42.9%	46.6%	54.2%
2010	Approach D30 Factor	19.1%	67.9%	58.0%	44.8%	15.2%	42.9%	46.6%	54.2%
2020	Approach D30 Factor	19.1%	67.9%	57.6%	43.7%	15.2%	42.9%	46.5%	53.8%
2030	Approach D30 Factor	19.1%	67.9%	57.2%	42.7%	15.2%	42.9%	46.5%	53.5%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	13	1	19	63	1015	70	10	3	4	22	800	71
2010	EST. TURNS	13	1	19	65	1035	70	10	3	4	22	826	69
2020	EST. TURNS	15	1	21	74	1,140	83	11	3	5	27	921	76
2030	EST. TURNS	17	2	26	94	1266	90	13	4	5	28	1,041	89
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	26	5	77	26	968	33	7	3	20	2	1,173	23
2010	EST. TURNS	28	5	75	26	982	31	8	2	19	4	1,204	23
2020	EST. TURNS	35	5	85	29	1,086	34	10	3	23	6	1,345	27
2030	EST. TURNS	46	6	98	33	1214	39	11	4	25	9	1,525	32

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		33	137	170	1151	829	1980	17	93	110	898	1032	1930
2009	TURN SUMMARY	33	137	170	1148	829	1977	17	93	110	893	1032	1925
CONTROL LINK VOLUMES		33	137	170	1175	855	2030	17	93	110	917	1053	1970
2010	TURN SUMMARY	33	137	170	1170	855	2025	17	93	110	918	1053	1971
CONTROL LINK VOLUMES		37	153	190	1296	954	2250	19	111	130	1010	1160	2170
2020	TURN SUMMARY	37	153	190	1298	954	2252	19	111	130	1023	1160	2183
CONTROL LINK VOLUMES		43	187	230	1441	1079	2520	21	119	140	1121	1289	2410
2030	TURN SUMMARY	45	188	233	1451	1079	2530	23	120	143	1158	1289	2447
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		108	52	160	1023	1257	2280	30	40	70	1196	1014	2210
2009	TURN SUMMARY	108	52	160	1027	1257	2284	30	40	70	1198	1014	2212
CONTROL LINK VOLUMES		108	52	160	1042	1288	2330	30	40	70	1220	1030	2250
2010	TURN SUMMARY	109	52	161	1039	1288	2327	30	40	70	1232	1030	2262
CONTROL LINK VOLUMES		122	58	180	1121	1439	2560	34	46	80	1336	1144	2480
2020	TURN SUMMARY	126	58	184	1149	1439	2588	35	46	81	1377	1144	2521
CONTROL LINK VOLUMES		142	68	210	1216	1634	2850	36	54	90	1475	1285	2760
2030	TURN SUMMARY	151	69	220	1286	1634	2920	39	54	93	1566	1285	2851

Note: Boxed number indicates manual adjustment.

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 108th Ave
 PREPARED BY: CGA
 FILE: FORCED K & D

DATE: 2/17/2010
 NOTES:

0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	21,500	2,700	19,500
24 HR EST. AADT	2010	21,500	2,700	19,500
24 HR EST. AADT	2020	24,000	3,000	22,000
24 HR EST. AADT	2030	27,000	3,300	24,500

K & D FACTORS:

		AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	8.3%	9.4%	12.4%	9.9%	8.7%	9.8%
2010	Approach K30 factor	8.3%	9.4%	12.4%	9.9%	8.7%	9.8%
2020	Approach K30 factor	8.3%	9.6%	12.4%	9.9%	8.7%	9.8%
2030	Approach K30 factor	8.3%	9.7%	12.4%	9.9%	8.7%	9.8%
2009	APPROACH D FACTOR	46.3%	56.6%	12.8%	76.5%	61.3%	39.3%
2010	Approach D30 Factor	46.3%	56.5%	12.8%	76.5%	61.3%	39.3%
2020	Approach D30 Factor	46.3%	55.7%	12.8%	76.5%	61.3%	39.3%
2030	Approach D30 Factor	46.2%	55.0%	12.8%	76.5%	61.3%	39.3%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS				647	181		34		7	115	919	
2010	EST. TURNS				646	179		33		8	117	920	
2020	EST. TURNS				731	190		36		10	131	1,031	
2030	EST. TURNS				808	216		41		11	140	1,164	
P.M. DESIGN HR. TURNS													
2009	EST. TURNS				1097	47		145		59	17	738	
2010	EST. TURNS				1095	45		143		61	19	740	
2020	EST. TURNS				1,241	50		164		69	21	855	
2030	EST. TURNS				1384	57		193		69	21	986	

LINK VOLUME CHECK

		EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		826	954	1780	43	297	340	1035	655	1690
2009	TURN SUMMARY	830	954	1784	43	297	340	1037	655	1692
CONTROL LINK VOLUMES		826	954	1780	43	297	340	1035	655	1690
2010	TURN SUMMARY	827	954	1781	43	297	340	1039	655	1694
CONTROL LINK VOLUMES		921	1069	1990	48	322	370	1168	742	1910
2020	TURN SUMMARY	923	1069	1992	48	322	370	1166	742	1908
CONTROL LINK VOLUMES		1034	1206	2240	53	357	410	1300	820	2120
2030	TURN SUMMARY	1027	1206	2233	53	357	410	1307	820	2127
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		1146	884	2030	205	65	270	753	1157	1910
2009	TURN SUMMARY	1146	884	2030	206	65	271	758	1157	1915
CONTROL LINK VOLUMES		1146	884	2030	205	65	270	753	1157	1910
2010	TURN SUMMARY	1143	884	2027	206	65	271	761	1157	1918
CONTROL LINK VOLUMES		1280	1020	2300	228	72	300	850	1310	2160
2020	TURN SUMMARY	1294	1020	2314	234	72	306	878	1310	2188
CONTROL LINK VOLUMES		1440	1180	2620	251	79	330	946	1454	2400
2030	TURN SUMMARY	1444	1180	2624	263	79	342	1009	1454	2463

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:	Miami Dade County (87109000)	PREPARED BY:	CGA
FM NO.:		FILE:	FORCED K & D
PROJECT LIMITS:	NW 116th Way Corridor Study	DATE:	2/17/2010
DESIGN YEAR:	2030		
INTERSECTION:	NW 116th Way at NW 107th Ave		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
Actual AADT:	2006				
Actual AADT:	2007				
Actual AADT:	2008				
Actual AADT:	2009	0	24,000	8,600	21,500
SERPM Volume:	2030				

Growth Rates:

	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
Historic +2030 Model Trend GR =				
TAZ GR =				
2005 to 2030 Model GR =				
Recommended Growth Rate:		1.10% CGR	2.20% CGR	1.10% CGR

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

- 1 = Compound Growth Throughout All Years
 2 = Linear Growth Throughout All Years
 3 = Blend of Compound First Ten Years, Linear Thereafter

	YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
	2009				24,000		8,600		21,500
NO. YEARS	1	1.010		1.011	24,500	1.022	8,800	1.011	21,500
NO. YEARS	11	1.116		1.128	27,000	1.270	11,000	1.128	24,000
NO. YEARS	21	1.232		1.258	30,000	1.579	13,500	1.258	27,000

Percent Turns Calculated From Base Year AADTs:

JKTURNS	FROM NORTH LEG	FROM EAST LEG	FROM SOUTH LEG	FROM WEST LEG
2009 2-WAY ADT	1	24,000	8,600	21,500
RIGHT	THRU	LEFT	RIGHT	THRU
21,500	8,600	24,000	1	21,500
40%	16%	44%	0%	74%
2010 2-WAY ADT	100	24,500	8,800	21,500
RIGHT	THRU	LEFT	RIGHT	THRU
21,500	8,800	24,500	100	21,500
39%	16%	45%	0%	73%
2020 2-WAY ADT	100	27,000	11,000	24,000
RIGHT	THRU	LEFT	RIGHT	THRU
24,000	11,000	27,000	100	24,000
39%	18%	44%	0%	71%
2030 2-WAY ADT	100	30,000	13,500	27,000
RIGHT	THRU	LEFT	RIGHT	THRU
27,000	13,500	30,000	100	27,000
38%	19%	43%	0%	69%

Percent Turns Calculated From Base Year TMCs:

TURN STUDY	FROM NORTH LEG (Southbound)	FROM EAST LEG (Westbound)	FROM SOUTH LEG (Northbound)	FROM WEST LEG (Eastbound)	
A.M. 2-Way Pk Hr Vol: 6	2,282	644	1,778		
RIGHT	THRU	LEFT	RIGHT	THRU	
7:45 - 8:45	783	239	334	37	924
% TURNS:	33%	33%	33%	0%	77%
P.M. 2-Way Pk Hr Vol: 6	2,691	861	2,148		
RIGHT	THRU	LEFT	RIGHT	THRU	
4:45 - 5:45	1,038	390	311	109	49
% TURNS:	33%	33%	33%	0%	73%

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS	SB THRU	LEFT	RIGHT	WB THRU	LEFT	RIGHT	NB THRU	LEFT	RIGHT	EB THRU	LEFT
A.M.											
2009	33%	33%	33%	0%	77%	23%	90%	0%	10%	3%	97%
2010	34%	32%	34%	0%	76%	24%	86%	0%	14%	6%	94%
2020	34%	31%	35%	0%	76%	24%	85%	0%	15%	7%	93%
2030	34%	31%	35%	0%	75%	25%	84%	0%	16%	8%	92%
P.M.											
2009	33%	33%	33%	0%	73%	27%	74%	0%	26%	5%	95%
2010	34%	32%	34%	0%	72%	27%	72%	0%	28%	7%	93%
2020	34%	31%	35%	0%	72%	28%	71%	0%	29%	8%	92%
2030	34%	31%	35%	0%	72%	28%	70%	0%	29%	9%	91%

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 102nd Rd
 PREPARED BY: CGA
 FILE: FORCED K & D

DATE: 2/17/2010
 NOTES:
 0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	2,700	24,000	4,000	24,000
24 HR EST. AADT	2010	2,700	24,500	4,000	24,500
24 HR EST. AADT	2020	3,100	27,000	4,500	27,000
24 HR EST. AADT	2030	3,500	30,000	4,900	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	9.6%	7.3%	8.2%	8.9%	13.5%	11.9%	9.8%	10.2%
2010	Approach K30 factor	9.6%	7.3%	8.1%	8.9%	13.5%	11.9%	9.8%	10.2%
2020	Approach K30 factor	9.6%	7.3%	8.1%	9.0%	13.5%	11.9%	9.7%	10.5%
2030	Approach K30 factor	9.6%	7.3%	8.1%	9.0%	13.5%	11.9%	9.7%	10.7%
2009	APPROACH D FACTOR	27.8%	69.5%	51.2%	49.8%	31.9%	69.4%	55.7%	44.8%
2010	Approach D30 Factor	27.8%	69.5%	51.2%	49.8%	31.9%	69.4%	55.6%	44.9%
2020	Approach D30 Factor	27.8%	69.5%	51.4%	49.6%	31.9%	69.4%	55.6%	45.4%
2030	Approach D30 Factor	27.8%	69.5%	51.6%	49.3%	31.9%	69.4%	55.5%	45.9%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	30	13	29	78	881	41	26	20	125	313	903	90
2010	EST. TURNS	31	12	29	75	903	48	30	18	125	308	919	94
2020	EST. TURNS	36	13	34	86	993	57	34	21	140	346	995	110
2030	EST. TURNS	41	14	37	97	1103	65	39	22	151	370	1,100	127
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	47	16	73	36	1011	21	24	12	294	104	975	16
2010	EST. TURNS	51	17	69	33	1044	27	34	9	289	97	997	21
2020	EST. TURNS	62	18	75	36	1,157	29	37	10	328	112	1,107	27
2030	EST. TURNS	75	20	80	37	1301	31	41	13	361	125	1,247	35

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		72	188	260	1001	959	1960	172	368	540	1304	1036	2340
2009	TURN SUMMARY	72	188	260	1000	959	1959	172	368	540	1307	1036	2343
CONTROL LINK VOLUMES		72	188	260	1022	978	2000	172	368	540	1331	1059	2390
2010	TURN SUMMARY	72	188	260	1027	978	2005	172	368	540	1322	1059	2381
CONTROL LINK VOLUMES		83	217	300	1127	1063	2190	194	416	610	1460	1170	2630
2020	TURN SUMMARY	83	217	300	1137	1063	2200	195	416	611	1451	1170	2621
CONTROL LINK VOLUMES		93	247	340	1254	1176	2430	211	449	660	1615	1295	2910
2030	TURN SUMMARY	93	247	340	1265	1176	2441	212	449	661	1597	1295	2892
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		137	63	200	1068	1072	2140	329	141	470	1099	1351	2450
2009	TURN SUMMARY	137	63	200	1067	1072	2139	329	141	470	1095	1351	2446
CONTROL LINK VOLUMES		137	63	200	1090	1100	2190	329	141	470	1126	1384	2510
2010	TURN SUMMARY	137	63	200	1104	1100	2204	332	141	473	1115	1384	2499
CONTROL LINK VOLUMES		157	73	230	1200	1220	2420	370	160	530	1283	1547	2830
2020	TURN SUMMARY	156	73	229	1222	1220	2442	375	160	535	1247	1547	2794
CONTROL LINK VOLUMES		178	82	260	1331	1369	2700	403	177	580	1473	1737	3210
2030	TURN SUMMARY	176	85	261	1370	1369	2739	415	177	592	1408	1737	3145

Note: Boxed number indicates manual adjustment.

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW 101st Rd
 PREPARED BY: CGA
 FILE: FORCED K & D

DATE: 2/17/2010
 NOTES:

0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	1,500	24,000	800	24,000
24 HR EST. AADT	2010	1,500	24,500	800	24,500
24 HR EST. AADT	2020	1,700	27,000	900	27,000
24 HR EST. AADT	2030	1,900	30,000	1,000	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	7.9%	9.1%
2010	Approach K30 factor	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	7.9%	9.1%
2020	Approach K30 factor	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	8.0%	9.0%
2030	Approach K30 factor	9.9%	10.2%	8.0%	9.2%	3.0%	10.3%	8.1%	9.0%
2009	APPROACH D FACTOR	32.4%	58.2%	53.6%	47.3%	29.2%	75.6%	48.0%	51.2%
2010	Approach D30 Factor	32.4%	58.2%	53.6%	47.3%	29.2%	75.6%	48.0%	51.2%
2020	Approach D30 Factor	32.4%	58.2%	53.6%	46.9%	29.2%	75.6%	48.2%	50.9%
2030	Approach D30 Factor	32.4%	58.2%	53.5%	46.5%	29.2%	75.6%	48.4%	50.7%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	11	3	34	43	973	7	4	0	3	3	855	59
2010	EST. TURNS	12	4	32	43	992	6	4	0	3	3	866	59
2020	EST. TURNS	15	5	36	47	1,108	12	4	0	4	7	956	69
2030	EST. TURNS	17	4	39	51	1232	11	5	0	4	7	1,066	78
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	22	10	57	15	1015	5	21	20	20	3	1,081	26
2010	EST. TURNS	24	9	56	18	1039	5	23	17	22	4	1,109	26
2020	EST. TURNS	29	11	63	21	1,144	5	27	19	25	4	1,229	30
2030	EST. TURNS	34	12	70	24	1269	7	32	21	29	5	1,369	33

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		48	102	150	1027	893	1920	7	13	20	913	987	1900
2009	TURN SUMMARY	48	102	150	1023	893	1916	7	13	20	917	987	1904
CONTROL LINK VOLUMES		48	102	150	1048	902	1950	7	13	20	933	1007	1940
2010	TURN SUMMARY	48	102	150	1041	902	1943	7	13	20	928	1007	1935
CONTROL LINK VOLUMES		54	116	170	1154	996	2150	8	22	30	1044	1126	2170
2020	TURN SUMMARY	56	116	172	1166	996	2162	8	24	32	1032	1126	2158
CONTROL LINK VOLUMES		61	129	190	1281	1109	2390	9	21	30	1176	1254	2430
2030	TURN SUMMARY	60	129	189	1294	1109	2403	9	22	31	1150	1254	2404
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		89	61	150	1041	1159	2200	62	18	80	1113	1057	2170
2009	TURN SUMMARY	89	61	150	1035	1159	2194	62	18	80	1109	1057	2166
CONTROL LINK VOLUMES		89	61	150	1062	1188	2250	62	18	80	1135	1085	2220
2010	TURN SUMMARY	89	61	150	1061	1188	2249	62	18	80	1139	1085	2224
CONTROL LINK VOLUMES		101	69	170	1161	1319	2480	70	20	90	1242	1198	2440
2020	TURN SUMMARY	102	69	171	1170	1319	2489	71	20	91	1263	1198	2461
CONTROL LINK VOLUMES		113	77	190	1279	1471	2750	78	22	100	1369	1331	2700
2030	TURN SUMMARY	116	79	195	1300	1471	2771	82	23	105	1407	1331	2738

Note: Boxed number indicates manual adjustment.

PROJECT MANAGER "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: Miami Dade County (87109000)
 FM NO.: 0
 PROJECT LIMITS: NW 116th Way Corridor Study
 DESIGN YEAR: 2030
 INTERSECTION: NW 116th Way at NW South River Dr
 PREPARED BY: CGA
 FILE: FORCED K & D

DATE: 2/17/2010
 NOTES:

0

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	FROM NORTH	FROM EAST	FROM SOUTH	FROM WEST
24 HR EST. AADT	2009	3,800	24,000	4,900	24,000
24 HR EST. AADT	2010	3,800	24,500	4,900	24,500
24 HR EST. AADT	2020	4,200	27,000	5,500	27,000
24 HR EST. AADT	2030	4,700	30,000	6,000	30,000

K & D FACTORS:

		AM	PM	AM	PM	AM	PM	AM	PM
2009	APPROACH K FACTOR	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.5%	9.4%
2010	Approach K30 factor	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.5%	9.4%
2020	Approach K30 factor	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.4%	9.5%
2030	Approach K30 factor	8.3%	7.9%	9.0%	9.5%	7.0%	5.7%	8.4%	9.5%
2009	APPROACH D FACTOR	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	43.5%	59.5%
2010	Approach D30 Factor	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	43.5%	59.4%
2020	Approach D30 Factor	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	43.1%	58.4%
2030	Approach D30 Factor	36.3%	46.0%	61.8%	39.2%	26.8%	64.8%	42.8%	57.3%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
A.M. DESIGN HR. TURNS		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
2009	EST. TURNS	33	53	29	92	1082	159	23	38	31	36	772	75
2010	EST. TURNS	34	50	31	96	1111	156	26	34	32	43	789	75
2020	EST. TURNS	39	53	35	106	1,221	182	30	37	37	52	862	80
2030	EST. TURNS	44	59	41	122	1357	193	35	40	40	55	954	87
P.M. DESIGN HR. TURNS													
2009	EST. TURNS	55	41	43	54	792	46	73	42	67	11	1,269	65
2010	EST. TURNS	55	40	44	57	814	38	78	36	69	20	1,294	68
2020	EST. TURNS	65	44	48	61	921	45	88	39	82	26	1,427	76
2030	EST. TURNS	75	50	53	70	1049	50	97	44	93	27	1,580	88

LINK VOLUME CHECK

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		115	205	320	1336	824	2160	92	248	340	885	1145	2030
2009	TURN SUMMARY	115	205	320	1332	824	2156	92	248	340	883	1145	2028
CONTROL LINK VOLUMES		115	205	320	1364	846	2210	92	248	340	902	1178	2080
2010	TURN SUMMARY	115	205	320	1363	846	2209	92	248	340	907	1178	2085
CONTROL LINK VOLUMES		127	223	350	1503	927	2430	103	287	390	983	1297	2280
2020	TURN SUMMARY	128	223	351	1509	927	2436	104	287	391	994	1297	2291
CONTROL LINK VOLUMES		142	248	390	1670	1030	2700	113	307	420	1079	1441	2520
2030	TURN SUMMARY	143	250	393	1672	1030	2702	116	307	423	1097	1441	2538
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		139	161	300	895	1385	2280	182	98	280	1347	913	2260
2009	TURN SUMMARY	139	161	300	892	1385	2277	182	98	280	1345	913	2258
CONTROL LINK VOLUMES		139	161	300	914	1416	2330	182	98	280	1373	937	2310
2010	TURN SUMMARY	139	161	300	909	1416	2325	182	98	280	1382	937	2319
CONTROL LINK VOLUMES		154	176	330	1007	1563	2570	204	116	320	1492	1068	2560
2020	TURN SUMMARY	157	176	333	1028	1563	2591	209	116	325	1529	1068	2597
CONTROL LINK VOLUMES		172	198	370	1119	1731	2850	223	117	340	1633	1217	2850
2030	TURN SUMMARY	178	201	379	1169	1731	2900	234	127	361	1695	1217	2912

Note: Boxed number indicates manual adjustment.

APPENDIX J

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

No Build (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	1164	140	216	808	11	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4517	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4517	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1323	159	245	918	13	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1482	0	245	918	12	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	25			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

No Build (2030)
Timing Plan: AM

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑↱		↱	↑↑↑	↱	↱			
Volume (veh/h)	1164	140	216	808	11	41			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88			
Hourly flow rate (vph)	1323	159	245	918	12	47			
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)					681				
pX, platoon unblocked					0.98				
vC, conflicting volume			1482		2199		520		
vC1, stage 1 conf vol					1402				
vC2, stage 2 conf vol					797				
vCu, unblocked vol			1482		2159		520		
tC, single (s)			4.4		7.1		7.2		
tC, 2 stage (s)					6.1				
tF (s)			2.3		3.6		3.4		
p0 queue free %			39		85		90		
cM capacity (veh/h)			399		81		473		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	529	529	424	245	306	306	306	12	47
Volume Left	0	0	0	245	0	0	0	12	0
Volume Right	0	0	159	0	0	0	0	0	47
cSH	1700	1700	1700	399	1700	1700	1700	81	473
Volume to Capacity	0.31	0.31	0.25	0.61	0.18	0.18	0.18	0.15	0.10
Queue Length 95th (ft)	0	0	0	99	0	0	0	13	8
Control Delay (s)	0.0	0.0	0.0	27.4	0.0	0.0	0.0	57.4	13.4
Lane LOS				D				F	B
Approach Delay (s)	0.0				5.8				22.7
Approach LOS									C
Intersection Summary									
Average Delay			3.0						
Intersection Capacity Utilization			50.9%		ICU Level of Service			A	
Analysis Period (min)			15						

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

No Build (2030)

Timing Plan: AM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↵
Volume (vph)	1115	91	335	942	85	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	80		25	95
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.989					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4540	0	1597	4590	1597	1429
Flt Permitted			0.119		0.950	
Satd. Flow (perm)	4540	0	200	4590	1597	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21					275
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1267	103	381	1070	97	567
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1370	0	381	1070	97	567
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	10.0
Minimum Split (s)	23.4		9.0	23.4	20.5	20.5
Total Split (s)	44.4	0.0	15.0	44.4	24.4	24.4
Total Split (%)	53.0%	0.0%	17.9%	53.0%	29.1%	29.1%
Maximum Green (s)	40.0		12.0	40.0	20.0	20.0
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	4.4
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Recall Mode	Max		None	Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

No Build (2030)
Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	40.0		56.4	55.0	20.0	20.0
Actuated g/C Ratio	0.48		0.67	0.66	0.24	0.24
v/c Ratio	0.63		1.14	0.36	0.25	1.03
Control Delay	17.7		113.7	6.9	28.1	65.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	17.7		113.7	6.9	28.1	65.3
LOS	B		F	A	C	E
Approach Delay	17.7			34.9	59.9	
Approach LOS	B			C	E	
Queue Length 50th (ft)	185		~177	80	41	~202
Queue Length 95th (ft)	224		#335	100	81	#382
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			
Base Capacity (vph)	2178		335	3013	381	550
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.63		1.14	0.36	0.25	1.03

Intersection Summary

Area Type: Other

Cycle Length: 83.8

Actuated Cycle Length: 83.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 32.9

Intersection LOS: C

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: NW 116th Way & NW 107th Ave

← ø2		↖ ø4
44.4 s		24.4 s
↙ ø5	→ ø6	
15 s	44.4 s	

HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

No Build (2030)
Timing Plan: AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↔	↑↑↑	↔	↔
Volume (vph)	1115	91	335	942	85	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	4.4
Lane Util. Factor	0.91		1.00	0.91	1.00	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)	4538		1597	4590	1597	1429
Flt Permitted	1.00		0.12	1.00	0.95	1.00
Satd. Flow (perm)	4538		200	4590	1597	1429
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	1267	103	381	1070	97	567
RTOR Reduction (vph)	11	0	0	0	0	209
Lane Group Flow (vph)	1359	0	381	1070	97	358
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Actuated Green, G (s)	40.0		55.0	55.0	20.0	20.0
Effective Green, g (s)	40.0		55.0	55.0	20.0	20.0
Actuated g/C Ratio	0.48		0.66	0.66	0.24	0.24
Clearance Time (s)	4.4		3.0	4.4	4.4	4.4
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Lane Grp Cap (vph)	2166		331	3013	381	341
v/s Ratio Prot	0.30		c0.16	0.23	0.06	
v/s Ratio Perm			c0.59			c0.25
v/c Ratio	0.63		1.15	0.36	0.25	1.05
Uniform Delay, d1	16.3		20.9	6.5	25.9	31.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4		97.0	0.3	0.4	62.1
Delay (s)	17.7		117.9	6.8	26.2	94.0
Level of Service	B		F	A	C	F
Approach Delay (s)	17.7			36.0	84.1	
Approach LOS	B			D	F	
Intersection Summary						
HCM Average Control Delay			38.0		HCM Level of Service	D
HCM Volume to Capacity ratio			1.10			
Actuated Cycle Length (s)			83.8		Sum of lost time (s)	7.4
Intersection Capacity Utilization			61.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

No Build (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	14	41	151	22	39	127	1100	370	65	1103	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.888			0.905			0.962			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1350	0	1597	1522	0	1597	4416	0	1597	4535	0
Flt Permitted	0.930			0.548			0.155			0.128		
Satd. Flow (perm)	1414	1350	0	921	1522	0	261	4416	0	215	4535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			40			95			16	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	38	14	42	156	23	40	131	1134	381	67	1137	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	56	0	156	63	0	131	1515	0	67	1237	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	16.0	30.4	0.0	16.0	30.4	0.0	13.0	39.6	0.0	13.0	39.6	0.0
Total Split (%)	16.2%	30.7%	0.0%	16.2%	30.7%	0.0%	13.1%	40.0%	0.0%	13.1%	40.0%	0.0%
Maximum Green (s)	13.0	25.0		13.0	25.0		10.0	35.0		10.0	35.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)								8.0			8.0	

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

No Build (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	11.8	7.6		18.4	10.5		47.9	41.7		44.5	37.0	
Actuated g/C Ratio	0.16	0.10		0.25	0.14		0.66	0.57		0.61	0.51	
v/c Ratio	0.16	0.32		0.47	0.25		0.44	0.59		0.28	0.54	
Control Delay	21.6	20.4		26.2	17.6		11.0	13.5		9.5	15.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.6	20.4		26.2	17.6		11.0	13.5		9.5	15.1	
LOS	C	C		C	B		B	B		A	B	
Approach Delay		20.9			23.7			13.3			14.8	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	13	6		56	9		23	182		11	148	
Queue Length 95th (ft)	35	41		108	44		52	273		30	228	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	370	496		375	554		359	2560		333	2300	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.11		0.42	0.11		0.36	0.59		0.20	0.54	

Intersection Summary

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 73.1

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 14.8

Intersection LOS: B

Intersection Capacity Utilization 60.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

			
ø1	ø2	ø3	ø4
13 s	39.6 s	16 s	30.4 s
			
ø5	ø6	ø7	ø8
13 s	39.6 s	16 s	30.4 s

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

No Build (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	14	41	151	22	39	127	1100	370	65	1103	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.89		1.00	0.90		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1349		1597	1521		1597	4417		1597	4535	
Flt Permitted	0.93	1.00		0.55	1.00		0.16	1.00		0.13	1.00	
Satd. Flow (perm)	1414	1349		921	1521		261	4417		215	4535	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	38	14	42	156	23	40	131	1134	381	67	1137	100
RTOR Reduction (vph)	0	40	0	0	34	0	0	43	0	0	8	0
Lane Group Flow (vph)	38	16	0	156	29	0	131	1472	0	67	1229	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	8.1	4.3		18.4	11.6		48.3	41.7		41.9	38.3	
Effective Green, g (s)	8.1	4.3		18.4	11.6		48.3	41.7		41.9	38.3	
Actuated g/C Ratio	0.11	0.06		0.24	0.15		0.63	0.54		0.55	0.50	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	151	76		319	230		286	2401		182	2265	
v/s Ratio Prot	0.01	0.01		c0.07	0.02		c0.04	c0.33		0.02	0.27	
v/s Ratio Perm	0.01			c0.05			0.25			0.18		
v/c Ratio	0.25	0.22		0.49	0.13		0.46	0.61		0.37	0.54	
Uniform Delay, d1	31.5	34.6		24.6	28.2		7.0	12.0		8.7	13.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.4	0.2		0.4	1.2		0.5	0.9	
Delay (s)	31.8	35.6		25.1	28.3		7.5	13.2		9.2	14.1	
Level of Service	C	D		C	C		A	B		A	B	
Approach Delay (s)		34.1			26.0			12.7			13.9	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay			14.7			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			76.7			Sum of lost time (s)			6.0			
Intersection Capacity Utilization			60.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

No Build (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	4	17	4	0	5	78	1066	7	11	1232	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25		50	25		25	75		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.91
Frt		0.877			0.925			0.999			0.994	
Flt Protected	0.950				0.978		0.950					
Satd. Flow (prot)	1597	1475	0	0	1521	0	1597	4586	0	0	4563	0
Flt Permitted	0.950				0.978		0.950					
Satd. Flow (perm)	1597	1475	0	0	1521	0	1597	4586	0	0	4563	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		729			295			921			930	
Travel Time (s)		14.2			5.7			17.9			18.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	41	4	18	4	0	5	83	1134	7	12	1311	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	22	0	0	9	0	83	1141	0	0	1377	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	60.1%						ICU Level of Service B					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

No Build (2030)
Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	39	4	17	4	0	5	78	1066	7	11	1232	51
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	41	4	18	4	0	5	83	1134	7	12	1311	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked												
vC, conflicting volume	1910	2669	464	1784	2692	382	1365			1141		
vC1, stage 1 conf vol	1361	1361		1304	1304							
vC2, stage 2 conf vol	549	1307		480	1388							
vCu, unblocked vol	1910	2669	464	1784	2692	382	1365			1141		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	59	95	96	96	100	99	81			98		
cM capacity (veh/h)	102	85	516	98	64	586	445			548		
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3		
Volume Total	41	22	10	83	454	454	234	339	655	382		
Volume Left	41	0	4	83	0	0	0	12	0	0		
Volume Right	0	18	5	0	0	0	7	0	0	54		
cSH	102	263	182	445	1700	1700	1700	548	1700	1700		
Volume to Capacity	0.41	0.08	0.05	0.19	0.27	0.27	0.14	0.02	0.39	0.22		
Queue Length 95th (ft)	42	7	4	17	0	0	0	2	0	0		
Control Delay (s)	62.6	19.9	25.9	14.9	0.0	0.0	0.0	0.7	0.0	0.0		
Lane LOS	F	C	D	B				A				
Approach Delay (s)	47.7		25.9	1.0				0.2				
Approach LOS	E		D									
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			60.1%		ICU Level of Service				B			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

No Build (2030)
Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	26	2	17	5	4	13	89	1041	28	90	1266	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.865			0.883			0.996			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1454	0	1597	1485	0	1597	4572	0	1597	4544	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1454	0	1597	1485	0	1597	4572	0	1597	4544	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	28	2	18	5	4	14	95	1107	30	96	1347	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	20	0	5	18	0	95	1137	0	96	1447	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.6% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

5: NW 100th Rd & NW 116th Way

No Build (2030)
Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	26	2	17	5	4	13	89	1041	28	90	1266	94
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	28	2	18	5	4	14	95	1107	30	96	1347	100
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage veh								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2163	2915	499	1971	2950	384	1447			1137		
vC1, stage 1 conf vol	1588	1588		1312	1312							
vC2, stage 2 conf vol	574	1327		660	1638							
vCu, unblocked vol	2163	2915	499	1971	2950	384	1447			1137		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	54	95	96	93	77	98	77			83		
cM capacity (veh/h)	60	40	489	78	19	584	413			551		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	28	20	5	18	95	443	443	251	96	539	539	369
Volume Left	28	0	5	0	95	0	0	0	96	0	0	0
Volume Right	0	18	0	14	0	0	0	30	0	0	0	100
cSH	60	225	78	71	413	1700	1700	1700	551	1700	1700	1700
Volume to Capacity	0.46	0.09	0.07	0.25	0.23	0.26	0.26	0.15	0.17	0.32	0.32	0.22
Queue Length 95th (ft)	44	7	5	22	22	0	0	0	16	0	0	0
Control Delay (s)	107.3	22.5	54.5	71.7	16.3	0.0	0.0	0.0	12.9	0.0	0.0	0.0
Lane LOS	F	C	F	F	C				B			
Approach Delay (s)	71.5		67.8		1.3				0.8			
Approach LOS	F		F									
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			49.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

No Build (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	41	59	44	40	40	35	87	954	55	193	1357	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.936			0.987	0.850		0.992			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1574	0	1597	1577	1358	1597	4554	0	1597	3156	0
Flt Permitted	0.726			0.453			0.156			0.240		
Satd. Flow (perm)	1221	1574	0	762	1577	1358	262	4554	0	404	3156	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			2	32		6			14	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	42	61	45	41	41	36	90	984	57	199	1399	126
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	42	106	0	41	45	32	90	1041	0	199	1525	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	16.0	28.2	0.0	16.0	28.2	28.2	79.3	79.3	0.0	57.0	136.3	0.0
Total Split (%)	8.9%	15.6%	0.0%	8.9%	15.6%	15.6%	43.9%	43.9%	0.0%	31.6%	75.5%	0.0%
Maximum Green (s)	13.0	23.0		13.0	23.0	23.0	75.0	75.0		54.0	132.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	24.8	15.2		25.0	15.2	15.2	132.2	132.2		147.2	145.9	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

No Build (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.14	0.08		0.14	0.08	0.08	0.73	0.73		0.82	0.81	
v/c Ratio	0.23	0.72		0.28	0.33	0.22	0.47	0.31		0.50	0.60	
Control Delay	65.4	92.4		67.2	79.0	23.8	23.3	9.8		8.8	8.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.4	92.4		67.2	79.0	23.8	23.3	9.8		8.8	8.6	
LOS	E	F		E	E	C	C	A		A	A	
Approach Delay		84.7			59.9			10.9			8.7	
Approach LOS		F			E			B			A	
Queue Length 50th (ft)	44	105		42	51	0	42	149		46	323	
Queue Length 95th (ft)	80	173		78	97	40	130	228		90	495	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	212	215		176	203	201	192	3337		686	2553	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.49		0.23	0.22	0.16	0.47	0.31		0.29	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 Ø2	 Ø3	 Ø4
136.3 s	16 s	28.2 s
 Ø5	 Ø6	 Ø7
57 s	79.3 s	16 s
		28.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

No Build (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	41	59	44	40	40	35	87	954	55	193	1357	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Flt	1.00	0.94		1.00	0.99	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1574		1597	1576	1358	1597	4553		1597	3155	
Flt Permitted	0.73	1.00		0.45	1.00	1.00	0.16	1.00		0.24	1.00	
Satd. Flow (perm)	1221	1574		761	1576	1358	262	4553		403	3155	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	42	61	45	41	41	36	90	984	57	199	1399	126
RTOR Reduction (vph)	0	16	0	0	2	29	0	2	0	0	3	0
Lane Group Flow (vph)	42	90	0	41	43	3	90	1039	0	199	1522	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	22.7	15.2		22.9	15.3	15.3	131.5	131.5		145.2	145.2	
Effective Green, g (s)	22.7	15.2		22.9	15.3	15.3	131.5	131.5		145.2	145.2	
Actuated g/C Ratio	0.13	0.08		0.13	0.08	0.08	0.73	0.73		0.80	0.80	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	169	133		132	134	115	191	3317		395	2538	
v/s Ratio Prot	0.01	c0.06		c0.01	0.03			0.23		0.03	c0.48	
v/s Ratio Perm	0.02			0.03		0.00	0.34			0.38		
v/c Ratio	0.25	0.68		0.31	0.32	0.02	0.47	0.31		0.50	0.60	
Uniform Delay, d1	70.8	80.3		70.7	77.7	75.7	10.1	8.6		4.7	6.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	11.8		0.5	1.0	0.1	8.1	0.2		1.0	1.1	
Delay (s)	71.1	92.1		71.2	78.7	75.8	18.2	8.9		5.7	7.7	
Level of Service	E	F		E	E	E	B	A		A	A	
Approach Delay (s)		86.2			75.3			9.6			7.5	
Approach LOS		F			E			A			A	
Intersection Summary												
HCM Average Control Delay			14.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)				12.5		
Intersection Capacity Utilization			73.5%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

No Build (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	986	21	57	1384	69	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4576	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4576	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1174	25	68	1648	82	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1199	0	68	1648	82	230
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

No Build (2030)
Timing Plan: PM

	→	↘	↙	←	↖	↗				
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗				
Volume (veh/h)	986	21	57	1384	69	193				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				
Hourly flow rate (vph)	1174	25	68	1648	82	230				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None		Raised							
Median storage veh)			1							
Upstream signal (ft)			681							
pX, platoon unblocked					0.90					
vC, conflicting volume			1199		1871		404			
vC1, stage 1 conf vol					1186					
vC2, stage 2 conf vol					685					
vCu, unblocked vol			1199		1587		404			
tC, single (s)			4.4		7.1		7.2			
tC, 2 stage (s)					6.1					
tF (s)			2.3		3.6		3.4			
p0 queue free %			87		53		59			
cM capacity (veh/h)			520		174		566			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	470	470	260	68	549	549	549	82	230	
Volume Left	0	0	0	68	0	0	0	82	0	
Volume Right	0	0	25	0	0	0	0	0	230	
cSH	1700	1700	1700	520	1700	1700	1700	174	566	
Volume to Capacity	0.28	0.28	0.15	0.13	0.32	0.32	0.32	0.47	0.41	
Queue Length 95th (ft)	0	0	0	11	0	0	0	56	49	
Control Delay (s)	0.0	0.0	0.0	13.0	0.0	0.0	0.0	42.8	15.6	
Lane LOS				B				E	C	
Approach Delay (s)	0.0			0.5				22.8		
Approach LOS								C		
Intersection Summary										
Average Delay				2.5						
Intersection Capacity Utilization				38.1%		ICU Level of Service			A	
Analysis Period (min)				15						

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

No Build (2030)

Timing Plan: PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↵
Volume (vph)	1031	141	547	1222	218	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	80		25	95
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.982					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4508	0	1597	4590	1597	1429
Flt Permitted			0.141		0.950	
Satd. Flow (perm)	4508	0	237	4590	1597	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	40					286
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1133	155	601	1343	240	485
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1288	0	601	1343	240	485
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	10.0
Minimum Split (s)	23.4		9.0	23.4	20.5	20.5
Total Split (s)	44.4	0.0	15.0	44.4	24.4	24.4
Total Split (%)	53.0%	0.0%	17.9%	53.0%	29.1%	29.1%
Maximum Green (s)	40.0		12.0	40.0	20.0	20.0
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	4.4
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Recall Mode	Max		None	Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

No Build (2030)
Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	40.1		56.5	55.1	17.2	17.2
Actuated g/C Ratio	0.49		0.70	0.68	0.21	0.21
v/c Ratio	0.57		1.64	0.43	0.71	0.92
Control Delay	15.7		320.3	6.8	41.7	37.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	15.7		320.3	6.8	41.7	37.1
LOS	B		F	A	D	D
Approach Delay	15.7			103.7	38.6	
Approach LOS	B			F	D	
Queue Length 50th (ft)	167		~404	110	113	103
Queue Length 95th (ft)	211		#606	137	191	#287
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			
Base Capacity (vph)	2247		366	3117	394	568
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.57		1.64	0.43	0.61	0.85

Intersection Summary

Area Type: Other

Cycle Length: 83.8

Actuated Cycle Length: 81.2

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.64

Intersection Signal Delay: 63.2

Intersection LOS: E

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: NW 116th Way & NW 107th Ave

← ø2		↖ ø4
44.4 s		24.4 s
↙ ø5	→ ø6	
15 s	44.4 s	

HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

No Build (2030)
Timing Plan: PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↱	↑↑↑	↱	↱
Volume (vph)	1031	141	547	1222	218	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	4.4
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4507		1597	4590	1597	1429
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	4507		237	4590	1597	1429
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1133	155	601	1343	240	485
RTOR Reduction (vph)	20	0	0	0	0	225
Lane Group Flow (vph)	1268	0	601	1343	240	260
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Actuated Green, G (s)	40.1		55.1	55.1	17.2	17.2
Effective Green, g (s)	40.1		55.1	55.1	17.2	17.2
Actuated g/C Ratio	0.49		0.68	0.68	0.21	0.21
Clearance Time (s)	4.4		3.0	4.4	4.4	4.4
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Lane Grp Cap (vph)	2228		362	3118	339	303
v/s Ratio Prot	0.28		c0.25	0.29	0.15	
v/s Ratio Perm			c0.88			c0.18
v/c Ratio	0.57		1.66	0.43	0.71	0.86
Uniform Delay, d1	14.4		18.2	5.9	29.6	30.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		309.1	0.4	6.6	20.5
Delay (s)	15.5		327.3	6.3	36.2	51.3
Level of Service	B		F	A	D	D
Approach Delay (s)	15.5			105.6	46.3	
Approach LOS	B			F	D	
Intersection Summary						
HCM Average Control Delay			65.4		HCM Level of Service	E
HCM Volume to Capacity ratio			1.43			
Actuated Cycle Length (s)			81.1		Sum of lost time (s)	7.4
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	80	20	75	361	13	41	35	1247	125	31	1301	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.881			0.887			0.986			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1339	0	1597	1491	0	1597	4526	0	1597	4572	0
Flt Permitted	0.720			0.464			0.156			0.156		
Satd. Flow (perm)	1094	1339	0	780	1491	0	262	4526	0	262	4572	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			43			26			6	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	84	21	79	380	14	43	37	1313	132	33	1369	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	100	0	380	57	0	37	1445	0	33	1408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	10.0	22.4	0.0	10.0	22.4	0.0	9.0	29.6	0.0	9.0	29.6	0.0
Total Split (%)	14.1%	31.5%	0.0%	14.1%	31.5%	0.0%	12.7%	41.7%	0.0%	12.7%	41.7%	0.0%
Maximum Green (s)	7.0	17.0		7.0	17.0		6.0	25.0		6.0	25.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)								8.0			8.0	

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	14.2	7.9		16.4	10.1		29.3	25.6		29.2	25.6	
Actuated g/C Ratio	0.26	0.15		0.30	0.19		0.54	0.47		0.54	0.47	
v/c Ratio	0.26	0.38		1.08	0.18		0.14	0.67		0.12	0.65	
Control Delay	15.8	14.0		94.3	12.7		7.5	14.8		7.4	14.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.8	14.0		94.3	12.7		7.5	14.8		7.4	14.5	
LOS	B	B		F	B		A	B		A	B	
Approach Delay		14.8			83.7			14.6			14.4	
Approach LOS		B			F			B			B	
Queue Length 50th (ft)	16	6		~99	4		5	110		5	108	
Queue Length 95th (ft)	50	45		#260	33		17	232		16	226	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	349	482		352	506		292	2146		292	2155	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.21		1.08	0.11		0.13	0.67		0.11	0.65	

Intersection Summary

Area Type: Other

Cycle Length: 71

Actuated Cycle Length: 54.4

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 23.0

Intersection LOS: C

Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

			
ø1	ø2	ø3	ø4
9 s	29.6 s	10 s	22.4 s
			
ø5	ø6	ø7	ø8
9 s	29.6 s	10 s	22.4 s

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	80	20	75	361	13	41	35	1247	125	31	1301	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Flt	1.00	0.88		1.00	0.89		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1340		1597	1491		1597	4527		1597	4571	
Flt Permitted	0.72	1.00		0.46	1.00		0.16	1.00		0.16	1.00	
Satd. Flow (perm)	1094	1340		780	1491		263	4527		263	4571	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	21	79	380	14	43	37	1313	132	33	1369	39
RTOR Reduction (vph)	0	71	0	0	35	0	0	14	0	0	3	0
Lane Group Flow (vph)	84	29	0	380	22	0	37	1431	0	33	1405	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	9.9	6.1		16.9	10.1		27.6	25.6		27.6	25.6	
Effective Green, g (s)	9.9	6.1		16.9	10.1		27.6	25.6		27.6	25.6	
Actuated g/C Ratio	0.17	0.11		0.29	0.18		0.48	0.45		0.48	0.45	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	211	142		340	262		173	2015		173	2035	
v/s Ratio Prot	0.03	0.02		c0.15	0.01		c0.01	c0.32		0.01	0.31	
v/s Ratio Perm	0.04			c0.18			0.10			0.09		
v/c Ratio	0.40	0.21		1.12	0.08		0.21	0.71		0.19	0.69	
Uniform Delay, d1	20.9	23.5		19.4	19.8		8.6	12.9		8.7	12.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.5		84.5	0.1		0.2	2.2		0.2	1.9	
Delay (s)	21.4	24.0		103.8	19.9		8.8	15.1		8.8	14.7	
Level of Service	C	C		F	B		A	B		A	B	
Approach Delay (s)		22.8			92.9			14.9			14.6	
Approach LOS		C			F			B			B	
Intersection Summary												
HCM Average Control Delay			24.8			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			57.5			Sum of lost time (s)				10.6		
Intersection Capacity Utilization			64.1%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

No Build (2030)
Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	70	12	34	29	21	32	33	1369	5	7	1269	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25		50	25		25	75		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.91
Frt		0.889			0.947			0.999			0.997	
Flt Protected	0.950				0.983		0.950					
Satd. Flow (prot)	1597	1495	0	0	1565	0	1597	4586	0	0	4576	0
Flt Permitted	0.950				0.983		0.950					
Satd. Flow (perm)	1597	1495	0	0	1565	0	1597	4586	0	0	4576	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		729			295			921			930	
Travel Time (s)		14.2			5.7			17.9			18.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	86	15	42	36	26	40	41	1690	6	9	1567	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	57	0	0	102	0	41	1696	0	0	1606	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.9%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	70	12	34	29	21	32	33	1369	5	7	1269	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	86	15	42	36	26	40	41	1690	6	9	1567	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked	0.84	0.84		0.84	0.84	0.84				0.84		
vC, conflicting volume	2296	3377	537	2364	3388	566	1596			1696		
vC1, stage 1 conf vol	1599	1599		1775	1775							
vC2, stage 2 conf vol	697	1778		589	1614							
vCu, unblocked vol	1873	3161	537	1953	3175	0	1596			1158		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	79	91	59	57	96	89			98		
cM capacity (veh/h)	80	71	461	88	60	880	359			453		
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3		
Volume Total	86	57	101	41	676	676	344	400	783	421		
Volume Left	86	0	36	41	0	0	0	9	0	0		
Volume Right	0	42	40	0	0	0	6	0	0	30		
cSH	80	190	114	359	1700	1700	1700	453	1700	1700		
Volume to Capacity	1.08	0.30	0.89	0.11	0.40	0.40	0.20	0.02	0.46	0.25		
Queue Length 95th (ft)	153	30	135	10	0	0	0	1	0	0		
Control Delay (s)	216.5	31.8	125.8	16.3	0.0	0.0	0.0	0.6	0.0	0.0		
Lane LOS	F	D	F	C				A				
Approach Delay (s)	143.3		125.8	0.4				0.1				
Approach LOS	F		F									
Intersection Summary												
Average Delay			9.5									
Intersection Capacity Utilization			47.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	98	6	46	25	4	11	32	1525	9	39	1214	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.867			0.892			0.999			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1458	0	1597	1500	0	1597	4586	0	1597	4572	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1458	0	1597	1500	0	1597	4586	0	1597	4572	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	118	7	55	30	5	13	39	1837	11	47	1463	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	62	0	30	18	0	39	1848	0	47	1503	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.2% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

5: NW 100th Rd & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	98	6	46	25	4	11	32	1525	9	39	1214	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	118	7	55	30	5	13	39	1837	11	47	1463	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage veh								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2282	3502	507	2560	3516	618	1502			1848		
vC1, stage 1 conf vol	1577	1577		1920	1920							
vC2, stage 2 conf vol	705	1925		641	1596							
vCu, unblocked vol	2282	3502	507	2560	3516	618	1502			1848		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	76	89	29	88	97	90			83		
cM capacity (veh/h)	63	30	482	43	42	406	392			282		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	118	63	30	18	39	735	735	378	47	585	585	332
Volume Left	118	0	30	0	39	0	0	0	47	0	0	0
Volume Right	0	55	0	13	0	0	0	11	0	0	0	40
cSH	63	177	43	122	392	1700	1700	1700	282	1700	1700	1700
Volume to Capacity	1.87	0.35	0.71	0.15	0.10	0.43	0.43	0.22	0.17	0.34	0.34	0.20
Queue Length 95th (ft)	273	37	67	13	8	0	0	0	15	0	0	0
Control Delay (s)	553.6	36.0	199.8	39.7	15.2	0.0	0.0	0.0	20.3	0.0	0.0	0.0
Lane LOS	F	E	F	E	C				C			
Approach Delay (s)	374.1		139.8		0.3				0.6			
Approach LOS	F		F									
Intersection Summary												
Average Delay			20.7									
Intersection Capacity Utilization			51.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	50	75	93	44	97	88	1580	27	50	1049	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.910			0.939	0.850		0.997			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1530	0	1597	1500	1358	1597	4576	0	1597	3166	0
Flt Permitted	0.703			0.310			0.218			0.103		
Satd. Flow (perm)	1182	1530	0	521	1500	1358	367	4576	0	173	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			16	71		2			8	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	56	53	80	99	47	103	94	1681	29	53	1116	74
Shared Lane Traffic (%)						31%						
Lane Group Flow (vph)	56	133	0	99	79	71	94	1710	0	53	1190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	22.0	35.2	0.0	22.0	35.2	35.2	102.3	102.3	0.0	21.0	123.3	0.0
Total Split (%)	12.2%	19.5%	0.0%	12.2%	19.5%	19.5%	56.7%	56.7%	0.0%	11.6%	68.3%	0.0%
Maximum Green (s)	19.0	30.0		19.0	30.0	30.0	98.0	98.0		18.0	119.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	28.5	16.6		36.1	23.0	23.0	128.7	128.7		138.4	137.1	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.16	0.09		0.20	0.13	0.13	0.71	0.71		0.77	0.76	
v/c Ratio	0.27	0.77		0.52	0.39	0.30	0.36	0.52		0.28	0.49	
Control Delay	60.0	84.4		69.1	61.9	15.9	17.8	14.1		10.2	10.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	60.0	84.4		69.1	61.9	15.9	17.8	14.1		10.2	10.1	
LOS	E	F		E	E	B	B	B		B	B	
Approach Delay		77.2			51.6			14.3			10.1	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	56	115		101	73	0	42	330		14	261	
Queue Length 95th (ft)	93	189		150	130	53	108	472		34	400	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	275	284		218	263	285	262	3264		275	2406	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.47		0.45	0.30	0.25	0.36	0.52		0.19	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 Ø2	 Ø3	 Ø4
123.3 s	22 s	35.2 s
 Ø5	 Ø7	 Ø8
21 s	22 s	35.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

No Build (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	50	75	93	44	97	88	1580	27	50	1049	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Frt	1.00	0.91		1.00	0.94	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1530		1597	1500	1358	1597	4579		1597	3165	
Flt Permitted	0.70	1.00		0.31	1.00	1.00	0.22	1.00		0.10	1.00	
Satd. Flow (perm)	1182	1530		521	1500	1358	367	4579		173	3165	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	56	53	80	99	47	103	94	1681	29	53	1116	74
RTOR Reduction (vph)	0	33	0	0	14	62	0	1	0	0	2	0
Lane Group Flow (vph)	56	100	0	99	65	9	94	1709	0	53	1188	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	25.6	17.1		34.5	23.0	23.0	127.6	127.6		136.5	136.5	
Effective Green, g (s)	25.6	17.1		34.5	23.0	23.0	127.6	127.6		136.5	136.5	
Actuated g/C Ratio	0.14	0.09		0.19	0.13	0.13	0.71	0.71		0.76	0.76	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	187	145		185	191	173	259	3237		177	2393	
v/s Ratio Prot	0.01	c0.07		c0.04	0.04			c0.37		0.01	c0.38	
v/s Ratio Perm	0.03			0.06		0.01	0.26			0.22		
v/c Ratio	0.30	0.69		0.54	0.34	0.05	0.36	0.53		0.30	0.50	
Uniform Delay, d1	68.9	79.2		63.3	71.8	69.2	10.4	12.4		8.2	8.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	12.4		1.5	0.8	0.1	3.9	0.6		1.0	0.7	
Delay (s)	69.2	91.5		64.8	72.6	69.3	14.3	13.0		9.2	9.3	
Level of Service	E	F		E	E	E	B	B		A	A	
Approach Delay (s)		84.9			68.5			13.1			9.3	
Approach LOS		F			E			B			A	
Intersection Summary												
HCM Average Control Delay			19.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)				16.8		
Intersection Capacity Utilization			70.1%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

APPENDIX K

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	1164	140	216	808	11	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4517	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4517	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1323	159	245	918	13	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1482	0	245	918	12	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	25			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑↱		↱	↑↑↑	↱	↱			
Volume (veh/h)	1164	140	216	808	11	41			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88			
Hourly flow rate (vph)	1323	159	245	918	12	47			
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)				681					
pX, platoon unblocked					0.99				
vC, conflicting volume			1482		2199	520			
vC1, stage 1 conf vol					1402				
vC2, stage 2 conf vol					797				
vCu, unblocked vol			1482		2177	520			
tC, single (s)			4.4		7.1	7.2			
tC, 2 stage (s)					6.1				
tF (s)			2.3		3.6	3.4			
p0 queue free %			39		84	90			
cM capacity (veh/h)			399		80	473			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	529	529	424	245	306	306	306	12	47
Volume Left	0	0	0	245	0	0	0	12	0
Volume Right	0	0	159	0	0	0	0	0	47
cSH	1700	1700	1700	399	1700	1700	1700	80	473
Volume to Capacity	0.31	0.31	0.25	0.61	0.18	0.18	0.18	0.16	0.10
Queue Length 95th (ft)	0	0	0	99	0	0	0	13	8
Control Delay (s)	0.0	0.0	0.0	27.4	0.0	0.0	0.0	58.4	13.4
Lane LOS				D				F	B
Approach Delay (s)	0.0			5.8				22.9	
Approach LOS								C	
Intersection Summary									
Average Delay			3.0						
Intersection Capacity Utilization			50.9%		ICU Level of Service			A	
Analysis Period (min)			15						

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Volume (vph)	1115	91	335	942	85	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	80		25	95
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.989					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4540	0	1597	4590	1597	1429
Flt Permitted			0.119		0.950	
Satd. Flow (perm)	4540	0	200	4590	1597	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	14					448
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1267	103	381	1070	97	567
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1370	0	381	1070	97	567
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	10.0
Minimum Split (s)	23.4		9.0	23.4	20.5	20.5
Total Split (s)	39.4	0.0	27.0	66.4	33.6	33.6
Total Split (%)	39.4%	0.0%	27.0%	66.4%	33.6%	33.6%
Maximum Green (s)	35.0		24.0	62.0	29.2	29.2
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	4.4
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	48.6		73.9	72.5	18.7	18.7
Actuated g/C Ratio	0.49		0.74	0.72	0.19	0.19
v/c Ratio	0.62		0.87	0.32	0.33	0.90
Control Delay	23.2		32.4	3.1	35.4	26.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	23.2		32.4	3.1	35.4	26.6
LOS	C		C	A	D	C
Approach Delay	23.2			10.8	27.9	
Approach LOS	C			B	C	
Queue Length 50th (ft)	232		65	25	55	74
Queue Length 95th (ft)	342		#302	37	86	193
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			
Base Capacity (vph)	2215		492	3329	466	734
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.62		0.77	0.32	0.21	0.77

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 63 (63%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: NW 116th Way & NW 107th Ave

← ϕ2	↖ ϕ4
66.4 s	33.6 s
↙ ϕ5	→ ϕ6
27 s	39.4 s

HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Volume (vph)	1115	91	335	942	85	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	4.4
Lane Util. Factor	0.91		1.00	0.91	1.00	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)	4538		1597	4590	1597	1429
Flt Permitted	1.00		0.12	1.00	0.95	1.00
Satd. Flow (perm)	4538		201	4590	1597	1429
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	1267	103	381	1070	97	567
RTOR Reduction (vph)	7	0	0	0	0	364
Lane Group Flow (vph)	1363	0	381	1070	97	203
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Actuated Green, G (s)	48.6		72.5	72.5	18.7	18.7
Effective Green, g (s)	48.6		72.5	72.5	18.7	18.7
Actuated g/C Ratio	0.49		0.72	0.72	0.19	0.19
Clearance Time (s)	4.4		3.0	4.4	4.4	4.4
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Lane Grp Cap (vph)	2205		437	3328	299	267
v/s Ratio Prot	0.30		c0.18	0.23	0.06	
v/s Ratio Perm			c0.45			c0.14
v/c Ratio	0.62		0.87	0.32	0.32	0.76
Uniform Delay, d1	18.9		23.5	4.9	35.2	38.5
Progression Factor	1.00		0.60	0.48	1.00	1.00
Incremental Delay, d2	1.3		15.8	0.2	0.6	11.7
Delay (s)	20.2		29.8	2.6	35.8	50.2
Level of Service	C		C	A	D	D
Approach Delay (s)	20.2			9.7	48.1	
Approach LOS	C			A	D	
Intersection Summary						
HCM Average Control Delay			21.2		HCM Level of Service	C
HCM Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	7.4
Intersection Capacity Utilization			61.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	14	41	151	22	39	127	1100	370	65	1103	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.888			0.905			0.962			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1350	0	1597	1522	0	1597	4416	0	1597	4535	0
Flt Permitted	0.716			0.720			0.180			0.136		
Satd. Flow (perm)	1088	1350	0	1211	1522	0	303	4416	0	229	4535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			40			130			19	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	38	14	42	156	23	40	131	1134	381	67	1137	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	56	0	156	63	0	131	1515	0	67	1237	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	8.0	16.0	0.0	16.0	24.0	0.0	16.0	58.0	0.0	10.0	52.0	0.0
Total Split (%)	8.0%	16.0%	0.0%	16.0%	24.0%	0.0%	16.0%	58.0%	0.0%	10.0%	52.0%	0.0%
Maximum Green (s)	5.0	10.6		13.0	18.6		13.0	53.4		7.0	47.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)								8.0			8.0	

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	15.6	7.8		17.3	9.5		73.8	66.2		70.9	63.5	
Actuated g/C Ratio	0.16	0.08		0.17	0.10		0.74	0.66		0.71	0.64	
v/c Ratio	0.19	0.39		0.65	0.35		0.42	0.51		0.28	0.43	
Control Delay	33.7	26.6		49.7	26.4		11.7	3.5		7.4	10.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.7	26.6		49.7	26.4		11.7	3.5		7.4	10.6	
LOS	C	C		D	C		B	A		A	B	
Approach Delay		29.5			43.0			4.2			10.5	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	20	9		90	14		11	46		10	130	
Queue Length 95th (ft)	45	46		140	54		m51	75		27	211	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	195	181		317	316		396	2967		262	2885	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.31		0.49	0.20		0.33	0.51		0.26	0.43	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 96 (96%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 10.0

Intersection LOS: B

Intersection Capacity Utilization 60.4%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

 ø1	 ø2	 ø4	
16 s	52 s	24 s	8 s
 ø5	 ø6	 ø8	 ø7
10 s	58 s	16 s	16 s

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	14	41	151	22	39	127	1100	370	65	1103	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.89		1.00	0.90		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1349		1597	1521		1597	4417		1597	4535	
Flt Permitted	0.72	1.00		0.72	1.00		0.18	1.00		0.14	1.00	
Satd. Flow (perm)	1088	1349		1211	1521		303	4417		229	4535	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	38	14	42	156	23	40	131	1134	381	67	1137	100
RTOR Reduction (vph)	0	39	0	0	36	0	0	46	0	0	7	0
Lane Group Flow (vph)	38	17	0	156	27	0	131	1469	0	67	1230	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.6	6.4		17.8	9.5		71.5	64.5		67.1	62.3	
Effective Green, g (s)	11.6	6.4		17.8	9.5		71.5	64.5		67.1	62.3	
Actuated g/C Ratio	0.12	0.06		0.18	0.10		0.72	0.64		0.67	0.62	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	145	86		248	144		307	2849		219	2825	
v/s Ratio Prot	0.01	0.01		c0.05	0.02		c0.03	c0.33		0.01	0.27	
v/s Ratio Perm	0.02			c0.06			0.28			0.19		
v/c Ratio	0.26	0.19		0.63	0.19		0.43	0.52		0.31	0.44	
Uniform Delay, d1	40.5	44.4		37.9	41.7		5.3	9.4		6.2	9.8	
Progression Factor	1.00	1.00		1.00	1.00		2.00	0.33		1.00	1.00	
Incremental Delay, d2	0.4	0.8		3.6	0.5		0.3	0.5		0.3	0.5	
Delay (s)	40.8	45.2		41.5	42.1		10.8	3.6		6.5	10.2	
Level of Service	D	D		D	D		B	A		A	B	
Approach Delay (s)		43.4			41.7			4.2			10.0	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM Average Control Delay			10.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			100.0			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												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	4	17	4	0	5	78	1066	7	11	1232	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25		50	25		25	75		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.91
Frt		0.877			0.925			0.999			0.994	
Flt Protected	0.950				0.978		0.950					
Satd. Flow (prot)	1597	1475	0	0	1521	0	1597	4586	0	0	4563	0
Flt Permitted	0.950				0.978		0.950					
Satd. Flow (perm)	1597	1475	0	0	1521	0	1597	4586	0	0	4563	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		729			295			921			930	
Travel Time (s)		14.2			5.7			17.9			18.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	41	4	18	4	0	5	83	1134	7	12	1311	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	22	0	0	9	0	83	1141	0	0	1377	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	60.1%						ICU Level of Service B					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	39	4	17	4	0	5	78	1066	7	11	1232	51
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	41	4	18	4	0	5	83	1134	7	12	1311	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked												
vC, conflicting volume	1910	2669	464	1784	2692	382	1365			1141		
vC1, stage 1 conf vol	1361	1361		1304	1304							
vC2, stage 2 conf vol	549	1307		480	1388							
vCu, unblocked vol	1910	2669	464	1784	2692	382	1365			1141		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	59	95	96	96	100	99	81			98		
cM capacity (veh/h)	102	85	516	98	64	586	445			548		
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3		
Volume Total	41	22	10	83	454	454	234	339	655	382		
Volume Left	41	0	4	83	0	0	0	12	0	0		
Volume Right	0	18	5	0	0	0	7	0	0	54		
cSH	102	263	182	445	1700	1700	1700	548	1700	1700		
Volume to Capacity	0.41	0.08	0.05	0.19	0.27	0.27	0.14	0.02	0.39	0.22		
Queue Length 95th (ft)	42	7	4	17	0	0	0	2	0	0		
Control Delay (s)	62.6	19.9	25.9	14.9	0.0	0.0	0.0	0.7	0.0	0.0		
Lane LOS	F	C	D	B				A				
Approach Delay (s)	47.7		25.9	1.0				0.2				
Approach LOS	E		D									
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			60.1%		ICU Level of Service				B			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	26	2	17	5	4	13	89	1041	28	90	1266	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.865			0.883			0.996			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1454	0	1597	1485	0	1597	4572	0	1597	4544	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1454	0	1597	1485	0	1597	4572	0	1597	4544	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	28	2	18	5	4	14	95	1107	30	96	1347	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	20	0	5	18	0	95	1137	0	96	1447	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.6% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

5: NW 100th Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	26	2	17	5	4	13	89	1041	28	90	1266	94
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	28	2	18	5	4	14	95	1107	30	96	1347	100
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage veh								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2163	2915	499	1971	2950	384	1447			1137		
vC1, stage 1 conf vol	1588	1588		1312	1312							
vC2, stage 2 conf vol	574	1327		660	1638							
vCu, unblocked vol	2163	2915	499	1971	2950	384	1447			1137		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	54	95	96	93	77	98	77			83		
cM capacity (veh/h)	60	40	489	78	19	584	413			551		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	28	20	5	18	95	443	443	251	96	539	539	369
Volume Left	28	0	5	0	95	0	0	0	96	0	0	0
Volume Right	0	18	0	14	0	0	0	30	0	0	0	100
cSH	60	225	78	71	413	1700	1700	1700	551	1700	1700	1700
Volume to Capacity	0.46	0.09	0.07	0.25	0.23	0.26	0.26	0.15	0.17	0.32	0.32	0.22
Queue Length 95th (ft)	44	7	5	22	22	0	0	0	16	0	0	0
Control Delay (s)	107.3	22.5	54.5	71.7	16.3	0.0	0.0	0.0	12.9	0.0	0.0	0.0
Lane LOS	F	C	F	F	C				B			
Approach Delay (s)	71.5		67.8		1.3				0.8			
Approach LOS	F		F									
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			49.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	41	59	44	40	40	35	87	954	55	193	1357	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.936			0.987	0.850		0.992			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1574	0	1597	1577	1358	1597	4554	0	1597	3156	0
Flt Permitted	0.726			0.453			0.156			0.240		
Satd. Flow (perm)	1221	1574	0	762	1577	1358	262	4554	0	404	3156	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			2	32		6			14	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	42	61	45	41	41	36	90	984	57	199	1399	126
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	42	106	0	41	45	32	90	1041	0	199	1525	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	16.0	28.2	0.0	16.0	28.2	28.2	79.3	79.3	0.0	57.0	136.3	0.0
Total Split (%)	8.9%	15.6%	0.0%	8.9%	15.6%	15.6%	43.9%	43.9%	0.0%	31.6%	75.5%	0.0%
Maximum Green (s)	13.0	23.0		13.0	23.0	23.0	75.0	75.0		54.0	132.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	24.8	15.2		25.0	15.2	15.2	132.2	132.2		147.2	145.9	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.14	0.08		0.14	0.08	0.08	0.73	0.73		0.82	0.81	
v/c Ratio	0.23	0.72		0.28	0.33	0.22	0.47	0.31		0.50	0.60	
Control Delay	65.4	92.4		67.2	79.0	23.8	23.3	9.8		8.8	8.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.4	92.4		67.2	79.0	23.8	23.3	9.8		8.8	8.6	
LOS	E	F		E	E	C	C	A		A	A	
Approach Delay		84.7			59.9			10.9			8.7	
Approach LOS		F			E			B			A	
Queue Length 50th (ft)	44	105		42	51	0	42	149		46	323	
Queue Length 95th (ft)	80	173		78	97	40	130	228		90	495	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	212	215		176	203	201	192	3337		686	2553	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.49		0.23	0.22	0.16	0.47	0.31		0.29	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 ø2	 ø3	 ø4
136.3 s	16 s	28.2 s
 ø5	 ø6	 ø7
57 s	79.3 s	16 s
		28.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	41	59	44	40	40	35	87	954	55	193	1357	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Flt Protected	1.00	0.94		1.00	0.99	0.85	1.00	0.99		1.00	0.99	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1574		1597	1576	1358	1597	4553		1597	3155	
Satd. Flow (perm)	1221	1574		761	1576	1358	262	4553		403	3155	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	42	61	45	41	41	36	90	984	57	199	1399	126
RTOR Reduction (vph)	0	16	0	0	2	29	0	2	0	0	3	0
Lane Group Flow (vph)	42	90	0	41	43	3	90	1039	0	199	1522	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	22.7	15.2		22.9	15.3	15.3	131.5	131.5		145.2	145.2	
Effective Green, g (s)	22.7	15.2		22.9	15.3	15.3	131.5	131.5		145.2	145.2	
Actuated g/C Ratio	0.13	0.08		0.13	0.08	0.08	0.73	0.73		0.80	0.80	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	169	133		132	134	115	191	3317		395	2538	
v/s Ratio Prot	0.01	c0.06		c0.01	0.03			0.23		0.03	c0.48	
v/s Ratio Perm	0.02			0.03		0.00	0.34			0.38		
v/c Ratio	0.25	0.68		0.31	0.32	0.02	0.47	0.31		0.50	0.60	
Uniform Delay, d1	70.8	80.3		70.7	77.7	75.7	10.1	8.6		4.7	6.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	11.8		0.5	1.0	0.1	8.1	0.2		1.0	1.1	
Delay (s)	71.1	92.1		71.2	78.7	75.8	18.2	8.9		5.7	7.7	
Level of Service	E	F		E	E	E	B	A		A	A	
Approach Delay (s)		86.2			75.3			9.6			7.5	
Approach LOS		F			E			A			A	
Intersection Summary												
HCM Average Control Delay			14.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)				12.5		
Intersection Capacity Utilization			73.5%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	986	21	57	1384	69	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4576	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4576	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1174	25	68	1648	82	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1199	0	68	1648	82	230
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗				
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗				
Volume (veh/h)	986	21	57	1384	69	193				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				
Hourly flow rate (vph)	1174	25	68	1648	82	230				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None		Raised							
Median storage veh)			1							
Upstream signal (ft)			681							
pX, platoon unblocked					0.91					
vC, conflicting volume			1199		1871		404			
vC1, stage 1 conf vol					1186					
vC2, stage 2 conf vol					685					
vCu, unblocked vol			1199		1620		404			
tC, single (s)			4.4		7.1		7.2			
tC, 2 stage (s)					6.1					
tF (s)			2.3		3.6		3.4			
p0 queue free %			87		52		59			
cM capacity (veh/h)			520		172		566			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	470	470	260	68	549	549	549	82	230	
Volume Left	0	0	0	68	0	0	0	82	0	
Volume Right	0	0	25	0	0	0	0	0	230	
cSH	1700	1700	1700	520	1700	1700	1700	172	566	
Volume to Capacity	0.28	0.28	0.15	0.13	0.32	0.32	0.32	0.48	0.41	
Queue Length 95th (ft)	0	0	0	11	0	0	0	57	49	
Control Delay (s)	0.0	0.0	0.0	13.0	0.0	0.0	0.0	43.8	15.6	
Lane LOS				B				E	C	
Approach Delay (s)	0.0			0.5				23.0		
Approach LOS								C		
Intersection Summary										
Average Delay				2.5						
Intersection Capacity Utilization				38.1%		ICU Level of Service			A	
Analysis Period (min)				15						

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Volume (vph)	1031	141	547	1222	218	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	80		25	95
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.982					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4508	0	1597	4590	1597	1429
Flt Permitted			0.127		0.950	
Satd. Flow (perm)	4508	0	214	4590	1597	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	32					485
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1133	155	601	1343	240	485
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1288	0	601	1343	240	485
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	10.0
Minimum Split (s)	23.4		9.0	23.4	20.5	20.5
Total Split (s)	30.0	0.0	29.0	59.0	21.0	21.0
Total Split (%)	37.5%	0.0%	36.3%	73.8%	26.3%	26.3%
Maximum Green (s)	25.6		26.0	54.6	16.6	16.6
Yellow Time (s)	4.0		3.0	4.0	4.0	4.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	4.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	27.0		57.4	56.0	15.2	15.2
Actuated g/C Ratio	0.34		0.72	0.70	0.19	0.19
v/c Ratio	0.83		1.00	0.42	0.79	0.73
Control Delay	30.4		55.6	2.9	50.7	10.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	30.4		55.6	2.9	50.7	10.3
LOS	C		E	A	D	B
Approach Delay	30.4			19.2	23.6	
Approach LOS	C			B	C	
Queue Length 50th (ft)	215		~256	24	113	0
Queue Length 95th (ft)	#299		m#466	44	#216	88
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			
Base Capacity (vph)	1543		603	3214	331	681
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.83		1.00	0.42	0.73	0.71

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 49 (61%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 2: NW 116th Way & NW 107th Ave

← ø2	→ ø6	↖ ø4	↙ ø5
59 s	30 s	21 s	29 s

HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↙	↑↑↑	↙	↗
Volume (vph)	1031	141	547	1222	218	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	4.4
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4507		1597	4590	1597	1429
Flt Permitted	1.00		0.13	1.00	0.95	1.00
Satd. Flow (perm)	4507		214	4590	1597	1429
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1133	155	601	1343	240	485
RTOR Reduction (vph)	21	0	0	0	0	393
Lane Group Flow (vph)	1267	0	601	1343	240	92
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Actuated Green, G (s)	27.0		57.4	56.0	15.2	15.2
Effective Green, g (s)	27.0		57.4	56.0	15.2	15.2
Actuated g/C Ratio	0.34		0.72	0.70	0.19	0.19
Clearance Time (s)	4.4		3.0	4.4	4.4	4.4
Vehicle Extension (s)	1.0		2.0	1.0	3.0	3.0
Lane Grp Cap (vph)	1521		603	3213	303	272
v/s Ratio Prot	0.28		c0.32	0.29	c0.15	
v/s Ratio Perm			c0.39			0.06
v/c Ratio	0.83		1.00	0.42	0.79	0.34
Uniform Delay, d1	24.4		19.5	5.1	30.9	28.0
Progression Factor	1.00		0.93	0.48	1.00	1.00
Incremental Delay, d2	5.5		31.2	0.3	13.2	0.7
Delay (s)	29.9		49.3	2.7	44.1	28.8
Level of Service	C		D	A	D	C
Approach Delay (s)	29.9			17.1	33.9	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			24.4		HCM Level of Service	C
HCM Volume to Capacity ratio			0.92			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	7.4
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	80	20	75	361	13	41	35	1247	125	31	1301	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.881			0.887			0.986			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1339	0	1597	1491	0	1597	4526	0	1597	4572	0
Flt Permitted	0.720			0.474			0.114			0.111		
Satd. Flow (perm)	1094	1339	0	797	1491	0	192	4526	0	187	4572	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			43			25			6	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	84	21	79	380	14	43	37	1313	132	33	1369	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	100	0	380	57	0	37	1445	0	33	1408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	10.0	13.0	0.0	22.0	25.0	0.0	8.0	37.0	0.0	8.0	37.0	0.0
Total Split (%)	12.5%	16.3%	0.0%	27.5%	31.3%	0.0%	10.0%	46.3%	0.0%	10.0%	46.3%	0.0%
Maximum Green (s)	7.0	7.6		19.0	19.6		5.0	32.4		5.0	32.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)								8.0				8.0

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	17.4	7.2		26.0	15.7		43.7	39.1		43.7	39.0	
Actuated g/C Ratio	0.22	0.09		0.32	0.20		0.55	0.49		0.55	0.49	
v/c Ratio	0.29	0.52		0.86	0.17		0.19	0.65		0.17	0.63	
Control Delay	20.0	22.5		42.7	12.1		4.4	4.7		11.3	18.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.0	22.5		42.7	12.1		4.4	4.7		11.3	18.7	
LOS	B	C		D	B		A	A		B	B	
Approach Delay		21.4			38.7			4.7			18.5	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	26	10		148	5		3	50		7	212	
Queue Length 95th (ft)	55	55		#255	33		m3	71		20	269	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	295	199		456	398		194	2223		191	2234	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.28	0.50		0.83	0.14		0.19	0.65		0.17	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 8 (10%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 15.4

Intersection LOS: B

Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

			
ø1	ø2	ø3	ø4
8 s	37 s	10 s	25 s
			
ø5	ø6	ø7	ø8
8 s	37 s	22 s	13 s

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	80	20	75	361	13	41	35	1247	125	31	1301	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Flt	1.00	0.88		1.00	0.89		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1340		1597	1491		1597	4527		1597	4571	
Flt Permitted	0.72	1.00		0.47	1.00		0.11	1.00		0.11	1.00	
Satd. Flow (perm)	1094	1340		796	1491		192	4527		186	4571	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	21	79	380	14	43	37	1313	132	33	1369	39
RTOR Reduction (vph)	0	73	0	0	35	0	0	14	0	0	3	0
Lane Group Flow (vph)	84	27	0	380	22	0	37	1431	0	33	1405	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	17.0	6.5		27.8	14.3		39.3	36.2		39.1	36.1	
Effective Green, g (s)	17.0	6.5		27.8	14.3		39.3	36.2		39.1	36.1	
Actuated g/C Ratio	0.21	0.08		0.35	0.18		0.49	0.45		0.49	0.45	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	278	109		460	267		149	2048		144	2063	
v/s Ratio Prot	0.04	0.02		c0.19	0.01		c0.01	c0.32		0.01	0.31	
v/s Ratio Perm	0.02			c0.10			0.11			0.10		
v/c Ratio	0.30	0.25		0.83	0.08		0.25	0.70		0.23	0.68	
Uniform Delay, d1	26.3	34.5		22.4	27.4		11.8	17.5		12.0	17.4	
Progression Factor	1.00	1.00		1.00	1.00		0.34	0.22		1.00	1.00	
Incremental Delay, d2	0.2	0.9		11.0	0.1		0.2	1.2		0.3	1.8	
Delay (s)	26.6	35.4		33.4	27.5		4.1	5.1		12.3	19.2	
Level of Service	C	D		C	C		A	A		B	B	
Approach Delay (s)		31.3			32.7			5.0			19.1	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM Average Control Delay			15.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				6.0		
Intersection Capacity Utilization			64.1%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	70	12	34	29	21	32	33	1369	5	7	1269	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25		50	25		25	75		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.91
Frt		0.889			0.947			0.999			0.997	
Flt Protected	0.950				0.983		0.950					
Satd. Flow (prot)	1597	1495	0	0	1565	0	1597	4586	0	0	4576	0
Flt Permitted	0.950				0.983		0.950					
Satd. Flow (perm)	1597	1495	0	0	1565	0	1597	4586	0	0	4576	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		729			295			921			930	
Travel Time (s)		14.2			5.7			17.9			18.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	86	15	42	36	26	40	41	1690	6	9	1567	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	57	0	0	102	0	41	1696	0	0	1606	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 47.9% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	70	12	34	29	21	32	33	1369	5	7	1269	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	86	15	42	36	26	40	41	1690	6	9	1567	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked	0.81	0.81		0.81	0.81	0.81				0.81		
vC, conflicting volume	2296	3377	537	2364	3388	566	1596			1696		
vC1, stage 1 conf vol	1599	1599		1775	1775							
vC2, stage 2 conf vol	697	1778		589	1614							
vCu, unblocked vol	1778	3112	537	1861	3127	0	1596			1037		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	80	91	63	58	95	89			98		
cM capacity (veh/h)	81	75	461	97	62	850	359			489		
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3		
Volume Total	86	57	101	41	676	676	344	400	783	421		
Volume Left	86	0	36	41	0	0	0	9	0	0		
Volume Right	0	42	40	0	0	0	6	0	0	30		
cSH	81	197	122	359	1700	1700	1700	489	1700	1700		
Volume to Capacity	1.07	0.29	0.83	0.11	0.40	0.40	0.20	0.02	0.46	0.25		
Queue Length 95th (ft)	152	29	125	10	0	0	0	1	0	0		
Control Delay (s)	213.3	30.6	108.3	16.3	0.0	0.0	0.0	0.6	0.0	0.0		
Lane LOS	F	D	F	C				A				
Approach Delay (s)	140.9		108.3	0.4				0.1				
Approach LOS	F		F									
Intersection Summary												
Average Delay			8.9									
Intersection Capacity Utilization			47.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	98	6	46	25	4	11	32	1525	9	39	1214	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.867			0.892			0.999			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1458	0	1597	1500	0	1597	4586	0	1597	4572	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1458	0	1597	1500	0	1597	4586	0	1597	4572	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	118	7	55	30	5	13	39	1837	11	47	1463	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	62	0	30	18	0	39	1848	0	47	1503	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.2% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

5: NW 100th Rd & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	98	6	46	25	4	11	32	1525	9	39	1214	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	118	7	55	30	5	13	39	1837	11	47	1463	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage veh								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2282	3502	507	2560	3516	618	1502			1848		
vC1, stage 1 conf vol	1577	1577		1920	1920							
vC2, stage 2 conf vol	705	1925		641	1596							
vCu, unblocked vol	2282	3502	507	2560	3516	618	1502			1848		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	76	89	29	88	97	90			83		
cM capacity (veh/h)	63	30	482	43	42	406	392			282		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	118	63	30	18	39	735	735	378	47	585	585	332
Volume Left	118	0	30	0	39	0	0	0	47	0	0	0
Volume Right	0	55	0	13	0	0	0	11	0	0	0	40
cSH	63	177	43	122	392	1700	1700	1700	282	1700	1700	1700
Volume to Capacity	1.87	0.35	0.71	0.15	0.10	0.43	0.43	0.22	0.17	0.34	0.34	0.20
Queue Length 95th (ft)	273	37	67	13	8	0	0	0	15	0	0	0
Control Delay (s)	553.6	36.0	199.8	39.7	15.2	0.0	0.0	0.0	20.3	0.0	0.0	0.0
Lane LOS	F	E	F	E	C				C			
Approach Delay (s)	374.1		139.8		0.3				0.6			
Approach LOS	F		F									
Intersection Summary												
Average Delay			20.7									
Intersection Capacity Utilization			51.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	50	75	93	44	97	88	1580	27	50	1049	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.910			0.939	0.850		0.997			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1530	0	1597	1500	1358	1597	4576	0	1597	3166	0
Flt Permitted	0.703			0.310			0.218			0.103		
Satd. Flow (perm)	1182	1530	0	521	1500	1358	367	4576	0	173	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			16	71		2			8	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	56	53	80	99	47	103	94	1681	29	53	1116	74
Shared Lane Traffic (%)						31%						
Lane Group Flow (vph)	56	133	0	99	79	71	94	1710	0	53	1190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	22.0	35.2	0.0	22.0	35.2	35.2	102.3	102.3	0.0	21.0	123.3	0.0
Total Split (%)	12.2%	19.5%	0.0%	12.2%	19.5%	19.5%	56.7%	56.7%	0.0%	11.6%	68.3%	0.0%
Maximum Green (s)	19.0	30.0		19.0	30.0	30.0	98.0	98.0		18.0	119.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	28.5	16.6		36.1	23.0	23.0	128.7	128.7		138.4	137.1	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.16	0.09		0.20	0.13	0.13	0.71	0.71		0.77	0.76	
v/c Ratio	0.27	0.77		0.52	0.39	0.30	0.36	0.52		0.28	0.49	
Control Delay	60.0	84.4		69.1	61.9	15.9	17.8	14.1		10.2	10.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	60.0	84.4		69.1	61.9	15.9	17.8	14.1		10.2	10.1	
LOS	E	F		E	E	B	B	B		B	B	
Approach Delay		77.2			51.6			14.3			10.1	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	56	115		101	73	0	42	330		14	261	
Queue Length 95th (ft)	93	189		150	130	53	108	472		34	400	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	275	284		218	263	285	262	3264		275	2406	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.47		0.45	0.30	0.25	0.36	0.52		0.19	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 Ø2	 Ø3	 Ø4
123.3 s	22 s	35.2 s
 Ø5	 Ø7	 Ø8
21 s	22 s	35.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

Alt 1 - Optimized Signal Timing (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	50	75	93	44	97	88	1580	27	50	1049	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Frt	1.00	0.91		1.00	0.94	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1530		1597	1500	1358	1597	4579		1597	3165	
Flt Permitted	0.70	1.00		0.31	1.00	1.00	0.22	1.00		0.10	1.00	
Satd. Flow (perm)	1182	1530		521	1500	1358	367	4579		173	3165	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	56	53	80	99	47	103	94	1681	29	53	1116	74
RTOR Reduction (vph)	0	33	0	0	14	62	0	1	0	0	2	0
Lane Group Flow (vph)	56	100	0	99	65	9	94	1709	0	53	1188	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	25.6	17.1		34.5	23.0	23.0	127.6	127.6		136.5	136.5	
Effective Green, g (s)	25.6	17.1		34.5	23.0	23.0	127.6	127.6		136.5	136.5	
Actuated g/C Ratio	0.14	0.09		0.19	0.13	0.13	0.71	0.71		0.76	0.76	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	187	145		185	191	173	259	3237		177	2393	
v/s Ratio Prot	0.01	c0.07		c0.04	0.04			c0.37		0.01	c0.38	
v/s Ratio Perm	0.03			0.06		0.01	0.26			0.22		
v/c Ratio	0.30	0.69		0.54	0.34	0.05	0.36	0.53		0.30	0.50	
Uniform Delay, d1	68.9	79.2		63.3	71.8	69.2	10.4	12.4		8.2	8.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	12.4		1.5	0.8	0.1	3.9	0.6		1.0	0.7	
Delay (s)	69.2	91.5		64.8	72.6	69.3	14.3	13.0		9.2	9.3	
Level of Service	E	F		E	E	E	B	B		A	A	
Approach Delay (s)		84.9			68.5			13.1			9.3	
Approach LOS		F			E			B			A	
Intersection Summary												
HCM Average Control Delay			19.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)			16.8			
Intersection Capacity Utilization			70.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

APPENDIX L

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	1164	140	216	808	11	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4517	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4517	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1323	159	245	918	13	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1482	0	245	918	12	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	25			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗				
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗				
Volume (veh/h)	1164	140	216	808	11	41				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				
Hourly flow rate (vph)	1323	159	245	918	12	47				
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)					681					
pX, platoon unblocked										
vC, conflicting volume			1482		2199		520			
vC1, stage 1 conf vol					1402					
vC2, stage 2 conf vol					797					
vCu, unblocked vol			1482		2199		520			
tC, single (s)			4.4		7.1		7.2			
tC, 2 stage (s)					6.1					
tF (s)			2.3		3.6		3.4			
p0 queue free %			39		84		90			
cM capacity (veh/h)			399		78		473			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	529	529	424	245	306	306	306	12	47	
Volume Left	0	0	0	245	0	0	0	12	0	
Volume Right	0	0	159	0	0	0	0	0	47	
cSH	1700	1700	1700	399	1700	1700	1700	78	473	
Volume to Capacity	0.31	0.31	0.25	0.61	0.18	0.18	0.18	0.16	0.10	
Queue Length 95th (ft)	0	0	0	99	0	0	0	13	8	
Control Delay (s)	0.0	0.0	0.0	27.4	0.0	0.0	0.0	59.6	13.4	
Lane LOS				D				F	B	
Approach Delay (s)	0.0			5.8				23.2		
Approach LOS								C		
Intersection Summary										
Average Delay			3.0							
Intersection Capacity Utilization			50.9%		ICU Level of Service				A	
Analysis Period (min)			15							

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘↙	↑↑↑	↘	↗↗
Volume (vph)	1115	91	335	942	85	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	200
Storage Lanes		0	2		1	1
Taper Length (ft)		25	80		25	100
Lane Util. Factor	0.91	0.91	0.97	0.91	1.00	0.88
Frt	0.989					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4540	0	3099	4590	1597	2515
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4540	0	3099	4590	1597	2515
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21					40
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1267	103	381	1070	97	567
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1370	0	381	1070	97	567
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			Prot			pm+ov
Protected Phases	6		5	2	4	5
Permitted Phases						4
Detector Phase	6		5	2	4	5
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	5.0
Minimum Split (s)	23.4		9.0	23.4	20.5	9.0
Total Split (s)	40.0	0.0	19.0	59.0	21.0	19.0
Total Split (%)	50.0%	0.0%	23.8%	73.8%	26.3%	23.8%
Maximum Green (s)	35.6		16.0	54.6	16.6	16.0
Yellow Time (s)	4.0		3.0	4.0	4.0	3.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	3.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	1.0		2.0	1.0	3.0	2.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	43.8		16.0	63.7	11.3	28.8
Actuated g/C Ratio	0.55		0.20	0.80	0.14	0.36
v/c Ratio	0.55		0.61	0.29	0.43	0.61
Control Delay	13.7		31.7	0.9	37.3	21.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	13.7		31.7	0.9	37.3	21.6
LOS	B		C	A	D	C
Approach Delay	13.7			9.0	23.9	
Approach LOS	B			A	C	
Queue Length 50th (ft)	156		94	5	46	115
Queue Length 95th (ft)	216		131	10	85	149
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			200
Base Capacity (vph)	2496		620	3655	331	931
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.55		0.61	0.29	0.29	0.61

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 20 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 52.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: NW 116th Way & NW 107th Ave

← ø2	↖ ø4
59 s	21 s
→ ø6	↘ ø5
40 s	19 s

HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘↙	↑↑↑	↘	↗↗
Volume (vph)	1115	91	335	942	85	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	3.0
Lane Util. Factor	0.91		0.97	0.91	1.00	0.88
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)	4538		3099	4590	1597	2515
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4538		3099	4590	1597	2515
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	1267	103	381	1070	97	567
RTOR Reduction (vph)	10	0	0	0	0	27
Lane Group Flow (vph)	1360	0	381	1070	97	540
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			Prot		pm+ov	
Protected Phases	6		5	2	4	5
Permitted Phases						4
Actuated Green, G (s)	42.9		16.0	61.9	9.3	25.3
Effective Green, g (s)	42.9		16.0	61.9	9.3	25.3
Actuated g/C Ratio	0.54		0.20	0.77	0.12	0.32
Clearance Time (s)	4.4		3.0	4.4	4.4	3.0
Vehicle Extension (s)	1.0		2.0	1.0	3.0	2.0
Lane Grp Cap (vph)	2434		620	3552	186	890
v/s Ratio Prot	c0.30		0.12	0.23	0.06	c0.12
v/s Ratio Perm						0.09
v/c Ratio	0.56		0.61	0.30	0.52	0.61
Uniform Delay, d1	12.3		29.2	2.7	33.3	23.1
Progression Factor	1.00		0.93	0.23	1.00	1.00
Incremental Delay, d2	0.9		1.2	0.2	2.6	0.8
Delay (s)	13.2		28.4	0.8	35.9	23.9
Level of Service	B		C	A	D	C
Approach Delay (s)	13.2			8.1	25.7	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			13.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	7.4
Intersection Capacity Utilization			52.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				 				  			  	
Volume (vph)	37	14	41	151	22	39	127	1100	370	65	1103	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.888			0.905			0.962			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1350	0	3099	1522	0	1597	4416	0	1597	4535	0
Flt Permitted	0.870			0.950			0.169			0.130		
Satd. Flow (perm)	1322	1350	0	3099	1522	0	284	4416	0	219	4535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			40			157			24	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	38	14	42	156	23	40	131	1134	381	67	1137	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	56	0	156	63	0	131	1515	0	67	1237	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			Prot			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8						6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	8.0	14.0	0.0	11.0	17.0	0.0	13.0	46.0	0.0	9.0	42.0	0.0
Total Split (%)	10.0%	17.5%	0.0%	13.8%	21.3%	0.0%	16.3%	57.5%	0.0%	11.3%	52.5%	0.0%
Maximum Green (s)	5.0	8.6		8.0	11.6		10.0	41.4		6.0	37.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)								8.0			8.0	

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	11.0	7.4		8.6	9.2		56.4	49.1		53.4	46.2	
Actuated g/C Ratio	0.14	0.09		0.11	0.12		0.70	0.61		0.67	0.58	
v/c Ratio	0.20	0.35		0.47	0.30		0.42	0.55		0.28	0.47	
Control Delay	26.2	21.3		39.0	19.7		10.0	6.8		7.8	11.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.2	21.3		39.0	19.7		10.0	6.8		7.8	11.6	
LOS	C	C		D	B		B	A		A	B	
Approach Delay		23.3			33.4			7.0			11.4	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)	15	7		38	10		19	87		10	134	
Queue Length 95th (ft)	37	40		68	44		m47	102		24	192	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	190	183		332	255		368	2769		252	2630	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.31		0.47	0.25		0.36	0.55		0.27	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 60 (75%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

			
ø1	ø2	ø3	ø4
13 s	42 s	8 s	17 s
			
ø5	ø6	ø7	ø8
9 s	46 s	11 s	14 s

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	14	41	151	22	39	127	1100	370	65	1103	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.89		1.00	0.90		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1349		3099	1521		1597	4417		1597	4535	
Flt Permitted	0.87	1.00		0.95	1.00		0.17	1.00		0.13	1.00	
Satd. Flow (perm)	1322	1349		3099	1521		284	4417		218	4535	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	38	14	42	156	23	40	131	1134	381	67	1137	100
RTOR Reduction (vph)	0	40	0	0	35	0	0	66	0	0	11	0
Lane Group Flow (vph)	38	16	0	156	28	0	131	1449	0	67	1226	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			Prot			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8						6			2		
Actuated Green, G (s)	7.6	4.6		8.6	10.2		53.0	46.2		48.6	44.0	
Effective Green, g (s)	7.6	4.6		8.6	10.2		53.0	46.2		48.6	44.0	
Actuated g/C Ratio	0.09	0.06		0.11	0.13		0.66	0.58		0.61	0.55	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	130	78		333	194		300	2551		212	2494	
v/s Ratio Prot	0.01	0.01		c0.05	0.02		c0.04	c0.33		0.02	0.27	
v/s Ratio Perm	c0.02						0.25			0.17		
v/c Ratio	0.29	0.21		0.47	0.14		0.44	0.57		0.32	0.49	
Uniform Delay, d1	33.6	36.0		33.6	31.0		5.9	10.6		7.0	11.1	
Progression Factor	1.00	1.00		1.00	1.00		1.45	0.64		1.00	1.00	
Incremental Delay, d2	0.5	1.0		0.4	0.3		0.3	0.8		0.3	0.7	
Delay (s)	34.1	36.9		33.9	31.3		8.9	7.6		7.3	11.8	
Level of Service	C	D		C	C		A	A		A	B	
Approach Delay (s)		35.8			33.2			7.7			11.6	
Approach LOS		D			C			A			B	
Intersection Summary												
HCM Average Control Delay			11.8			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			56.3%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (vph)	39	4	17	4	0	5	78	1066	7	13	11	1232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0		0	
Storage Lanes	1		1	0		0	1		0		1	
Taper Length (ft)	25		50	25		25	75		25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91
Frt		0.877			0.925			0.999				0.994
Flt Protected	0.950				0.978		0.950				0.950	
Satd. Flow (prot)	1597	1475	0	0	1521	0	1597	4586	0	0	1686	4563
Flt Permitted	0.950				0.978		0.950				0.950	
Satd. Flow (perm)	1597	1475	0	0	1521	0	1597	4586	0	0	1686	4563
Link Speed (mph)		35			35			35				35
Link Distance (ft)		729			295			921				930
Travel Time (s)		14.2			5.7			17.9				18.1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	2%	13%	13%
Adj. Flow (vph)	41	4	18	4	0	5	83	1134	7	14	12	1311
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	22	0	0	9	0	83	1141	0	0	26	1365
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		12			12			25				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 43.5% ICU Level of Service A

Analysis Period (min) 15



Lane Group	SWR
Lane Configurations	
Volume (vph)	51
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	0.91
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.94
Heavy Vehicles (%)	13%
Adj. Flow (vph)	54
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (veh/h)	39	4	17	4	0	5	78	1066	7	13	11	1232
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.94	0.94
Hourly flow rate (vph)	41	4	18	4	0	5	83	1134	7	0	12	1311
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised				None
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked										0.00		
vC, conflicting volume	1910	2669	464	1784	2692	382	1365			0	1141	
vC1, stage 1 conf vol	1361	1361		1304	1304							
vC2, stage 2 conf vol	549	1307		480	1388							
vCu, unblocked vol	1910	2669	464	1784	2692	382	1365			0	1141	
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			0.0	4.4	
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			0.0	2.3	
p0 queue free %	59	95	96	96	100	99	81			0	98	
cM capacity (veh/h)	102	85	516	98	64	586	445			0	548	
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4	
Volume Total	41	22	10	83	454	454	234	12	524	524	316	
Volume Left	41	0	4	83	0	0	0	12	0	0	0	
Volume Right	0	18	5	0	0	0	7	0	0	0	54	
cSH	102	263	182	445	1700	1700	1700	548	1700	1700	1700	
Volume to Capacity	0.41	0.08	0.05	0.19	0.27	0.27	0.14	0.02	0.31	0.31	0.19	
Queue Length 95th (ft)	42	7	4	17	0	0	0	2	0	0	0	
Control Delay (s)	62.6	19.9	25.9	14.9	0.0	0.0	0.0	11.7	0.0	0.0	0.0	
Lane LOS	F	C	D	B				B				
Approach Delay (s)	47.7		25.9	1.0				0.1				
Approach LOS	E		D									
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			43.5%		ICU Level of Service				A			
Analysis Period (min)			15									



Movement	SWR
Lane Configurations	
Volume (veh/h)	51
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	54
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	13	2	30	5	4	13	89	1054	28	90	1266	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.859			0.883			0.996			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1444	0	1597	1485	0	1597	4572	0	1597	4544	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1444	0	1597	1485	0	1597	4572	0	1597	4544	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	14	2	32	5	4	14	95	1121	30	96	1347	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	34	0	5	18	0	95	1151	0	96	1447	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 48.9% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 5: NW 100th Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)
Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	13	2	30	5	4	13	89	1054	28	90	1266	94
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	14	2	32	5	4	14	95	1121	30	96	1347	100
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage veh								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2167	2929	499	1999	2964	389	1447			1151		
vC1, stage 1 conf vol	1588	1588		1326	1326							
vC2, stage 2 conf vol	579	1340		673	1638							
vCu, unblocked vol	2167	2929	499	1999	2964	389	1447			1151		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	77	95	93	93	77	98	77			82		
cM capacity (veh/h)	60	39	489	75	18	580	413			544		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	14	34	5	18	95	449	449	254	96	539	539	369
Volume Left	14	0	5	0	95	0	0	0	96	0	0	0
Volume Right	0	32	0	14	0	0	0	30	0	0	0	100
cSH	60	285	75	70	413	1700	1700	1700	544	1700	1700	1700
Volume to Capacity	0.23	0.12	0.07	0.26	0.23	0.26	0.26	0.15	0.18	0.32	0.32	0.22
Queue Length 95th (ft)	20	10	6	23	22	0	0	0	16	0	0	0
Control Delay (s)	81.9	19.4	56.9	73.0	16.3	0.0	0.0	0.0	13.0	0.0	0.0	0.0
Lane LOS	F	C	F	F	C				B			
Approach Delay (s)	37.4		69.3		1.2				0.8			
Approach LOS	E		F									
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			48.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	41	59	44	40	40	35	87	954	55	193	1357	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.936			0.987	0.850		0.992			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1574	0	1597	1577	1358	1597	4554	0	1597	3156	0
Flt Permitted	0.726			0.453			0.156			0.240		
Satd. Flow (perm)	1221	1574	0	762	1577	1358	262	4554	0	404	3156	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			2	32		6			14	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	42	61	45	41	41	36	90	984	57	199	1399	126
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	42	106	0	41	45	32	90	1041	0	199	1525	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	16.0	28.2	0.0	16.0	28.2	28.2	79.3	79.3	0.0	57.0	136.3	0.0
Total Split (%)	8.9%	15.6%	0.0%	8.9%	15.6%	15.6%	43.9%	43.9%	0.0%	31.6%	75.5%	0.0%
Maximum Green (s)	13.0	23.0		13.0	23.0	23.0	75.0	75.0		54.0	132.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	24.8	15.2		25.0	15.2	15.2	132.2	132.2		147.2	145.9	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.14	0.08		0.14	0.08	0.08	0.73	0.73		0.82	0.81	
v/c Ratio	0.23	0.72		0.28	0.33	0.22	0.47	0.31		0.50	0.60	
Control Delay	65.4	92.4		67.2	79.0	23.8	23.3	9.8		8.8	8.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.4	92.4		67.2	79.0	23.8	23.3	9.8		8.8	8.6	
LOS	E	F		E	E	C	C	A		A	A	
Approach Delay		84.7			59.9			10.9			8.7	
Approach LOS		F			E			B			A	
Queue Length 50th (ft)	44	105		42	51	0	42	149		46	323	
Queue Length 95th (ft)	80	173		78	97	40	130	228		90	495	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	212	215		176	203	201	192	3337		686	2553	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.49		0.23	0.22	0.16	0.47	0.31		0.29	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 ø2	 ø3	 ø4
136.3 s	16 s	28.2 s
 ø5	 ø6	 ø7
57 s	79.3 s	16 s
		28.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	41	59	44	40	40	35	87	954	55	193	1357	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Flt Protected	1.00	0.94		1.00	0.99	0.85	1.00	0.99		1.00	0.99	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1574		1597	1576	1358	1597	4553		1597	3155	
Satd. Flow (perm)	1221	1574		761	1576	1358	262	4553		403	3155	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	42	61	45	41	41	36	90	984	57	199	1399	126
RTOR Reduction (vph)	0	16	0	0	2	29	0	2	0	0	3	0
Lane Group Flow (vph)	42	90	0	41	43	3	90	1039	0	199	1522	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	22.7	15.2		22.9	15.3	15.3	131.5	131.5		145.2	145.2	
Effective Green, g (s)	22.7	15.2		22.9	15.3	15.3	131.5	131.5		145.2	145.2	
Actuated g/C Ratio	0.13	0.08		0.13	0.08	0.08	0.73	0.73		0.80	0.80	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	169	133		132	134	115	191	3317		395	2538	
v/s Ratio Prot	0.01	c0.06		c0.01	0.03			0.23		0.03	c0.48	
v/s Ratio Perm	0.02			0.03		0.00	0.34			0.38		
v/c Ratio	0.25	0.68		0.31	0.32	0.02	0.47	0.31		0.50	0.60	
Uniform Delay, d1	70.8	80.3		70.7	77.7	75.7	10.1	8.6		4.7	6.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	11.8		0.5	1.0	0.1	8.1	0.2		1.0	1.1	
Delay (s)	71.1	92.1		71.2	78.7	75.8	18.2	8.9		5.7	7.7	
Level of Service	E	F		E	E	E	B	A		A	A	
Approach Delay (s)		86.2			75.3			9.6			7.5	
Approach LOS		F			E			A			A	
Intersection Summary												
HCM Average Control Delay			14.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)				12.5		
Intersection Capacity Utilization			73.5%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: NW 116th Way & NW 108th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗
Volume (vph)	986	21	57	1384	69	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	160		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	50		25	25
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4576	0	1597	4590	1597	1429
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4576	0	1597	4590	1597	1429
Link Speed (mph)	35			35	30	
Link Distance (ft)	918			681	1600	
Travel Time (s)	17.9			13.3	36.4	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1174	25	68	1648	82	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1199	0	68	1648	82	230
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			25	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: NW 116th Way & NW 108th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗				
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑↘		↙	↑↑↑	↙	↗				
Volume (veh/h)	986	21	57	1384	69	193				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				
Hourly flow rate (vph)	1174	25	68	1648	82	230				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None		Raised							
Median storage veh)			1							
Upstream signal (ft)			681							
pX, platoon unblocked					0.91					
vC, conflicting volume			1199		1871		404			
vC1, stage 1 conf vol					1186					
vC2, stage 2 conf vol					685					
vCu, unblocked vol			1199		1607		404			
tC, single (s)			4.4		7.1		7.2			
tC, 2 stage (s)					6.1					
tF (s)			2.3		3.6		3.4			
p0 queue free %			87		52		59			
cM capacity (veh/h)			520		173		566			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	470	470	260	68	549	549	549	82	230	
Volume Left	0	0	0	68	0	0	0	82	0	
Volume Right	0	0	25	0	0	0	0	0	230	
cSH	1700	1700	1700	520	1700	1700	1700	173	566	
Volume to Capacity	0.28	0.28	0.15	0.13	0.32	0.32	0.32	0.48	0.41	
Queue Length 95th (ft)	0	0	0	11	0	0	0	57	49	
Control Delay (s)	0.0	0.0	0.0	13.0	0.0	0.0	0.0	43.4	15.6	
Lane LOS				B				E	C	
Approach Delay (s)	0.0			0.5				22.9		
Approach LOS								C		
Intersection Summary										
Average Delay				2.5						
Intersection Capacity Utilization				38.1%		ICU Level of Service			A	
Analysis Period (min)				15						

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↙↘	↑↑↑	↙	↗↘
Volume (vph)	1031	141	547	1222	218	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	210
Storage Lanes		0	2		1	1
Taper Length (ft)		25	80		25	95
Lane Util. Factor	0.91	0.91	0.97	0.91	1.00	0.88
Frt	0.982					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4508	0	3099	4590	1597	2515
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4508	0	3099	4590	1597	2515
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	34					25
Link Speed (mph)	35			35	40	
Link Distance (ft)	681			926	1727	
Travel Time (s)	13.3			18.0	29.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	1133	155	601	1343	240	485
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1288	0	601	1343	240	485
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type			Prot			pm+ov
Protected Phases	6		5	2	4	5
Permitted Phases						4
Detector Phase	6		5	2	4	5
Switch Phase						
Minimum Initial (s)	8.0		5.0	8.0	10.0	5.0
Minimum Split (s)	23.4		9.0	23.4	20.5	9.0
Total Split (s)	33.0	0.0	24.0	57.0	23.0	24.0
Total Split (%)	41.3%	0.0%	30.0%	71.3%	28.8%	30.0%
Maximum Green (s)	28.6		21.0	52.6	18.6	21.0
Yellow Time (s)	4.0		3.0	4.0	4.0	3.0
All-Red Time (s)	0.4		0.0	0.4	0.4	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.0	3.0	4.4	4.4	3.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	1.0		2.0	1.0	3.0	2.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	8.0			8.0		

Lanes, Volumes, Timings
2: NW 116th Way & NW 107th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	8.0			8.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	31.3		21.0	55.3	15.9	41.3
Actuated g/C Ratio	0.39		0.26	0.69	0.20	0.52
v/c Ratio	0.72		0.74	0.42	0.76	0.37
Control Delay	23.5		25.9	1.7	45.5	11.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	23.5		25.9	1.7	45.5	11.4
LOS	C		C	A	D	B
Approach Delay	23.5			9.2	22.7	
Approach LOS	C			A	C	
Queue Length 50th (ft)	195		151	9	112	69
Queue Length 95th (ft)	257		210	14	185	100
Internal Link Dist (ft)	601			846	1647	
Turn Bay Length (ft)			250			210
Base Capacity (vph)	1784		813	3173	371	1311
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.72		0.74	0.42	0.65	0.37

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 51 (64%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 16.3

Intersection LOS: B

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: NW 116th Way & NW 107th Ave

← ø2	↖ ø4
57 s	23 s
→ ø6	↘ ø5
33 s	24 s

HCM Signalized Intersection Capacity Analysis

2: NW 116th Way & NW 107th Ave

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↙↘	↑↑↑	↙	↗↘
Volume (vph)	1031	141	547	1222	218	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		3.0	4.4	4.4	3.0
Lane Util. Factor	0.91		0.97	0.91	1.00	0.88
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4507		3099	4590	1597	2515
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4507		3099	4590	1597	2515
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1133	155	601	1343	240	485
RTOR Reduction (vph)	21	0	0	0	0	13
Lane Group Flow (vph)	1267	0	601	1343	240	472
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%
Turn Type			Prot		pm+ov	
Protected Phases	6		5	2	4	5
Permitted Phases						4
Actuated Green, G (s)	31.3		21.0	55.3	15.9	36.9
Effective Green, g (s)	31.3		21.0	55.3	15.9	36.9
Actuated g/C Ratio	0.39		0.26	0.69	0.20	0.46
Clearance Time (s)	4.4		3.0	4.4	4.4	3.0
Vehicle Extension (s)	1.0		2.0	1.0	3.0	2.0
Lane Grp Cap (vph)	1763		813	3173	317	1254
v/s Ratio Prot	c0.28		c0.19	0.29	c0.15	0.10
v/s Ratio Perm						0.09
v/c Ratio	0.72		0.74	0.42	0.76	0.38
Uniform Delay, d1	20.6		27.0	5.4	30.2	14.0
Progression Factor	1.00		0.76	0.23	1.00	1.00
Incremental Delay, d2	2.6		2.6	0.4	9.9	0.1
Delay (s)	23.2		23.1	1.6	40.1	14.1
Level of Service	C		C	A	D	B
Approach Delay (s)	23.2			8.2	22.7	
Approach LOS	C			A	C	
Intersection Summary						
HCM Average Control Delay			15.8		HCM Level of Service	B
HCM Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	11.8
Intersection Capacity Utilization			61.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	80	20	75	361	13	41	35	1247	125	31	1301	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	210		0	160		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	50		25	50		25	60		25	50		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.881			0.887			0.986			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1444	1339	0	3099	1491	0	1597	4526	0	1597	4572	0
Flt Permitted	0.720			0.950			0.129			0.122		
Satd. Flow (perm)	1094	1339	0	3099	1491	0	217	4526	0	205	4572	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			43			26			6	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		852			306			1390			921	
Travel Time (s)		16.6			6.0			27.1			17.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	84	21	79	380	14	43	37	1313	132	33	1369	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	100	0	380	57	0	37	1445	0	33	1408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			Prot			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8						6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	12.4		8.0	12.4		8.0	20.6		8.0	20.6	
Total Split (s)	10.0	16.0	0.0	17.0	23.0	0.0	8.0	39.0	0.0	8.0	39.0	0.0
Total Split (%)	12.5%	20.0%	0.0%	21.3%	28.8%	0.0%	10.0%	48.8%	0.0%	10.0%	48.8%	0.0%
Maximum Green (s)	7.0	10.6		14.0	17.6		5.0	34.4		5.0	34.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.4		0.0	1.4		0.0	0.6		0.0	0.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.4	4.0	3.0	5.4	4.0	3.0	4.6	4.0	3.0	4.6	4.0
Lead/Lag	Lag	Lead		Lag	Lead		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)								8.0			8.0	

Lanes, Volumes, Timings
3: NW 102nd Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Flash Dont Walk (s)								8.0			8.0	
Pedestrian Calls (#/hr)								0			0	
Act Effect Green (s)	21.9	8.0		13.2	7.6		50.1	43.5		50.1	43.5	
Actuated g/C Ratio	0.27	0.10		0.16	0.10		0.63	0.54		0.63	0.54	
v/c Ratio	0.23	0.49		0.74	0.32		0.17	0.58		0.15	0.57	
Control Delay	20.3	20.3		41.2	19.8		7.4	8.1		12.5	15.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.3	20.3		41.2	19.8		7.4	8.1		12.5	15.4	
LOS	C	C		D	B		A	A		B	B	
Approach Delay		20.3			38.4			8.1			15.3	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	29	10		92	7		2	169		6	186	
Queue Length 95th (ft)	58	53		139	40		m6	275		19	256	
Internal Link Dist (ft)		772			226			1310			841	
Turn Bay Length (ft)	100			100			210			160		
Base Capacity (vph)	373	246		556	362		222	2472		215	2487	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.41		0.68	0.16		0.17	0.58		0.15	0.57	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 24 (30%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 15.4

Intersection LOS: B

Intersection Capacity Utilization 54.4%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 3: NW 102nd Rd & NW 116th Way

 ø2	 ø1	 ø4	 ø3
39 s	8 s	23 s	10 s
 ø6	 ø5	 ø8	 ø7
39 s	8 s	16 s	17 s

HCM Signalized Intersection Capacity Analysis

3: NW 102nd Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	80	20	75	361	13	41	35	1247	125	31	1301	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.91		1.00	0.91	
Flt	1.00	0.88		1.00	0.89		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	1340		3099	1491		1597	4527		1597	4571	
Flt Permitted	0.72	1.00		0.95	1.00		0.13	1.00		0.12	1.00	
Satd. Flow (perm)	1094	1340		3099	1491		217	4527		205	4571	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	21	79	380	14	43	37	1313	132	33	1369	39
RTOR Reduction (vph)	0	72	0	0	40	0	0	13	0	0	3	0
Lane Group Flow (vph)	84	28	0	380	17	0	37	1432	0	33	1405	0
Heavy Vehicles (%)	25%	25%	25%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			Prot			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8						6			2		
Actuated Green, G (s)	20.8	6.6		13.8	6.2		43.6	40.6		43.6	40.6	
Effective Green, g (s)	20.8	6.6		13.8	6.2		43.6	40.6		43.6	40.6	
Actuated g/C Ratio	0.26	0.08		0.17	0.08		0.55	0.51		0.55	0.51	
Clearance Time (s)	3.0	5.4		3.0	5.4		3.0	4.6		3.0	4.6	
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.0	1.0		2.0	1.0	
Lane Grp Cap (vph)	347	111		535	116		170	2297		164	2320	
v/s Ratio Prot	0.04	c0.02		c0.12	0.01		c0.01	c0.32		0.01	0.31	
v/s Ratio Perm	0.02						0.11			0.10		
v/c Ratio	0.24	0.25		0.71	0.15		0.22	0.62		0.20	0.61	
Uniform Delay, d1	23.7	34.4		31.2	34.4		16.2	14.2		16.4	14.0	
Progression Factor	1.00	1.00		1.00	1.00		0.56	0.51		1.00	1.00	
Incremental Delay, d2	0.1	0.9		3.7	0.4		0.2	1.0		0.2	1.2	
Delay (s)	23.9	35.2		34.9	34.9		9.2	8.2		16.6	15.2	
Level of Service	C	D		C	C		A	A		B	B	
Approach Delay (s)		30.0			34.9			8.2			15.2	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM Average Control Delay			15.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			54.4%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
4: NW 101st Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations									  			  
Volume (vph)	70	12	34	29	21	32	33	1369	5	49	7	1269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	160		0		200	
Storage Lanes	1		1	0		0	1		0		1	
Taper Length (ft)	25		50	25		25	75		25		100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91
Frt		0.889			0.947			0.999				0.997
Flt Protected	0.950				0.983		0.950				0.950	
Satd. Flow (prot)	1597	1495	0	0	1565	0	1597	4586	0	0	1742	4576
Flt Permitted	0.950				0.983		0.950				0.950	
Satd. Flow (perm)	1597	1495	0	0	1565	0	1597	4586	0	0	1742	4576
Link Speed (mph)		35			35			35				35
Link Distance (ft)		729			295			921				930
Travel Time (s)		14.2			5.7			17.9				18.1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.92	0.81	0.81
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	2%	13%	13%
Adj. Flow (vph)	86	15	42	36	26	40	41	1690	6	53	9	1567
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	57	0	0	102	0	41	1696	0	0	62	1597
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		12			12			25				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.2% ICU Level of Service A

Analysis Period (min) 15



Lane Group	SWR
Lane Configurations	
Volume (vph)	24
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	0.91
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.81
Heavy Vehicles (%)	13%
Adj. Flow (vph)	30
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

4: NW 101st Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWU	SWL	SWT
Lane Configurations												
Volume (veh/h)	70	12	34	29	21	32	33	1369	5	49	7	1269
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.92	0.81	0.81
Hourly flow rate (vph)	86	15	42	36	26	40	41	1690	6	0	9	1567
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised				None
Median storage (veh)								1				
Upstream signal (ft)								921				
pX, platoon unblocked	0.84	0.84		0.84	0.84	0.84				0.00	0.84	
vC, conflicting volume	2296	3377	537	2364	3388	566	1596			0	1696	
vC1, stage 1 conf vol	1599	1599		1775	1775							
vC2, stage 2 conf vol	697	1778		589	1614							
vCu, unblocked vol	1866	3157	537	1946	3171	0	1596			0	1149	
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			0.0	4.4	
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			0.0	2.3	
p0 queue free %	0	79	91	60	57	96	89			0	98	
cM capacity (veh/h)	80	72	461	88	60	878	359			0	456	
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4	
Volume Total	86	57	101	41	676	676	344	9	627	627	343	
Volume Left	86	0	36	41	0	0	0	9	0	0	0	
Volume Right	0	42	40	0	0	0	6	0	0	0	30	
cSH	80	190	115	359	1700	1700	1700	456	1700	1700	1700	
Volume to Capacity	1.08	0.30	0.88	0.11	0.40	0.40	0.20	0.02	0.37	0.37	0.20	
Queue Length 95th (ft)	152	30	134	10	0	0	0	1	0	0	0	
Control Delay (s)	216.3	31.7	124.3	16.3	0.0	0.0	0.0	13.1	0.0	0.0	0.0	
Lane LOS	F	D	F	C				B				
Approach Delay (s)	143.1		124.3	0.4				0.1				
Approach LOS	F		F									
Intersection Summary												
Average Delay			9.4									
Intersection Capacity Utilization			51.2%		ICU Level of Service				A			
Analysis Period (min)			15									



Movement	SWR
Line Configurations	
Volume (veh/h)	24
Sign Control	
Grade	
Peak Hour Factor	0.81
Hourly flow rate (vph)	30
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings
5: NW 100th Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	49	6	95	25	4	11	32	1574	9	39	1214	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		150	170		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		50	25		50	100		25	70		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.859			0.892			0.999			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1444	0	1597	1500	0	1597	4586	0	1597	4572	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1597	1444	0	1597	1500	0	1597	4586	0	1597	4572	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1045			862			930			2032	
Travel Time (s)		20.4			16.8			18.1			39.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	59	7	114	30	5	13	39	1896	11	47	1463	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	121	0	30	18	0	39	1907	0	47	1503	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			25			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 48.5%

ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

5: NW 100th Rd & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	49	6	95	25	4	11	32	1574	9	39	1214	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	59	7	114	30	5	13	39	1896	11	47	1463	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			None	
Median storage (veh)								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2301	3561	507	2679	3575	638	1502			1907		
vC1, stage 1 conf vol	1577	1577		1979	1979							
vC2, stage 2 conf vol	725	1984		700	1596							
vCu, unblocked vol	2301	3561	507	2679	3575	638	1502			1907		
tC, single (s)	7.8	6.8	7.2	7.8	6.8	7.2	4.4			4.4		
tC, 2 stage (s)	6.8	5.8		6.8	5.8							
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	4	73	76	19	88	97	90			82		
cM capacity (veh/h)	62	27	482	37	40	394	392			267		
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	NE 3	NE 4	SW 1	SW 2	SW 3	SW 4
Volume Total	59	122	30	18	39	759	759	390	47	585	585	332
Volume Left	59	0	30	0	39	0	0	0	47	0	0	0
Volume Right	0	114	0	13	0	0	0	11	0	0	0	40
cSH	62	240	37	116	392	1700	1700	1700	267	1700	1700	1700
Volume to Capacity	0.96	0.51	0.81	0.16	0.10	0.45	0.45	0.23	0.18	0.34	0.34	0.20
Queue Length 95th (ft)	113	66	74	13	8	0	0	0	16	0	0	0
Control Delay (s)	212.0	34.5	251.0	41.5	15.2	0.0	0.0	0.0	21.3	0.0	0.0	0.0
Lane LOS	F	D	F	E	C				C			
Approach Delay (s)	92.5		172.5		0.3				0.6			
Approach LOS	F		F									
Intersection Summary												
Average Delay			7.1									
Intersection Capacity Utilization			48.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	50	75	93	44	97	88	1580	27	50	1049	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	135		125	230		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	50		75	60		50	100		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.910			0.939	0.850		0.997			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	1530	0	1597	1500	1358	1597	4576	0	1597	3166	0
Flt Permitted	0.703			0.310			0.218			0.103		
Satd. Flow (perm)	1182	1530	0	521	1500	1358	367	4576	0	173	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			16	71		2			8	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1139			1153			2032			607	
Travel Time (s)		22.2			22.5			39.6			11.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	56	53	80	99	47	103	94	1681	29	53	1116	74
Shared Lane Traffic (%)						31%						
Lane Group Flow (vph)	56	133	0	99	79	71	94	1710	0	53	1190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	3	8		7	4	4	6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	14.0	14.0		5.0	14.0	
Minimum Split (s)	8.0	12.2		8.0	12.2	12.2	18.3	18.3		8.0	18.3	
Total Split (s)	22.0	35.2	0.0	22.0	35.2	35.2	102.3	102.3	0.0	21.0	123.3	0.0
Total Split (%)	12.2%	19.5%	0.0%	12.2%	19.5%	19.5%	56.7%	56.7%	0.0%	11.6%	68.3%	0.0%
Maximum Green (s)	19.0	30.0		19.0	30.0	30.0	98.0	98.0		18.0	119.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	1.2		0.0	1.2	1.2	0.3	0.3		0.0	0.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	5.2	4.0	3.0	5.2	5.2	4.3	4.3	4.0	3.0	4.3	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effect Green (s)	28.5	16.6		36.1	23.0	23.0	128.7	128.7		138.4	137.1	

Lanes, Volumes, Timings
6: NW South River Dr & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.16	0.09		0.20	0.13	0.13	0.71	0.71		0.77	0.76	
v/c Ratio	0.27	0.77		0.52	0.39	0.30	0.36	0.52		0.28	0.49	
Control Delay	60.0	84.4		69.1	61.9	15.9	18.0	14.2		10.2	10.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	60.0	84.4		69.1	61.9	15.9	18.0	14.2		10.2	10.1	
LOS	E	F		E	E	B	B	B		B	B	
Approach Delay		77.2			51.6			14.4			10.1	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	56	115		101	73	0	42	331		14	261	
Queue Length 95th (ft)	93	189		150	130	53	109	478		34	400	
Internal Link Dist (ft)		1059			1073			1952			527	
Turn Bay Length (ft)				135		125	230					
Base Capacity (vph)	275	284		218	263	285	262	3264		275	2406	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.47		0.45	0.30	0.25	0.36	0.52		0.19	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 180.5

Actuated Cycle Length: 180.5

Offset: 171 (95%), Referenced to phase 2:SWTL and 6:NETL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: NW South River Dr & NW 116th Way

 Ø2	 Ø3	 Ø4
123.3 s	22 s	35.2 s
 Ø5	 Ø7	 Ø8
21 s	22 s	35.2 s

HCM Signalized Intersection Capacity Analysis

6: NW South River Dr & NW 116th Way

Alt 2 - Additional Turn Lanes (2030)

Timing Plan: PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	50	75	93	44	97	88	1580	27	50	1049	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Lane Util. Factor	1.00	1.00		1.00	0.95	0.95	1.00	0.91		1.00	0.95	
Frt	1.00	0.91		1.00	0.94	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1530		1597	1500	1358	1597	4579		1597	3165	
Flt Permitted	0.70	1.00		0.31	1.00	1.00	0.22	1.00		0.10	1.00	
Satd. Flow (perm)	1182	1530		521	1500	1358	367	4579		173	3165	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	56	53	80	99	47	103	94	1681	29	53	1116	74
RTOR Reduction (vph)	0	33	0	0	14	62	0	1	0	0	2	0
Lane Group Flow (vph)	56	100	0	99	65	9	94	1709	0	53	1188	0
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Turn Type	pm+pt			pm+pt		Perm	Perm			pm+pt		
Protected Phases	3	8		7	4			6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	25.6	17.1		34.5	23.0	23.0	127.6	127.6		136.5	136.5	
Effective Green, g (s)	25.6	17.1		34.5	23.0	23.0	127.6	127.6		136.5	136.5	
Actuated g/C Ratio	0.14	0.09		0.19	0.13	0.13	0.71	0.71		0.76	0.76	
Clearance Time (s)	3.0	5.2		3.0	5.2	5.2	4.3	4.3		3.0	4.3	
Vehicle Extension (s)	2.0	2.5		2.0	2.5	2.5	1.0	1.0		3.0	1.0	
Lane Grp Cap (vph)	187	145		185	191	173	259	3237		177	2393	
v/s Ratio Prot	0.01	c0.07		c0.04	0.04			c0.37		0.01	c0.38	
v/s Ratio Perm	0.03			0.06		0.01	0.26			0.22		
v/c Ratio	0.30	0.69		0.54	0.34	0.05	0.36	0.53		0.30	0.50	
Uniform Delay, d1	68.9	79.2		63.3	71.8	69.2	10.4	12.4		8.2	8.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.02	1.01		1.00	1.00	
Incremental Delay, d2	0.3	12.4		1.5	0.8	0.1	3.9	0.6		1.0	0.7	
Delay (s)	69.2	91.5		64.8	72.6	69.3	14.5	13.1		9.2	9.3	
Level of Service	E	F		E	E	E	B	B		A	A	
Approach Delay (s)		84.9			68.5			13.2			9.3	
Approach LOS		F			E			B			A	
Intersection Summary												
HCM Average Control Delay			19.7			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			180.5			Sum of lost time (s)			16.8			
Intersection Capacity Utilization			70.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												