

LINCOLN ROAD & COLLINS AVENUE
 MIAMI BEACH, FLORID
 COUNTED BY: D. GONZALEZ & I. GONZALEZ
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160136
 Start Date: 06/17/16
 File I.D. : LINC_COL
 Page : 1

ALL VEHICLES

COLLINS AVENUE From North					LINCOLN ROAD From East				COLLINS AVENUE From South				LINCOLN ROAD From West								
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total	
Date 06/17/16 -----																					
16:00	0	16	160	35		1	13	12	18		0	8	216	19		1	14	14	15		542
16:15	0	22	147	25		0	9	16	13		0	14	168	22		0	23	11	15		485
16:30	0	19	168	36		1	14	25	18		0	10	150	14		1	18	8	18		500
16:45	0	27	136	29		0	15	19	30		0	8	171	16		1	14	17	16		499
Hr Total	0	84	611	125		2	51	72	79		0	40	705	71		3	69	50	64		2026
17:00	0	25	134	26		0	27	23	33		0	6	178	21		0	24	13	23		533
17:15	0	15	160	32		0	14	20	16		0	5	181	11		0	16	10	14		494
17:30	0	13	161	23		0	11	13	26		0	5	177	19		0	19	11	7		485
17:45	0	33	153	32		0	10	14	21		0	9	162	16		1	20	18	11		500
Hr Total	0	86	608	113		0	62	70	96		0	25	698	67		1	79	52	55		2012
18:00	0	18	154	31		0	18	16	30		1	10	139	18		1	26	14	11		487
18:15	0	17	150	14		1	19	17	21		0	13	178	7		1	20	21	17		496
18:30	0	5	167	30		0	17	41	14		1	15	141	18		0	20	12	16		497
18:45	0	19	168	35		1	15	21	19		1	17	135	20		0	13	7	13		484
Hr Total	0	59	639	110		2	69	95	84		3	55	593	63		2	79	54	57		1964

TOTAL	0	229	1858	348		4	182	237	259		3	120	1996	201		6	227	156	176		6002

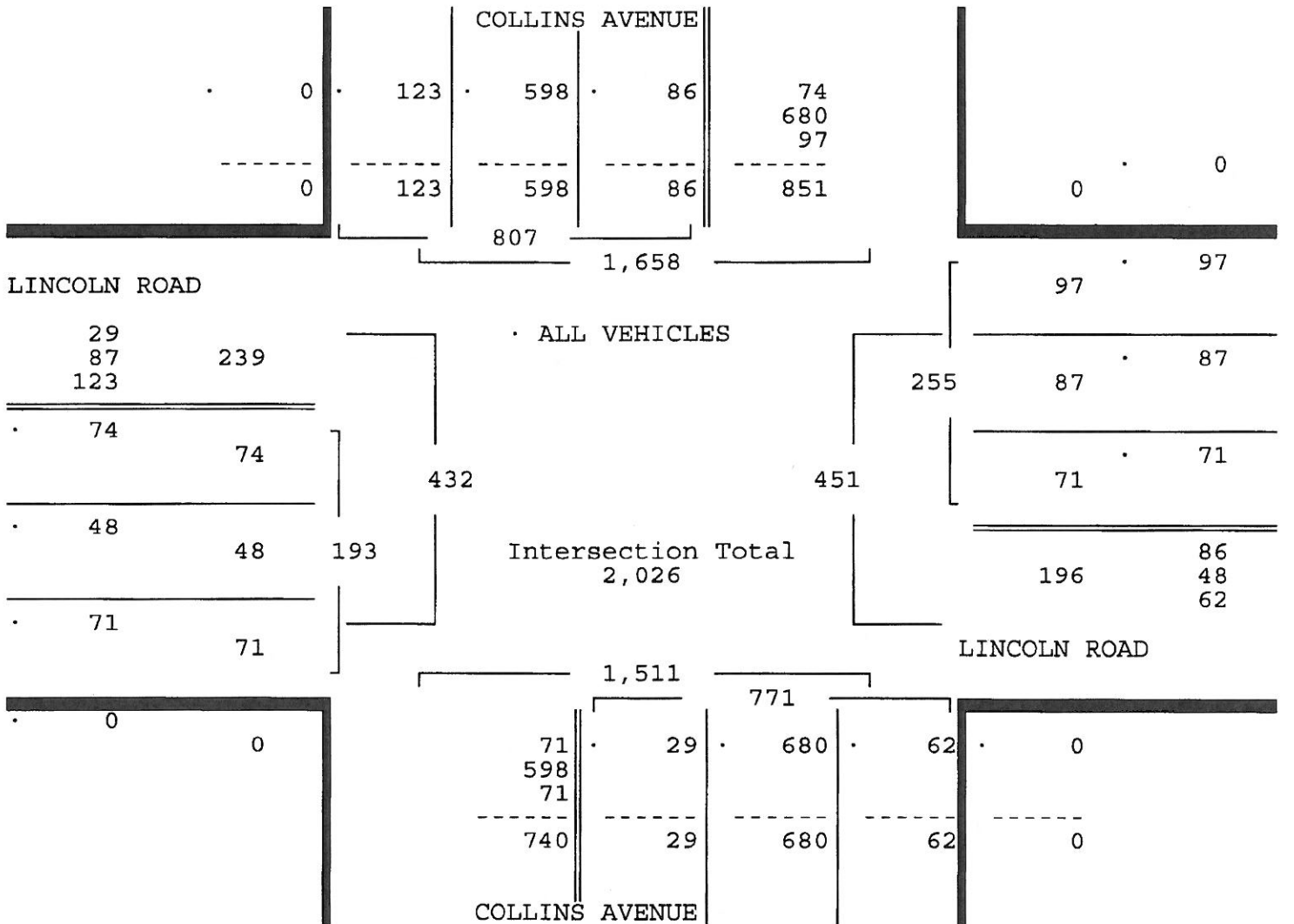
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ALL VEHICLES

COLLINS AVENUE					LINCOLN ROAD					COLLINS AVENUE					LINCOLN ROAD					
From North					From East					From South					From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 06/17/16 -----																				
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 19:00 on 06/17/16																				
Peak start 16:30					16:30					16:30					16:30					
Volume	0	86	598	123	1	70	87	97		0	29	680	62		2	72	48	71		
Percent	0%	11%	74%	15%	0%	27%	34%	38%		0%	4%	88%	8%		1%	37%	25%	37%		
Pk total	807				255					771					193					
Highest	16:30				17:00					17:00					17:00					
Volume	0	19	168	36	0	27	23	33		0	6	178	21		0	24	13	23		
Hi total	223				83					205					60					
PHF	.90				.77					.94					.80					



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PEDESTRIANS & BIKES

	COLLINS AVENUE From North				LINCOLN ROAD From East				COLLINS AVENUE From South				LINCOLN ROAD From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
Date 06/17/16																	
16:00	0	0	0	88	0	0	0	79	0	8	0	168	0	0	0	74	417
16:15	0	0	0	51	0	1	0	39	0	6	0	108	0	2	0	103	310
16:30	0	8	0	51	0	5	0	50	0	0	0	136	0	0	0	102	352
16:45	0	0	0	60	0	1	0	36	0	0	0	135	0	0	0	37	269
Hr Total	0	8	0	250	0	7	0	204	0	14	0	547	0	2	0	316	1348
17:00	0	0	0	52	0	1	0	39	0	2	0	98	0	0	0	38	230
17:15	0	0	0	48	0	1	0	20	0	0	0	106	0	1	0	98	274
17:30	0	0	0	42	0	0	0	27	0	0	0	90	0	0	0	91	250
17:45	0	0	0	27	0	0	0	20	0	0	0	59	0	0	0	70	176
Hr Total	0	0	0	169	0	2	0	106	0	2	0	353	0	1	0	297	930
18:00	0	0	0	25	0	0	0	19	0	0	0	97	0	0	0	67	208
18:15	0	0	0	31	0	0	0	36	0	0	0	65	0	0	0	43	175
18:30	0	1	0	66	0	0	0	57	0	0	0	107	0	0	0	50	281
18:45	0	0	0	30	0	0	0	28	0	0	0	115	0	0	0	22	195
Hr Total	0	1	0	152	0	0	0	140	0	0	0	384	0	0	0	182	859
TOTAL	0	9	0	571	0	9	0	450	0	16	0	1284	0	3	0	795	3137

LINCOLN ROAD & JAMES AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ROLANDO MARTINEZ
 NOT SIGNALIZED

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 85 SE 4th Avenue, Unit 109
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Site Code : 00160136
 Start Date: 06/17/16
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 Page : 1

ALL VEHICLES

JAMES AVENUE From North					LINCOLN ROAD From East				----- From South				LINCOLN ROAD From West								
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total	
Date 06/17/16 -----																					
16:00	0	9	0	22		2	0	41	14		0	0	0	0		3	12	36	0		139
16:15	0	10	0	19		9	0	38	13		0	0	0	0		1	7	36	0		133
16:30	0	10	0	11		4	0	48	16		0	0	0	0		0	10	31	0		130
16:45	0	12	0	18		6	0	43	14		0	0	0	0		5	6	33	0		137
Hr Total	0	41	0	70		21	0	170	57		0	0	0	0		9	35	136	0		539
17:00	0	10	0	17		2	0	50	8		0	0	0	0		3	7	43	0		140
17:15	0	3	0	21		2	0	44	18		0	0	0	0		1	11	41	0		141
17:30	0	4	0	13		1	0	39	5		0	0	0	0		6	13	45	0		126
17:45	0	10	0	10		0	0	43	18		0	0	0	0		4	7	42	0		134
Hr Total	0	27	0	61		5	0	176	49		0	0	0	0		14	38	171	0		541
18:00	4	14	0	17		3	0	46	13		0	0	0	0		1	9	42	0		149
18:15	0	12	0	22		2	0	43	13		0	0	0	0		3	6	41	0		142
18:30	0	10	0	13		3	0	49	8		0	0	0	0		5	3	44	0		135
18:45	0	13	0	12		2	0	51	18		0	0	0	0		1	0	27	0		124
Hr Total	4	49	0	64		10	0	189	52		0	0	0	0		10	18	154	0		550

TOTAL	4	117	0	195		36	0	535	158		0	0	0	0		33	91	461	0		1630

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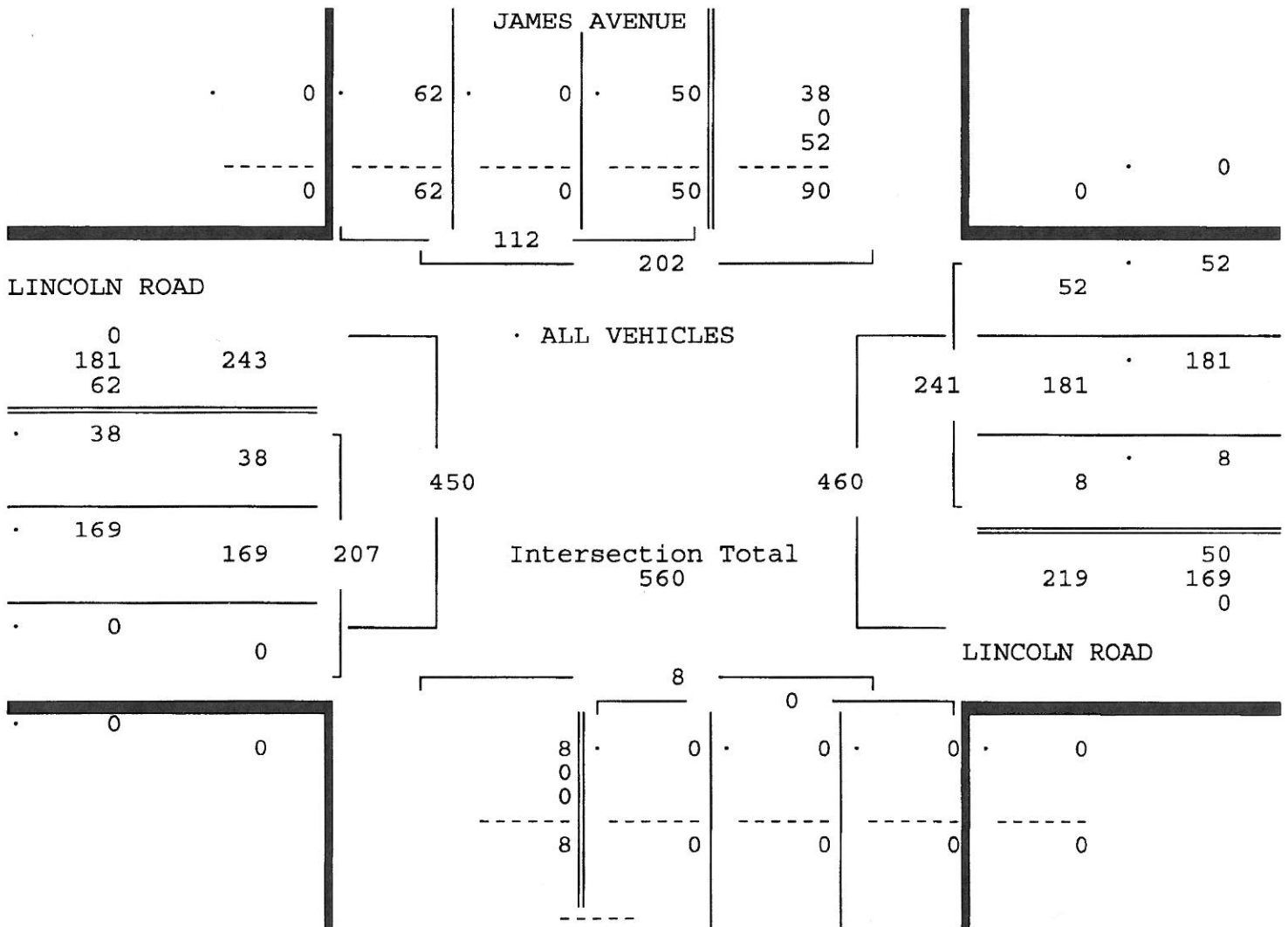
ALL VEHICLES

JAMES AVENUE From North				LINCOLN ROAD From East				----- From South				LINCOLN ROAD From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 06/17/16

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 19:00 on 06/17/16

Peak start 17:45					17:45					17:45					17:45					
Volume	4	46	0	62	8	0	181	52	0	0	0	0	13	25	169	0				
Percent	4%	41%	0%	55%	3%	0%	75%	22%	0%	0%	0%	0%	6%	12%	82%	0%				
Pk total	112					241					0					207				
Highest	18:00					18:00					16:00					17:45				
Volume	4	14	0	17	3	0	46	13	0	0	0	0	4	7	42	0				
Hi total	35					62					0					53				
PHF	.80					.97					.0					.98				



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PEDESTRIANS & BIKES

JAMES AVENUE					LINCOLN ROAD					-----					LINCOLN ROAD					
From North					From East					From South					From West					
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total			
Date 06/17/16																				
16:00	0	11	0	212	0	1	0	22	0	2	0	0	0	0	7	0	22	277		
16:15	0	6	0	222	0	2	0	26	0	3	0	0	0	2	0	0	46	307		
16:30	0	3	0	165	0	2	0	18	0	3	0	0	0	1	0	0	32	224		
16:45	0	5	0	141	0	0	0	21	0	0	0	0	0	8	0	0	36	211		
Hr Total	0	25	0	740	0	5	0	87	0	8	0	0	0	0	18	0	136	1019		
17:00	0	9	0	138	0	3	0	25	0	1	0	0	0	0	1	0	40	217		
17:15	0	3	0	176	0	2	0	27	0	0	0	0	0	0	0	0	52	260		
17:30	0	0	0	176	0	1	0	27	0	2	0	0	0	2	0	0	49	257		
17:45	0	5	0	172	0	1	0	19	0	1	0	0	0	2	0	0	45	245		
Hr Total	0	17	0	662	0	7	0	98	0	4	0	0	0	0	5	0	186	979		
18:00	0	5	0	195	0	0	0	17	0	0	0	0	0	0	0	0	51	268		
18:15	0	1	0	184	0	3	0	28	0	2	0	0	0	0	1	0	53	272		
18:30	0	1	0	201	0	0	0	64	0	5	0	0	0	0	1	0	50	322		
18:45	0	12	0	182	0	0	0	33	0	1	0	0	0	0	1	0	48	277		
Hr Total	0	19	0	762	0	3	0	142	0	8	0	0	0	0	3	0	202	1139		
TOTAL	0	61	0	2164	0	15	0	327	0	20	0	0	0	0	26	0	524	3137		

17TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: SEBASTIAN SALVO
 SIGNALIZED

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 Phone (561) 272-3255

Site Code : 00160136
 Start Date: 06/17/16
 File I.D. : 17ST_A1A
 Page : 1

ALL VEHICLES

COLLINS AVENUE From North					17TH STREET From East				COLLINS AVENUE From South				17TH STREET From West								
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total	
Date 06/17/16 -----																					
16:00	0	7	159	49		0	7	11	9		0	16	196	6		0	38	13	28		539
16:15	0	9	180	36		0	11	15	9		0	17	170	9		0	33	6	31		526
16:30	0	12	179	33		0	8	19	12		0	21	152	8		0	35	7	22		508
16:45	0	3	192	37		0	15	11	8		0	21	187	6		0	38	13	27		558
Hr Total	0	31	710	155		0	41	56	38		0	75	705	29		0	144	39	108		2131
17:00	0	10	169	42		0	11	8	8		0	27	168	5		0	23	10	28		509
17:15	0	7	158	54		0	7	12	10		0	22	188	7		0	37	8	21		531
17:30	0	6	170	28		0	7	5	8		0	15	172	10		1	48	4	15		489
17:45	0	8	177	44		0	7	16	6		1	14	148	5		1	37	13	34		511
Hr Total	0	31	674	168		0	32	41	32		1	78	676	27		2	145	35	98		2040
18:00	0	3	194	42		0	9	10	10		0	29	174	10		1	34	6	17		539
18:15	1	3	172	44		0	4	11	10		0	16	162	7		0	48	8	31		517
18:30	0	7	197	44		0	8	9	9		0	15	187	5		0	33	5	14		533
18:45	1	8	190	31		0	5	9	14		0	17	155	3		0	32	17	25		507
Hr Total	2	21	753	161		0	26	39	43		0	77	678	25		1	147	36	87		2096

TOTAL	2	83	2137	484		0	99	136	113		1	230	2059	81		3	436	110	293		6267

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Page : 2

COLLINS AVENUE					17TH STREET				COLLINS AVENUE				17TH STREET						
From North					From East				From South				From West						
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	Total
Date 06/17/16 -----																			
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 19:00 on 06/17/16																			
Peak start 16:00					16:00				16:00				16:00						
Volume	0	31	710	155	0	41	56	38		0	75	705	29		0	144	39	108	
Percent	0%	3%	79%	17%	0%	30%	41%	28%		0%	9%	87%	4%		0%	49%	13%	37%	
Pk total	896				135					809					291				
Highest	16:45				16:30					16:00					16:00				
Volume	0	3	192	37	0	8	19	12		0	16	196	6		0	38	13	28	
Hi total	232				39					218					79				
PHF	.97				.87					.93					.92				

		COLLINS AVENUE			
0	155	710	31	144	
				705	
				38	
0	155	710	31	887	0
		896			
17TH STREET		1,783			
75	286	ALL VEHICLES		38	38
56					
155				56	56
144	144	577	234	41	41
39	39	Intersection Total		99	31
108	108	2,131			39
		1,668			29
		809		17TH STREET	
		41	75	705	29
		710			
		108			
		859	75	705	29
		COLLINS AVENUE			

17TH STREET & COLLINS AVENUE
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PEDESTRIANS & BIKES

COLLINS AVENUE From North					17TH STREET From East				COLLINS AVENUE From South				17TH STREET From West								
Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds	Total		
Date 06/17/16 -----																					
16:00	0	0	0	22		0	4	0	79		0	1	0	33		0	6	0	85		230
16:15	0	0	0	31		0	9	0	66		0	1	0	20		0	6	0	85		218
16:30	0	5	0	21		0	0	0	55		0	1	0	9		0	0	0	61		152
16:45	0	1	0	22		0	0	0	35		0	1	0	14		0	0	0	44		117
Hr Total	0	6	0	96		0	13	0	235		0	4	0	76		0	12	0	275		717
17:00	0	1	0	13		0	1	0	43		0	0	0	14		0	4	0	53		129
17:15	0	2	0	18		0	1	0	35		0	0	0	5		0	1	0	46		108
17:30	0	3	0	21		0	0	0	32		0	0	0	21		0	0	0	48		125
17:45	0	0	0	14		0	0	0	30		0	0	0	3		0	3	0	59		109
Hr Total	0	6	0	66		0	2	0	140		0	0	0	43		0	8	0	206		471
18:00	0	0	0	18		0	0	0	69		0	0	0	16		0	1	0	96		200
18:15	0	0	0	13		0	3	0	54		0	0	0	15		0	2	0	62		149
18:30	0	3	0	16		0	3	0	43		0	0	0	4		0	0	0	60		129
18:45	0	0	0	8		0	0	0	55		0	0	0	37		0	6	0	58		164
Hr Total	0	3	0	55		0	6	0	221		0	0	0	72		0	9	0	276		642

TOTAL	0	15	0	217		0	21	0	596		0	4	0	191		0	29	0	757		1830

17TH STREET & JAMES AVENUE
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ALL VEHICLES

JAMES AVENUE From North					17TH STREET From East				JAMES AVENUE From South				17TH STREET From West								
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total	
Date 06/17/16 -----																					
16:00	0	4	10	17		0	7	56	10		0	13	9	10		0	10	72	20		238
16:15	0	2	19	21		0	5	54	11		0	10	8	6		0	9	67	17		229
16:30	0	8	7	10		0	8	73	2		0	14	5	6		0	14	56	20		223
16:45	0	4	11	21		0	7	64	3		0	11	8	5		0	7	58	19		218
Hr Total	0	18	47	69		0	27	247	26		0	48	30	27		0	40	253	76		908
17:00	1	6	13	25		0	7	79	8		0	6	5	12		0	5	49	10		226
17:15	0	3	10	24		0	6	75	2		0	9	7	9		0	13	57	8		223
17:30	0	2	9	20		0	2	48	6		0	8	5	16		0	6	54	12		188
17:45	0	4	13	19		0	5	56	6		0	11	11	11		1	8	73	7		225
Hr Total	1	15	45	88		0	20	258	22		0	34	28	48		1	32	233	37		862
18:00	0	3	17	18		0	9	68	6		0	11	8	10		0	11	46	18		225
18:15	0	5	19	16		0	7	58	11		0	10	9	1		0	14	84	14		248
18:30	0	2	8	25		0	6	59	10		0	6	6	3		2	11	61	11		210
18:45	0	1	8	15		0	8	50	3		0	3	8	11		0	14	58	15		194
Hr Total	0	11	52	74		0	30	235	30		0	30	31	25		2	50	249	58		877

TOTAL	1	44	144	231		0	77	740	78		0	112	89	100		3	122	735	171		2647

17TH STREET & JAMES AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: RICHARD MENDEZ
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160136
 Start Date: 06/17/16
 File I.D. : 17STJAME
 Page : 2

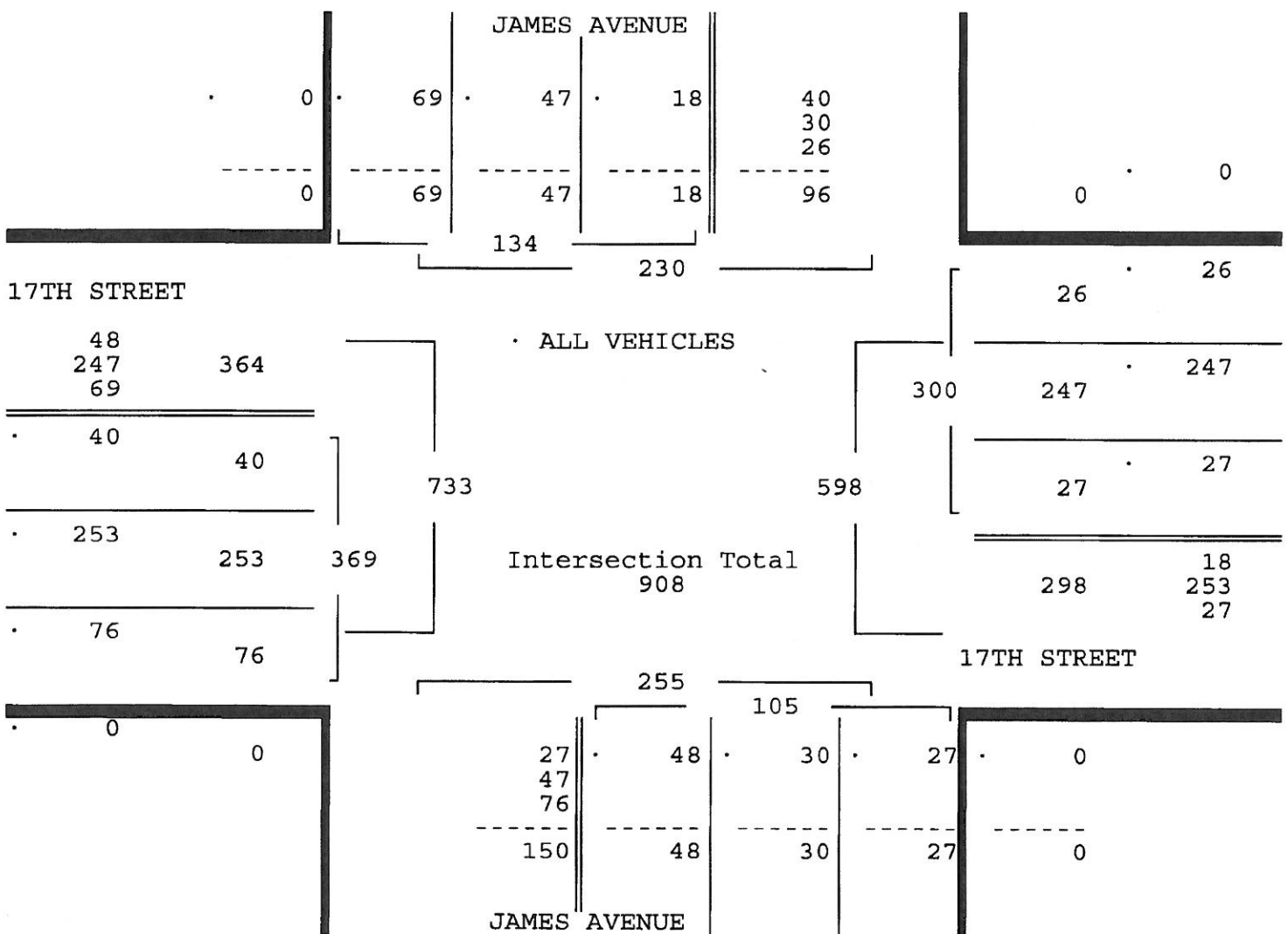
ALL VEHICLES

JAMES AVENUE From North				17TH STREET From East				JAMES AVENUE From South				17TH STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 06/17/16

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 19:00 on 06/17/16

Peak start 16:00					16:00				16:00				16:00			
Volume	0	18	47	69	0	27	247	26	0	48	30	27	0	40	253	76
Percent	0%	13%	35%	51%	0%	9%	82%	9%	0%	46%	29%	26%	0%	11%	69%	21%
Pk total	134					300					105					369
Highest	16:15					16:30					16:00					16:00
Volume	0	2	19	21	0	8	73	2	0	13	9	10	0	10	72	20
Hi total	42					83					32					102
PHF	.80					.90					.82					.90



17TH STREET & JAMES AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: RICHARD MENDEZ
 SIGNALIZED

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PEDESTRIANS & BIKES

JAMES AVENUE From North					17TH STREET From East				JAMES AVENUE From South				17TH STREET From West						
Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds	Total
Date 06/17/16																			
16:00	0	2	0	28	0	4	0	4	0	1	0	19	0	5	0	13			76
16:15	0	2	0	18	0	2	0	13	0	4	0	29	0	0	0	16			84
16:30	0	1	0	15	0	0	0	15	0	1	0	19	0	0	0	15			66
16:45	0	7	0	29	0	0	0	13	0	0	0	19	0	0	0	14			82
Hr Total	0	12	0	90	0	6	0	45	0	6	0	86	0	5	0	58			308
17:00	0	2	0	18	0	2	0	11	0	0	0	15	0	0	0	17			65
17:15	0	3	0	12	0	1	0	6	0	0	0	9	0	0	0	13			44
17:30	0	4	0	40	0	0	0	24	0	0	0	27	0	1	0	20			116
17:45	0	0	0	37	0	0	0	19	0	0	0	25	0	0	0	10			91
Hr Total	0	9	0	107	0	3	0	60	0	0	0	76	0	1	0	60			316
18:00	0	1	0	16	0	0	0	14	0	1	0	19	0	0	0	9			60
18:15	0	0	0	11	0	1	0	14	0	1	0	28	0	1	0	12			68
18:30	0	0	0	13	0	1	0	15	0	0	0	19	0	1	0	6			55
18:45	0	1	0	17	0	0	0	20	0	0	0	23	0	1	0	9			71
Hr Total	0	2	0	57	0	2	0	63	0	2	0	89	0	3	0	36			254
TOTAL	0	23	0	254	0	11	0	168	0	8	0	251	0	9	0	154			878

APPENDIX D

Peak Season Conversion Factors, Historical Traffic Data, and Committed Developments

2014 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 8700 MIAMI-DADE NORTH

WEEK	DATES	SF	MOCF: 0.97 PSCF
1	01/01/2014 - 01/04/2014	1.03	1.06
2	01/05/2014 - 01/11/2014	1.03	1.06
3	01/12/2014 - 01/18/2014	1.03	1.06
4	01/19/2014 - 01/25/2014	1.02	1.05
5	01/26/2014 - 02/01/2014	1.01	1.04
6	02/02/2014 - 02/08/2014	0.99	1.02
* 7	02/09/2014 - 02/15/2014	0.98	1.01
* 8	02/16/2014 - 02/22/2014	0.97	1.00
* 9	02/23/2014 - 03/01/2014	0.97	1.00
*10	03/02/2014 - 03/08/2014	0.97	1.00
*11	03/09/2014 - 03/15/2014	0.97	1.00
*12	03/16/2014 - 03/22/2014	0.97	1.00
*13	03/23/2014 - 03/29/2014	0.97	1.00
*14	03/30/2014 - 04/05/2014	0.97	1.00
*15	04/06/2014 - 04/12/2014	0.97	1.00
*16	04/13/2014 - 04/19/2014	0.97	1.00
*17	04/20/2014 - 04/26/2014	0.98	1.01
*18	04/27/2014 - 05/03/2014	0.98	1.01
*19	05/04/2014 - 05/10/2014	0.99	1.02
20	05/11/2014 - 05/17/2014	0.99	1.02
21	05/18/2014 - 05/24/2014	1.00	1.03
22	05/25/2014 - 05/31/2014	1.00	1.03
23	06/01/2014 - 06/07/2014	1.00	1.03
24	06/08/2014 - 06/14/2014	1.01	1.04
25	06/15/2014 - 06/21/2014	1.01	1.04
26	06/22/2014 - 06/28/2014	1.02	1.05
27	06/29/2014 - 07/05/2014	1.02	1.05
28	07/06/2014 - 07/12/2014	1.03	1.06
29	07/13/2014 - 07/19/2014	1.04	1.07
30	07/20/2014 - 07/26/2014	1.03	1.06
31	07/27/2014 - 08/02/2014	1.03	1.06
32	08/03/2014 - 08/09/2014	1.02	1.05
33	08/10/2014 - 08/16/2014	1.02	1.05
34	08/17/2014 - 08/23/2014	1.01	1.04
35	08/24/2014 - 08/30/2014	1.01	1.04
36	08/31/2014 - 09/06/2014	1.01	1.04
37	09/07/2014 - 09/13/2014	1.02	1.05
38	09/14/2014 - 09/20/2014	1.02	1.05
39	09/21/2014 - 09/27/2014	1.01	1.04
40	09/28/2014 - 10/04/2014	1.01	1.04
41	10/05/2014 - 10/11/2014	1.00	1.03
42	10/12/2014 - 10/18/2014	0.99	1.02
43	10/19/2014 - 10/25/2014	1.01	1.04
44	10/26/2014 - 11/01/2014	1.03	1.06
45	11/02/2014 - 11/08/2014	1.05	1.08
46	11/09/2014 - 11/15/2014	1.07	1.10
47	11/16/2014 - 11/22/2014	1.09	1.12
48	11/23/2014 - 11/29/2014	1.08	1.11
49	11/30/2014 - 12/06/2014	1.06	1.09
50	12/07/2014 - 12/13/2014	1.05	1.08
51	12/14/2014 - 12/20/2014	1.03	1.06
52	12/21/2014 - 12/27/2014	1.03	1.06
53	12/28/2014 - 12/31/2014	1.03	1.06

* PEAK SEASON

09-MAR-2015 16:07:55

830UPD

6_8700_PKSEASON.TXT

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2015 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 8531 - 17TH ST, 200' EAST OF MERIDIAN AVE (2011 OFF SYSTEM CYCLE)

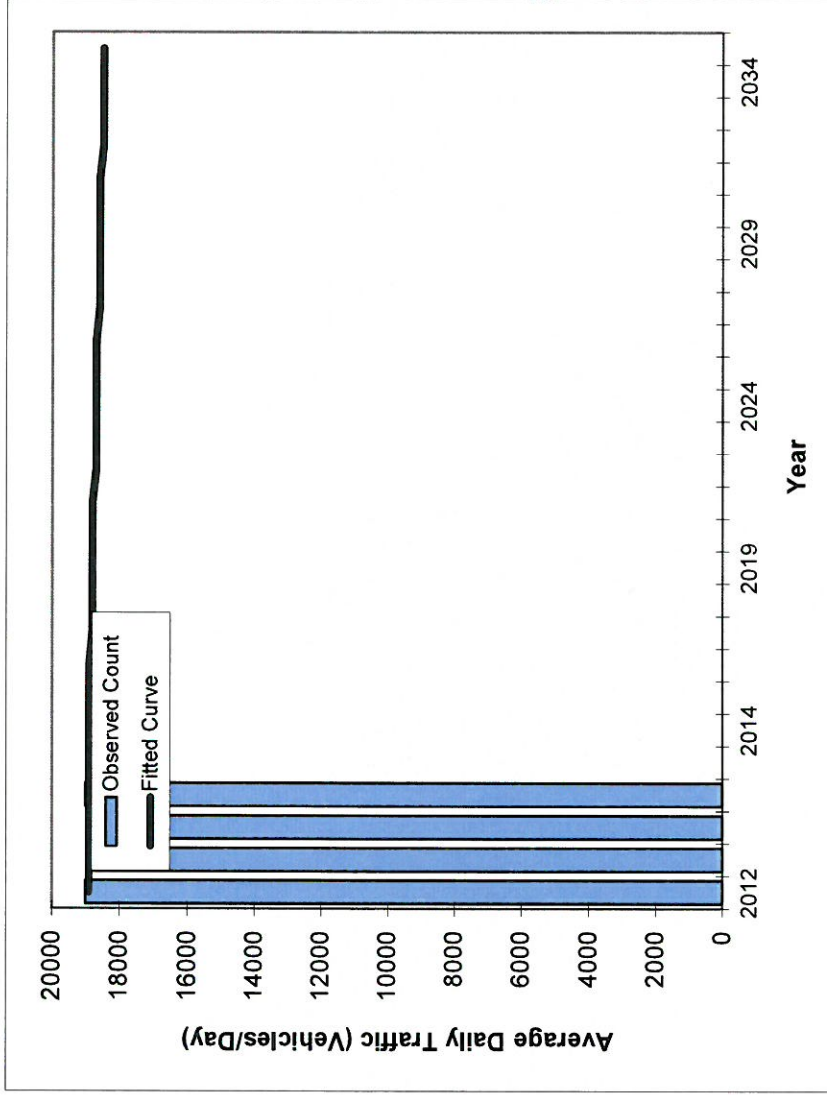
YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2015	19000 C	E 8500	W 10500	9.00	57.40	7.10
2014	18700 S	E 9600	W 9100	9.00	59.30	10.70
2013	18900 F	E 9700	W 9200	9.00	58.90	16.20
2012	19000 C	E 9800	W 9200	9.00	59.70	16.00

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; F = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V2.0 17TH ST --, 200' EAST OF MERIDIAN AVE

PIN#	0	2
Location		

County:	Miami-Dade
Station #:	8531
Highway:	17TH ST



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2012	19000	18900
2013	18900	18900
2014	18700	18900
2015	19000	18900
2016 Opening Year Trend		
2016	N/A	18900
2017 Mid-Year Trend		
2017	N/A	18800
2018 Design Year Trend		
2018	N/A	18800
TRANPLAN Forecasts/Trends		

*Axle-Adjusted

** Annual Trend Increase:	-20
Trend R-squared:	3.33%
Trend Annual Historic Growth Rate:	0.00%
Trend Growth Rate (2014 to Design Year):	-0.13%
Printed:	28-Jun-16
Straight Line Growth Option	

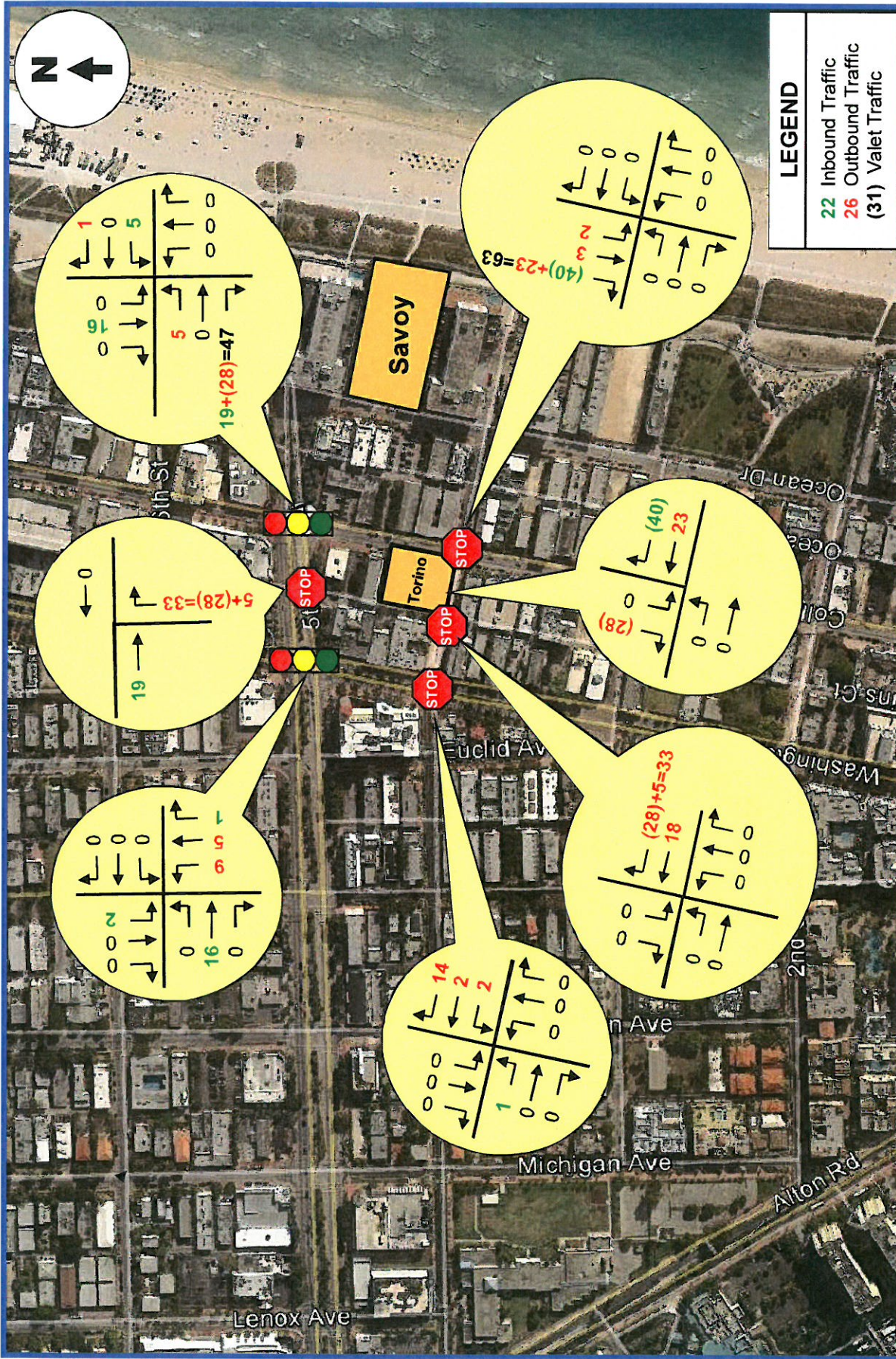


FIGURE 4
 Torino at 400 Collins Avenue
 Miami Beach, Florida

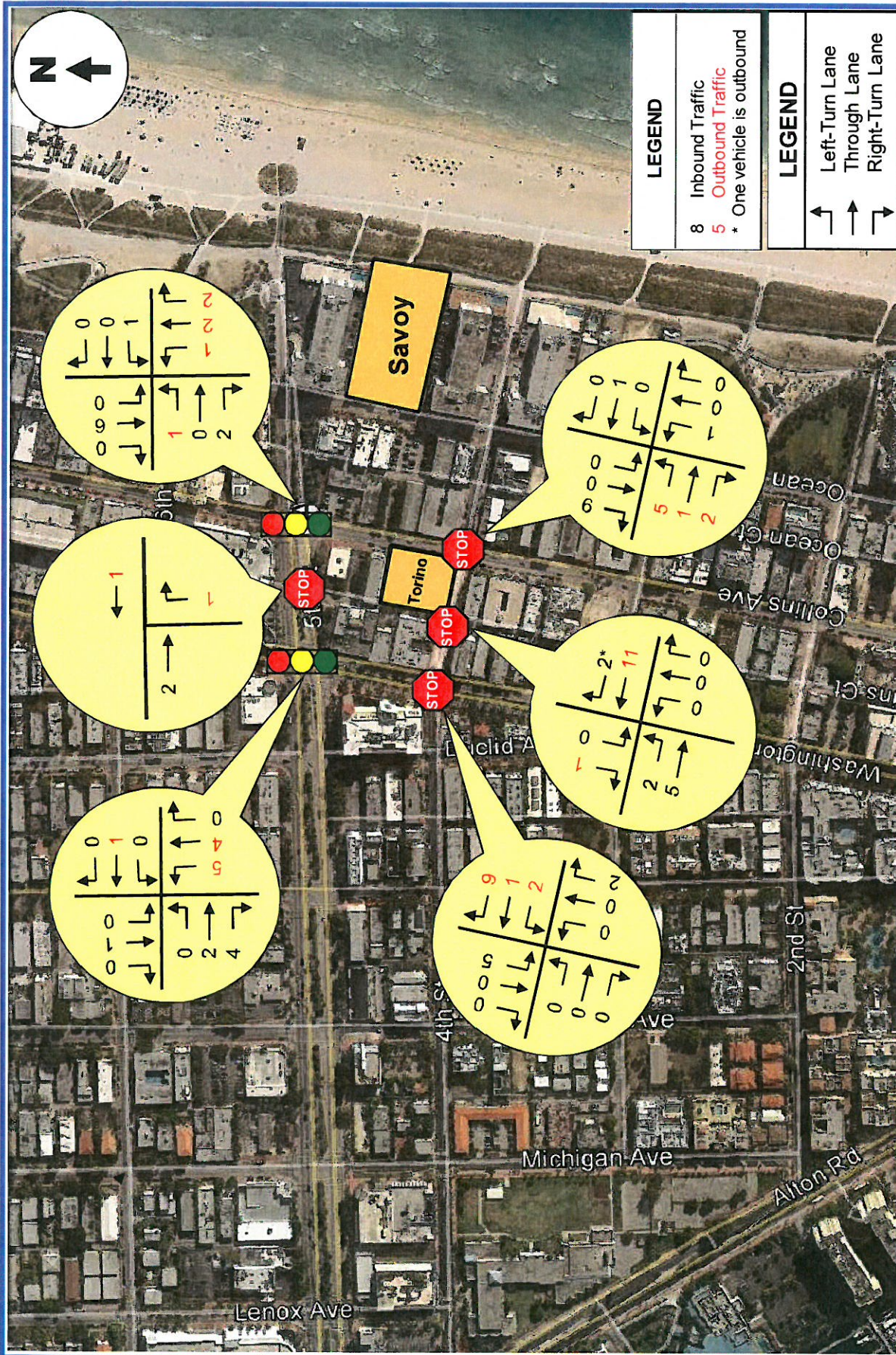


FIGURE 4A
Torino at 400 Collins Avenue
Miami Beach, Florida

New PM Peak Hour Project (Torino) Trip Distribution

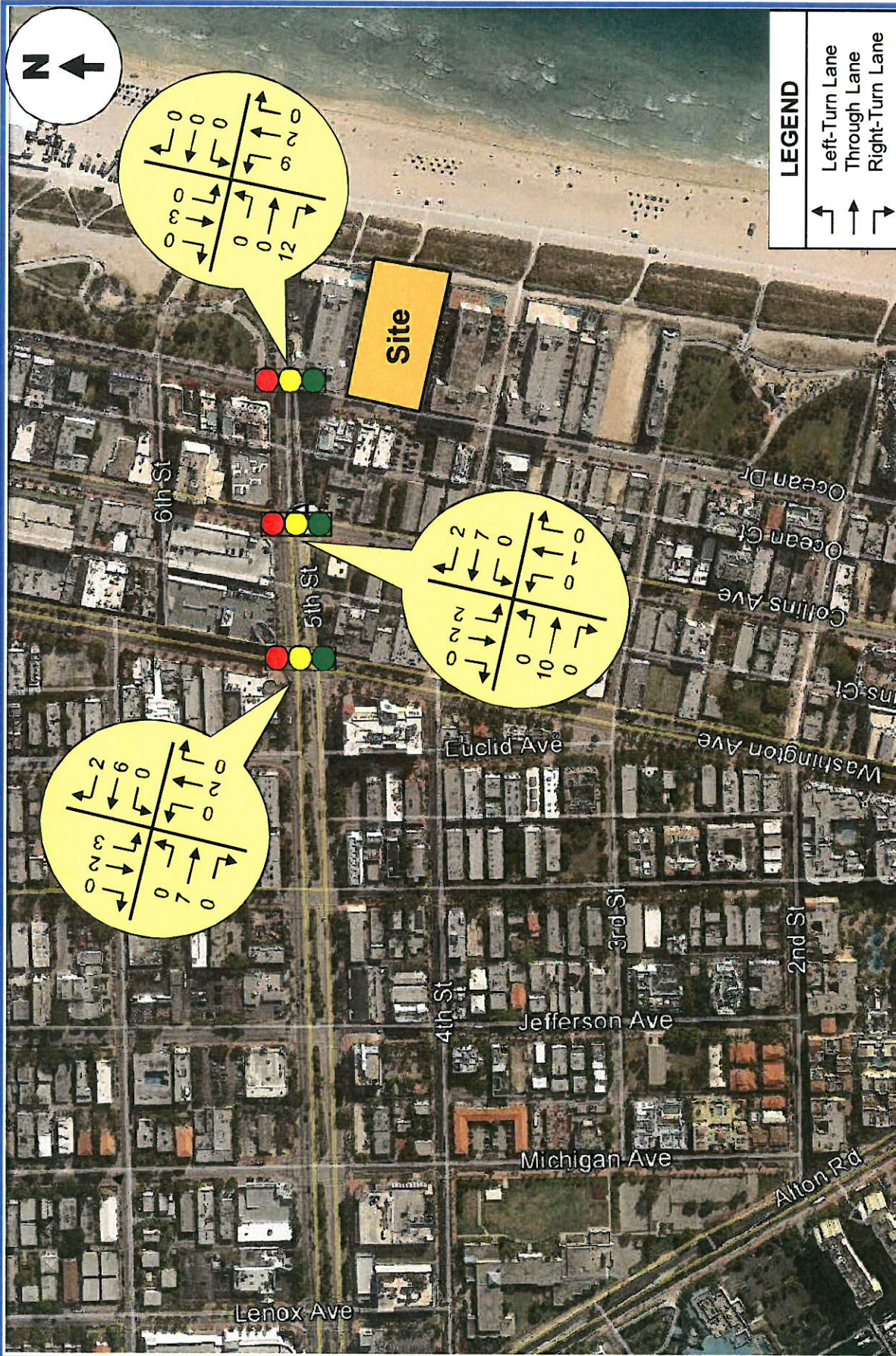
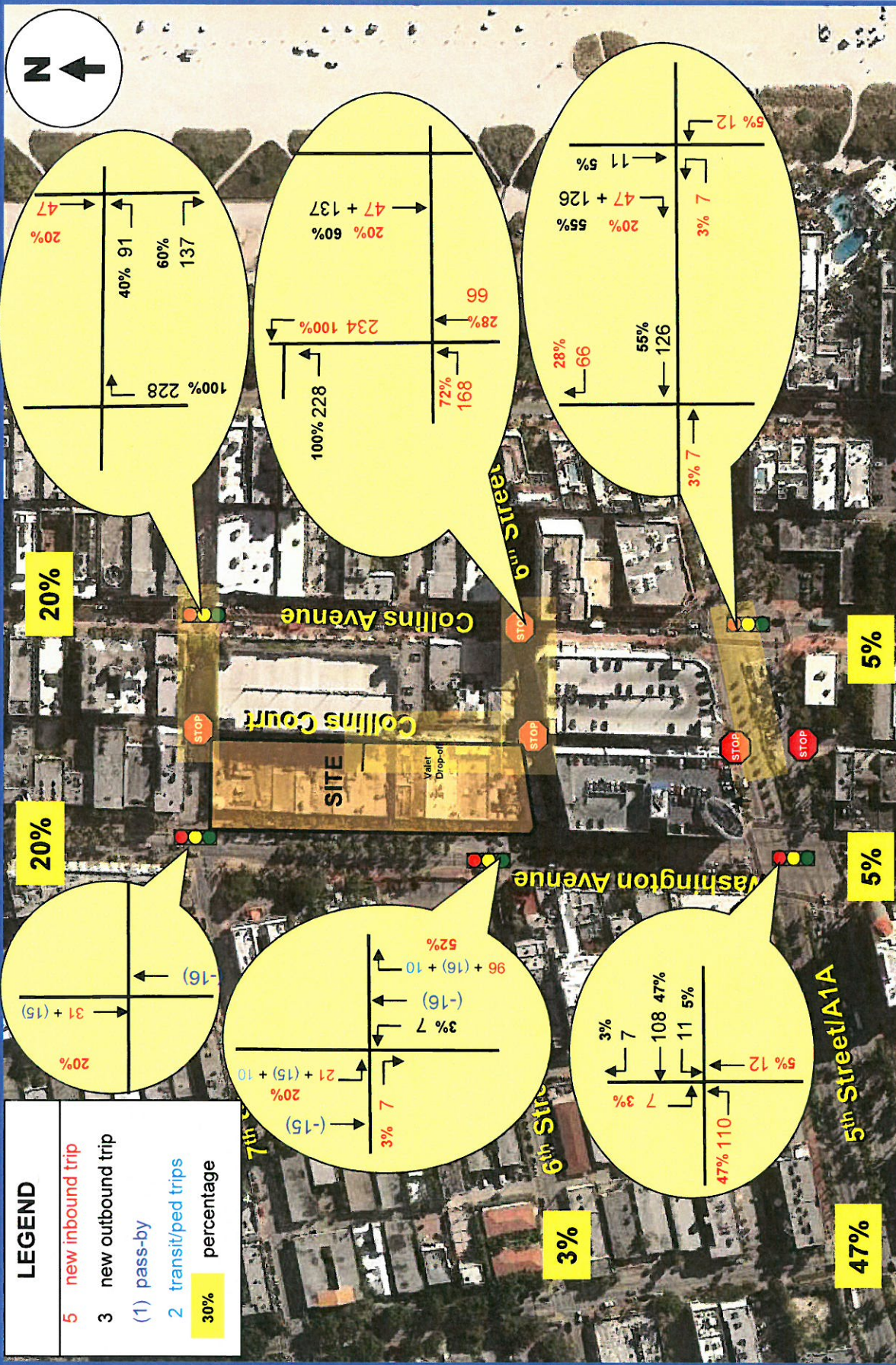


FIGURE 4
 Savoy / Arlington Hotel
 Miami Beach, Florida

New Peak Hour Project Traffic Assignment



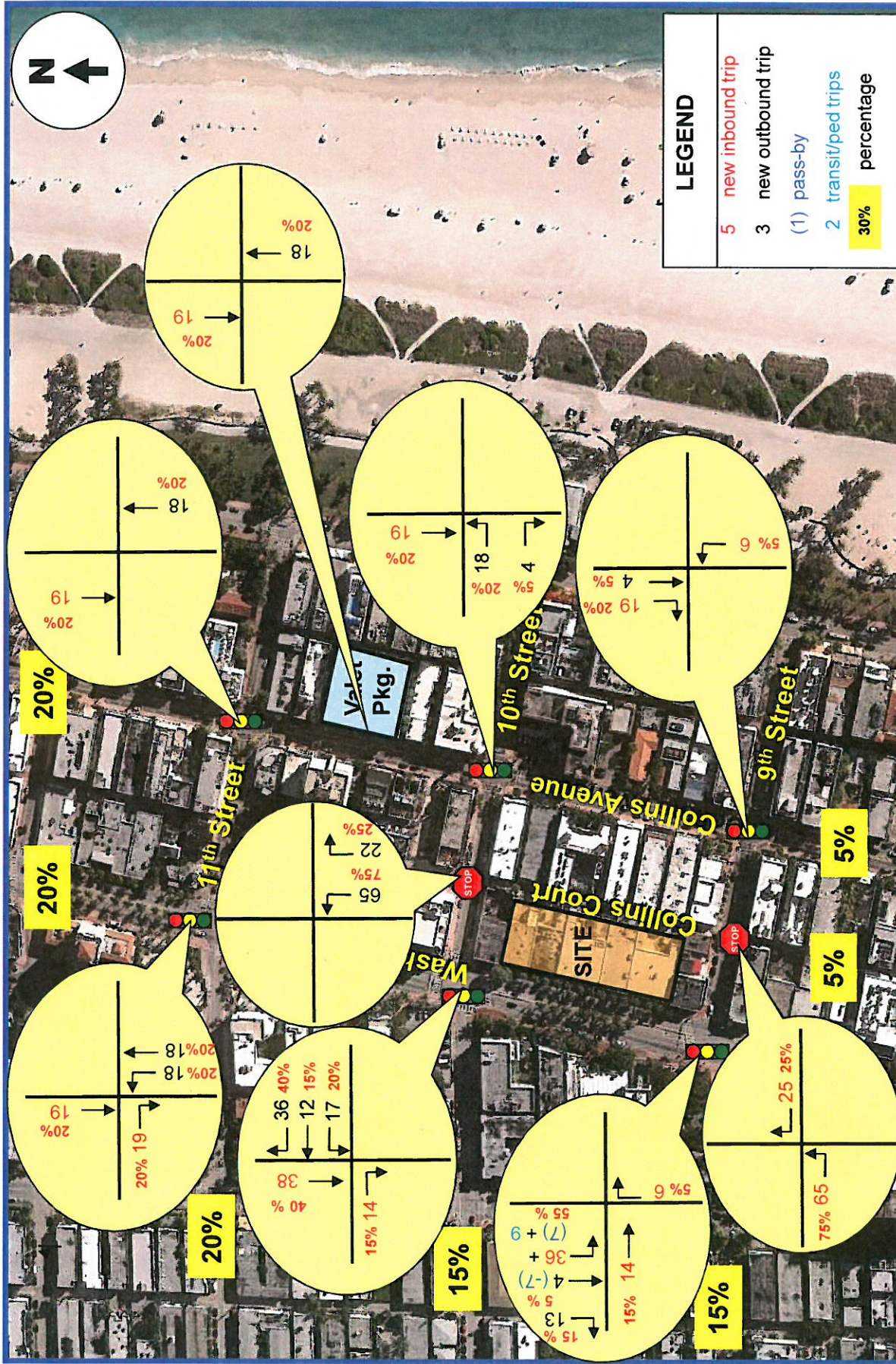


FIGURE 4
915 Washington
Miami Beach, Florida

NEW PROJECT TRAFFIC ASSIGNMENT
(Weekday New Peak Hour Trips)

APPENDIX E

Future Turning Movement Volumes

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Collins Avenue and Lincoln Road PM Peak Hour

Description	Collins Avenue Northbound			Collins Avenue Southbound			Lincoln Road Eastbound			Lincoln Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (6/17/2016) Season Adjustment Factor	29 1.04	680 1.04	62 1.04	86 1.04	598 1.04	123 1.04	74 1.04	48 1.04	71 1.04	71 1.04	87 1.04	97 1.04
2016 Peak Season Traffic	30	707	64	89	622	128	77	50	74	74	90	101
Annual Growth Rate Committed Developments:	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
• The Torino (400 Collins Avenue)		9			22							
• The Savoy Hotel		3			4							
• 601 Washington		91			47							
• 915 Washington		18			19							
2017 Background Traffic	30	835	65	90	720	129	78	50	75	75	91	102
Tatel Restaurant - Trips - Valet Parking Trips		5					30	35	4			25
2017 Total Traffic	30	840	65	90	720	129	108	85	79	75	91	127

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Collins Avenue and 17 Street PM Peak Hour

Description	Collins Avenue Northbound			Collins Avenue Southbound			17 Street Eastbound			17 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (6/17/2016)	75	705	29	31	710	155	144	39	108	41	56	38
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	78	733	30	32	738	161	150	41	112	43	58	40
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:												
• The Torino (400 Collins Avenue)		9			22							
• The Savoy Hotel		3			4							
• 601 Washington		91			47							
• 915 Washington		18			19							
2017 Background Traffic	79	862	30	33	838	163	151	41	113	43	59	40
Tatel Restaurant												
- Trips	19	6				9						
- Valet Parking Trips	35											
2017 Total Traffic	133	868	30	33	838	172	151	41	113	43	59	40

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

James Avenue and 17 Street PM Peak Hour

Description	James Avenue Northbound			James Avenue Southbound			17 Street Eastbound			17 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (6/17/2016) Season Adjustment Factor	48 1.04	30 1.04	27 1.04	18 1.04	47 1.04	69 1.04	40 1.04	253 1.04	76 1.04	27 1.04	247 1.04	26 1.04
2016 Peak Season Traffic	50	31	28	19	49	72	42	263	79	28	257	27
Annual Growth Rate Committed Developments: • The Torino (400 Collins Avenue) • The Savoy Hotel • 601 Washington • 915 Washington	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
2017 Background Traffic	50	32	28	19	49	72	42	266	80	28	259	27
Tatel Restaurant - Trips - Valet Parking Trips										35	28	
2017 Total Traffic	50	32	28	19	49	72	42	266	80	63	287	27

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

James Avenue and Lincoln Rd
PM Peak Hour

Description	James Avenue Northbound			Southbound			Lincoln Road Eastbound			Lincoln Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (6/17/2016) Season Adjustment Factor	1.04	1.04	1.04	50 1.04	1.04	62 1.04	38 1.04	169 1.04	1.04	0 1.04	181 1.04	52 1.04
2016 Peak Season Traffic	0	0	0	52	0	64	40	176	0	0	188	54
Annual Growth Rate Committed Developments: • The Torino (400 Collins Avenue) • The Savoy Hotel • 601 Washington • 915 Washington	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
2017 Background Traffic	0	0	0	53	0	65	40	178	0	0	190	55
Tatel Restaurant - Trips - Valet Parking Trips				35				34				
2017 Total Traffic	0	0	0	88	0	65	40	212	0	0	190	55

APPENDIX F

Intersection Capacity Analyses

HCM Signalized Intersection Capacity Analysis

1: Collins Ave & Lincoln Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	50	74	74	90	101	30	707	64	89	622	128
Future Volume (vph)	77	50	74	74	90	101	30	707	64	89	622	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.82			0.94			0.98			0.96	
Flpb, ped/bikes	0.92	1.00			0.93			1.00			0.99	
Frt	1.00	0.91			0.95			0.99			0.98	
Flt Protected	0.95	1.00			0.99			1.00			0.99	
Satd. Flow (prot)	1312	1123			1239			2913			2793	
Flt Permitted	0.57	1.00			0.88			0.89			0.66	
Satd. Flow (perm)	780	1123			1107			2584			1863	
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)	81	53	78	78	95	106	32	744	67	94	655	135
RTOR Reduction (vph)	0	37	0	0	15	0	0	6	0	0	14	0
Lane Group Flow (vph)	81	94	0	0	264	0	0	837	0	0	870	0
Confl. Peds. (#/hr)	211		475	475		211	275		145	145		275
Confl. Bikes (#/hr)			2			8			8			1
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		9			13			2		1	6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	43.6	43.6			43.6			39.4			39.4	
Effective Green, g (s)	43.6	43.6			43.6			39.4			39.4	
Actuated g/C Ratio	0.47	0.47			0.47			0.42			0.42	
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	
Vehicle Extension (s)	2.5	2.5			2.5			1.0			1.0	
Lane Grp Cap (vph)	365	526			518			1094			789	
v/s Ratio Prot		0.08										
v/s Ratio Perm	0.10				c0.24			0.32			c0.47	
v/c Ratio	0.22	0.18			0.51			0.77			1.10	
Uniform Delay, d1	14.6	14.3			17.2			22.9			26.8	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.2	0.1			0.6			5.1			63.7	
Delay (s)	14.9	14.4			17.8			28.0			90.5	
Level of Service	B	B			B			C			F	
Approach Delay (s)		14.6			17.8			28.0			90.5	
Approach LOS		B			B			C			F	
Intersection Summary												
HCM 2000 Control Delay		50.3			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		93.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		103.4%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary 2: Collins Ave & 17 St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	41	112	43	58	40	78	733	30	32	738	161
Future Volume (veh/h)	150	41	112	43	58	40	78	733	30	32	738	161
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.87	0.93		0.87	0.99		0.71	0.97		0.82
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	158	43	118	45	61	42	82	772	32	34	777	169
Adj No. of Lanes	1	1	0	0	2	0	0	2	0	0	2	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	77	210	151	197	149	146	1386	61	74	1450	310
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1057	320	877	384	824	623	158	2119	93	55	2217	474
Grp Volume(v), veh/h	158	0	161	71	0	77	435	0	451	563	0	417
Grp Sat Flow(s),veh/h/ln	1057	0	1196	682	0	1149	1059	0	1311	1576	0	1170
Q Serve(g_s), s	14.3	0.0	11.8	3.8	0.0	5.5	11.9	0.0	18.1	0.0	0.0	19.2
Cycle Q Clear(g_c), s	19.8	0.0	11.8	15.7	0.0	5.5	31.1	0.0	18.1	17.5	0.0	19.2
Prop In Lane	1.00		0.73	0.64		0.54	0.19		0.07	0.06		0.41
Lane Grp Cap(c), veh/h	267	0	287	222	0	276	736	0	858	1069	0	765
V/C Ratio(X)	0.59	0.00	0.56	0.32	0.00	0.28	0.59	0.00	0.53	0.53	0.00	0.54
Avail Cap(c_a), veh/h	385	0	420	354	0	403	736	0	858	1069	0	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.00	0.95	1.00	0.00	1.00	0.62	0.00	0.62	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	33.4	36.7	0.0	31.0	10.7	0.0	9.1	9.0	0.0	9.3
Incr Delay (d2), s/veh	1.5	0.0	1.2	0.6	0.0	0.4	2.2	0.0	1.4	1.9	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	4.0	1.8	0.0	1.8	8.3	0.0	6.9	8.5	0.0	6.7
LnGrp Delay(d),s/veh	40.5	0.0	34.6	37.3	0.0	31.4	12.9	0.0	10.6	10.9	0.0	12.1
LnGrp LOS	D		C	D		C	B		B	B		B
Approach Vol, veh/h	319			148			886			980		
Approach Delay, s/veh	37.5			34.2			11.7			11.4		
Approach LOS	D			C			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	71.1		28.9		71.1		28.9					
Change Period (Y+Rc), s	* 5.7		* 4.9		* 5.7		* 4.9					
Max Green Setting (Gmax), s	* 54		* 35		* 54		* 35					
Max Q Clear Time (g_c+I1), s	33.1		21.8		21.2		17.7					
Green Ext Time (p_c), s	5.9		1.9		6.3		2.1					
Intersection Summary												
HCM 2010 Ctrl Delay	16.5											
HCM 2010 LOS	B											
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Existing
PM Peak

Synchro 9 Report

HCM 2010 Signalized Intersection Summary

3: James Ave & 17 St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	263	79	28	257	27	50	31	28	19	49	72
Future Volume (veh/h)	42	263	79	28	257	27	50	31	28	19	49	72
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	0.97		0.91	0.95		0.86	0.91		0.92
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	44	277	83	29	271	28	53	33	29	20	52	76
Adj No. of Lanes	1	1	0	1	2	0	0	1	0	0	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	644	703	211	549	1772	180	181	103	76	70	138	171
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	929	1087	326	892	2739	279	468	394	291	93	528	655
Grp Volume(v), veh/h	44	0	360	29	156	143	115	0	0	148	0	0
Grp Sat Flow(s),veh/h/ln	929	0	1413	892	1593	1425	1154	0	0	1276	0	0
Q Serve(g_s), s	1.8	0.0	10.9	1.4	3.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	10.9	12.3	3.4	3.6	6.9	0.0	0.0	8.4	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.20	0.46		0.25	0.14		0.51
Lane Grp Cap(c), veh/h	644	0	914	549	1030	922	360	0	0	379	0	0
V/C Ratio(X)	0.07	0.00	0.39	0.05	0.15	0.16	0.32	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	644	0	914	549	1030	922	412	0	0	437	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	0.0	7.5	10.5	6.2	6.2	27.0	0.0	0.0	27.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.3	0.2	0.3	0.3	0.4	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	4.5	0.4	1.6	1.5	2.4	0.0	0.0	3.1	0.0	0.0
LnGrp Delay(d),s/veh	7.5	0.0	8.8	10.6	6.5	6.6	27.4	0.0	0.0	28.2	0.0	0.0
LnGrp LOS	A		A	B	A	A	C			C		
Approach Vol, veh/h		404			328			115			148	
Approach Delay, s/veh		8.7			6.9			27.4			28.2	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.2		27.8		62.2		27.8				
Change Period (Y+Rc), s		4.0		* 4.3		4.0		* 4.3				
Max Green Setting (Gmax), s		54.0		* 28		54.0		* 28				
Max Q Clear Time (g_c+I1), s		14.3		8.9		12.9		10.4				
Green Ext Time (p_c), s		1.6		1.3		1.6		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			13.2									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Existing
PM Peak

Synchro 9 Report

HCM 2010 TWSC
4: Lincoln Rd & James Ave

Intersection

Int Delay, s/veh 52.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	40	176	188	54	52	64
Future Vol, veh/h	40	176	188	54	52	64
Conflicting Peds, #/hr	752	0	0	752	128	199
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	189	202	58	56	69

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	459	0	611
Stage 1	-	-	430
Stage 2	-	-	181
Critical Hdwy	4.14	-	6.84
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	2.22	-	3.52
Pot Cap-1 Maneuver	1098	-	425
Stage 1	-	-	624
Stage 2	-	-	832
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	410	-	261
Mov Cap-2 Maneuver	-	-	261
Stage 1	-	-	521
Stage 2	-	-	613

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	254.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	410	-	-	-	99
HCM Lane V/C Ratio	0.105	-	-	-	1.26
HCM Control Delay (s)	14.8	0.6	-	-	254.9
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	8.6

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

1: Collins Ave & Lincoln Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	50	75	75	91	102	30	835	65	90	720	129
Future Volume (vph)	78	50	75	75	91	102	30	835	65	90	720	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.82			0.94			0.98			0.96	
Flpb, ped/bikes	0.92	1.00			0.93			1.00			1.00	
Frt	1.00	0.91			0.95			0.99			0.98	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1314	1122			1241			2929			2819	
Flt Permitted	0.56	1.00			0.88			0.85			0.62	
Satd. Flow (perm)	781	1122			1107			2481			1747	
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)	82	53	79	79	96	107	32	879	68	95	758	136
RTOR Reduction (vph)	0	37	0	0	15	0	0	5	0	0	13	0
Lane Group Flow (vph)	82	95	0	0	267	0	0	974	0	0	976	0
Confl. Peds. (#/hr)	211		475	475		211	275		145	145		275
Confl. Bikes (#/hr)			2			8			8			1
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		9			13			2		1	6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	44.2	44.2			44.2			38.8			38.8	
Effective Green, g (s)	44.2	44.2			44.2			38.8			38.8	
Actuated g/C Ratio	0.48	0.48			0.48			0.42			0.42	
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	
Vehicle Extension (s)	2.5	2.5			2.5			1.0			1.0	
Lane Grp Cap (vph)	371	533			526			1035			728	
v/s Ratio Prot		0.08										
v/s Ratio Perm	0.11				c0.24			0.39			c0.56	
v/c Ratio	0.22	0.18			0.51			0.94			1.34	
Uniform Delay, d1	14.3	14.0			16.9			26.0			27.1	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.2	0.1			0.6			17.0			162.6	
Delay (s)	14.5	14.1			17.4			43.0			189.7	
Level of Service	B	B			B			D			F	
Approach Delay (s)		14.3			17.4			43.0			189.7	
Approach LOS		B			B			D			F	
Intersection Summary												
HCM 2000 Control Delay		96.5						HCM 2000 Level of Service		F		
HCM 2000 Volume to Capacity ratio		0.99										
Actuated Cycle Length (s)		93.0						Sum of lost time (s)		18.0		
Intersection Capacity Utilization		110.6%						ICU Level of Service		H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary

2: Collins Ave & 17 St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	41	113	43	59	40	79	862	30	33	838	163
Future Volume (veh/h)	151	41	113	43	59	40	79	862	30	33	838	163
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.87	0.93		0.87	0.99		0.71	0.99		0.82
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	159	43	119	45	62	42	83	907	32	35	882	172
Adj No. of Lanes	1	1	0	0	2	0	0	2	0	0	2	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	76	211	150	199	149	126	1401	53	72	1482	284
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1057	317	878	380	831	619	128	2142	81	51	2265	435
Grp Volume(v), veh/h	159	0	162	71	0	78	501	0	521	620	0	469
Grp Sat Flow(s),veh/h/ln	1057	0	1196	679	0	1151	1032	0	1319	1565	0	1187
Q Serve(g_s), s	14.4	0.0	11.9	3.9	0.0	5.5	17.3	0.0	22.6	0.0	0.0	22.6
Cycle Q Clear(g_c), s	20.0	0.0	11.9	15.8	0.0	5.5	40.0	0.0	22.6	20.3	0.0	22.6
Prop In Lane	1.00		0.73	0.63		0.54	0.17		0.06	0.06		0.37
Lane Grp Cap(c), veh/h	267	0	287	222	0	276	717	0	863	1062	0	776
V/C Ratio(X)	0.60	0.00	0.56	0.32	0.00	0.28	0.70	0.00	0.60	0.58	0.00	0.60
Avail Cap(c_a), veh/h	384	0	420	354	0	404	717	0	863	1062	0	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.00	0.95	1.00	0.00	1.00	0.34	0.00	0.34	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	33.4	36.7	0.0	31.0	12.5	0.0	9.9	9.5	0.0	9.9
Incr Delay (d2), s/veh	1.5	0.0	1.2	0.6	0.0	0.4	2.0	0.0	1.1	2.3	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	4.0	1.8	0.0	1.8	10.6	0.0	8.4	10.0	0.0	8.1
LnGrp Delay(d),s/veh	40.6	0.0	34.6	37.3	0.0	31.4	14.5	0.0	11.0	11.8	0.0	13.4
LnGrp LOS	D		C	D		C	B		B	B		B
Approach Vol, veh/h	321				149				1022			
Approach Delay, s/veh	37.6				34.2				12.7			
Approach LOS	D				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	71.1		28.9		71.1		28.9					
Change Period (Y+Rc), s	* 5.7		* 4.9		* 5.7		* 4.9					
Max Green Setting (Gmax), s	* 54		* 35		* 54		* 35					
Max Q Clear Time (g_c+I1), s	42.0		22.0		24.6		17.8					
Green Ext Time (p_c), s	5.6		1.9		7.6		2.1					
Intersection Summary												
HCM 2010 Ctrl Delay			17.0									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary 3: James Ave & 17 St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	266	80	28	259	27	50	32	28	19	49	72
Future Volume (veh/h)	42	266	80	28	259	27	50	32	28	19	49	72
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	0.97		0.91	0.95		0.86	0.91		0.92
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	44	280	84	29	273	28	53	34	29	20	52	76
Adj No. of Lanes	1	1	0	1	2	0	0	1	0	0	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	643	703	211	546	1773	179	180	105	76	70	138	171
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	928	1087	326	889	2742	277	465	403	289	93	528	655
Grp Volume(v), veh/h	44	0	364	29	157	144	116	0	0	148	0	0
Grp Sat Flow(s),veh/h/ln	928	0	1413	889	1593	1426	1157	0	0	1276	0	0
Q Serve(g_s), s	1.8	0.0	11.0	1.4	3.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	11.0	12.5	3.5	3.6	6.9	0.0	0.0	8.4	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.19	0.46		0.25	0.14		0.51
Lane Grp Cap(c), veh/h	643	0	914	546	1030	922	360	0	0	379	0	0
V/C Ratio(X)	0.07	0.00	0.40	0.05	0.15	0.16	0.32	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	643	0	914	546	1030	922	413	0	0	436	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	0.0	7.6	10.5	6.2	6.2	27.0	0.0	0.0	27.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.3	0.2	0.3	0.4	0.4	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	4.6	0.4	1.6	1.5	2.4	0.0	0.0	3.1	0.0	0.0
LnGrp Delay(d),s/veh	7.5	0.0	8.9	10.7	6.5	6.6	27.4	0.0	0.0	28.2	0.0	0.0
LnGrp LOS	A		A	B	A	A	C			C		
Approach Vol, veh/h		408			330			116			148	
Approach Delay, s/veh		8.7			6.9			27.4			28.2	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.2		27.8		62.2		27.8				
Change Period (Y+Rc), s		4.0		* 4.3		4.0		* 4.3				
Max Green Setting (Gmax), s		54.0		* 28		54.0		* 28				
Max Q Clear Time (g_c+I1), s		14.5		8.9		13.0		10.4				
Green Ext Time (p_c), s		1.7		1.3		1.7		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			13.2									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 TWSC
4: Lincoln Rd & James Ave

Intersection

Int Delay, s/veh 54.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	40	178	190	55	53	65
Future Vol, veh/h	40	178	190	55	53	65
Conflicting Peds, #/hr	752	0	0	752	128	199
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	191	204	59	57	70

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	462	0	615
Stage 1	-	-	433
Stage 2	-	-	182
Critical Hdwy	4.14	-	6.84
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	2.22	-	3.52
Pot Cap-1 Maneuver	1095	-	423
Stage 1	-	-	621
Stage 2	-	-	831
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	409	-	260
Mov Cap-2 Maneuver	-	-	260
Stage 1	-	-	518
Stage 2	-	-	611

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	262.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	409	-	-	-	99
HCM Lane V/C Ratio	0.105	-	-	-	1.282
HCM Control Delay (s)	14.8	0.6	-	-	262.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	8.9

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

1: Collins Ave & Lincoln Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	85	79	75	91	127	30	840	65	90	720	129
Future Volume (vph)	108	85	79	75	91	127	30	840	65	90	720	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frbp, ped/bikes	1.00	0.86			0.94			0.98			0.96	
Flpb, ped/bikes	0.93	1.00			0.94			1.00			1.00	
Frt	1.00	0.93			0.94			0.99			0.98	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1326	1208			1247			2929			2820	
Flt Permitted	0.55	1.00			0.88			0.80			0.58	
Satd. Flow (perm)	773	1208			1111			2351			1652	
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)	114	89	83	79	96	134	32	884	68	95	758	136
RTOR Reduction (vph)	0	21	0	0	17	0	0	5	0	0	14	0
Lane Group Flow (vph)	114	151	0	0	292	0	0	979	0	0	975	0
Confl. Peds. (#/hr)	211		475	475		211	275		145	145		275
Confl. Bikes (#/hr)			2			8			8			1
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		9			13			2		1	6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	48.0	48.0			48.0			35.0			35.0	
Effective Green, g (s)	48.0	48.0			48.0			35.0			35.0	
Actuated g/C Ratio	0.52	0.52			0.52			0.38			0.38	
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	
Vehicle Extension (s)	2.5	2.5			2.5			1.0			1.0	
Lane Grp Cap (vph)	398	623			573			884			621	
v/s Ratio Prot		0.12										
v/s Ratio Perm	0.15				c0.26			0.42			c0.59	
v/c Ratio	0.29	0.24			0.51			1.11			1.57	
Uniform Delay, d1	12.8	12.4			14.8			29.0			29.0	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.3	0.1			0.5			64.2			264.5	
Delay (s)	13.1	12.6			15.3			93.2			293.5	
Level of Service	B	B			B			F			F	
Approach Delay (s)		12.8			15.3			93.2			293.5	
Approach LOS		B			B			F			F	
Intersection Summary												
HCM 2000 Control Delay		152.0						HCM 2000 Level of Service		F		
HCM 2000 Volume to Capacity ratio		1.06										
Actuated Cycle Length (s)		93.0						Sum of lost time (s)		18.0		
Intersection Capacity Utilization		114.0%						ICU Level of Service		H		
Analysis Period (min)		15										
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary

2: Collins Ave & 17 St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	41	113	43	59	40	133	868	30	33	838	172
Future Volume (veh/h)	151	41	113	43	59	40	133	868	30	33	838	172
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.87	0.93		0.87	1.00		0.71	1.00		0.82
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	159	43	119	45	62	42	140	914	32	35	882	181
Adj No. of Lanes	1	1	0	0	2	0	0	2	0	0	2	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	76	211	150	199	149	166	1181	45	68	1409	296
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1057	317	878	380	831	619	183	1805	69	46	2154	453
Grp Volume(v), veh/h	159	0	162	71	0	78	474	0	612	626	0	472
Grp Sat Flow(s),veh/h/ln	1057	0	1196	679	0	1151	731	0	1327	1474	0	1179
Q Serve(g_s), s	14.4	0.0	11.9	3.9	0.0	5.5	41.5	0.0	29.6	2.9	0.0	23.1
Cycle Q Clear(g_c), s	20.0	0.0	11.9	15.8	0.0	5.5	64.5	0.0	29.6	32.6	0.0	23.1
Prop In Lane	1.00		0.73	0.63		0.54	0.30		0.05	0.06		0.38
Lane Grp Cap(c), veh/h	267	0	287	222	0	276	525	0	868	1002	0	771
V/C Ratio(X)	0.60	0.00	0.56	0.32	0.00	0.28	0.90	0.00	0.71	0.63	0.00	0.61
Avail Cap(c_a), veh/h	384	0	420	354	0	404	525	0	868	1002	0	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.00	0.95	1.00	0.00	1.00	0.09	0.00	0.09	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	33.4	36.7	0.0	31.0	22.2	0.0	11.1	9.7	0.0	10.0
Incr Delay (d2), s/veh	1.5	0.0	1.2	0.6	0.0	0.4	2.7	0.0	0.4	2.9	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	4.0	1.8	0.0	1.8	13.3	0.0	10.8	10.2	0.0	8.1
LnGrp Delay(d),s/veh	40.6	0.0	34.6	37.3	0.0	31.4	24.9	0.0	11.6	12.6	0.0	13.6
LnGrp LOS	D		C	D		C	C		B	B		B
Approach Vol, veh/h	321					149		1086		1098		
Approach Delay, s/veh	37.6					34.2		17.4		13.0		
Approach LOS	D					C		B		B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4			6		8				
Phs Duration (G+Y+Rc), s	71.1		28.9			71.1		28.9				
Change Period (Y+Rc), s	* 5.7		* 4.9			* 5.7		* 4.9				
Max Green Setting (Gmax), s	* 54		* 35			* 54		* 35				
Max Q Clear Time (g_c+I1), s	66.5		22.0			34.6		17.8				
Green Ext Time (p_c), s	0.0		1.9			7.7		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay	19.0											
HCM 2010 LOS	B											
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Future
PM Peak

Synchro 9 Report

HCM 2010 Signalized Intersection Summary

3: James Ave & 17 St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	266	80	63	287	27	50	32	28	19	49	72
Future Volume (veh/h)	42	266	80	63	287	27	50	32	28	19	49	72
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	0.97		0.91	0.95		0.86	0.91		0.92
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	44	280	84	66	302	28	53	34	29	20	52	76
Adj No. of Lanes	1	1	0	1	2	0	0	1	0	0	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	626	703	211	546	1792	164	180	105	76	70	138	171
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	905	1087	326	889	2772	254	465	403	289	93	528	655
Grp Volume(v), veh/h	44	0	364	66	172	158	116	0	0	148	0	0
Grp Sat Flow(s),veh/h/ln	905	0	1413	889	1593	1433	1157	0	0	1276	0	0
Q Serve(g_s), s	1.8	0.0	11.0	3.4	3.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.8	0.0	11.0	14.5	3.8	3.9	6.9	0.0	0.0	8.4	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.18	0.46		0.25	0.14		0.51
Lane Grp Cap(c), veh/h	626	0	914	546	1030	927	360	0	0	379	0	0
V/C Ratio(X)	0.07	0.00	0.40	0.12	0.17	0.17	0.32	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	626	0	914	546	1030	927	413	0	0	436	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	0.0	7.6	11.0	6.3	6.3	27.0	0.0	0.0	27.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.3	0.4	0.3	0.4	0.4	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	4.6	0.9	1.8	1.6	2.4	0.0	0.0	3.1	0.0	0.0
LnGrp Delay(d),s/veh	7.7	0.0	8.9	11.5	6.6	6.7	27.4	0.0	0.0	28.2	0.0	0.0
LnGrp LOS	A		A	B	A	A	C			C		
Approach Vol, veh/h		408			396			116			148	
Approach Delay, s/veh		8.7			7.5			27.4			28.2	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.2		27.8		62.2		27.8				
Change Period (Y+Rc), s		4.0		* 4.3		4.0		* 4.3				
Max Green Setting (Gmax), s		54.0		* 28		54.0		* 28				
Max Q Clear Time (g_c+I1), s		16.5		8.9		13.0		10.4				
Green Ext Time (p_c), s		1.8		1.3		1.8		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			13.0									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Future
PM Peak

Synchro 9 Report

HCM 2010 TWSC
4: Lincoln Rd & James Ave

Intersection

Int Delay, s/veh 72.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	40	212	190	55	88	65
Future Vol, veh/h	40	212	190	55	88	65
Conflicting Peds, #/hr	752	0	0	752	128	199
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	228	204	59	95	70

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	462	0	633
Stage 1	-	-	433
Stage 2	-	-	200
Critical Hdwy	4.14	-	6.84
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	2.22	-	3.52
Pot Cap-1 Maneuver	1095	-	412
Stage 1	-	-	621
Stage 2	-	-	814
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	409	-	252
Mov Cap-2 Maneuver	-	-	252
Stage 1	-	-	518
Stage 2	-	-	598

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	\$ 305.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	409	-	-	-	115
HCM Lane V/C Ratio	0.105	-	-	-	1.431
HCM Control Delay (s)	14.8	0.6	-	-	\$ 305.1
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	11.5

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

APPENDIX G
Queuing Analyses

Queuing Analysis based on ITE Procedures

$q = 35$ veh/hr (demand rate)

$Q = 12$ veh/hr (service rate)

$$p = \frac{q}{NQ} = 0.729 \text{ (N = 4 valet runners)}$$

$$Q_M = 0.7155$$

Using Acceptable Probability of 10% (90% Confidence Level)

$$M = \left(\frac{\ln(x > M) - \ln(Q_M)}{\ln(p)} \right) - 1$$

$$M = \left(\frac{\ln(0.10) - \ln(0.7155)}{\ln(0.729)} \right) - 1$$

$$M = \left(\frac{-2.3026 - (-0.3347)}{-0.3160} \right) - 1$$

$$M = 6.227 - 1 = 5.22, \text{ say 5 vehicles}$$