APPENDIX E
INTERSECTION VOLUME SPREADSHEETS

AM Peak Hour Volumes

Intersection	Road	Direction	Movement	AM PEAK 2024 Existing Volumes	AM PEAK 2027 No Build Volumes	AM PEAK Site Trip Distribution	AM PEAK Site Trips	AM PEAK Pass-by Site Trip Distributions	AM PEAK Pass-by Site Trips	AM PEAK 2027 Build Volumes	
(1) BAY ROAD & 18TH STREET	18TH STREET	Eastbound	EBL	36	37		0		0	37	Int 1
			EBT	39	40		0		0	40	
			EBR	11	11		0		0	11	
			Approach	86	88		0		0	88	
		Westbound	WBL	11	11		0		0	11	
			WBT	57	58		0		0	58	
			WBR	54	55		0		0	55	
			Approach	122	124		0		0	124	
	BAY ROAD	Northbound	NBL	2	2		0		0	2	
			NBT	17	17		0		0	17	
			NBR	22	22		0		0	22	
			Approach	41	41		0		0	41	
		Southbound	SBL	41	42		0		0	42	
			SBT	4	4		0		0	4	
			SBR	22	22		0		0	22	
			Approach	67	68		0		0	68	
(2) BAY ROAD & DADE BOULEVARD	DADE BOULEVARD	Eastbound	EBL	0	0		0		0	0	Int 2
			EBT	242	247	64%	13		0	260	
			EBR	269	274		0		0	274	
			Approach	511	521	64%	13		0	534	
		Westbound	WBL	0	0		0		0	0	
			WBT	201	205	(64%)	3		0	208	
			WBR	22	22		0		0	22	
			Approach	223	227	(64%)	3		0	230	
	BAY ROAD	Northbound	NBL	134	137		0		0	137	
			NBT	0	0		0		0	0	
			NBR	0	0		0		0	0	
			Approach	134	137		0		0	137	
		Southbound	SBL	0	0		0		0	0	
			SBT	0	0		0		0	0	
			SBR	13	13		0		0	13	
			Approach	13	13		0		0	13	
(3) WEST AVENUE & 18TH STREET	18TH STREET	Eastbound	EBL	27	28		0		0	28	Int 3
			EBT	7	7		0		0	7	
			EBR	74	75		0		0	75	
			Approach	108	110		0		0	110	
		Westbound	WBL	4	4	26%	5		0	9	
			WBT	28	29		0		0	29	
			WBR	18	18		0		0	18	
			Approach	50	51	26%	5		0	56	
	WEST AVENUE	Northbound	NBL	78	80		0		0	80	
			NBT	143	146		0		0	146	
			NBR	8	8		0		0	8	
			Approach	229	234		0		0	234	
		Southbound	SBL	4	4		0		0	4	
			SBT	47	48		0		0	48	
			SBR	21	21		0		0	21	
			Approach	72	73		0		0	73	

AM Peak Hour Volumes

Intersection	Road	Direction	Movement	AM PEAK 2024 Existing Volumes	AM PEAK 2027 No Build Volumes	AM PEAK Site Trip Distribution	AM PEAK Site Trips	AM PEAK Pass-by Site Trip Distributions	AM PEAK Pass-by Site Trips	AM PEAK 2027 Build Volumes	
(4) WEST AVENUE & DADE BOULEVARD	DADE BOULEVARD	Eastbound	EBL	22	22		0		0	22	Int 4
			EBT	219	223	(36%)	1		0	224	
			EBR	0	0		0		0	0	
			Approach	241	245	(36%)	1		0	246	
		Westbound	WBL	69	70		0		0	70	
			WBT	219	223	10%	3		0	226	
			WBR	87	89		0		0	89	
			Approach	375	382	10%	3		0	385	
	WEST AVENUE	Northbound	NBL	0	0		0		0	0	
			NBT	127	130		0		0	130	
			NBR	175	179		0		0	179	
			Approach	302	309		0		0	309	
		Southbound	SBL	37	38		0		0	38	
			SBT	92	94		0		0	94	
			SBR	4	4	26%	5		0	9	
			Approach	133	136	26%	5		0	141	
(5) WEST AVENUE & 17TH STREET	17TH STREET	Eastbound	EBL	0	0		0		0	0	Int 5
			EBT	130	133		0		0	133	
			EBR	136	139		0		0	139	
			Approach	266	272		0		0	272	
		Westbound	WBL	49	50		0		0	50	
			WBT	59	60		0		0	60	
			WBR	34	35		0		0	35	
			Approach	142	145		0		0	145	
	WEST AVENUE	Northbound	NBL	74	75		0		0	75	
			NBT	265	270		0		0	270	
			NBR	75	77		0		0	77	
			Approach	414	422		0		0	422	
		Southbound	SBL	21	21		0		0	21	
			SBT	139	142		0		0	142	
			SBR	0	0		0		0	0	
			Approach	160	163		0		0	163	
(6) DADE BOULEVARD & MAIN DRIVEWAY	DADE BOULEVARD	Eastbound	EBL	0	0	64%	13		0	13	Int 6
			EBT	0	0		0		0	0	
			EBR	0	0		0		0	0	
			Approach	0	0	64%	13		0	13	
		Westbound	WBL	0	0		0		0	0	
			WBT	0	0		0		0	0	
			WBR	0	0	36%	8		0	8	
			Approach	0	0	36%	8		0	8	
	MAIN DRIVEWAY	Northbound	NBL	0	0		0		0	0	
			NBT	0	0		0		0	0	
			NBR	0	0		0		0	0	
			Approach	0	0		0		0	0	
		Southbound	SBL	0	0	(36%)	1		0	1	
			SBT	0	0		0		0	0	
			SBR	0	0	(64%)	3		0	3	
			Approach	0	0	(100%)	4		0	4	

PM Peak Hour Volumes

Intersection	Road	Direction	Movement	PM PEAK 2024 Existing Volumes	PM PEAK 2027 No Build Volumes	PM PEAK Site Trip Distribution	PM PEAK Site Trips	PM PEAK Pass-by Site Trip Distributions	PM PEAK Pass-by Site Trips	PM PEAK 2027 Build Volumes	
(1) BAY ROAD & 18TH STREET	18TH STREET	Eastbound	EBL	36	37		0		0	37	Int 1
			EBT	65	66		0		0	66	
			EBR	19	19		0		0	19	
			Approach	120	122		0		0	122	
		Westbound	WBL	35	36		0		0	36	
			WBT	107	109		0		0	109	
			WBR	66	67		0		0	67	
			Approach	208	212		0		0	212	
	BAY ROAD	Northbound	NBL	5	5		0		0	5	
			NBT	15	15		0		0	15	
			NBR	16	16		0		0	16	
			Approach	36	36		0		0	36	
		Southbound	SBL	92	94		0		0	94	
			SBT	38	39		0		0	39	
			SBR	61	62		0		0	62	
			Approach	191	195		0		0	195	
(2) BAY ROAD & DADE BOULEVARD	DADE BOULEVARD	Eastbound	EBL	0	0		0		0	0	Int 2
			EBT	217	221	64%	3		0	224	
			EBR	235	240		0		0	240	
			Approach	452	461	64%	3		0	464	
		Westbound	WBL	0	0		0		0	0	
			WBT	353	360	(64%)	13		0	373	
			WBR	10	10		0		0	10	
			Approach	363	370	(64%)	13		0	383	
	BAY ROAD	Northbound	NBL	377	385		0		0	385	
			NBT	0	0		0		0	0	
			NBR	0	0		0		0	0	
			Approach	377	385		0		0	385	
		Southbound	SBL	0	0		0		0	0	
			SBT	0	0		0		0	0	
			SBR	68	69		0		0	69	
			Approach	68	69		0		0	69	
(3) WEST AVENUE & 18TH STREET	18TH STREET	Eastbound	EBL	61	62		0		0	62	Int 3
			EBT	12	12		0		0	12	
			EBR	106	108		0		0	108	
			Approach	179	182		0		0	182	
		Westbound	WBL	10	10	26%	1		0	11	
			WBT	28	29		0		0	29	
			WBR	33	34		0		0	34	
			Approach	71	73	26%	1		0	74	
	WEST AVENUE	Northbound	NBL	127	130		0		0	130	
			NBT	299	305		0		0	305	
			NBR	25	26		0		0	26	
			Approach	451	461		0		0	461	
		Southbound	SBL	7	7		0		0	7	
			SBT	109	111		0		0	111	
			SBR	57	58		0		0	58	
			Approach	173	176		0		0	176	

PM Peak Hour Volumes

Intersection	Road	Direction	Movement	PM PEAK 2024 Existing Volumes	PM PEAK 2027 No Build Volumes	PM PEAK Site Trip Distribution	PM PEAK Site Trips	PM PEAK Pass-by Site Trip Distributions	PM PEAK Pass-by Site Trips	PM PEAK 2027 Build Volumes	
(4) WEST AVENUE & DADE BOULEVARD	DADE BOULEVARD	Eastbound	EBL	37	38		0		0	38	Int 4
			EBT	179	183	(36%)	8		0	191	
			EBR	0	0		0		0	0	
			Approach	216	221	(36%)	8		0	229	
		Westbound	WBL	111	113		0		0	113	
			WBT	336	343	10%	1		0	344	
			WBR	195	199		0		0	199	
			Approach	642	655	10%	1		0	656	
	WEST AVENUE	Northbound	NBL	0	0		0		0	0	
			NBT	232	237		0		0	237	
			NBR	113	115		0		0	115	
			Approach	345	352		0		0	352	
		Southbound	SBL	47	48		0		0	48	
			SBT	173	176		0		0	176	
			SBR	14	14	26%	1		0	15	
			Approach	234	238	26%	1		0	239	
(5) WEST AVENUE & 17TH STREET	17TH STREET	Eastbound	EBL	0	0		0		0	0	Int 5
			EBT	126	129		0		0	129	
			EBR	112	114		0		0	114	
			Approach	238	243		0		0	243	
		Westbound	WBL	36	37		0		0	37	
			WBT	166	169		0		0	169	
			WBR	34	35		0		0	35	
			Approach	236	241		0		0	241	
	WEST AVENUE	Northbound	NBL	209	213		0		0	213	
			NBT	311	317		0		0	317	
			NBR	73	74		0		0	74	
			Approach	593	604		0		0	604	
		Southbound	SBL	46	47		0		0	47	
			SBT	237	242		0		0	242	
			SBR	0	0		0		0	0	
			Approach	283	289		0		0	289	
(6) DADE BOULEVARD & MAIN DRIVEWAY	DADE BOULEVARD	Eastbound	EBL	0	0	64%	3		0	3	Int 6
			EBT	0	0		0		0	0	
			EBR	0	0		0		0	0	
			Approach	0	0	64%	3		0	3	
		Westbound	WBL	0	0		0		0	0	
			WBT	0	0		0		0	0	
			WBR	0	0	36%	2		0	2	
			Approach	0	0	36%	2		0	2	
	MAIN DRIVEWAY	Northbound	NBL	0	0		0		0	0	
			NBT	0	0		0		0	0	
			NBR	0	0		0		0	0	
			Approach	0	0		0		0	0	
		Southbound	SBL	0	0	(36%)	8		0	8	
			SBT	0	0		0		0	0	
			SBR	0	0	(64%)	13		0	13	
			Approach	0	0	(100%)	21		0	21	

APPENDIX F
INTERSECTION CAPACITY REPORTS

EXISTING CONDITIONS

Table 1.1 -2024 Existing Intersection Capacity Analysis Summary

Location	Time	Level of Service[1]									
		(1) BAY ROAD & 18TH STREET		(2) BAY ROAD & DADE BOULEVARD		(3) WEST AVENUE & 18TH STREET		(4) WEST AVENUE & DADE BOULEVARD		(5) WEST AVENUE & 17TH STREET	
		Unsignalized		Signalized		Unsignalized		Signalized		Signalized	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
EBL	AM							B	14.6		
	PM							B	16.0		
EBT	AM			B	12.8			B	18.6	C	20.7
	PM			C	25.4			B	19.3	C	20.2
EBR	AM			A	0.3					C	21.8
	PM			A	0.2					C	20.9
EB Approach	AM	A	7.9	A	6.2	A	8.2	B	18.2	C	21.2
	PM	A	8.8	B	12.3	B	10.7	B	18.7	C	20.5
WBL	AM							B	14.3	B	16.0
	PM							B	15.1	B	15.9
WBT	AM			B	10.5			B	17.4	B	14.4
	PM			C	28.9			C	20.6	B	15.7
WBR	AM			B	10.5			B	15.9	B	14.4
	PM			C	28.9			C	20.6	B	15.7
WB Approach	AM	A	7.8	B	10.5	A	8.0	B	16.5	B	15.0
	PM	A	9.4	C	28.9	A	9.6	B	19.2	B	15.7
NBL	AM			C	24.1					C	25.3
	PM			C	20.3					C	30.7
NBT	AM							D	40.0	C	29.9
	PM							D	39.5	C	31.3
NBR	AM							D	40.0	C	29.9
	PM							D	39.5	C	31.3
NB Approach	AM	A	7.4	C	24.1	A	9.5	D	40.0	C	29.0
	PM	A	8.1	C	20.3	C	17.2	D	39.5	C	31.1
SBL	AM							A	0.0	D	44.0
	PM							A	0.0	C	26.8
SBT	AM							A	0.0	D	40.9
	PM							A	0.0	C	27.7
SBR	AM			B	10.5			A	0.0		
	PM			C	21.6			A	0.0		
SB Approach	AM	A	7.9	B	10.5	A	8.0	A	0.0	D	41.4
	PM	A	9.6	C	21.6	B	10.1	A	0.0	C	27.5
Overall	AM			B	10.1			C	21.6	C	26.9
	PM			B	20.0			C	20.9	C	25.8

[1] Delay is average delay per vehicle in seconds

[2] Approach operates under Free-flow conditions

Table 1.2 -2024 Existing Intersection Queue Lengths Summary

Location	Time	95th Percentile Queue Lenghts (ft)															
		EBL		EBR		WBL		WBR		NBL		NBR		SBL		SBR	
		Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile
(1) BAY ROAD & 18TH STREET	AM																
	PM																
(2) BAY ROAD & DADE BOULEVARD	AM			112	0												
	PM				0												
(3) WEST AVENUE & 18TH STREET	AM																
	PM																
(4) WEST AVENUE & DADE BOULEVARD	AM	103	16			96	43	162	24								
	PM		59				65		42								
(5) WEST AVENUE & 17TH STREET	AM			87	40	132	39			116	70						
	PM				22		30				#172						

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

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

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	39	11	11	57	54	2	17	22	41	4	22
Future Vol, veh/h	36	39	11	11	57	54	2	17	22	41	4	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	39	42	12	12	62	59	2	18	24	45	4	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	7.8	7.4	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	42%	9%	61%
Vol Thru, %	41%	45%	47%	6%
Vol Right, %	54%	13%	44%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	86	122	67
LT Vol	2	36	11	41
Through Vol	17	39	57	4
RT Vol	22	11	54	22
Lane Flow Rate	45	93	133	73
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.111	0.147	0.089
Departure Headway (Hd)	4.215	4.266	3.98	4.42
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	854	826	886	816
Service Time	2.217	2.363	2.076	2.421
HCM Lane V/C Ratio	0.053	0.113	0.15	0.089
HCM Control Delay, s/veh	7.4	7.9	7.8	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.5	0.3

Lane Group	WBL	SBR	NET	NER	SWT
Lane Configurations					
Traffic Volume (vph)	134	13	242	269	201
Future Volume (vph)	134	13	242	269	201
Lane Group Flow (vph)	146	14	263	292	242
Turn Type	Prot	Perm	NA	Free	NA
Protected Phases	4		6		2
Permitted Phases		6		Free	
Detector Phase	4	6	6		2
Switch Phase					
Minimum Initial (s)	7.0	7.0	7.0		7.0
Minimum Split (s)	26.0	25.0	25.0		25.0
Total Split (s)	41.0	69.0	69.0		69.0
Total Split (%)	37.3%	62.7%	62.7%		62.7%
Yellow Time (s)	4.0	4.0	4.0		4.0
All-Red Time (s)	4.0	3.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	8.0	7.0	7.0		7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	C-Max	C-Max		C-Max
v/c Ratio	0.28	0.01	0.25	0.19	0.24
Control Delay (s/veh)	24.5	0.0	13.0	0.3	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.5	0.0	13.0	0.3	10.3
Queue Length 50th (ft)	58	0	89	0	49
Queue Length 95th (ft)	96	0	137	0	77
Internal Link Dist (ft)	294		287		341
Turn Bay Length (ft)				112	
Base Capacity (vph)	525	1120	1039	1520	1022
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	0.28	0.01	0.25	0.19	0.24

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 70 (64%), Referenced to phase 2:SWT and 6:NET, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dade Blvd & 17th Street & Bay Road



Movement	WBL	WBR	SBL	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	134	0	0	13	0	242	269	0	201	22
Future Volume (vph)	134	0	0	13	0	242	269	0	201	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0			7.0		7.0	4.0		7.0	
Lane Util. Factor	1.00			1.00		1.00	1.00		1.00	
Frpb, ped/bikes	1.00			0.96		1.00	0.97		0.99	
Flpb, ped/bikes	1.00			1.00		1.00	1.00		1.00	
Frt	1.00			0.87		1.00	0.85		0.99	
Flt Protected	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (prot)	1752			1535		1845	1520		1807	
Flt Permitted	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (perm)	1752			1535		1845	1520		1807	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	0	0	14	0	263	292	0	218	24
RTOR Reduction (vph)	0	0	0	6	0	0	0	0	3	0
Lane Group Flow (vph)	146	0	0	8	0	263	292	0	239	0
Confl. Peds. (#/hr)	5			5	16					16
Confl. Bikes (#/hr)		21		5			28			4
Turn Type	Prot			Perm		NA	Free		NA	
Protected Phases	4					6			2	
Permitted Phases				6			Free			
Actuated Green, G (s)	33.0			62.0		62.0	110.0		62.0	
Effective Green, g (s)	33.0			62.0		62.0	110.0		62.0	
Actuated g/C Ratio	0.30			0.56		0.56	1.00		0.56	
Clearance Time (s)	8.0			7.0		7.0			7.0	
Vehicle Extension (s)	2.5			2.5		2.5			2.5	
Lane Grp Cap (vph)	525			865		1039	1520		1018	
v/s Ratio Prot	c0.08					c0.14			0.13	
v/s Ratio Perm				0.01			0.19			
v/c Ratio	0.28			0.01		0.25	0.19		0.23	
Uniform Delay, d1	29.4			10.5		12.2	0.0		12.1	
Progression Factor	0.78			1.00		1.00	1.00		0.82	
Incremental Delay, d2	1.3			0.0		0.6	0.3		0.5	
Delay (s)	24.1			10.5		12.8	0.3		10.5	
Level of Service	C			B		B	A		B	
Approach Delay (s/veh)	24.1		10.5			6.2			10.5	
Approach LOS	C		B			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	7	74	4	28	18	78	143	8	4	47	21
Future Vol, veh/h	27	7	74	4	28	18	78	143	8	4	47	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	29	8	80	4	30	20	85	155	9	4	51	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.2	8	9.5	8
HCM LOS	A	A	A	A

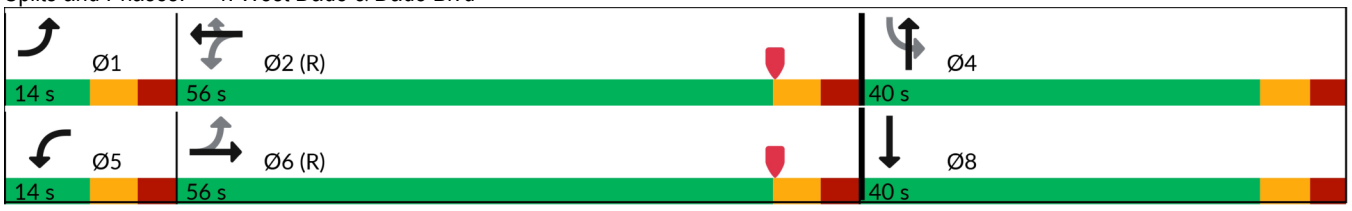
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	25%	8%	6%
Vol Thru, %	62%	6%	56%	65%
Vol Right, %	3%	69%	36%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	229	108	50	72
LT Vol	78	27	4	4
Through Vol	143	7	28	47
RT Vol	8	74	18	21
Lane Flow Rate	249	117	54	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.31	0.144	0.07	0.097
Departure Headway (Hd)	4.479	4.41	4.644	4.46
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	804	814	771	803
Service Time	2.502	2.437	2.676	2.489
HCM Lane V/C Ratio	0.31	0.144	0.07	0.097
HCM Control Delay, s/veh	9.5	8.2	8	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.3	0.5	0.2	0.3

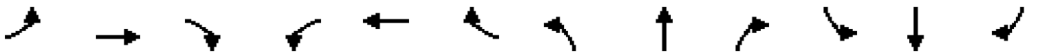
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	219	69	219	87	127	37	92
Future Volume (vph)	22	219	69	219	87	127	37	92
Lane Group Flow (vph)	24	238	75	238	95	328	0	144
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	D.Pm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		2		4	
Detector Phase	1	6	5	2	2	4	4	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	14.0	56.0	14.0	56.0	56.0	40.0	40.0	40.0
Total Split (%)	12.7%	50.9%	12.7%	50.9%	50.9%	36.4%	36.4%	36.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max
v/c Ratio	0.04	0.27	0.12	0.26	0.12	0.62		0.37
Control Delay (s/veh)	4.7	16.7	11.3	18.4	3.0	10.7		33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5		0.0
Total Delay (s/veh)	4.7	16.7	11.3	18.4	3.0	11.2		33.5
Queue Length 50th (ft)	8	130	22	104	0	6		79
Queue Length 95th (ft)	16	202	43	162	24	36		138
Internal Link Dist (ft)		341		336		224		236
Turn Bay Length (ft)	103		96		162			
Base Capacity (vph)	617	868	605	916	800	530		391
Starvation Cap Reductn	0	0	0	0	0	38		0
Spillback Cap Reductn	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0		0
Reduced v/c Ratio	0.04	0.27	0.12	0.26	0.12	0.67		0.37

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 93 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 4: West Dade & Dade Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	219	0	69	219	87	0	127	175	37	92	4
Future Volume (veh/h)	22	219	0	69	219	87	0	127	175	37	92	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.94	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	0	1856	1856	1856	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	238	0	75	238	95	0	138	190	40	100	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	0	3	3	3	0	3	3	3	3	3
Cap, veh/h	532	869	0	579	901	739	0	203	280	42	85	2
Arrive On Green	0.02	0.47	0.00	0.04	0.49	0.49	0.00	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1767	1856	0	1767	1856	1523	0	678	933	2	285	8
Grp Volume(v), veh/h	24	238	0	75	238	95	0	0	328	144	0	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1767	1856	1523	0	0	1611	294	0	0
Q Serve(g_s), s	0.8	8.6	0.0	2.4	8.3	3.8	0.0	0.0	19.7	8.1	0.0	0.0
Cycle Q Clear(g_c), s	0.8	8.6	0.0	2.4	8.3	3.8	0.0	0.0	19.7	8.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.58	0.28		0.03
Lane Grp Cap(c), veh/h	532	869	0	579	901	739	0	0	483	0	0	0
V/C Ratio(X)	0.05	0.27	0.00	0.13	0.26	0.13	0.00	0.00	0.68	0.00	0.00	0.00
Avail Cap(c_a), veh/h	603	869	0	619	901	739	0	0	483	0	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)	0.98	0.98	0.00	1.00	1.00	1.00	0.00	0.00	0.82	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.6	17.8	0.0	14.2	16.7	15.5	0.0	0.0	33.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.1	0.7	0.4	0.0	0.0	6.2	0.0	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	0.3	3.8	0.0	1.0	3.7	1.4	0.0	0.0	8.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.6	18.6	0.0	14.3	17.4	15.9	0.0	0.0	40.0	0.0	0.0	0.0
LnGrp LOS	B	B		B	B	B			D			
Approach Vol, veh/h		262			408			328			144	
Approach Delay, s/veh		18.2			16.5			40.0			0.0	
Approach LOS		B			B			D			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	60.4		40.0	11.5	58.5		40.0				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	7.0	49.0		33.0	7.0	49.0		33.0				
Max Q Clear Time (g_c+I1), s	2.8	10.3		21.7	4.4	10.6		10.1				
Green Ext Time (p_c), s	0.0	0.5		1.3	0.0	0.5		0.7				

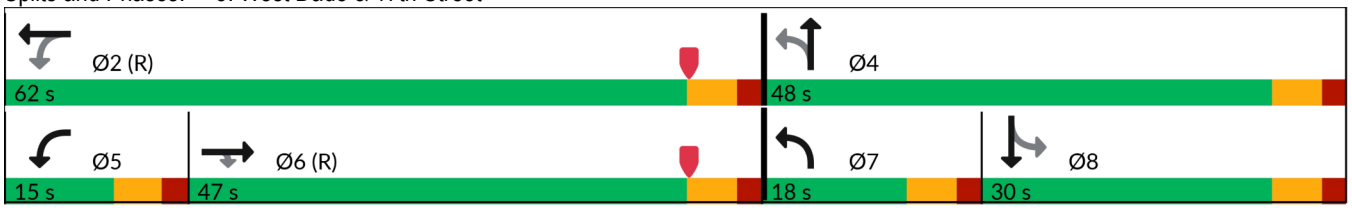
Intersection Summary			
HCM 7th Control Delay, s/veh		21.6	
HCM 7th LOS		C	

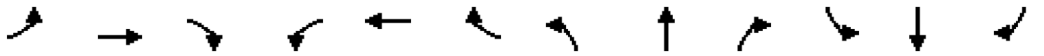
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	130	136	49	59	74	265	21	139
Future Volume (vph)	130	136	49	59	74	265	21	139
Lane Group Flow (vph)	141	148	53	101	80	370	23	151
Turn Type	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	6		5	2	7	4		8
Permitted Phases		6	2		4		8	
Detector Phase	6	6	5	2	7	4	8	8
Switch Phase								
Minimum Initial (s)	12.0	12.0	5.0	12.0	5.0	7.0	7.0	7.0
Minimum Split (s)	24.0	24.0	11.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	47.0	47.0	15.0	62.0	18.0	48.0	30.0	30.0
Total Split (%)	42.7%	42.7%	13.6%	56.4%	16.4%	43.6%	27.3%	27.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	None	Max	Max	Max
v/c Ratio	0.18	0.24	0.10	0.11	0.19	0.55	0.09	0.30
Control Delay (s/veh)	22.3	4.6	14.2	9.5	23.4	29.1	26.2	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay (s/veh)	22.3	4.6	14.2	9.5	23.4	29.1	26.2	28.2
Queue Length 50th (ft)	64	0	18	22	36	193	8	54
Queue Length 95th (ft)	112	40	39	50	70	288	21	114
Internal Link Dist (ft)	294			299		418		224
Turn Bay Length (ft)		87	132		116			
Base Capacity (vph)	770	626	561	887	442	678	268	510
Starvation Cap Reductn	0	0	0	0	0	0	0	136
Spillback Cap Reductn	0	0	0	0	0	5	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.24	0.09	0.11	0.18	0.55	0.09	0.40

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 87 (79%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: West Dade & 17th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	130	136	49	59	34	74	265	75	21	139	0
Future Volume (veh/h)	0	130	136	49	59	34	74	265	75	21	139	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.91	0.98		0.93	0.98		0.95	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	0	141	148	53	64	37	80	288	82	23	151	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	3	3	3	3	3	3	0
Cap, veh/h	0	776	596	523	545	315	394	523	149	281	523	0
Arrive On Green	0.00	0.42	0.42	0.04	0.51	0.51	0.05	0.38	0.38	0.09	0.09	0.00
Sat Flow, veh/h	0	1856	1425	1767	1071	619	1767	1369	390	993	1856	0
Grp Volume(v), veh/h	0	141	148	53	0	101	80	0	370	23	151	0
Grp Sat Flow(s),veh/h/ln	0	1856	1425	1767	0	1690	1767	0	1759	993	1856	0
Q Serve(g_s), s	0.0	5.3	7.4	1.8	0.0	3.4	3.4	0.0	18.1	2.4	8.3	0.0
Cycle Q Clear(g_c), s	0.0	5.3	7.4	1.8	0.0	3.4	3.4	0.0	18.1	9.5	8.3	0.0
Prop In Lane	0.00		1.00	1.00		0.37	1.00		0.22	1.00		0.00
Lane Grp Cap(c), veh/h	0	776	596	523	0	860	394	0	672	281	523	0
V/C Ratio(X)	0.00	0.18	0.25	0.10	0.00	0.12	0.20	0.00	0.55	0.08	0.29	0.00
Avail Cap(c_a), veh/h	0	776	596	603	0	860	507	0	672	281	523	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.00	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	0.0	20.2	20.8	16.0	0.0	14.1	25.2	0.0	26.6	43.5	39.6	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.0	0.0	0.3	0.1	0.0	3.2	0.6	1.3	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	0.0	2.4	2.6	0.7	0.0	1.4	1.4	0.0	8.1	0.7	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.7	21.8	16.0	0.0	14.4	25.3	0.0	29.9	44.0	40.9	0.0
LnGrp LOS		C	C	B		B	C		C	D	D	
Approach Vol, veh/h		289			154			450			174	
Approach Delay, s/veh		21.2			15.0			29.0			41.4	
Approach LOS		C			B			C			D	

Timer - Assigned Phs	2		4	5	6	7	8					
Phs Duration (G+Y+Rc), s	62.0		48.0	10.0	52.0	11.0	37.0					
Change Period (Y+Rc), s	6.0		6.0	6.0	6.0	6.0	6.0					
Max Green Setting (Gmax), s	56.0		42.0	9.0	41.0	12.0	24.0					
Max Q Clear Time (g_c+I1), s	5.4		20.1	3.8	9.4	5.4	11.5					
Green Ext Time (p_c), s	0.5		1.9	0.0	1.1	0.0	0.5					

Intersection Summary		
HCM 7th Control Delay, s/veh	26.9	
HCM 7th LOS	C	

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	65	19	35	107	66	5	15	16	92	38	61
Future Vol, veh/h	36	65	19	35	107	66	5	15	16	92	38	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	39	71	21	38	116	72	5	16	17	100	41	66
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	9.4	8.1	9.6
HCM LOS	A	A	A	A

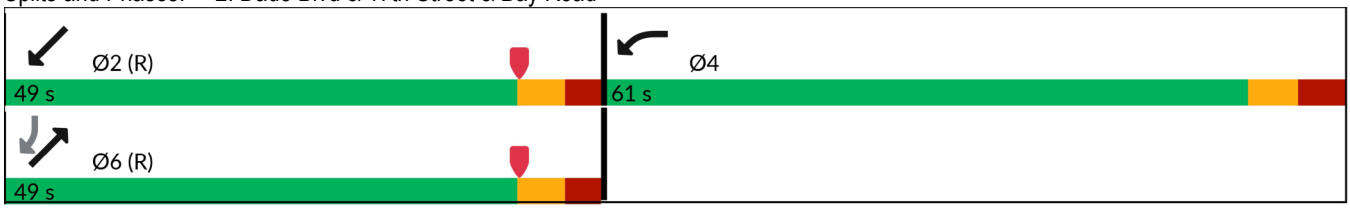
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	30%	17%	48%
Vol Thru, %	42%	54%	51%	20%
Vol Right, %	44%	16%	32%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	120	208	191
LT Vol	5	36	35	92
Through Vol	15	65	107	38
RT Vol	16	19	66	61
Lane Flow Rate	39	130	226	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.173	0.286	0.273
Departure Headway (Hd)	4.81	4.777	4.549	4.731
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	740	747	787	756
Service Time	2.87	2.826	2.592	2.777
HCM Lane V/C Ratio	0.053	0.174	0.287	0.275
HCM Control Delay, s/veh	8.1	8.8	9.4	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.6	1.2	1.1

Lane Group	WBL	SBR	NET	NER	SWT
Lane Configurations					
Traffic Volume (vph)	377	68	217	235	353
Future Volume (vph)	377	68	217	235	353
Lane Group Flow (vph)	410	74	236	255	395
Turn Type	Prot	Perm	NA	Free	NA
Protected Phases	4		6		2
Permitted Phases		6		Free	
Detector Phase	4	6	6		2
Switch Phase					
Minimum Initial (s)	7.0	7.0	7.0		7.0
Minimum Split (s)	26.0	25.0	25.0		25.0
Total Split (s)	61.0	49.0	49.0		49.0
Total Split (%)	55.5%	44.5%	44.5%		44.5%
Yellow Time (s)	4.0	4.0	4.0		4.0
All-Red Time (s)	4.0	3.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	8.0	7.0	7.0		7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	C-Max	C-Max		C-Max
v/c Ratio	0.49	0.09	0.34	0.17	0.56
Control Delay (s/veh)	20.8	0.2	25.8	0.2	29.4
Queue Delay	2.3	0.0	0.0	0.0	8.2
Total Delay (s/veh)	23.0	0.2	25.8	0.2	37.5
Queue Length 50th (ft)	202	0	116	0	275
Queue Length 95th (ft)	274	0	181	0	389
Internal Link Dist (ft)	294		287		341
Turn Bay Length (ft)				112	
Base Capacity (vph)	844	810	704	1512	701
Starvation Cap Reductn	297	0	0	0	262
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	0.09	0.34	0.17	0.90

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:SWT and 6:NET, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dade Blvd & 17th Street & Bay Road





Movement	WBL	WBR	SBL	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	377	0	0	68	0	217	235	0	353	10
Future Volume (vph)	377	0	0	68	0	217	235	0	353	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0			7.0		7.0	4.0		7.0	
Lane Util. Factor	1.00			1.00		1.00	1.00		1.00	
Frpb, ped/bikes	1.00			0.96		1.00	0.96		1.00	
Flpb, ped/bikes	1.00			1.00		1.00	1.00		1.00	
Frt	1.00			0.87		1.00	0.85		1.00	
Flt Protected	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (prot)	1752			1534		1845	1512		1833	
Flt Permitted	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (perm)	1752			1534		1845	1512		1833	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	410	0	0	74	0	236	255	0	384	11
RTOR Reduction (vph)	0	0	0	46	0	0	0	0	1	0
Lane Group Flow (vph)	410	0	0	28	0	236	255	0	394	0
Confl. Peds. (#/hr)	5			5	18		3	3		18
Confl. Bikes (#/hr)		26		4			38			12
Turn Type	Prot			Perm		NA	Free		NA	
Protected Phases	4					6			2	
Permitted Phases				6			Free			
Actuated Green, G (s)	53.0			42.0		42.0	110.0		42.0	
Effective Green, g (s)	53.0			42.0		42.0	110.0		42.0	
Actuated g/C Ratio	0.48			0.38		0.38	1.00		0.38	
Clearance Time (s)	8.0			7.0		7.0			7.0	
Vehicle Extension (s)	2.5			2.5		2.5			2.5	
Lane Grp Cap (vph)	844			585		704	1512		699	
v/s Ratio Prot	c0.23					0.13			c0.21	
v/s Ratio Perm				0.02			0.17			
v/c Ratio	0.49			0.05		0.34	0.17		0.56	
Uniform Delay, d1	19.3			21.4		24.1	0.0		26.8	
Progression Factor	0.96			1.00		1.00	1.00		0.97	
Incremental Delay, d2	1.8			0.2		1.3	0.2		3.1	
Delay (s)	20.3			21.6		25.4	0.2		28.9	
Level of Service	C			C		C	A		C	
Approach Delay (s/veh)	20.3		21.6			12.3			28.9	
Approach LOS	C		C			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	12	106	10	28	33	127	299	25	7	109	57
Future Vol, veh/h	61	12	106	10	28	33	127	299	25	7	109	57
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	64	13	112	11	29	35	134	315	26	7	115	60
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.7	9.6	17.2	10.1
HCM LOS	B	A	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	34%	14%	4%
Vol Thru, %	66%	7%	39%	63%
Vol Right, %	6%	59%	46%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	451	179	71	173
LT Vol	127	61	10	7
Through Vol	299	12	28	109
RT Vol	25	106	33	57
Lane Flow Rate	475	188	75	182
Geometry Grp	1	1	1	1
Degree of Util (X)	0.659	0.286	0.119	0.262
Departure Headway (Hd)	4.994	5.472	5.736	5.182
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	726	656	623	694
Service Time	3.018	3.512	3.783	3.216
HCM Lane V/C Ratio	0.654	0.287	0.12	0.262
HCM Control Delay, s/veh	17.2	10.7	9.6	10.1
HCM Lane LOS	C	B	A	B
HCM 95th-tile Q	5	1.2	0.4	1

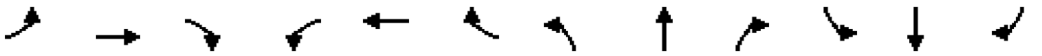
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	37	179	111	336	195	232	47	173
Future Volume (vph)	37	179	111	336	195	232	47	173
Lane Group Flow (vph)	39	188	117	354	205	363	0	246
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	D.Pm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		2		4	
Detector Phase	1	6	5	2	2	4	4	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	14.0	55.0	14.0	55.0	55.0	41.0	41.0	41.0
Total Split (%)	12.7%	50.0%	12.7%	50.0%	50.0%	37.3%	37.3%	37.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max
v/c Ratio	0.08	0.23	0.19	0.39	0.26	0.69		0.68
Control Delay (s/veh)	33.3	47.5	12.3	21.0	3.5	15.5		43.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.9		0.3
Total Delay (s/veh)	33.3	47.5	12.3	21.2	3.5	16.4		43.9
Queue Length 50th (ft)	25	120	37	170	0	40		150
Queue Length 95th (ft)	59	193	65	251	42	57		246
Internal Link Dist (ft)		341		336		224		236
Turn Bay Length (ft)	103		96		162			
Base Capacity (vph)	497	805	617	899	799	529		363
Starvation Cap Reductn	0	0	0	0	0	40		0
Spillback Cap Reductn	0	0	0	117	0	0		7
Storage Cap Reductn	0	0	0	0	0	0		0
Reduced v/c Ratio	0.08	0.23	0.19	0.45	0.26	0.74		0.69

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 80 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 4: West Dade & Dade Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	179	0	111	336	195	0	232	113	47	173	14
Future Volume (veh/h)	37	179	0	111	336	195	0	232	113	47	173	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	0.99		0.95	1.00		0.89	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	0	1856	1856	1856	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	39	188	0	117	354	205	0	244	119	49	182	15
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, %	3	3	0	3	3	3	0	3	3	3	3	3
Cap, veh/h	410	830	0	612	869	700	0	348	170	40	122	8
Arrive On Green	0.03	0.45	0.00	0.05	0.47	0.47	0.00	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1767	1856	0	1767	1856	1494	0	1125	549	1	396	26
Grp Volume(v), veh/h	39	188	0	117	354	205	0	0	363	246	0	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1767	1856	1494	0	0	1673	423	0	0
Q Serve(g_s), s	1.3	6.9	0.0	3.9	13.8	9.3	0.0	0.0	21.1	14.1	0.0	0.0
Cycle Q Clear(g_c), s	1.3	6.9	0.0	3.9	13.8	9.3	0.0	0.0	21.1	14.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.33	0.20		0.06
Lane Grp Cap(c), veh/h	410	830	0	612	869	700	0	0	517	0	0	0
V/C Ratio(X)	0.10	0.23	0.00	0.19	0.41	0.29	0.00	0.00	0.70	0.00	0.00	0.00
Avail Cap(c_a), veh/h	466	830	0	632	869	700	0	0	517	0	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)	0.95	0.95	0.00	1.00	1.00	1.00	0.00	0.00	0.76	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.9	18.7	0.0	15.0	19.2	18.0	0.0	0.0	33.5	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.2	1.4	1.1	0.0	0.0	6.0	0.0	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	3.1	0.0	1.6	6.2	3.4	0.0	0.0	9.3	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.0	19.3	0.0	15.1	20.6	19.1	0.0	0.0	39.5	0.0	0.0	0.0
LnGrp LOS	B	B		B	C	B			D			
Approach Vol, veh/h		227			676			363			246	
Approach Delay, s/veh		18.7			19.2			39.5			0.0	
Approach LOS		B			B			D			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	58.5		41.0	12.8	56.2		41.0				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	7.0	48.0		34.0	7.0	48.0		34.0				
Max Q Clear Time (g_c+I1), s	3.3	15.8		23.1	5.9	8.9		16.1				
Green Ext Time (p_c), s	0.0	0.9		1.5	0.0	0.4		1.1				

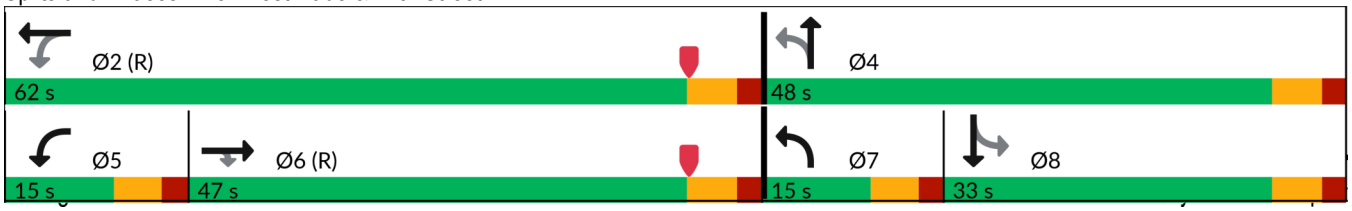
Intersection Summary			
HCM 7th Control Delay, s/veh		20.9	
HCM 7th LOS		C	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	126	112	36	166	209	311	46	237
Future Volume (vph)	126	112	36	166	209	311	46	237
Lane Group Flow (vph)	133	118	38	211	220	404	48	249
Turn Type	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	6		5	2	7	4		8
Permitted Phases		6	2		4		8	
Detector Phase	6	6	5	2	7	4	8	8
Switch Phase								
Minimum Initial (s)	12.0	12.0	5.0	12.0	5.0	7.0	7.0	7.0
Minimum Split (s)	24.0	24.0	11.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	47.0	47.0	15.0	62.0	15.0	48.0	33.0	33.0
Total Split (%)	42.7%	42.7%	13.6%	56.4%	13.6%	43.6%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	None	Max	Max	Max
v/c Ratio	0.16	0.22	0.08	0.24	0.68	0.61	0.22	0.55
Control Delay (s/veh)	20.8	2.8	14.0	14.9	36.9	31.2	28.5	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	3.0
Total Delay (s/veh)	20.8	2.8	14.0	14.9	37.0	31.2	28.5	34.9
Queue Length 50th (ft)	59	0	13	74	108	220	15	101
Queue Length 95th (ft)	105	22	30	121	#172	325	m32	180
Internal Link Dist (ft)	294			299		418		224
Turn Bay Length (ft)		87	132		116			
Base Capacity (vph)	815	544	517	895	323	666	215	452
Starvation Cap Reductn	0	0	0	0	0	0	0	117
Spillback Cap Reductn	0	0	0	11	3	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.22	0.07	0.24	0.69	0.61	0.22	0.74

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 75 (68%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
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: 5: West Dade & 17th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	126	112	36	166	34	209	311	73	46	237	0
Future Volume (veh/h)	0	126	112	36	166	34	209	311	73	46	237	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.84	0.96		0.88	0.96		0.90	0.95		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	0	133	118	38	175	36	220	327	77	48	249	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, %	0	3	3	3	3	3	3	3	3	3	3	0
Cap, veh/h	0	785	558	526	740	152	373	541	127	248	455	0
Arrive On Green	0.00	0.42	0.42	0.03	0.51	0.51	0.08	0.38	0.38	0.49	0.49	0.00
Sat Flow, veh/h	0	1856	1319	1767	1453	299	1767	1417	334	929	1856	0
Grp Volume(v), veh/h	0	133	118	38	0	211	220	0	404	48	249	0
Grp Sat Flow(s),veh/h/ln	0	1856	1319	1767	0	1751	1767	0	1751	929	1856	0
Q Serve(g_s), s	0.0	4.9	6.2	1.3	0.0	7.4	9.0	0.0	20.4	3.8	10.3	0.0
Cycle Q Clear(g_c), s	0.0	4.9	6.2	1.3	0.0	7.4	9.0	0.0	20.4	9.2	10.3	0.0
Prop In Lane	0.00		1.00	1.00		0.17	1.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	0	785	558	526	0	892	373	0	669	248	455	0
V/C Ratio(X)	0.00	0.17	0.21	0.07	0.00	0.24	0.59	0.00	0.60	0.19	0.55	0.00
Avail Cap(c_a), veh/h	0	785	558	615	0	892	373	0	669	248	455	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.00	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.00
Uniform Delay (d), s/veh	0.0	19.7	20.1	15.9	0.0	15.1	29.0	0.0	27.3	25.3	23.7	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.9	0.0	0.0	0.6	1.7	0.0	4.0	1.5	3.9	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	0.0	2.2	0.1	0.5	0.0	3.1	4.5	0.0	9.1	0.8	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.2	20.9	15.9	0.0	15.7	30.7	0.0	31.3	26.8	27.7	0.0
LnGrp LOS		C	C	B		B	C		C	C	C	
Approach Vol, veh/h		251			249			624			297	
Approach Delay, s/veh		20.5			15.7			31.1			27.5	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	2	4	5	6	7	8
Phs Duration (G+Y+Rc), s	62.0	48.0	9.4	52.6	15.0	33.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	56.0	42.0	9.0	41.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	9.4	22.4	3.3	8.2	11.0	12.3
Green Ext Time (p_c), s	1.2	2.1	0.0	1.1	0.0	1.2

Intersection Summary	
HCM 7th Control Delay, s/veh	25.8
HCM 7th LOS	C

FUTURE NO BUILD CONDITIONS

Table 2.1 - 2027 No Build Intersection Capacity Analysis Summary

Location	Time	Level of Service[1]									
		(1) BAY ROAD & 18TH STREET		(2) BAY ROAD & DADE BOULEVARD		(3) WEST AVENUE & 18TH STREET		(4) WEST AVENUE & DADE BOULEVARD		(5) WEST AVENUE & 17TH STREET	
		Unsignalized		Signalized		Unsignalized		Signalized		Signalized	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
EBL	AM							B	14.6		
	PM							B	16.1		
EBT	AM			B	12.9			B	18.7	C	20.7
	PM			C	25.5			B	19.4	C	20.2
EBR	AM			A	0.3					C	21.9
	PM			A	0.2					B	15.9
EB Approach	AM	A	7.9	A	6.2	A	8.2	B	18.3	C	21.3
	PM	A	8.9	B	12.3	B	10.9	B	18.8	C	20.6
WBL	AM							B	14.3	B	16.1
	PM							B	15.2	B	15.9
WBT	AM			B	10.5			B	17.5	B	14.4
	PM			C	29.2			C	20.8	B	15.8
WBR	AM			B	10.5			B	15.9	B	14.4
	PM			C	29.2			B	19.2	B	15.8
WB Approach	AM	A	7.8	B	10.5	A	8.1	B	16.5	B	15.0
	PM	A	9.5	C	29.2	A	9.7	B	19.3	B	15.8
NBL	AM			C	24.0					C	25.3
	PM			C	20.5					C	31.4
NBT	AM							D	40.6	C	30.1
	PM							D	40.0	C	31.7
NBR	AM							D	40.6	C	30.1
	PM							D	40.0	C	31.7
NB Approach	AM	A	7.5	C	24.0	A	9.6	D	40.6	C	29.3
	PM	A	8.2	C	20.5	C	18.0	D	40.0	C	31.6
SBL	AM							A	0.0	D	44.4
	PM							A	0.0	C	27.2
SBT	AM							A	0.0	D	41.1
	PM							A	0.0	C	27.9
SBR	AM			B	10.5			A	0.0		
	PM			C	21.6			A	0.0		
SB Approach	AM	A	7.9	B	10.5	A	8.0	A	0.0	D	41.6
	PM	A	9.7	C	21.6	B	10.2	A	0.0	C	27.8
Overall	AM			B	10.1			C	21.8	C	27.0
	PM			C	20.1			C	21.1	C	26.1

[1] Delay is average delay per vehicle in seconds

[2] Approach operates under Free-flow conditions

Table 2.2 -2027 No Build Intersection Queue Lengths Summary

Location	Time	95th Percentile Queue Lenghts (ft)															
		EBL		EBR		WBL		WBR		NBL		NBR		SBL		SBR	
		Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile
(1) BAY ROAD & 18TH STREET	AM																
	PM																
(2) BAY ROAD & DADE BOULEVARD	AM			112	0												
	PM				0												
(3) WEST AVENUE & 18TH STREET	AM																
	PM																
(4) WEST AVENUE & DADE BOULEVARD	AM	103	16			96	44	162	25								
	PM		61				66		43								
(5) WEST AVENUE & 17TH STREET	AM			87	41	132	40			116	71						
	PM				23		31				#182						

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

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

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Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	40	11	11	58	55	2	17	22	42	4	22
Future Vol, veh/h	37	40	11	11	58	55	2	17	22	42	4	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	40	43	12	12	63	60	2	18	24	46	4	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	7.8	7.5	7.9
HCM LOS	A	A	A	A

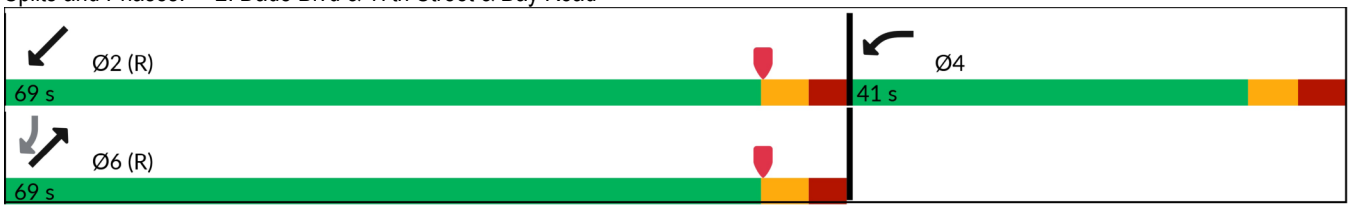
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	42%	9%	62%
Vol Thru, %	41%	45%	47%	6%
Vol Right, %	54%	13%	44%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	88	124	68
LT Vol	2	37	11	42
Through Vol	17	40	58	4
RT Vol	22	11	55	22
Lane Flow Rate	45	96	135	74
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.114	0.149	0.091
Departure Headway (Hd)	4.227	4.272	3.983	4.433
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	852	825	884	813
Service Time	2.229	2.371	2.081	2.434
HCM Lane V/C Ratio	0.053	0.116	0.153	0.091
HCM Control Delay, s/veh	7.5	7.9	7.8	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.5	0.3

Lane Group	WBL	SBR	NET	NER	SWT
Lane Configurations					
Traffic Volume (vph)	137	13	247	274	205
Future Volume (vph)	137	13	247	274	205
Lane Group Flow (vph)	149	14	268	298	247
Turn Type	Prot	Perm	NA	Free	NA
Protected Phases	4		6		2
Permitted Phases		6		Free	
Detector Phase	4	6	6		2
Switch Phase					
Minimum Initial (s)	7.0	7.0	7.0		7.0
Minimum Split (s)	26.0	25.0	25.0		25.0
Total Split (s)	41.0	69.0	69.0		69.0
Total Split (%)	37.3%	62.7%	62.7%		62.7%
Yellow Time (s)	4.0	4.0	4.0		4.0
All-Red Time (s)	4.0	3.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	8.0	7.0	7.0		7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	C-Max	C-Max		C-Max
v/c Ratio	0.28	0.01	0.26	0.20	0.24
Control Delay (s/veh)	24.4	0.0	13.1	0.3	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.4	0.0	13.1	0.3	10.3
Queue Length 50th (ft)	59	0	91	0	50
Queue Length 95th (ft)	98	0	140	0	79
Internal Link Dist (ft)	294		287		341
Turn Bay Length (ft)				112	
Base Capacity (vph)	525	1116	1039	1520	1022
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	0.28	0.01	0.26	0.20	0.24

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 70 (64%), Referenced to phase 2:SWT and 6:NET, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dade Blvd & 17th Street & Bay Road



Movement	WBL	WBR	SBL	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	137	0	0	13	0	247	274	0	205	22
Future Volume (vph)	137	0	0	13	0	247	274	0	205	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0			7.0		7.0	4.0		7.0	
Lane Util. Factor	1.00			1.00		1.00	1.00		1.00	
Frpb, ped/bikes	1.00			0.96		1.00	0.97		0.99	
Flpb, ped/bikes	1.00			1.00		1.00	1.00		1.00	
Frt	1.00			0.87		1.00	0.85		0.99	
Flt Protected	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (prot)	1752			1535		1845	1520		1808	
Flt Permitted	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (perm)	1752			1535		1845	1520		1808	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	0	0	14	0	268	298	0	223	24
RTOR Reduction (vph)	0	0	0	6	0	0	0	0	3	0
Lane Group Flow (vph)	149	0	0	8	0	268	298	0	244	0
Confl. Peds. (#/hr)	5			5	16					16
Confl. Bikes (#/hr)		21		5			28			4
Turn Type	Prot			Perm		NA	Free		NA	
Protected Phases	4					6			2	
Permitted Phases				6			Free			
Actuated Green, G (s)	33.0			62.0		62.0	110.0		62.0	
Effective Green, g (s)	33.0			62.0		62.0	110.0		62.0	
Actuated g/C Ratio	0.30			0.56		0.56	1.00		0.56	
Clearance Time (s)	8.0			7.0		7.0			7.0	
Vehicle Extension (s)	2.5			2.5		2.5			2.5	
Lane Grp Cap (vph)	525			865		1039	1520		1019	
v/s Ratio Prot	c0.09					c0.15			0.13	
v/s Ratio Perm				0.01			0.20			
v/c Ratio	0.28			0.01		0.26	0.20		0.24	
Uniform Delay, d1	29.5			10.5		12.3	0.0		12.1	
Progression Factor	0.77			1.00		1.00	1.00		0.82	
Incremental Delay, d2	1.3			0.0		0.6	0.3		0.5	
Delay (s)	24.0			10.5		12.9	0.3		10.5	
Level of Service	C			B		B	A		B	
Approach Delay (s/veh)	24.0		10.5			6.2			10.5	
Approach LOS	C		B			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	7	75	4	29	18	80	146	8	4	48	21
Future Vol, veh/h	28	7	75	4	29	18	80	146	8	4	48	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	8	82	4	32	20	87	159	9	4	52	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.2	8.1	9.6	8
HCM LOS	A	A	A	A

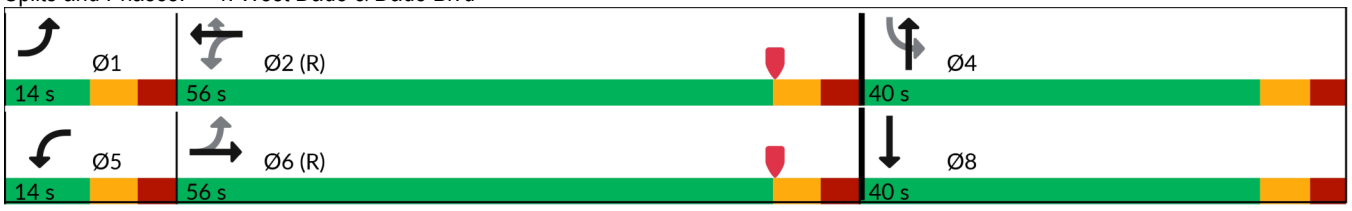
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	25%	8%	5%
Vol Thru, %	62%	6%	57%	66%
Vol Right, %	3%	68%	35%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	234	110	51	73
LT Vol	80	28	4	4
Through Vol	146	7	29	48
RT Vol	8	75	18	21
Lane Flow Rate	254	120	55	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.317	0.147	0.072	0.099
Departure Headway (Hd)	4.489	4.431	4.668	4.477
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	801	809	767	800
Service Time	2.514	2.459	2.701	2.508
HCM Lane V/C Ratio	0.317	0.148	0.072	0.099
HCM Control Delay, s/veh	9.6	8.2	8.1	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.4	0.5	0.2	0.3

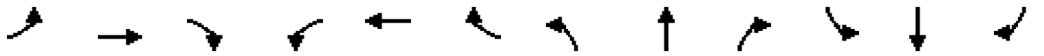
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	223	70	223	89	130	38	94
Future Volume (vph)	22	223	70	223	89	130	38	94
Lane Group Flow (vph)	24	242	76	242	97	336	0	147
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	D.Pm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		2		4	
Detector Phase	1	6	5	2	2	4	4	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	14.0	56.0	14.0	56.0	56.0	40.0	40.0	40.0
Total Split (%)	12.7%	50.9%	12.7%	50.9%	50.9%	36.4%	36.4%	36.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max
v/c Ratio	0.04	0.28	0.13	0.26	0.12	0.63		0.39
Control Delay (s/veh)	4.7	16.8	11.3	18.4	3.1	11.2		34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.6		0.0
Total Delay (s/veh)	4.7	16.8	11.3	18.4	3.1	11.8		34.0
Queue Length 50th (ft)	8	132	23	106	0	6		81
Queue Length 95th (ft)	16	205	44	164	25	38		142
Internal Link Dist (ft)		341		336		224		236
Turn Bay Length (ft)	103		96		162			
Base Capacity (vph)	614	868	600	916	800	531		380
Starvation Cap Reductn	0	0	0	0	0	38		0
Spillback Cap Reductn	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0		0
Reduced v/c Ratio	0.04	0.28	0.13	0.26	0.12	0.68		0.39

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 93 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 4: West Dade & Dade Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	223	0	70	223	89	0	130	179	38	94	4
Future Volume (veh/h)	22	223	0	70	223	89	0	130	179	38	94	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.94	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	0	1856	1856	1856	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	242	0	76	242	97	0	141	195	41	102	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	0	3	3	3	0	3	3	3	3	3
Cap, veh/h	528	869	0	576	901	739	0	203	281	42	85	2
Arrive On Green	0.02	0.47	0.00	0.04	0.49	0.49	0.00	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1767	1856	0	1767	1856	1523	0	676	935	2	283	8
Grp Volume(v), veh/h	24	242	0	76	242	97	0	0	336	147	0	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1767	1856	1523	0	0	1611	293	0	0
Q Serve(g_s), s	0.8	8.8	0.0	2.4	8.5	3.8	0.0	0.0	20.3	8.3	0.0	0.0
Cycle Q Clear(g_c), s	0.8	8.8	0.0	2.4	8.5	3.8	0.0	0.0	20.3	8.3	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.58	0.28		0.03
Lane Grp Cap(c), veh/h	528	869	0	576	901	739	0	0	483	0	0	0
V/C Ratio(X)	0.05	0.28	0.00	0.13	0.27	0.13	0.00	0.00	0.70	0.00	0.00	0.00
Avail Cap(c_a), veh/h	599	869	0	616	901	739	0	0	483	0	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)	0.98	0.98	0.00	1.00	1.00	1.00	0.00	0.00	0.81	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.6	17.9	0.0	14.2	16.7	15.6	0.0	0.0	34.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.1	0.7	0.4	0.0	0.0	6.6	0.0	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	0.3	3.9	0.0	1.0	3.8	1.4	0.0	0.0	8.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.6	18.7	0.0	14.3	17.5	15.9	0.0	0.0	40.6	0.0	0.0	0.0
LnGrp LOS	B	B		B	B	B			D			
Approach Vol, veh/h		266			415			336			147	
Approach Delay, s/veh		18.3			16.5			40.6			0.0	
Approach LOS		B			B			D			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	60.4		40.0	11.5	58.5		40.0				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	7.0	49.0		33.0	7.0	49.0		33.0				
Max Q Clear Time (g_c+I1), s	2.8	10.5		22.3	4.4	10.8		10.3				
Green Ext Time (p_c), s	0.0	0.5		1.3	0.0	0.5		0.7				

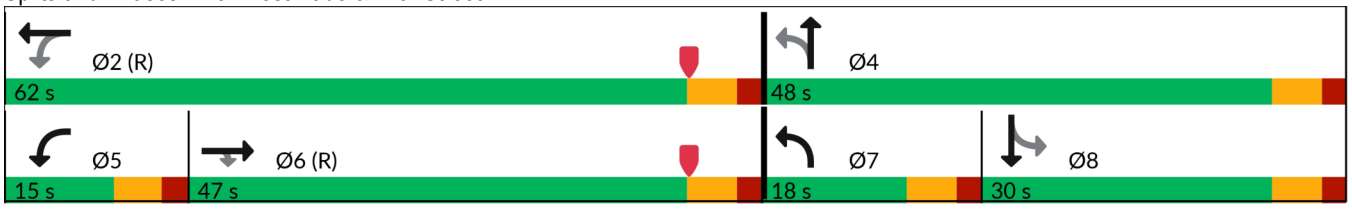
Intersection Summary			
HCM 7th Control Delay, s/veh		21.8	
HCM 7th LOS		C	

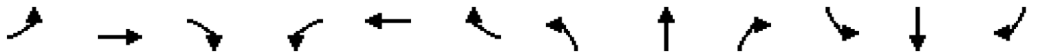
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	133	139	50	60	75	270	21	142
Future Volume (vph)	133	139	50	60	75	270	21	142
Lane Group Flow (vph)	145	151	54	103	82	377	23	154
Turn Type	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	6		5	2	7	4		8
Permitted Phases		6	2		4		8	
Detector Phase	6	6	5	2	7	4	8	8
Switch Phase								
Minimum Initial (s)	12.0	12.0	5.0	12.0	5.0	7.0	7.0	7.0
Minimum Split (s)	24.0	24.0	11.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	47.0	47.0	15.0	62.0	18.0	48.0	30.0	30.0
Total Split (%)	42.7%	42.7%	13.6%	56.4%	16.4%	43.6%	27.3%	27.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	None	Max	Max	Max
v/c Ratio	0.19	0.24	0.10	0.12	0.20	0.56	0.09	0.30
Control Delay (s/veh)	22.4	4.6	14.2	9.4	23.5	29.4	26.7	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay (s/veh)	22.4	4.6	14.2	9.4	23.5	29.4	26.7	28.2
Queue Length 50th (ft)	66	0	19	23	37	198	8	54
Queue Length 95th (ft)	114	41	40	51	71	295	m21	116
Internal Link Dist (ft)	294			299		418		224
Turn Bay Length (ft)		87	132		116			
Base Capacity (vph)	769	626	560	887	440	678	266	509
Starvation Cap Reductn	0	0	0	0	0	0	0	133
Spillback Cap Reductn	0	0	0	0	0	6	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.24	0.10	0.12	0.19	0.56	0.09	0.41

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 87 (79%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: West Dade & 17th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	133	139	50	60	35	75	270	77	21	142	0
Future Volume (veh/h)	0	133	139	50	60	35	75	270	77	21	142	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.91	0.98		0.93	0.98		0.95	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	0	145	151	54	65	38	82	293	84	23	154	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	3	3	3	3	3	3	0
Cap, veh/h	0	775	595	519	543	317	392	522	150	276	521	0
Arrive On Green	0.00	0.42	0.42	0.04	0.51	0.51	0.05	0.38	0.38	0.09	0.09	0.00
Sat Flow, veh/h	0	1856	1425	1767	1066	623	1767	1367	392	987	1856	0
Grp Volume(v), veh/h	0	145	151	54	0	103	82	0	377	23	154	0
Grp Sat Flow(s),veh/h/ln	0	1856	1425	1767	0	1689	1767	0	1758	987	1856	0
Q Serve(g_s), s	0.0	5.4	7.6	1.8	0.0	3.5	3.5	0.0	18.6	2.4	8.5	0.0
Cycle Q Clear(g_c), s	0.0	5.4	7.6	1.8	0.0	3.5	3.5	0.0	18.6	9.9	8.5	0.0
Prop In Lane	0.00		1.00	1.00		0.37	1.00		0.22	1.00		0.00
Lane Grp Cap(c), veh/h	0	775	595	519	0	860	392	0	671	276	521	0
V/C Ratio(X)	0.00	0.19	0.25	0.10	0.00	0.12	0.21	0.00	0.56	0.08	0.30	0.00
Avail Cap(c_a), veh/h	0	775	595	599	0	860	503	0	671	276	521	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.00	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	0.0	20.2	20.9	16.0	0.0	14.1	25.2	0.0	26.8	43.9	39.7	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.0	0.0	0.3	0.1	0.0	3.4	0.6	1.4	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	0.0	2.5	2.7	0.7	0.0	1.4	1.5	0.0	8.3	0.7	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.7	21.9	16.1	0.0	14.4	25.3	0.0	30.1	44.4	41.1	0.0
LnGrp LOS		C	C	B		B	C		C	D	D	
Approach Vol, veh/h		296			157			459			177	
Approach Delay, s/veh		21.3			15.0			29.3			41.6	
Approach LOS		C			B			C			D	

Timer - Assigned Phs	2		4	5	6	7	8					
Phs Duration (G+Y+Rc), s	62.0		48.0	10.0	52.0	11.1	36.9					
Change Period (Y+Rc), s	6.0		6.0	6.0	6.0	6.0	6.0					
Max Green Setting (Gmax), s	56.0		42.0	9.0	41.0	12.0	24.0					
Max Q Clear Time (g_c+I1), s	5.5		20.6	3.8	9.6	5.5	11.9					
Green Ext Time (p_c), s	0.6		1.9	0.0	1.2	0.0	0.5					

Intersection Summary		
HCM 7th Control Delay, s/veh	27.0	
HCM 7th LOS	C	

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	66	19	36	109	67	5	15	16	94	39	62
Future Vol, veh/h	37	66	19	36	109	67	5	15	16	94	39	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	40	72	21	39	118	73	5	16	17	102	42	67
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.9	9.5	8.2	9.7
HCM LOS	A	A	A	A

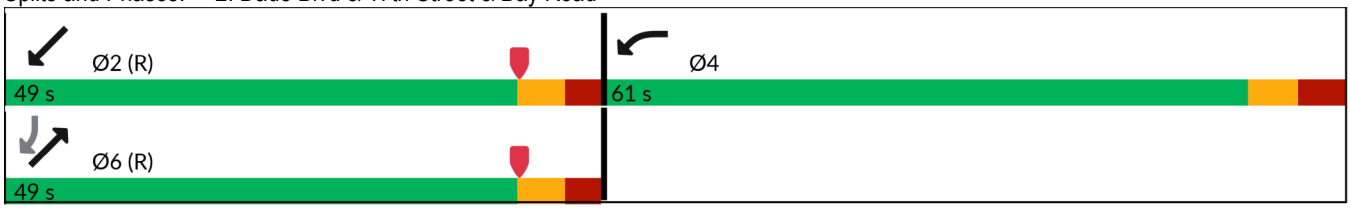
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	30%	17%	48%
Vol Thru, %	42%	54%	51%	20%
Vol Right, %	44%	16%	32%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	122	212	195
LT Vol	5	37	36	94
Through Vol	15	66	109	39
RT Vol	16	19	67	62
Lane Flow Rate	39	133	230	212
Geometry Grp	1	1	1	1
Degree of Util (X)	0.053	0.177	0.292	0.28
Departure Headway (Hd)	4.834	4.798	4.565	4.749
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	736	744	783	755
Service Time	2.898	2.851	2.613	2.797
HCM Lane V/C Ratio	0.053	0.179	0.294	0.281
HCM Control Delay, s/veh	8.2	8.9	9.5	9.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.6	1.2	1.1

Lane Group	WBL	SBR	NET	NER	SWT
Lane Configurations					
Traffic Volume (vph)	385	69	221	240	360
Future Volume (vph)	385	69	221	240	360
Lane Group Flow (vph)	418	75	240	261	402
Turn Type	Prot	Perm	NA	Free	NA
Protected Phases	4		6		2
Permitted Phases		6		Free	
Detector Phase	4	6	6		2
Switch Phase					
Minimum Initial (s)	7.0	7.0	7.0		7.0
Minimum Split (s)	26.0	25.0	25.0		25.0
Total Split (s)	61.0	49.0	49.0		49.0
Total Split (%)	55.5%	44.5%	44.5%		44.5%
Yellow Time (s)	4.0	4.0	4.0		4.0
All-Red Time (s)	4.0	3.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	8.0	7.0	7.0		7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	C-Max	C-Max		C-Max
v/c Ratio	0.50	0.09	0.34	0.17	0.57
Control Delay (s/veh)	21.0	0.2	25.9	0.3	29.7
Queue Delay	2.4	0.0	0.0	0.0	9.6
Total Delay (s/veh)	23.3	0.2	25.9	0.3	39.4
Queue Length 50th (ft)	207	0	119	0	283
Queue Length 95th (ft)	278	0	184	0	396
Internal Link Dist (ft)	294		287		341
Turn Bay Length (ft)				112	
Base Capacity (vph)	844	805	704	1512	700
Starvation Cap Reductn	293	0	0	0	262
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.09	0.34	0.17	0.92

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:SWT and 6:NET, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dade Blvd & 17th Street & Bay Road





Movement	WBL	WBR	SBL	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	385	0	0	69	0	221	240	0	360	10
Future Volume (vph)	385	0	0	69	0	221	240	0	360	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0			7.0		7.0	4.0		7.0	
Lane Util. Factor	1.00			1.00		1.00	1.00		1.00	
Frpb, ped/bikes	1.00			0.96		1.00	0.96		1.00	
Flpb, ped/bikes	1.00			1.00		1.00	1.00		1.00	
Frt	1.00			0.87		1.00	0.85		1.00	
Flt Protected	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (prot)	1752			1534		1845	1512		1834	
Flt Permitted	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (perm)	1752			1534		1845	1512		1834	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	418	0	0	75	0	240	261	0	391	11
RTOR Reduction (vph)	0	0	0	46	0	0	0	0	1	0
Lane Group Flow (vph)	418	0	0	29	0	240	261	0	401	0
Confl. Peds. (#/hr)	5			5	18		3	3		18
Confl. Bikes (#/hr)		26		4			38			12
Turn Type	Prot			Perm		NA	Free		NA	
Protected Phases	4					6			2	
Permitted Phases				6			Free			
Actuated Green, G (s)	53.0			42.0		42.0	110.0		42.0	
Effective Green, g (s)	53.0			42.0		42.0	110.0		42.0	
Actuated g/C Ratio	0.48			0.38		0.38	1.00		0.38	
Clearance Time (s)	8.0			7.0		7.0			7.0	
Vehicle Extension (s)	2.5			2.5		2.5			2.5	
Lane Grp Cap (vph)	844			585		704	1512		700	
v/s Ratio Prot	c0.24					0.13			c0.22	
v/s Ratio Perm				0.02			0.17			
v/c Ratio	0.50			0.05		0.34	0.17		0.57	
Uniform Delay, d1	19.4			21.4		24.2	0.0		26.9	
Progression Factor	0.96			1.00		1.00	1.00		0.97	
Incremental Delay, d2	1.9			0.2		1.3	0.2		3.2	
Delay (s)	20.5			21.6		25.5	0.2		29.2	
Level of Service	C			C		C	A		C	
Approach Delay (s/veh)	20.5		21.6			12.3			29.2	
Approach LOS	C		C			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	12	108	10	29	34	130	305	26	7	111	58
Future Vol, veh/h	62	12	108	10	29	34	130	305	26	7	111	58
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	65	13	114	11	31	36	137	321	27	7	117	61
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.9	9.7	18	10.2
HCM LOS	B	A	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	34%	14%	4%
Vol Thru, %	66%	7%	40%	63%
Vol Right, %	6%	59%	47%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	461	182	73	176
LT Vol	130	62	10	7
Through Vol	305	12	29	111
RT Vol	26	108	34	58
Lane Flow Rate	485	192	77	185
Geometry Grp	1	1	1	1
Degree of Util (X)	0.677	0.294	0.124	0.269
Departure Headway (Hd)	5.02	5.52	5.789	5.223
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	718	649	618	687
Service Time	3.051	3.563	3.841	3.264
HCM Lane V/C Ratio	0.675	0.296	0.125	0.269
HCM Control Delay, s/veh	18	10.9	9.7	10.2
HCM Lane LOS	C	B	A	B
HCM 95th-tile Q	5.3	1.2	0.4	1.1

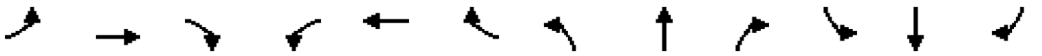
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	38	183	113	343	199	237	48	176
Future Volume (vph)	38	183	113	343	199	237	48	176
Lane Group Flow (vph)	40	193	119	361	209	370	0	251
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	D.Pm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		2		4	
Detector Phase	1	6	5	2	2	4	4	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	14.0	55.0	14.0	55.0	55.0	41.0	41.0	41.0
Total Split (%)	12.7%	50.0%	12.7%	50.0%	50.0%	37.3%	37.3%	37.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max
v/c Ratio	0.08	0.24	0.19	0.40	0.26	0.70		0.72
Control Delay (s/veh)	33.5	47.7	12.3	21.1	3.5	15.9		46.3
Queue Delay	0.0	0.0	0.0	0.2	0.0	1.0		0.5
Total Delay (s/veh)	33.5	47.7	12.3	21.3	3.5	16.9		46.8
Queue Length 50th (ft)	25	123	37	175	0	41		155
Queue Length 95th (ft)	61	198	66	257	43	58		#270
Internal Link Dist (ft)		341		336		224		236
Turn Bay Length (ft)	103		96		162			
Base Capacity (vph)	492	805	613	899	802	529		351
Starvation Cap Reductn	0	0	0	0	0	40		0
Spillback Cap Reductn	0	0	0	126	0	0		9
Storage Cap Reductn	0	0	0	0	0	0		0
Reduced v/c Ratio	0.08	0.24	0.19	0.47	0.26	0.76		0.73

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 80 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: West Dade & Dade Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	183	0	113	343	199	0	237	115	48	176	14
Future Volume (veh/h)	38	183	0	113	343	199	0	237	115	48	176	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	0.99		0.95	1.00		0.89	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	0	1856	1856	1856	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	40	193	0	119	361	209	0	249	121	51	185	15
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, %	3	3	0	3	3	3	0	3	3	3	3	3
Cap, veh/h	405	829	0	608	868	699	0	348	169	40	120	8
Arrive On Green	0.03	0.45	0.00	0.05	0.47	0.47	0.00	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1767	1856	0	1767	1856	1494	0	1126	547	1	388	25
Grp Volume(v), veh/h	40	193	0	119	361	209	0	0	370	251	0	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1767	1856	1494	0	0	1674	413	0	0
Q Serve(g_s), s	1.3	7.1	0.0	4.0	14.1	9.5	0.0	0.0	21.6	14.5	0.0	0.0
Cycle Q Clear(g_c), s	1.3	7.1	0.0	4.0	14.1	9.5	0.0	0.0	21.6	14.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.33	0.20		0.06
Lane Grp Cap(c), veh/h	405	829	0	608	868	699	0	0	517	0	0	0
V/C Ratio(X)	0.10	0.23	0.00	0.20	0.42	0.30	0.00	0.00	0.72	0.00	0.00	0.00
Avail Cap(c_a), veh/h	460	829	0	627	868	699	0	0	517	0	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)	0.95	0.95	0.00	1.00	1.00	1.00	0.00	0.00	0.75	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.9	18.8	0.0	15.0	19.3	18.1	0.0	0.0	33.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.2	1.5	1.1	0.0	0.0	6.2	0.0	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	3.2	0.0	1.6	6.4	3.5	0.0	0.0	9.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.1	19.4	0.0	15.2	20.8	19.2	0.0	0.0	40.0	0.0	0.0	0.0
LnGrp LOS	B	B		B	C	B			D			
Approach Vol, veh/h		233			689			370			251	
Approach Delay, s/veh		18.8			19.3			40.0			0.0	
Approach LOS		B			B			D			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	58.5		41.0	12.8	56.2		41.0				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	7.0	48.0		34.0	7.0	48.0		34.0				
Max Q Clear Time (g_c+I1), s	3.3	16.1		23.6	6.0	9.1		16.5				
Green Ext Time (p_c), s	0.0	0.9		1.4	0.0	0.4		1.2				

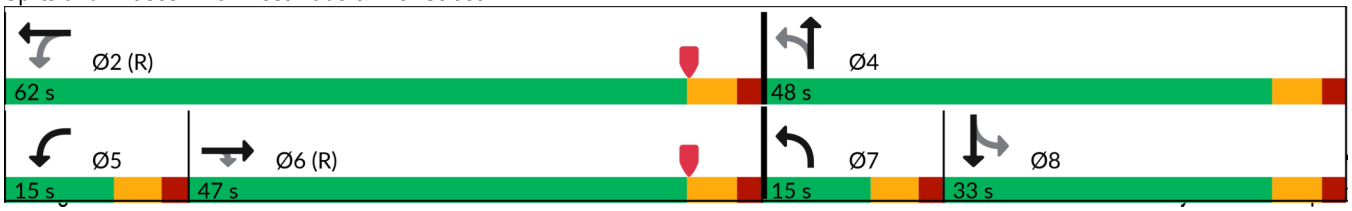
Intersection Summary		
HCM 7th Control Delay, s/veh		21.1
HCM 7th LOS		C

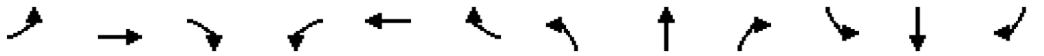
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	129	114	37	169	213	317	47	242
Future Volume (vph)	129	114	37	169	213	317	47	242
Lane Group Flow (vph)	136	120	39	215	224	412	49	255
Turn Type	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	6		5	2	7	4		8
Permitted Phases		6	2		4		8	
Detector Phase	6	6	5	2	7	4	8	8
Switch Phase								
Minimum Initial (s)	12.0	12.0	5.0	12.0	5.0	7.0	7.0	7.0
Minimum Split (s)	24.0	24.0	11.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	47.0	47.0	15.0	62.0	15.0	48.0	33.0	33.0
Total Split (%)	42.7%	42.7%	13.6%	56.4%	13.6%	43.6%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	None	Max	Max	Max
v/c Ratio	0.17	0.22	0.08	0.24	0.70	0.62	0.23	0.56
Control Delay (s/veh)	20.9	2.9	14.1	14.9	38.2	31.5	28.6	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	3.5
Total Delay (s/veh)	20.9	2.9	14.1	14.9	38.4	31.5	28.6	35.7
Queue Length 50th (ft)	61	0	13	76	111	226	16	103
Queue Length 95th (ft)	107	23	31	123	#182	333	m32	m184
Internal Link Dist (ft)	294			299		418		224
Turn Bay Length (ft)		87	132		116			
Base Capacity (vph)	814	543	516	894	320	667	214	452
Starvation Cap Reductn	0	0	0	0	0	0	0	119
Spillback Cap Reductn	0	0	0	11	5	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.22	0.08	0.24	0.71	0.62	0.23	0.77

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 75 (68%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
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: 5: West Dade & 17th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	129	114	37	169	35	213	317	74	47	242	0
Future Volume (veh/h)	0	129	114	37	169	35	213	317	74	47	242	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.84	0.96		0.88	0.96		0.90	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	0	136	120	39	178	37	224	334	78	49	255	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, %	0	3	3	3	3	3	3	3	3	3	3	0
Cap, veh/h	0	785	558	523	738	153	370	542	127	243	455	0
Arrive On Green	0.00	0.42	0.42	0.03	0.51	0.51	0.08	0.38	0.38	0.49	0.49	0.00
Sat Flow, veh/h	0	1856	1319	1767	1449	301	1767	1420	332	924	1856	0
Grp Volume(v), veh/h	0	136	120	39	0	215	224	0	412	49	255	0
Grp Sat Flow(s),veh/h/ln	0	1856	1319	1767	0	1751	1767	0	1752	924	1856	0
Q Serve(g_s), s	0.0	5.0	6.4	1.3	0.0	7.6	9.0	0.0	20.9	4.0	10.6	0.0
Cycle Q Clear(g_c), s	0.0	5.0	6.4	1.3	0.0	7.6	9.0	0.0	20.9	9.9	10.6	0.0
Prop In Lane	0.00		1.00	1.00		0.17	1.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	0	785	558	523	0	891	370	0	669	243	455	0
V/C Ratio(X)	0.00	0.17	0.22	0.07	0.00	0.24	0.61	0.00	0.62	0.20	0.56	0.00
Avail Cap(c_a), veh/h	0	785	558	612	0	891	370	0	669	243	455	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.00	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00	0.82	0.82	0.00
Uniform Delay (d), s/veh	0.0	19.8	20.2	15.9	0.0	15.1	29.4	0.0	27.5	25.7	23.8	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.9	0.0	0.0	0.6	2.0	0.0	4.2	1.5	4.0	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	0.0	2.3	2.1	0.5	0.0	3.1	4.6	0.0	9.4	0.9	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.2	21.0	15.9	0.0	15.8	31.4	0.0	31.7	27.2	27.9	0.0
LnGrp LOS		C	C	B		B	C		C	C	C	
Approach Vol, veh/h		256			254			636			304	
Approach Delay, s/veh		20.6			15.8			31.6			27.8	
Approach LOS		C			B			C			C	

Timer - Assigned Phs		2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s		62.0		48.0	9.5	52.5	15.0	33.0				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s		56.0		42.0	9.0	41.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s		9.6		22.9	3.3	8.4	11.0	12.6				
Green Ext Time (p_c), s		1.2		2.1	0.0	1.1	0.0	1.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			26.1									
HCM 7th LOS			C									

FUTURE BUILD CONDITIONS

Table 5.1 - 2027 Build Intersection Capacity Analysis Summary

Location	Time	Level of Service[1]											
		(1) BAY ROAD & 18TH STREET		(2) BAY ROAD & DADE BOULEVARD		(3) WEST AVENUE & 18TH STREET		(4) WEST AVENUE & DADE BOULEVARD		(5) WEST AVENUE & 17TH STREET		(6) DADE BOULEVARD & MAIN DRIVEWAY	
		Unsignalized		Signalized		Unsignalized		Signalized		Signalized		Unsignalized	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
EBL	AM							B	14.7				
	PM							B	16.1				
EBT	AM			B	13.0			B	18.7	C	20.7		
	PM			C	25.6			B	19.5	C	20.2		
EBR	AM			A	0.3					C	21.9		
	PM			A	0.2					C	21.0		
EB Approach	AM	A	7.9	A	6.5	A	8.2	B	18.3	C	21.3		
	PM	A	8.9	B	12.4	B	10.9	B	19.0	C	20.6		
WBL	AM							B	14.4	B	16.1		
	PM							B	15.2	B	15.9		
WBT	AM			B	10.3			B	17.5	B	14.4		
	PM			C	29.9			C	20.8	B	15.8		
WBR	AM			B	10.3			B	15.9	B	14.4		
	PM			C	29.9			B	19.2	B	15.8		
WB Approach	AM	A	7.8	B	10.3	A	8.1	B	16.6	B	15.0		
	PM	A	9.5	C	29.9	A	9.7	B	19.4	B	15.8		
NBL	AM			C	24.0					C	25.3		
	PM			C	20.5					C	31.4		
NBT	AM							D	40.6	C	30.1		
	PM							D	40.0	C	31.7		
NBR	AM							D	40.6	C	30.1		
	PM							D	40.0	C	31.7		
NB Approach	AM	A	7.5	C	24.0	A	9.6	D	40.6	C	29.3		
	PM	A	8.2	C	20.5	C	18.0	D	40.0	C	31.6		
SBL	AM							A	0.0	D	44.4		
	PM							A	0.0	C	27.2		
SBT	AM							A	0.0	D	41.1		
	PM							A	0.0	C	27.8		
SBR	AM			B	10.5			A	0.0				
	PM			C	21.6			A	0.0				
SB Approach	AM	A	7.9	B	10.5	A	8.0	A	0.0	D	41.6	B	10.3
	PM	A	9.7	C	21.6	B	10.2	A	0.0	C	27.7	B	11.8
Overall	AM			B	10.1			C	21.7	C	27.0		
	PM			C	20.5			C	21.1	C	26.1		

[1] Delay is average delay per vehicle in seconds

[2] Approach operates under Free-flow conditions

Table 5.2 -2027 Build Intersection Queue Lengths Summary

Location	Time	95th Percentile Queue Lenghts (ft)															
		EBL		EBR		WBL		WBR		NBL		NBR		SBL		SBR	
		Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile
(1) BAY ROAD & 18TH STREET	AM																
	PM																
(2) BAY ROAD & DADE BOULEVARD	AM			112	0												
	PM				0												
(3) WEST AVENUE & 18TH STREET	AM																
	PM																
(4) WEST AVENUE & DADE BOULEVARD	AM	103	15			96	44	162	25								
	PM		61				66		43								
(5) WEST AVENUE & 17TH STREET	AM			87	41	132	40			116	71						
	PM				23		31				#182						
(6) DADE BOULEVARD & MAIN DRIVEWAY	AM																
	PM																

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

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

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Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	40	11	11	58	55	2	17	22	42	4	22
Future Vol, veh/h	37	40	11	11	58	55	2	17	22	42	4	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	40	43	12	12	63	60	2	18	24	46	4	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	7.8	7.5	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	42%	9%	62%
Vol Thru, %	41%	45%	47%	6%
Vol Right, %	54%	13%	44%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	88	124	68
LT Vol	2	37	11	42
Through Vol	17	40	58	4
RT Vol	22	11	55	22
Lane Flow Rate	45	96	135	74
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.114	0.149	0.091
Departure Headway (Hd)	4.227	4.272	3.983	4.433
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	852	825	884	813
Service Time	2.229	2.371	2.081	2.434
HCM Lane V/C Ratio	0.053	0.116	0.153	0.091
HCM Control Delay, s/veh	7.5	7.9	7.8	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.5	0.3

Lane Group	WBL	SBR	NET	NER	SWT
Lane Configurations					
Traffic Volume (vph)	137	13	260	274	208
Future Volume (vph)	137	13	260	274	208
Lane Group Flow (vph)	149	14	283	298	250
Turn Type	Prot	Perm	NA	Free	NA
Protected Phases	4		6		2
Permitted Phases		6		Free	
Detector Phase	4	6	6		2
Switch Phase					
Minimum Initial (s)	7.0	7.0	7.0		7.0
Minimum Split (s)	26.0	25.0	25.0		25.0
Total Split (s)	41.0	69.0	69.0		69.0
Total Split (%)	37.3%	62.7%	62.7%		62.7%
Yellow Time (s)	4.0	4.0	4.0		4.0
All-Red Time (s)	4.0	3.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	8.0	7.0	7.0		7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	C-Max	C-Max		C-Max
v/c Ratio	0.28	0.01	0.27	0.20	0.24
Control Delay (s/veh)	24.4	0.0	13.2	0.3	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.4	0.0	13.2	0.3	10.1
Queue Length 50th (ft)	59	0	97	0	49
Queue Length 95th (ft)	98	0	148	0	80
Internal Link Dist (ft)	294		287		341
Turn Bay Length (ft)				112	
Base Capacity (vph)	525	1116	1039	1520	1022
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	0.28	0.01	0.27	0.20	0.24

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 70 (64%), Referenced to phase 2:SWT and 6:NET, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dade Blvd & 17th Street & Bay Road



Movement	WBL	WBR	SBL	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	137	0	0	13	0	260	274	0	208	22
Future Volume (vph)	137	0	0	13	0	260	274	0	208	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0			7.0		7.0	4.0		7.0	
Lane Util. Factor	1.00			1.00		1.00	1.00		1.00	
Frpb, ped/bikes	1.00			0.96		1.00	0.97		0.99	
Flpb, ped/bikes	1.00			1.00		1.00	1.00		1.00	
Frt	1.00			0.87		1.00	0.85		0.99	
Flt Protected	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (prot)	1752			1535		1845	1520		1808	
Flt Permitted	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (perm)	1752			1535		1845	1520		1808	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	0	0	14	0	283	298	0	226	24
RTOR Reduction (vph)	0	0	0	6	0	0	0	0	3	0
Lane Group Flow (vph)	149	0	0	8	0	283	298	0	247	0
Confl. Peds. (#/hr)	5			5	16					16
Confl. Bikes (#/hr)		21		5			28			4
Turn Type	Prot			Perm		NA	Free		NA	
Protected Phases	4					6			2	
Permitted Phases				6			Free			
Actuated Green, G (s)	33.0			62.0		62.0	110.0		62.0	
Effective Green, g (s)	33.0			62.0		62.0	110.0		62.0	
Actuated g/C Ratio	0.30			0.56		0.56	1.00		0.56	
Clearance Time (s)	8.0			7.0		7.0			7.0	
Vehicle Extension (s)	2.5			2.5		2.5			2.5	
Lane Grp Cap (vph)	525			865		1039	1520		1019	
v/s Ratio Prot	c0.09					c0.15			0.14	
v/s Ratio Perm				0.01			0.20			
v/c Ratio	0.28			0.01		0.27	0.20		0.24	
Uniform Delay, d1	29.5			10.5		12.4	0.0		12.1	
Progression Factor	0.77			1.00		1.00	1.00		0.80	
Incremental Delay, d2	1.3			0.0		0.6	0.3		0.5	
Delay (s)	24.0			10.5		13.0	0.3		10.3	
Level of Service	C			B		B	A		B	
Approach Delay (s/veh)	24.0		10.5			6.5			10.3	
Approach LOS	C		B			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	7	75	9	29	18	80	146	8	4	48	21
Future Vol, veh/h	28	7	75	9	29	18	80	146	8	4	48	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	8	82	10	32	20	87	159	9	4	52	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.2	8.1	9.6	8
HCM LOS	A	A	A	A

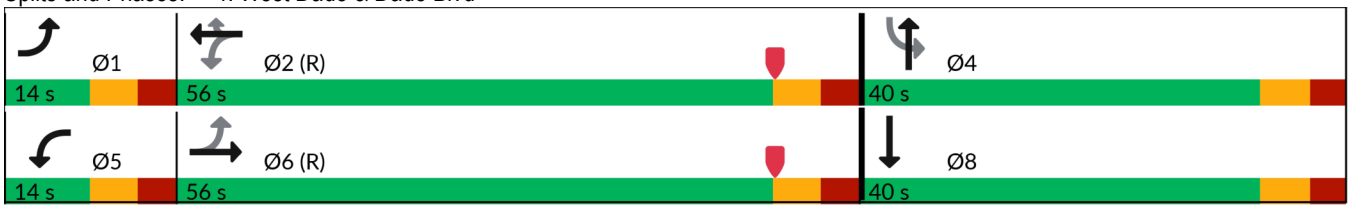
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	25%	16%	5%
Vol Thru, %	62%	6%	52%	66%
Vol Right, %	3%	68%	32%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	234	110	56	73
LT Vol	80	28	9	4
Through Vol	146	7	29	48
RT Vol	8	75	18	21
Lane Flow Rate	254	120	61	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.318	0.147	0.08	0.099
Departure Headway (Hd)	4.502	4.44	4.706	4.492
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	799	807	761	797
Service Time	2.529	2.47	2.738	2.525
HCM Lane V/C Ratio	0.318	0.149	0.08	0.099
HCM Control Delay, s/veh	9.6	8.2	8.1	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.4	0.5	0.3	0.3

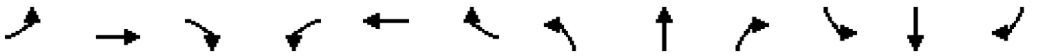
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	224	70	226	89	130	38	94
Future Volume (vph)	22	224	70	226	89	130	38	94
Lane Group Flow (vph)	24	243	76	246	97	336	0	153
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	D.Pm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		2		4	
Detector Phase	1	6	5	2	2	4	4	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	14.0	56.0	14.0	56.0	56.0	40.0	40.0	40.0
Total Split (%)	12.7%	50.9%	12.7%	50.9%	50.9%	36.4%	36.4%	36.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max
v/c Ratio	0.04	0.28	0.13	0.27	0.12	0.63		0.40
Control Delay (s/veh)	4.5	16.7	11.3	18.5	3.1	11.2		33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.6		0.0
Total Delay (s/veh)	4.5	16.7	11.3	18.5	3.1	11.8		33.9
Queue Length 50th (ft)	8	133	23	108	0	6		84
Queue Length 95th (ft)	15	206	44	168	25	38		146
Internal Link Dist (ft)		341		336		224		236
Turn Bay Length (ft)	103		96		162			
Base Capacity (vph)	611	868	599	916	800	531		380
Starvation Cap Reductn	0	0	0	0	0	38		0
Spillback Cap Reductn	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0		0
Reduced v/c Ratio	0.04	0.28	0.13	0.27	0.12	0.68		0.40

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 93 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 4: West Dade & Dade Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	224	0	70	226	89	0	130	179	38	94	9
Future Volume (veh/h)	22	224	0	70	226	89	0	130	179	38	94	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.94	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	0	1856	1856	1856	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	243	0	76	246	97	0	141	195	41	102	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	0	3	3	3	0	3	3	3	3	3
Cap, veh/h	525	869	0	575	901	739	0	203	281	42	85	6
Arrive On Green	0.02	0.47	0.00	0.04	0.49	0.49	0.00	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1767	1856	0	1767	1856	1523	0	676	935	1	284	20
Grp Volume(v), veh/h	24	243	0	76	246	97	0	0	336	153	0	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1767	1856	1523	0	0	1611	306	0	0
Q Serve(g_s), s	0.8	8.8	0.0	2.4	8.7	3.8	0.0	0.0	20.3	8.6	0.0	0.0
Cycle Q Clear(g_c), s	0.8	8.8	0.0	2.4	8.7	3.8	0.0	0.0	20.3	8.6	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.58	0.27		0.07
Lane Grp Cap(c), veh/h	525	869	0	575	901	739	0	0	483	0	0	0
V/C Ratio(X)	0.05	0.28	0.00	0.13	0.27	0.13	0.00	0.00	0.70	0.00	0.00	0.00
Avail Cap(c_a), veh/h	596	869	0	615	901	739	0	0	483	0	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)	0.97	0.97	0.00	1.00	1.00	1.00	0.00	0.00	0.81	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.6	17.9	0.0	14.2	16.8	15.6	0.0	0.0	34.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.1	0.7	0.4	0.0	0.0	6.6	0.0	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	0.3	3.9	0.0	1.0	3.8	1.4	0.0	0.0	8.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.7	18.7	0.0	14.4	17.5	15.9	0.0	0.0	40.6	0.0	0.0	0.0
LnGrp LOS	B	B		B	B	B			D			
Approach Vol, veh/h		267			419			336			153	
Approach Delay, s/veh		18.3			16.6			40.6			0.0	
Approach LOS		B			B			D			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	60.4		40.0	11.5	58.5		40.0				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	7.0	49.0		33.0	7.0	49.0		33.0				
Max Q Clear Time (g_c+I1), s	2.8	10.7		22.3	4.4	10.8		10.6				
Green Ext Time (p_c), s	0.0	0.5		1.3	0.0	0.5		0.7				

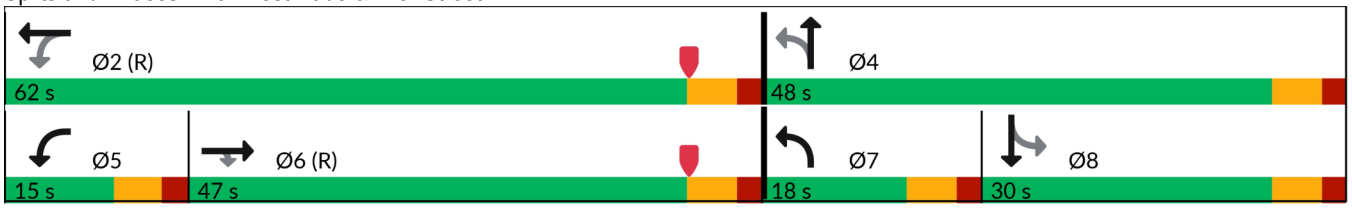
Intersection Summary			
HCM 7th Control Delay, s/veh		21.7	
HCM 7th LOS		C	

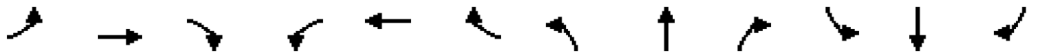
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	133	139	50	60	75	270	21	142
Future Volume (vph)	133	139	50	60	75	270	21	142
Lane Group Flow (vph)	145	151	54	103	82	377	23	154
Turn Type	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	6		5	2	7	4		8
Permitted Phases		6	2		4		8	
Detector Phase	6	6	5	2	7	4	8	8
Switch Phase								
Minimum Initial (s)	12.0	12.0	5.0	12.0	5.0	7.0	7.0	7.0
Minimum Split (s)	24.0	24.0	11.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	47.0	47.0	15.0	62.0	18.0	48.0	30.0	30.0
Total Split (%)	42.7%	42.7%	13.6%	56.4%	16.4%	43.6%	27.3%	27.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	None	Max	Max	Max
v/c Ratio	0.19	0.24	0.10	0.12	0.20	0.56	0.09	0.30
Control Delay (s/veh)	22.4	4.6	14.2	9.4	23.5	29.4	26.7	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay (s/veh)	22.4	4.6	14.2	9.4	23.5	29.4	26.7	28.4
Queue Length 50th (ft)	66	0	19	23	37	198	8	55
Queue Length 95th (ft)	114	41	40	51	71	295	m21	115
Internal Link Dist (ft)	294			299		418		224
Turn Bay Length (ft)		87	132		116			
Base Capacity (vph)	769	626	560	887	440	678	266	509
Starvation Cap Reductn	0	0	0	0	0	0	0	133
Spillback Cap Reductn	0	0	0	0	0	6	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.24	0.10	0.12	0.19	0.56	0.09	0.41

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 87 (79%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: West Dade & 17th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	133	139	50	60	35	75	270	77	21	142	0
Future Volume (veh/h)	0	133	139	50	60	35	75	270	77	21	142	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.91	0.98		0.93	0.98		0.95	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	0	145	151	54	65	38	82	293	84	23	154	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	3	3	3	3	3	3	0
Cap, veh/h	0	775	595	519	543	317	392	522	150	276	521	0
Arrive On Green	0.00	0.42	0.42	0.04	0.51	0.51	0.05	0.38	0.38	0.09	0.09	0.00
Sat Flow, veh/h	0	1856	1425	1767	1066	623	1767	1367	392	987	1856	0
Grp Volume(v), veh/h	0	145	151	54	0	103	82	0	377	23	154	0
Grp Sat Flow(s),veh/h/ln	0	1856	1425	1767	0	1689	1767	0	1758	987	1856	0
Q Serve(g_s), s	0.0	5.4	7.6	1.8	0.0	3.5	3.5	0.0	18.6	2.4	8.5	0.0
Cycle Q Clear(g_c), s	0.0	5.4	7.6	1.8	0.0	3.5	3.5	0.0	18.6	9.9	8.5	0.0
Prop In Lane	0.00		1.00	1.00		0.37	1.00		0.22	1.00		0.00
Lane Grp Cap(c), veh/h	0	775	595	519	0	860	392	0	671	276	521	0
V/C Ratio(X)	0.00	0.19	0.25	0.10	0.00	0.12	0.21	0.00	0.56	0.08	0.30	0.00
Avail Cap(c_a), veh/h	0	775	595	599	0	860	503	0	671	276	521	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.00	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	0.0	20.2	20.9	16.0	0.0	14.1	25.2	0.0	26.8	43.9	39.7	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.0	0.0	0.3	0.1	0.0	3.4	0.6	1.4	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	0.0	2.5	2.7	0.7	0.0	1.4	1.5	0.0	8.3	0.7	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.7	21.9	16.1	0.0	14.4	25.3	0.0	30.1	44.4	41.1	0.0
LnGrp LOS		C	C	B		B	C		C	D	D	
Approach Vol, veh/h		296			157			459			177	
Approach Delay, s/veh		21.3			15.0			29.3			41.6	
Approach LOS		C			B			C			D	

Timer - Assigned Phs	2		4	5	6	7	8					
Phs Duration (G+Y+Rc), s	62.0		48.0	10.0	52.0	11.1	36.9					
Change Period (Y+Rc), s	6.0		6.0	6.0	6.0	6.0	6.0					
Max Green Setting (Gmax), s	56.0		42.0	9.0	41.0	12.0	24.0					
Max Q Clear Time (g_c+I1), s	5.5		20.6	3.8	9.6	5.5	11.9					
Green Ext Time (p_c), s	0.6		1.9	0.0	1.2	0.0	0.5					

Intersection Summary		
HCM 7th Control Delay, s/veh	27.0	
HCM 7th LOS	C	

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	66	19	36	109	67	5	15	16	94	39	62
Future Vol, veh/h	37	66	19	36	109	67	5	15	16	94	39	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	40	72	21	39	118	73	5	16	17	102	42	67
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.9	9.5	8.2	9.7
HCM LOS	A	A	A	A

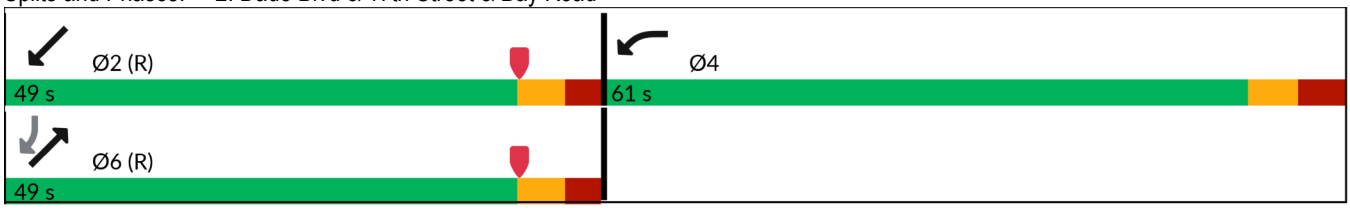
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	30%	17%	48%
Vol Thru, %	42%	54%	51%	20%
Vol Right, %	44%	16%	32%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	122	212	195
LT Vol	5	37	36	94
Through Vol	15	66	109	39
RT Vol	16	19	67	62
Lane Flow Rate	39	133	230	212
Geometry Grp	1	1	1	1
Degree of Util (X)	0.053	0.177	0.292	0.28
Departure Headway (Hd)	4.834	4.798	4.565	4.749
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	736	744	783	755
Service Time	2.898	2.851	2.613	2.797
HCM Lane V/C Ratio	0.053	0.179	0.294	0.281
HCM Control Delay, s/veh	8.2	8.9	9.5	9.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.6	1.2	1.1

Lane Group	WBL	SBR	NET	NER	SWT
Lane Configurations					
Traffic Volume (vph)	385	69	224	240	373
Future Volume (vph)	385	69	224	240	373
Lane Group Flow (vph)	418	75	243	261	416
Turn Type	Prot	Perm	NA	Free	NA
Protected Phases	4		6		2
Permitted Phases		6		Free	
Detector Phase	4	6	6		2
Switch Phase					
Minimum Initial (s)	7.0	7.0	7.0		7.0
Minimum Split (s)	26.0	25.0	25.0		25.0
Total Split (s)	61.0	49.0	49.0		49.0
Total Split (%)	55.5%	44.5%	44.5%		44.5%
Yellow Time (s)	4.0	4.0	4.0		4.0
All-Red Time (s)	4.0	3.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	8.0	7.0	7.0		7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	C-Max	C-Max		C-Max
v/c Ratio	0.50	0.09	0.35	0.17	0.59
Control Delay (s/veh)	21.0	0.2	26.0	0.3	30.4
Queue Delay	2.4	0.0	0.0	0.0	12.2
Total Delay (s/veh)	23.3	0.2	26.0	0.3	42.7
Queue Length 50th (ft)	207	0	121	0	293
Queue Length 95th (ft)	278	0	187	0	405
Internal Link Dist (ft)	294		287		341
Turn Bay Length (ft)				112	
Base Capacity (vph)	844	805	704	1512	700
Starvation Cap Reductn	293	0	0	0	259
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.09	0.35	0.17	0.94

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:SWT and 6:NET, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dade Blvd & 17th Street & Bay Road





Movement	WBL	WBR	SBL	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	385	0	0	69	0	224	240	0	373	10
Future Volume (vph)	385	0	0	69	0	224	240	0	373	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0			7.0		7.0	4.0		7.0	
Lane Util. Factor	1.00			1.00		1.00	1.00		1.00	
Frpb, ped/bikes	1.00			0.96		1.00	0.96		1.00	
Flpb, ped/bikes	1.00			1.00		1.00	1.00		1.00	
Frt	1.00			0.87		1.00	0.85		1.00	
Flt Protected	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (prot)	1752			1534		1845	1512		1834	
Flt Permitted	0.95			1.00		1.00	1.00		1.00	
Satd. Flow (perm)	1752			1534		1845	1512		1834	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	418	0	0	75	0	243	261	0	405	11
RTOR Reduction (vph)	0	0	0	46	0	0	0	0	1	0
Lane Group Flow (vph)	418	0	0	29	0	243	261	0	415	0
Confl. Peds. (#/hr)	5			5	18		3	3		18
Confl. Bikes (#/hr)		26		4			38			12
Turn Type	Prot			Perm		NA	Free		NA	
Protected Phases	4					6			2	
Permitted Phases				6			Free			
Actuated Green, G (s)	53.0			42.0		42.0	110.0		42.0	
Effective Green, g (s)	53.0			42.0		42.0	110.0		42.0	
Actuated g/C Ratio	0.48			0.38		0.38	1.00		0.38	
Clearance Time (s)	8.0			7.0		7.0			7.0	
Vehicle Extension (s)	2.5			2.5		2.5			2.5	
Lane Grp Cap (vph)	844			585		704	1512		700	
v/s Ratio Prot	c0.24					0.13			c0.23	
v/s Ratio Perm				0.02			0.17			
v/c Ratio	0.50			0.05		0.35	0.17		0.59	
Uniform Delay, d1	19.4			21.4		24.2	0.0		27.2	
Progression Factor	0.96			1.00		1.00	1.00		0.97	
Incremental Delay, d2	1.9			0.2		1.3	0.2		3.5	
Delay (s)	20.5			21.6		25.6	0.2		29.9	
Level of Service	C			C		C	A		C	
Approach Delay (s/veh)	20.5		21.6			12.4			29.9	
Approach LOS	C		C			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	12	108	11	29	34	130	305	26	7	111	58
Future Vol, veh/h	62	12	108	11	29	34	130	305	26	7	111	58
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	65	13	114	12	31	36	137	321	27	7	117	61
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.9	9.7	18	10.2
HCM LOS	B	A	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	34%	15%	4%
Vol Thru, %	66%	7%	39%	63%
Vol Right, %	6%	59%	46%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	461	182	74	176
LT Vol	130	62	11	7
Through Vol	305	12	29	111
RT Vol	26	108	34	58
Lane Flow Rate	485	192	78	185
Geometry Grp	1	1	1	1
Degree of Util (X)	0.677	0.294	0.125	0.269
Departure Headway (Hd)	5.025	5.523	5.797	5.229
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	718	649	617	687
Service Time	3.053	3.565	3.847	3.266
HCM Lane V/C Ratio	0.675	0.296	0.126	0.269
HCM Control Delay, s/veh	18	10.9	9.7	10.2
HCM Lane LOS	C	B	A	B
HCM 95th-tile Q	5.3	1.2	0.4	1.1

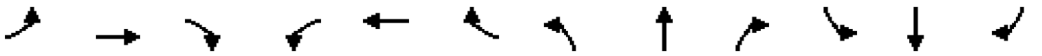
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	38	191	113	344	199	237	48	176
Future Volume (vph)	38	191	113	344	199	237	48	176
Lane Group Flow (vph)	40	201	119	362	209	370	0	252
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	D.Pm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		2		4	
Detector Phase	1	6	5	2	2	4	4	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	14.0	55.0	14.0	55.0	55.0	41.0	41.0	41.0
Total Split (%)	12.7%	50.0%	12.7%	50.0%	50.0%	37.3%	37.3%	37.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max
v/c Ratio	0.08	0.25	0.20	0.40	0.26	0.70		0.72
Control Delay (s/veh)	33.2	48.1	12.3	21.1	3.5	15.9		46.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	1.0		0.5
Total Delay (s/veh)	33.2	48.1	12.3	21.4	3.5	16.9		47.2
Queue Length 50th (ft)	26	129	37	175	0	41		156
Queue Length 95th (ft)	61	204	66	258	43	58		#273
Internal Link Dist (ft)		341		336		224		236
Turn Bay Length (ft)	103		96		162			
Base Capacity (vph)	492	805	605	899	802	529		350
Starvation Cap Reductn	0	0	0	0	0	40		0
Spillback Cap Reductn	0	0	0	137	0	0		9
Storage Cap Reductn	0	0	0	0	0	0		0
Reduced v/c Ratio	0.08	0.25	0.20	0.48	0.26	0.76		0.74

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 80 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: West Dade & Dade Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	191	0	113	344	199	0	237	115	48	176	15
Future Volume (veh/h)	38	191	0	113	344	199	0	237	115	48	176	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	0.99		0.95	1.00		0.89	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	0	1856	1856	1856	0	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	40	201	0	119	362	209	0	249	121	51	185	16
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, %	3	3	0	3	3	3	0	3	3	3	3	3
Cap, veh/h	404	829	0	602	868	699	0	348	169	40	120	8
Arrive On Green	0.03	0.45	0.00	0.05	0.47	0.47	0.00	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1767	1856	0	1767	1856	1494	0	1126	547	1	387	26
Grp Volume(v), veh/h	40	201	0	119	362	209	0	0	370	252	0	0
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1767	1856	1494	0	0	1674	415	0	0
Q Serve(g_s), s	1.3	7.4	0.0	4.0	14.2	9.5	0.0	0.0	21.6	14.5	0.0	0.0
Cycle Q Clear(g_c), s	1.3	7.4	0.0	4.0	14.2	9.5	0.0	0.0	21.6	14.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.33	0.20		0.06
Lane Grp Cap(c), veh/h	404	829	0	602	868	699	0	0	517	0	0	0
V/C Ratio(X)	0.10	0.24	0.00	0.20	0.42	0.30	0.00	0.00	0.72	0.00	0.00	0.00
Avail Cap(c_a), veh/h	460	829	0	620	868	699	0	0	517	0	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)	0.95	0.95	0.00	1.00	1.00	1.00	0.00	0.00	0.75	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.0	18.9	0.0	15.0	19.3	18.1	0.0	0.0	33.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.2	1.5	1.1	0.0	0.0	6.2	0.0	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	3.3	0.0	1.6	6.4	3.5	0.0	0.0	9.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.1	19.5	0.0	15.2	20.8	19.2	0.0	0.0	40.0	0.0	0.0	0.0
LnGrp LOS	B	B		B	C	B			D			
Approach Vol, veh/h		241			690			370			252	
Approach Delay, s/veh		19.0			19.4			40.0			0.0	
Approach LOS		B			B			D			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	58.5		41.0	12.8	56.2		41.0				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	7.0	48.0		34.0	7.0	48.0		34.0				
Max Q Clear Time (g_c+I1), s	3.3	16.2		23.6	6.0	9.4		16.5				
Green Ext Time (p_c), s	0.0	0.9		1.4	0.0	0.4		1.2				

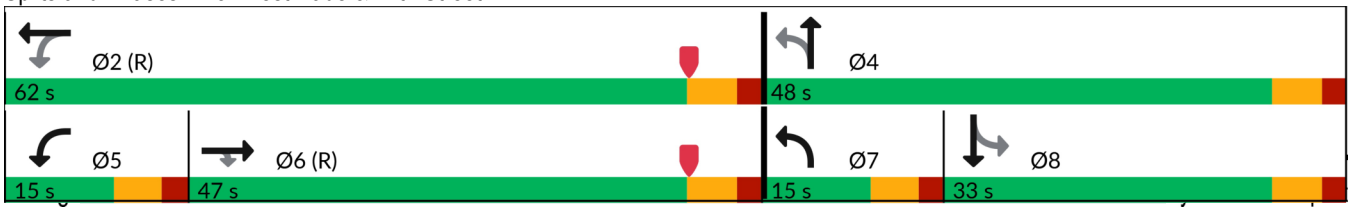
Intersection Summary		
HCM 7th Control Delay, s/veh		21.1
HCM 7th LOS		C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	129	114	37	169	213	317	47	242
Future Volume (vph)	129	114	37	169	213	317	47	242
Lane Group Flow (vph)	136	120	39	215	224	412	49	255
Turn Type	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases	6		5	2	7	4		8
Permitted Phases		6	2		4		8	
Detector Phase	6	6	5	2	7	4	8	8
Switch Phase								
Minimum Initial (s)	12.0	12.0	5.0	12.0	5.0	7.0	7.0	7.0
Minimum Split (s)	24.0	24.0	11.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	47.0	47.0	15.0	62.0	15.0	48.0	33.0	33.0
Total Split (%)	42.7%	42.7%	13.6%	56.4%	13.6%	43.6%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	None	Max	Max	Max
v/c Ratio	0.17	0.22	0.08	0.24	0.70	0.62	0.23	0.56
Control Delay (s/veh)	20.9	2.9	14.1	14.9	38.2	31.5	28.7	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	3.6
Total Delay (s/veh)	20.9	2.9	14.1	14.9	38.4	31.5	28.7	35.7
Queue Length 50th (ft)	61	0	13	76	111	226	16	103
Queue Length 95th (ft)	107	23	31	123	#182	333	m31	m183
Internal Link Dist (ft)	294			299		418		224
Turn Bay Length (ft)		87	132		116			
Base Capacity (vph)	814	543	516	894	320	667	214	452
Starvation Cap Reductn	0	0	0	0	0	0	0	120
Spillback Cap Reductn	0	0	0	11	5	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.22	0.08	0.24	0.71	0.62	0.23	0.77

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 75 (68%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
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: 5: West Dade & 17th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	129	114	37	169	35	213	317	74	47	242	0
Future Volume (veh/h)	0	129	114	37	169	35	213	317	74	47	242	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.84	0.96		0.88	0.96		0.90	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	0	136	120	39	178	37	224	334	78	49	255	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, %	0	3	3	3	3	3	3	3	3	3	3	0
Cap, veh/h	0	785	558	523	738	153	370	542	127	243	455	0
Arrive On Green	0.00	0.42	0.42	0.03	0.51	0.51	0.08	0.38	0.38	0.49	0.49	0.00
Sat Flow, veh/h	0	1856	1319	1767	1449	301	1767	1420	332	924	1856	0
Grp Volume(v), veh/h	0	136	120	39	0	215	224	0	412	49	255	0
Grp Sat Flow(s),veh/h/ln	0	1856	1319	1767	0	1751	1767	0	1752	924	1856	0
Q Serve(g_s), s	0.0	5.0	6.4	1.3	0.0	7.6	9.0	0.0	20.9	4.0	10.6	0.0
Cycle Q Clear(g_c), s	0.0	5.0	6.4	1.3	0.0	7.6	9.0	0.0	20.9	9.9	10.6	0.0
Prop In Lane	0.00		1.00	1.00		0.17	1.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	0	785	558	523	0	891	370	0	669	243	455	0
V/C Ratio(X)	0.00	0.17	0.22	0.07	0.00	0.24	0.61	0.00	0.62	0.20	0.56	0.00
Avail Cap(c_a), veh/h	0	785	558	612	0	891	370	0	669	243	455	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.00	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	0.0	19.8	20.2	15.9	0.0	15.1	29.4	0.0	27.5	25.7	23.8	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.9	0.0	0.0	0.6	2.0	0.0	4.2	1.5	4.0	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	0.0	2.3	2.1	0.5	0.0	3.1	4.6	0.0	9.4	0.9	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.2	21.0	15.9	0.0	15.8	31.4	0.0	31.7	27.2	27.8	0.0
LnGrp LOS		C	C	B		B	C		C	C	C	
Approach Vol, veh/h		256			254			636			304	
Approach Delay, s/veh		20.6			15.8			31.6			27.7	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	2	4	5	6	7	8
Phs Duration (G+Y+Rc), s	62.0	48.0	9.5	52.5	15.0	33.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	56.0	42.0	9.0	41.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	9.6	22.9	3.3	8.4	11.0	12.6
Green Ext Time (p_c), s	1.2	2.1	0.0	1.1	0.0	1.2

Intersection Summary	
HCM 7th Control Delay, s/veh	26.1
HCM 7th LOS	C

DRIVEWAYS

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	247	227	8	1	3
Future Vol, veh/h	13	247	227	8	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	268	247	9	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	255	0	-	0	548	251
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	297	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1304	-	-	-	496	785
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1304	-	-	-	489	785
Mov Cap-2 Maneuver	-	-	-	-	489	-
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.39	0	10.31
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	90	-	-	-	682
HCM Lane V/C Ratio	0.011	-	-	-	0.006
HCM Control Delay (s/veh)	7.8	0	-	-	10.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	221	357	2	8	13
Future Vol, veh/h	3	221	357	2	8	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	3	240	388	2	9	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	390	0	-	0	636	389
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	247	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1163	-	-	-	440	657
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1163	-	-	-	439	657
Mov Cap-2 Maneuver	-	-	-	-	439	-
Stage 1	-	-	-	-	680	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.11	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	24	-	-	-	553
HCM Lane V/C Ratio	0.003	-	-	-	0.041
HCM Control Delay (s/veh)	8.1	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Left Turn Lane Warrant
Analyst: LTA
Date: JANUARY 2024
Analysis Year: 2027 AM
Job#: 300331701

Intersection:
N/S : Driveway
E/W: Dade Blvd
EASTBOUND LEFT TURN

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

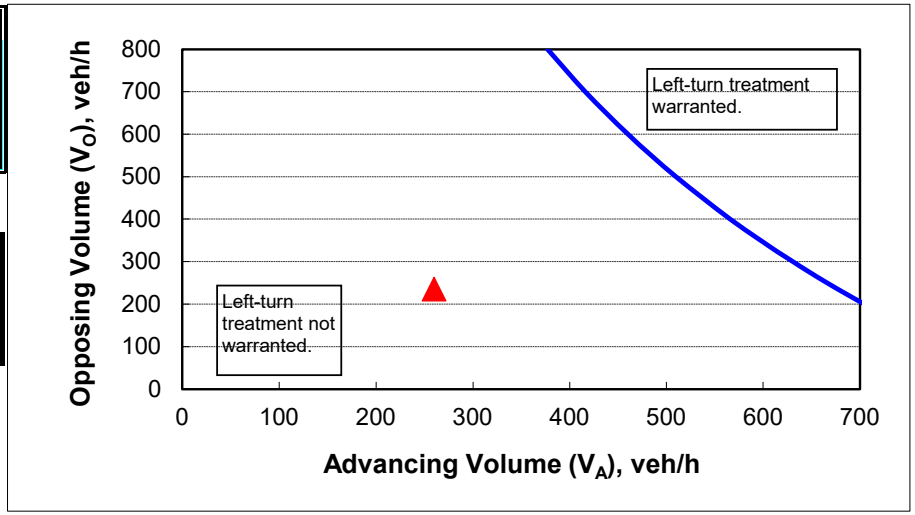
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	30
Percent of left-turns in advancing volume (V_A), %:	5%
Advancing volume (V_A), veh/h:	260
Opposing volume (V_O), veh/h:	235

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	677
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Left Turn Lane Warrant
Analyst: LTA
Date: JANUARY 2024
Analysis Year: 2027 PM
Job#: 300331701

Intersection:
N/S : Driveway
E/W: Dade Blvd
EASTBOUND LEFT TURN

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

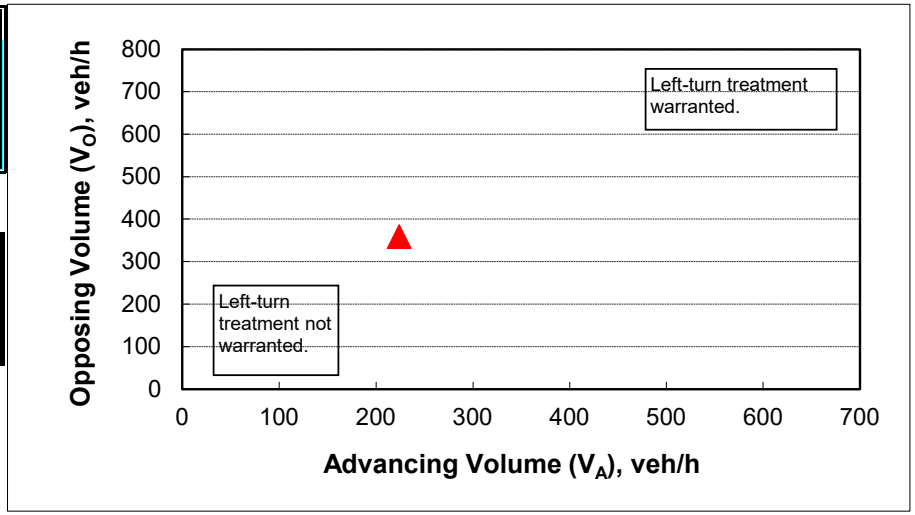
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	30
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	224
Opposing volume (V_O), veh/h:	359

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1295
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Right Turn Lane Warrant
Analyst: LTA
Date: JANUARY 2024
Analysis Year: 2027 AM
Job#: 300331701

Intersection:
N/S : Driveway
E/W:Dade Blvd
WESTBOUND RIGHT TURN

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

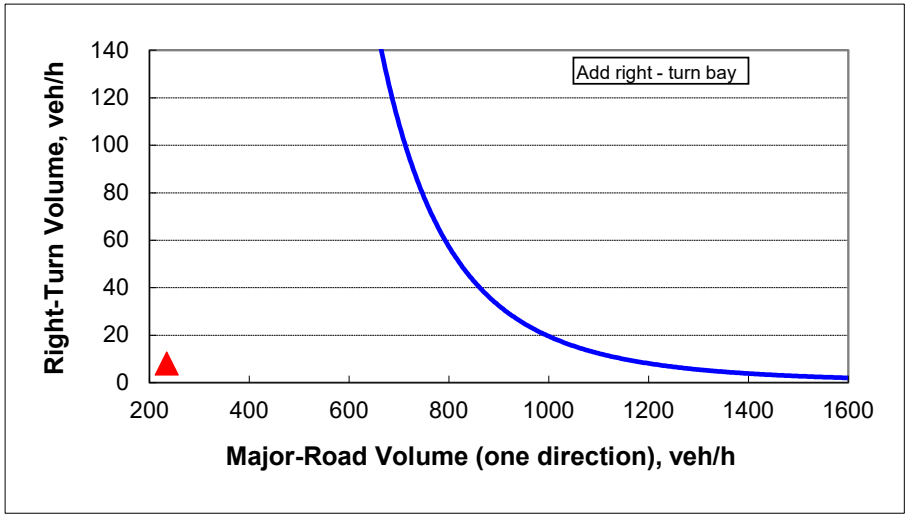
INPUT

Roadway geometry:	2-lane roadw ay

Variable	Value
Major-road speed, mph:	30
Major-road volume (one direction), veh/h:	235
Right-turn volume, veh/h:	8

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	20976
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Data Source: NCHRP 457 Evaluation of Intersection Improvements

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Right Turn Lane Warrant
Analyst: LTA
Date: JANUARY 2024
Analysis Year: 2027 PM
Job#: 300331701

Intersection:
N/S : Driveway
E/W:Dade Blvd
WESTBOUND RIGHT TURN

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

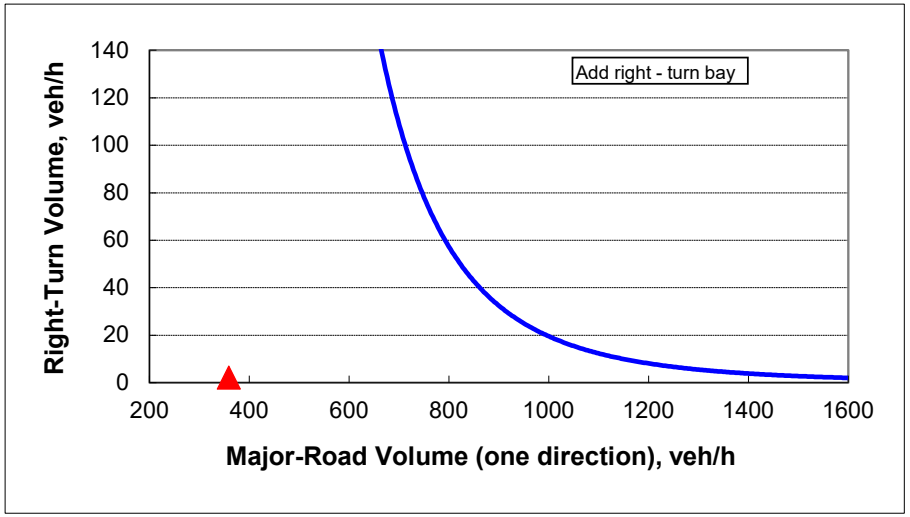
INPUT

Roadway geometry:	2-lane roadw ay

Variable	Value
Major-road speed, mph:	30
Major-road volume (one direction), veh/h:	359
Right-turn volume, veh/h:	2

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	2722
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Data Source: NCHRP 457 Evaluation of Intersection Improvements

APPENDIX G
TRIP GENERATION DATA

Automobile Parts and Service Center
(943)

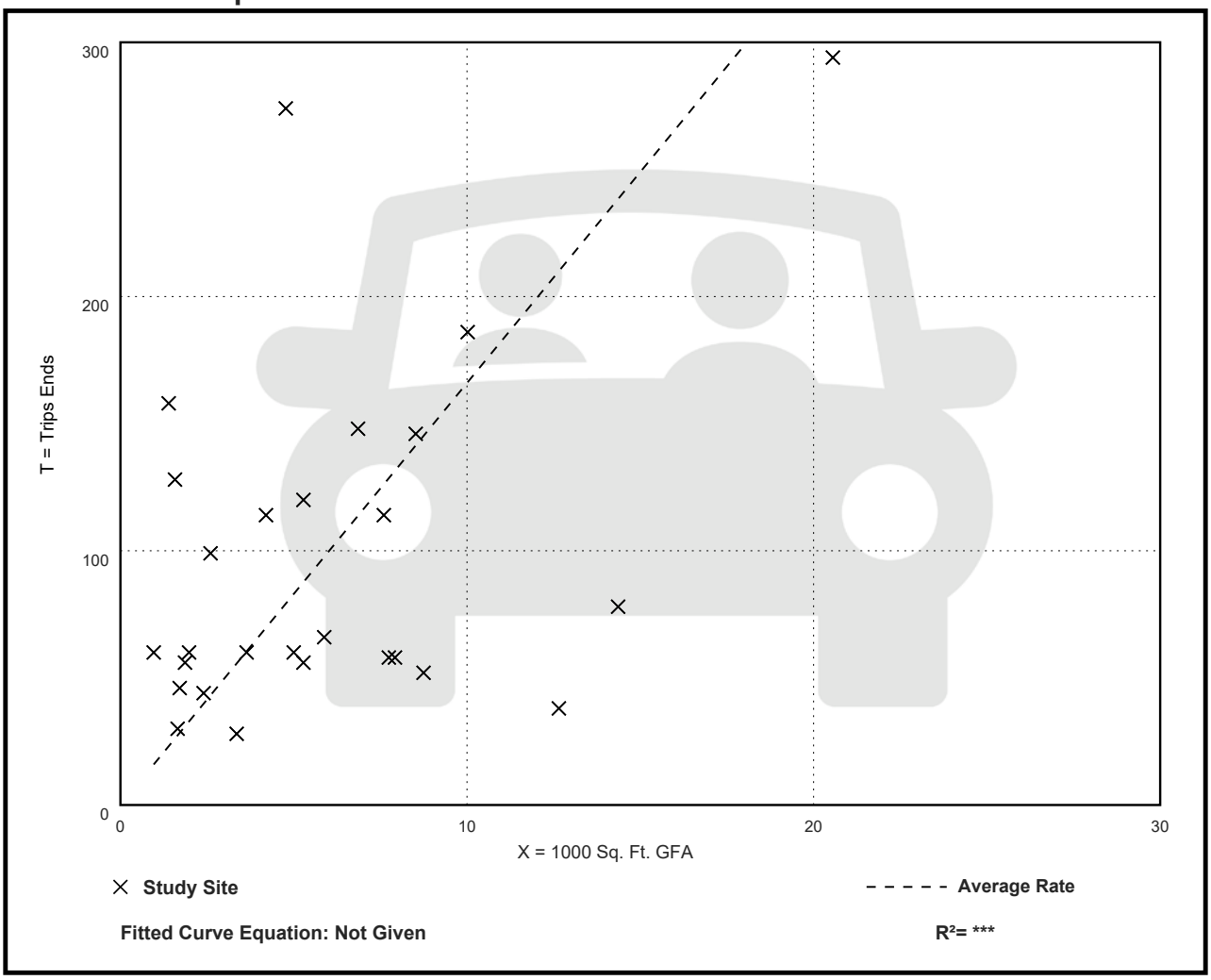
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 27
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
16.60	3.00 - 113.51	16.17

Data Plot and Equation



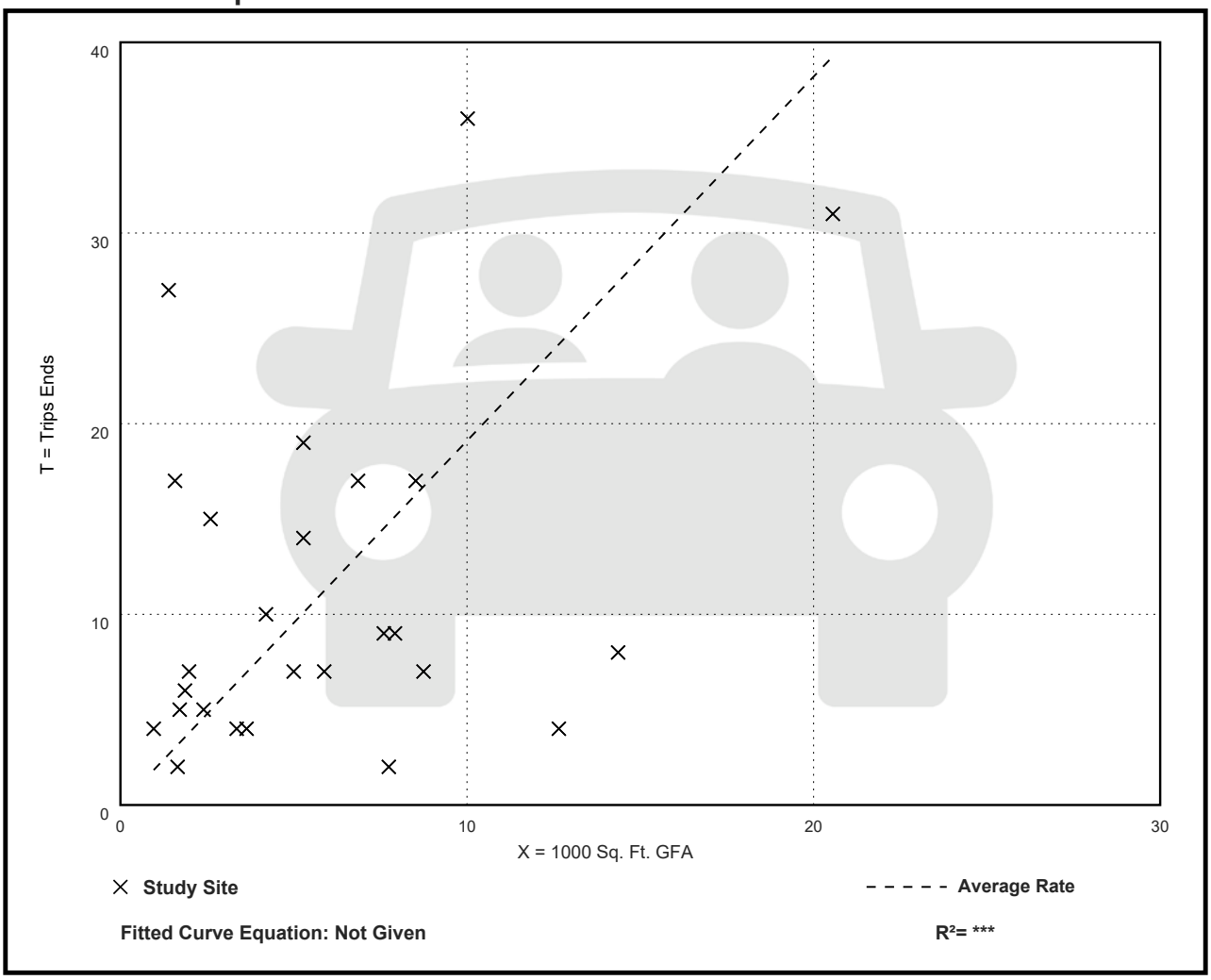
Automobile Parts and Service Center
(943)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 26
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 72% entering, 28% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.91	0.26 - 19.40	2.28

Data Plot and Equation



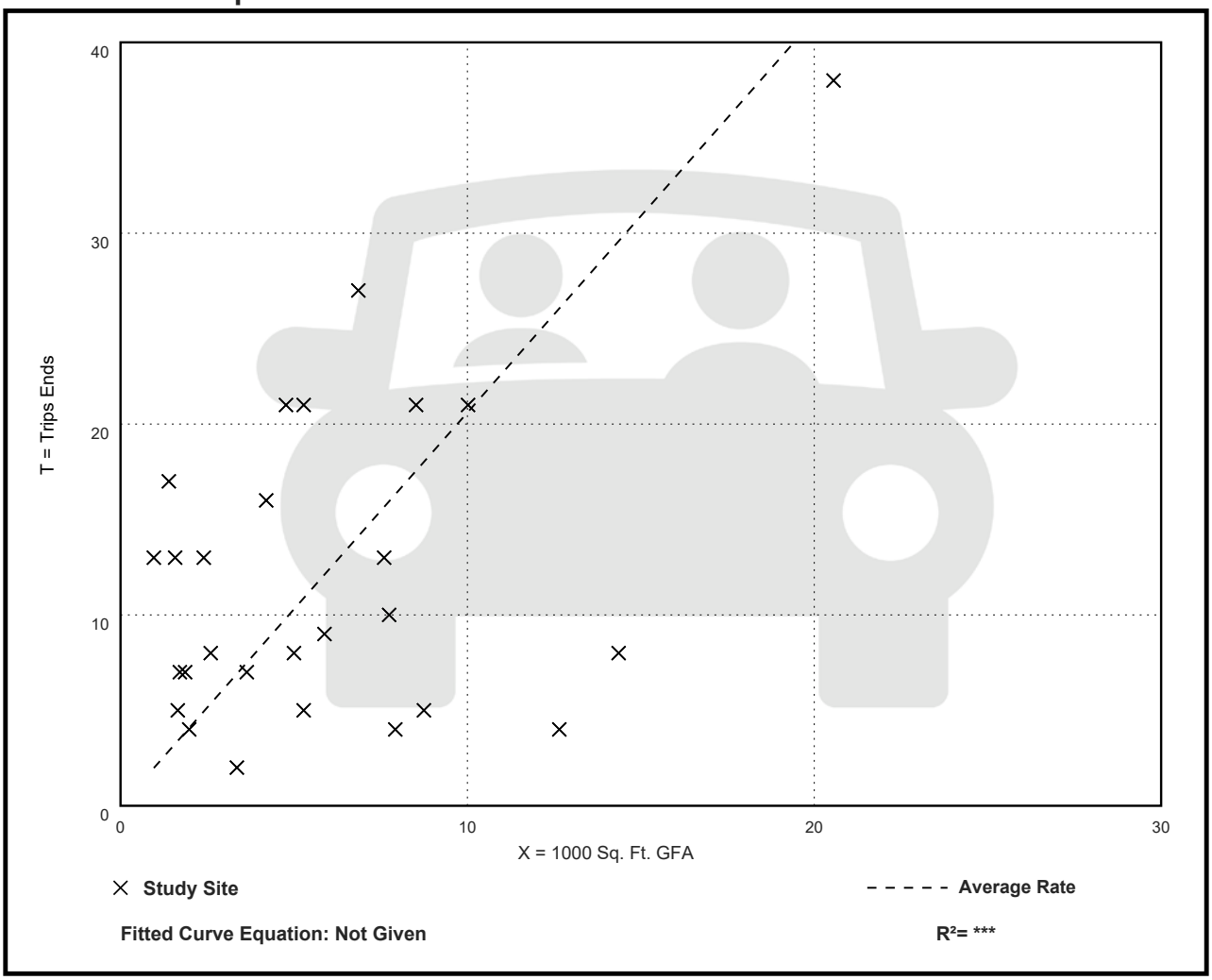
Automobile Parts and Service Center
(943)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 27
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 39% entering, 61% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.06	0.32 - 13.54	1.97

Data Plot and Equation



Single-Family Attached Housing
(215)

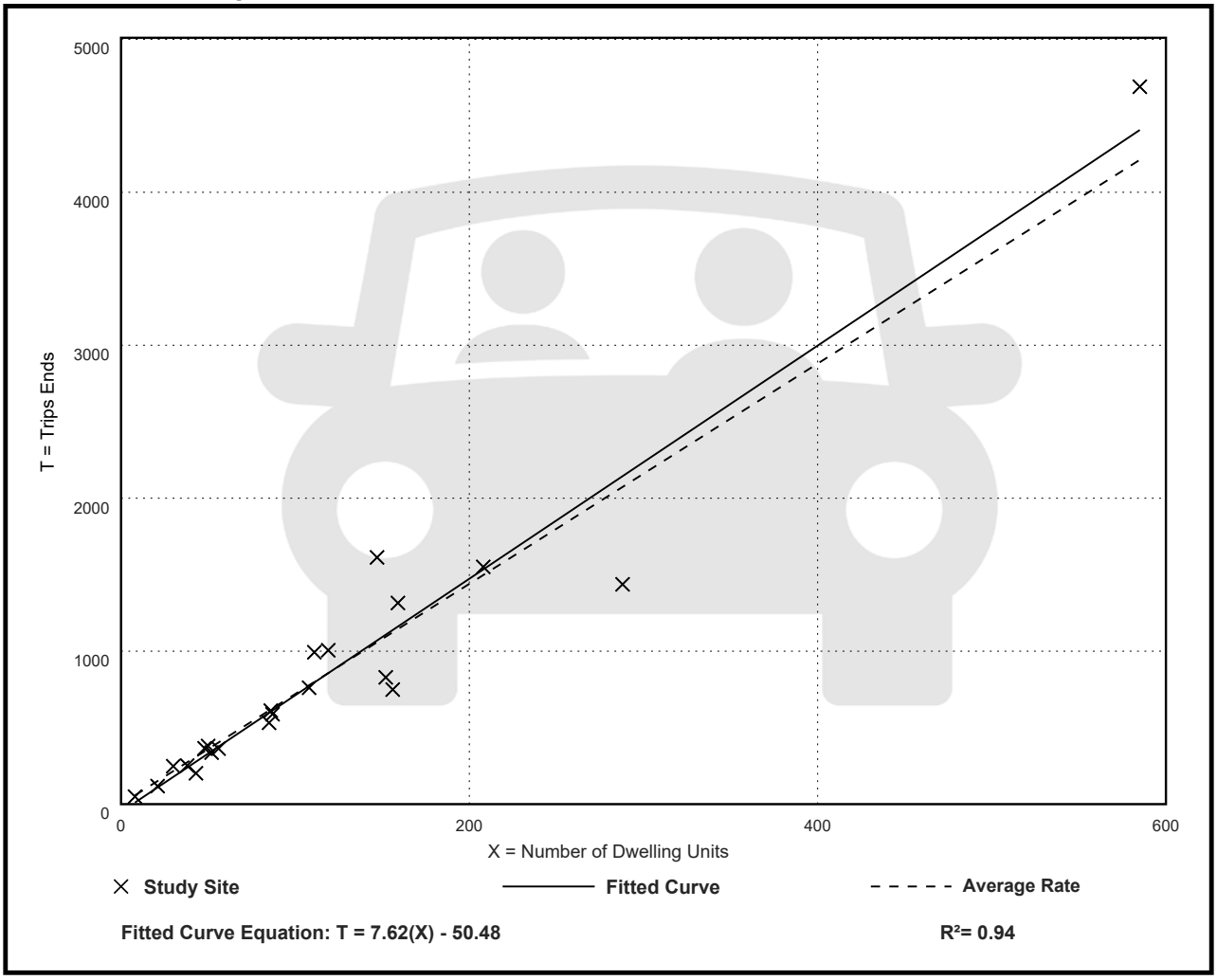
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 120
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61

Data Plot and Equation



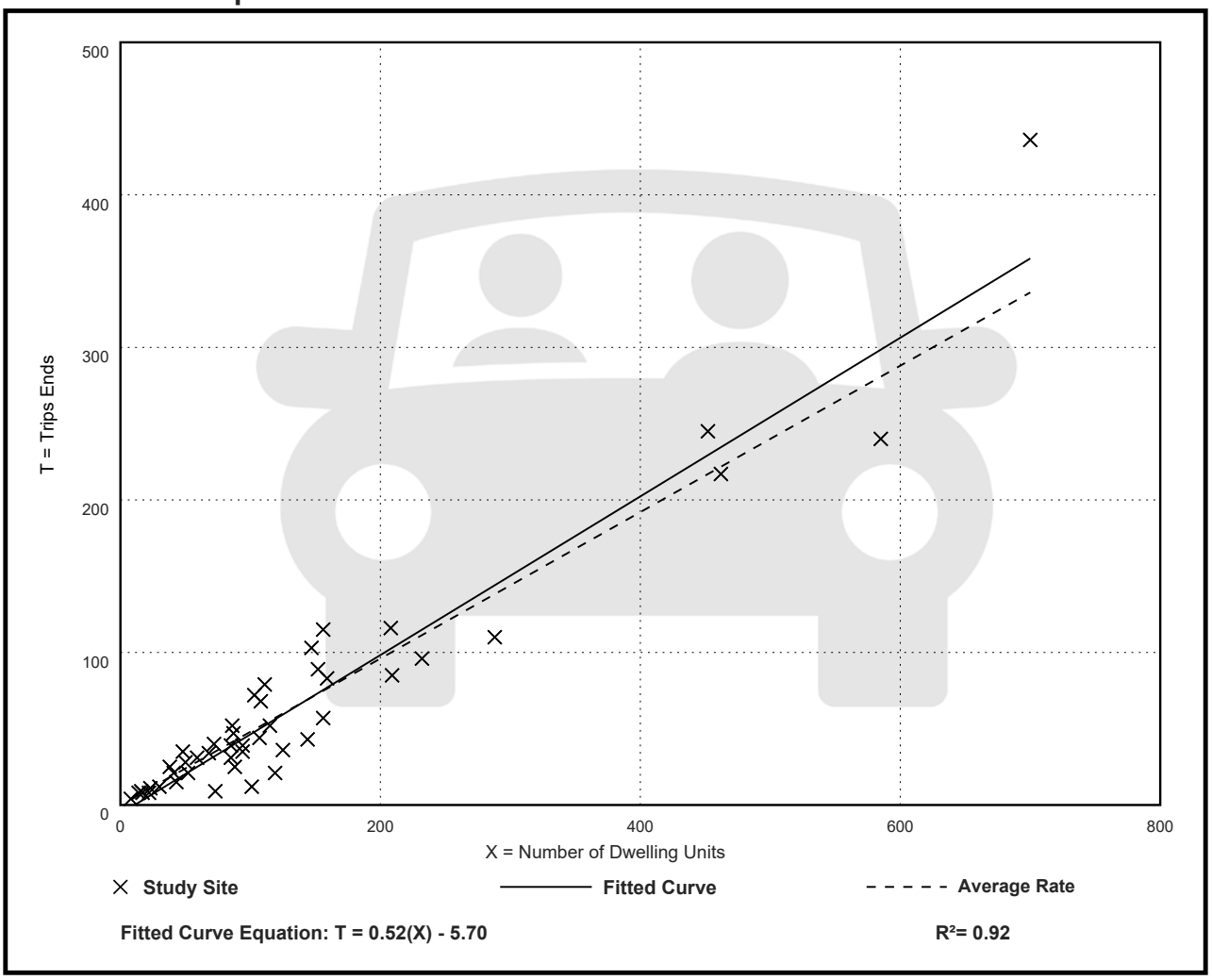
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 46
Avg. Num. of Dwelling Units: 135
Directional Distribution: 31% entering, 69% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14

Data Plot and Equation



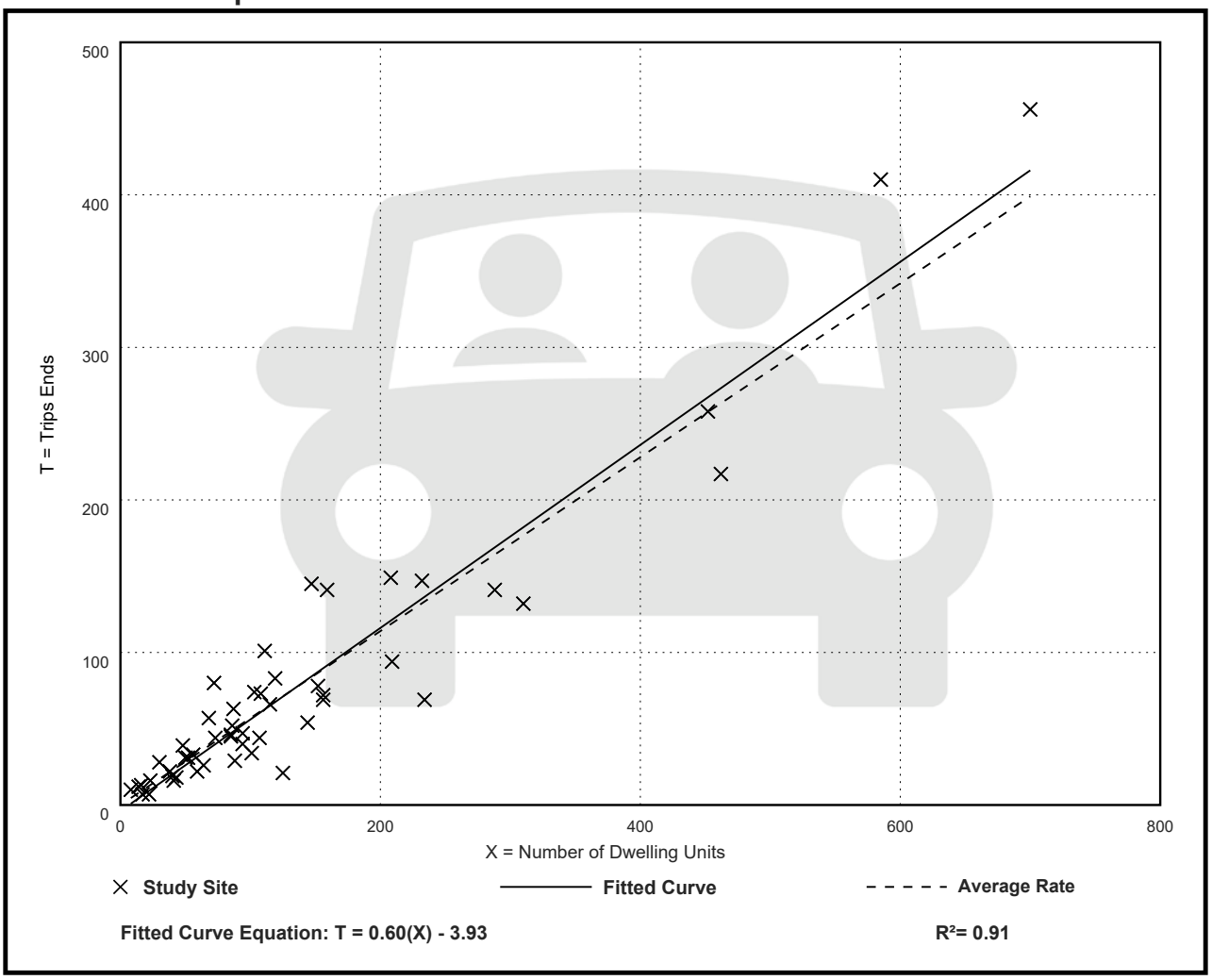
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 51
Avg. Num. of Dwelling Units: 136
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18

Data Plot and Equation



General Office Building
(710)

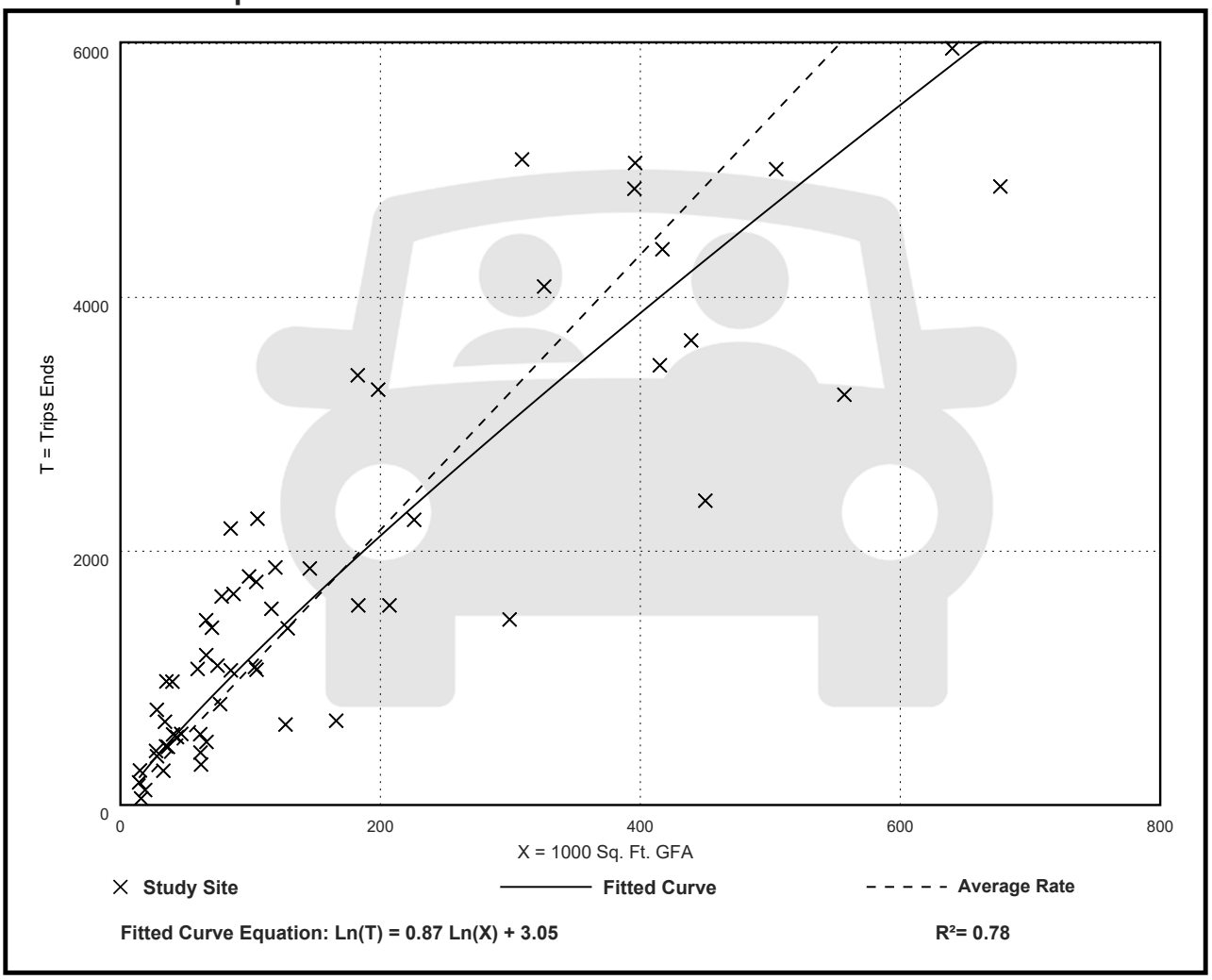
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 59
Avg. 1000 Sq. Ft. GFA: 163
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.84	3.27 - 27.56	4.76

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.87 Ln(X) + 3.05

R^2= 0.78

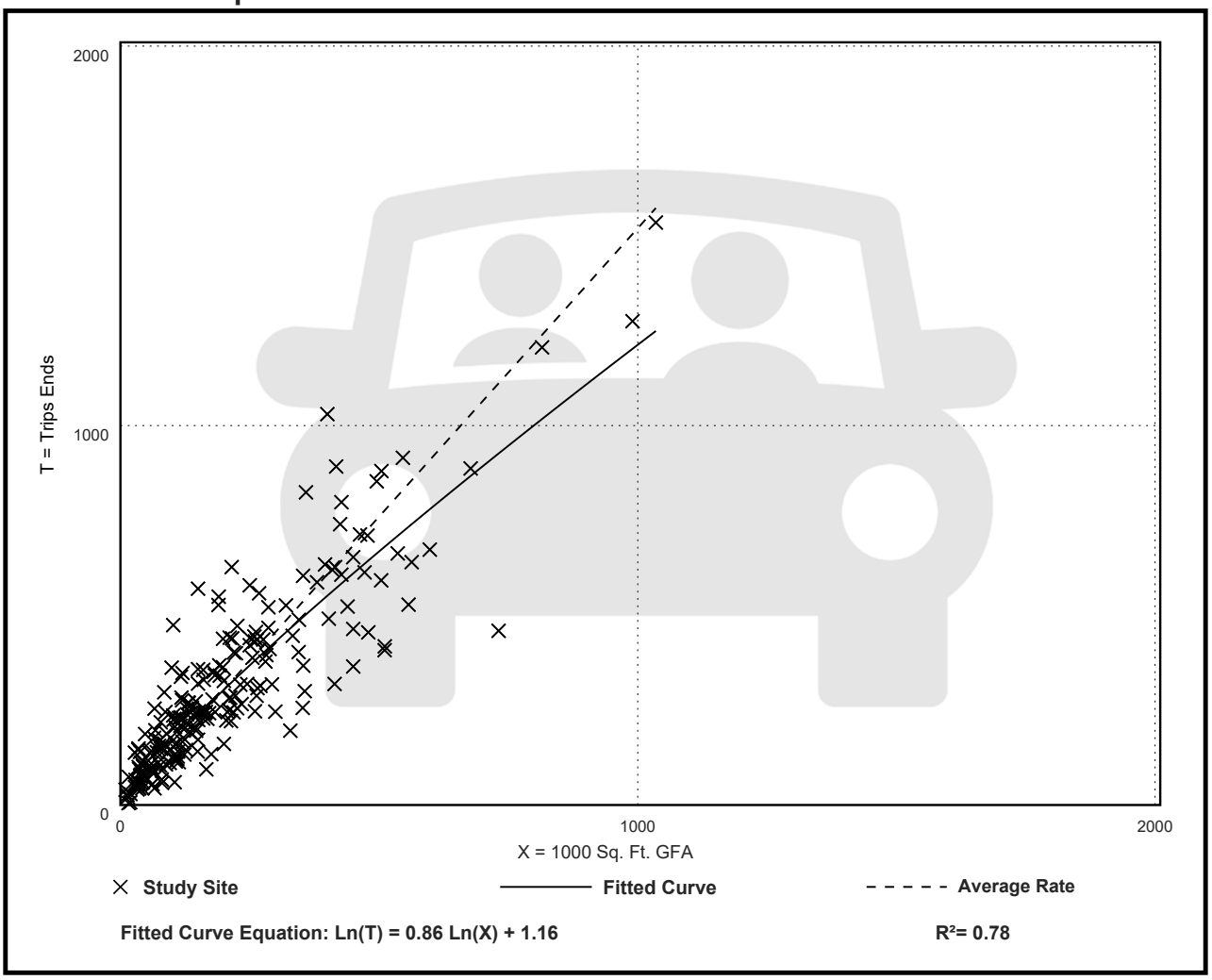
General Office Building
(710)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 221
Avg. 1000 Sq. Ft. GFA: 201
Directional Distribution: 88% entering, 12% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.52	0.32 - 4.93	0.58

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.86 Ln(X) + 1.16

R^2= 0.78

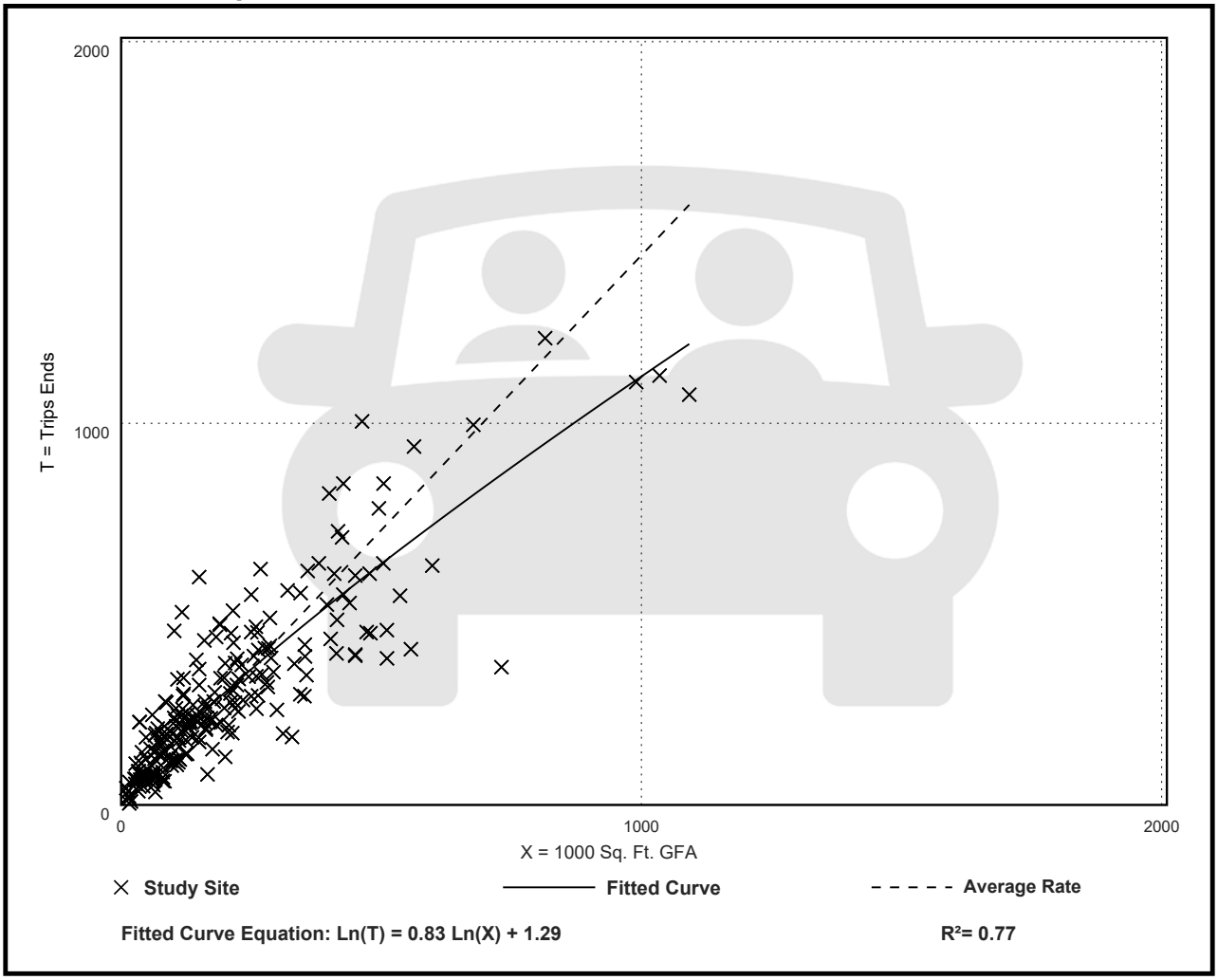
General Office Building
(710)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 232
Avg. 1000 Sq. Ft. GFA: 199
Directional Distribution: 17% entering, 83% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.44	0.26 - 6.20	0.60

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.83 Ln(X) + 1.29

R^2= 0.77

APPENDIX H
SERVICE TIME DATA

998/999

RapidShield®/ RapidView®

HIGH SPEED METAL DOORS



SPEED.
DURABILITY.
SECURITY.

OVERHEAD DOOR®

INDUSTRY LEADING
COMMERCIAL & INDUSTRIAL SOLUTIONS



RapidView® Model 999

General features and benefits

Engineered for High Cycles
- Springless design requires minimal interruption for maintenance
- Direct-mounted gear drive minimizes wear and tear
- Virtually frictionless design ensures minimal noise and wear

Simple Install and Low Maintenance
- Completely hinged guide
- Fully-assembled curtain arrives pre-wrapped in headplate and trusses ready for installation
- Pre-wired motor connection and plug and play accessories

Safety
- Patent-pending integrated curtain-monitoring device ensures the door has a redundant system to monitor the position of the door
- Safety light curtain minimizes contact with objects in the doorway
- Monitored wireless reversing edge
- RapidShield® Model 998 has a high strength dual wall aluminum curtain construction providing security and privacy

Smooth and Easy Operation
- Gravity drive system coupled with variable frequency drive eliminates sudden jolts, wear and tear from door start/stop
- Patent-pending headplate design utilizes high strength rubber rollers preventing curtain from wrapping on itself, providing smooth, quiet operation of the door
- Independently-tested and capable of wind load* of up to 100.0 psf for RapidShield® Model 998 and 50.0† psf for RapidView® Model 999

Sleek and Sophisticated Look
- RapidView® Model 999 features crisp lines of corrosion resistant aluminum providing an architecturally striking look. Clear vision high impact-resistant polycarbonate delivers maximum light infiltration into the space

Options

- Multiple actuation options – push button, motion detector, radio control, key switch, pull switch, loop detector, treadle switch
- Signaling devices – red/green LED traffic light, horn/strobe combination, rotating warning light
- Slim guide available to reduce jamb side room (size limitations may apply)
- Programmable LED lighting system – 3' tall light bar with red, yellow, green lights
- Insulated slat available for RapidView® Model 998
- Square hood
- Photo eyes
- Perforated slats up to 24% open area (up to 20’ width)
- Vision slats (Model 998) (up to 20' width)
- FBC HVHZ impact-rated certification (Model 998)

† Up to 50.0 psf for RapidShield® Model 998 with optional vision panels.
*Wind load is the ultimate pressure tested at door width of 15'. Confirmed by 3rd party testing.

Cover image:

RapidView® Model 999
Shown with optional lintel cover

High speed security and durability

RapidShield® Model 998 and RapidView® Model 999 deliver security and durability with opening speeds of up to 80" per second.

RapidShield® Model 998 provides a solid aluminum curtain with the elegant style of durable, dual-walled aluminum. This door is ideal for applications where security and privacy are a priority.

RapidView® Model 999 is a full-view door featuring scratch-resistant polycarbonate panels for maximum light infiltration and is perfect for high traffic applications requiring aesthetic appeal and visibility.

General specifications

Features	Model 998	Model 999
Openings	Interior/Exterior (mount inside)	Interior/Exterior (mount inside)
Maximum width	26'	20'
Maximum height	21'	21'
Maximum opening speed	Up to 80"/sec	Up to 80"/sec
Maximum closing speed	Up to 20"/sec	Up to 20"/sec
Wind load*	Up to 100.0** psf	Up to 50.0 psf
Curtain material	Dual-walled aluminum	Aluminum and scratch-resistant polycarbonate
Vision	Optional scratch-resistant polycarbonate panels	Scratch-resistant polycarbonate panels
Operation	Direct drive motor and gearbox system with field changeable universal handing and door stop safety device	Direct drive motor and gearbox system with field changeable universal handing and door stop safety device
Control panel	Variable frequency drive NEMA 4X cULus listed; Onboard self diagnostic and service reminder, Built-in padlockable fused disconnect	Variable frequency drive NEMA 4X cULus listed; Onboard self diagnostic and service reminder, Built-in padlockable fused disconnect
Obstruction safety detection	Integrated light curtain	Integrated light curtain
Reversing safety edge	Wireless reversing edge	Wireless reversing edge
Available supply voltages	230V AC 3PH, 460V AC 3PH, 575V AC 3PH† (†requires stand-alone mounted transformer)	230V AC 3PH, 460V AC 3PH, 575V AC 3PH† (†requires stand-alone mounted transformer)
Warranty	5-Year Limited	5-Year Limited

* Wind load is the ultimate pressure tested at door width of 15'.
** Up to 50 psf for RapidShield® Model 998 with optional vision panels.

Finishes and color options

Part	Finish and color
Slats and bottom bar	Silver powder coat* (standard)
Guide	Silver powder coat* (standard)
Bracket/hood structure	Black powder coat (standard)

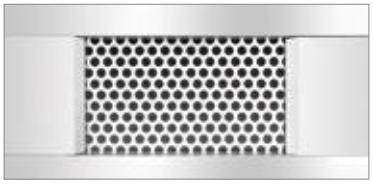
*Silver powder coat made to mimic anodized aluminum.

Standard color for guides and bottom bar is yellow. Approximately 200 optional RAL powder coat colors are also available.

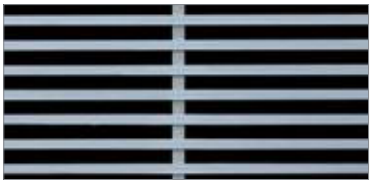


Actual colors may vary from brochure due to fluctuation in the printing process. **Always request a color sample from your Overhead Door™ Distributor for accurate color matching.**

Slat options



Perforated slat (24% open area; up to 20' width)



Vision slat (Model 998)



RapidShield® Model 998 with optional vision slats



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APPENDIX I
ITE EXCERPTS & QUEUING ANALYSIS CALCULATIONS

1333 DADE BOULEVARD

Estimated Service Time

Entrance Type	Time (min)
Resident/Visitors/Employees	1.00

Peak Hour Trip Generation

Ingress Type	Inbound and Outbound
Residents/Visitors/Employees	25

Visitor versus Resident/Employess Trip Generation Calculation	
Highest Ingress/Egress	25
Percent Visitors	8%
Number of Total Visitor Peak Hour Inbound	2
Number of Total Residents Peak Hour Inbound	23

Entrance Assignment Breakdown

Entrance No.	Percentage	Assignment
1	100%	25
	Total	25

Morning Peak Hour Queuing Analysis

Peak Hour Arrival Rate (veh/hr): **25**

Probablity of Back-up on Adjacent Street: **5%**

Service Time (min): **1.00**

N	Q	q	r	Q_m	M
1	60	25	0.4167	0.4167	**1.4**

Table of Q_m Values

r	N=1	2	3	4	6	8	10
0.1	0.1000	0.0182	0.0037	0.0008	0.0000	0.0000	0.0000
0.2	0.2000	0.0666	0.0247	0.0093	0.0015	0.0002	0.0000
0.3	0.3000	0.1385	0.0700	0.0370	0.0111	0.0036	0.0011
0.4	0.4000	0.2286	0.1411	0.0907	0.0400	0.0185	0.0088
0.5	0.5000	0.3333	0.2368	0.1739	0.0991	0.0591	0.0360
0.6	0.6000	0.4501	0.3548	0.2870	0.1965	0.1395	0.1013
0.7	0.7000	0.5766	0.4923	0.4286	0.3359	0.2706	0.2218
0.8	0.8000	0.7111	0.6472	0.5964	0.5178	0.4576	0.4093
0.9	0.9000	0.8526	0.8172	0.7878	0.7401	0.7014	0.6687
1.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

* ITE Transportation and Development Table 8.11

Required queuing storage equation:

$$M = \frac{\ln(0.05) - \ln(Q_m)}{\ln \rho} - 1$$

where:

N = Number of Lanes

Q = Average Service Rate (veh/hr)

q = Peak Hour Arrival Rate (veh/hr)

r = Coefficient of Utiliation (q/NQ)

Q_m = ITE table value of relationship between queue length, number of attendants and utilization factor (ITE Transportation and Land Development Table 8.11

M = Queue length which is exceeded 5% of the time (veh)

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Prentice Hall, *Englewood Cliffs, New Jersey 07632*

APPLICATIONS OF QUEUEING ANALYSIS

Providing an adequate and well-defined storage area for drive-thru traffic is particularly critical, especially at fast-food restaurants and drive-thru bank facilities where queues can, and do, become quite long. Waiting vehicles should be stored on private property clear of driveways so that traffic back-up does not interfere with movement on the arterial street. At fast-food restaurants, the menu board should be installed upstream of the service window to permit drive-thru customers to place their orders prior to their arrival at the service window. Preparation of their order can then begin before they reach the service window, thus minimizing their time at the service window. A well-defined storage area for the waiting traffic should be located so that the waiting vehicles do not block or impede the movement of driveway traffic.

Where a single service position is involved, the situation is referred to as a *single-channel problem*. *Multiple-channel problems* arise when two or more service positions are available. Such problems commonly arise with bank tellers (indoor as well as drive-in windows), entrances and exits at large parking lots and garages, at passenger pick-up areas at transit stations and taxi stands, truck terminals or loading/unloading areas, supermarket checkout counters, telephone calls, building entrances, and transit-station turnstiles. The assumptions of Poisson arrivals and negative exponential service time are commonly acceptable and used for both single- and multiple-channel problems. Thurgood [11] found these assumptions to be representative of drive-in facilities.

Customers arriving randomly at a drive-in facility may enter into service immediately or may have to enter the queue until they can be served. Waiting lines occur whenever the immediate demand for service exceeds the current capacity of the facility providing that service.

Basic Notation and Terminology

The following notation is employed throughout this section:

n = number of customers in the drive-in system
M = number of customers in the queue waiting to be served (number of customers in the system minus the number being served)
$P(n)$ = steady-state probability that exactly n customers are in the queueing system
$P(0)$ = probability that zero vehicles are in the queueing system
N = number of parallel service positions
q = mean average arrival rate of vehicles into the system (vehicles/hour)
Q = mean average service rate per service position (vehicles/hour/position)
Avg (t) = $\%Q$ = mean service time expressed in minutes per vehicle
ρ = $\%Q$ = coefficient of utilization
$E(m)$ = expected (average) number of customers in the system
$E(n)$ = expected (average) number of customers waiting in the queue
$E(t)$ = expected (average) waiting time in system (includes service time)
$E(w)$ = expected (average) waiting time in queue (excludes service time)

The equations employed in the analysis of queueing problems are given in Table 8-10.

Jones, Woods, and Thurgood [4] have developed a graph (Figure 8-6) for determining the probability that there will be no customers in the system—values for $P(0)$. They also developed graphs for determining the average number of waiting customers (Figure 8-7), the average waiting time (Figure 8-8), and average queue length (Figure 8-9). These figures avoid the necessity to perform the time-consuming, although simple, queueing-analysis calculations. See pp. 228–30.

TABLE 8-10
Queueing System Equations

Equation Number	*Variable*	*Equation*
(8-1)	Coefficient of utilization	$\rho = \dfrac{q}{NQ}$
(8-2)	Probability of no customers in the system	$P(0) = \left[\sum_{n=0}^{N-1} \dfrac{\left(\frac{q}{Q}\right)^n}{n!} + \dfrac{\left(\frac{q}{Q}\right)^N}{N!(1-\rho)}\right]^{-1}$
(8-3)	Mean number in the queue	$E(m) = \left[\dfrac{\rho\left(\frac{q}{Q}\right)^N}{N!(1-\rho)^2}\right] P(0)$
(8-4)	Mean number in the system	$E(n) = E(m) + \dfrac{q}{Q}$
(8-5)	Mean wait time in queue (hours)	$E(w) = \dfrac{E(m)}{q}$
(8-6)	Mean time in the system (hours)	$E(t) = E(w) + \dfrac{1}{Q}$ $= E(w) + \text{Avg}\ (t)$
(8-7)	Proportion of customers who wait	$P[E(w) > 0] = \left[\dfrac{\left(\frac{q}{Q}\right)^N}{N!(1-\rho)}\right] P(0)$
(8-8)	Probability of a queue exceeding a length M	$P(x > M) = (\rho^{N+1})P[E(w) > 0]$
(8-9a)	Queue storage required	$M = \left[\dfrac{\ln P(x > M) - \ln E(w) > 0}{\ln \rho}\right] - 1$
(8-9b)*	Queue storage required	$M = \left[\dfrac{\ln P(x > M) - \ln Q_M}{\ln \rho}\right] - 1$

*Q_M is a statistic which is a function of the utilization rate and the number of service channels (service positions); see Table 8-11. The table of Q_M values and use of Equation (8-9b) greatly simplifies the calculations compared to those using Equations (8-9a).

Use of the equations and the graphs may be illustrated by the following example of a drive-in bank.

Conditions:

Number of drive-in windows, $N = 3$

Demand on the system, $q = 70$

Service capacity per channel, $Q = 28.6$ for an average service time, Avg $(t) = 2.1$ minutes

Solution Using Graphs:

- Coefficient of utilization $= 70/(3)(28.6) = 0.816$
- Probability that there are customers waiting in the system, Figure 8-6: $P(0) = 0.05$
- Expected average number of customers waiting in the queue, Figure 8-7: $E(m)/N = 1.0$; and the average number $E(m) = (3)(1.0) = 3$

location, a 5% probability of back-up onto the adjacent street is judged to be acceptable. Demand on the system for design is expected to be 110 vehicles in a 45-minute period. Average service time was expected to be 2.2 minutes. Is the queue storage adequate?

Such problems can be quickly solved using Equation (8–9b) given in Table 8-10 and repeated below for convenience.

$$M = \left[\frac{\ln P(x > M) - \ln Q_M}{\ln \rho}\right] - 1$$

where:

M = queue length which is exceeded p percent of the time
N = number of service channels (drive-in positions)
Q = service rate per channel (vehicles per hour)
$\rho = \dfrac{\text{demand rate}}{\text{service rate}} = \dfrac{q}{NQ}$ = utilization factor
q = demand rate on the system (vehicles per hour)
Q_M = tabled values of the relationship between queue length, number of channels, and utilization factor (see Table 8.11)

TABLE 8-11
Table of Q_M Values

	$N = 1$	2	3	4	6	8	10
0.0	0.0000	0.0000	0.0000	0.0000			
0.1	.1000	.0182	.0037	.0008	.0000	0.0000	0.0000
.2	.2000	.0666	.0247	.0096	.0015	.0002	.0000
.3	.3000	.1385	.0700	.0370	.0111	.0036	.0011
.4	.4000	.2286	.1411	.0907	.0400	.0185	.0088
.5	.5000	.3333	.2368	.1739	.0991	.0591	.0360
.6	.6000	.4501	.3548	.2870	.1965	.1395	.1013
.7	.7000	.5766	.4923	.4286	.3359	.2706	.2218
.8	.8000	.7111	.6472	.5964	.5178	.4576	.4093
.9	.9000	.8526	.8172	.7878	.7401	.7014	.6687
1.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\rho = \dfrac{q}{NQ} = \dfrac{\text{arrival rate, total}}{(\text{number of channels})(\text{service rate per channel})}$
N = number of channels (service positions)

Solution

Step 1: $Q = \dfrac{60 \text{ min/hr}}{2.2 \text{ min/service}} = 27.3$ services per hour

Step 2: $q = (110 \text{ veh}/45 \text{ min}) \times (60 \text{ min/hr}) = 146.7$ vehicles per hour

Step 3: $\rho = \dfrac{q}{NQ} = \dfrac{146.7}{(6)(27.3)} = 0.8956$

Step 4: $Q_M = 0.7303$ by interpolation between 0.8 and 0.9 for $N = 6$ from the table of Q_M values (see Table 8-11).

Step 5: The acceptable probability of the queue, M, being longer than the storage, 18 spaces in this example, was stated to be 5%. $P(x > M) = 0.05$, and:

$$M = \left[\frac{\ln 0.05 - \ln 0.7303}{\ln 0.8956}\right] - 1 = \left[\frac{-2.996 - (-0.314)}{-0.110}\right] - 1$$

$$= 24.38 - 1 = 23.38, \text{ say } 23 \text{ vehicles.}$$

The number of vehicles in the queue would be expected to exceed 23 more than 5% of the time. Since the site plan will accommodate a queue of 18 vehicles, the storage is not sufficient for the conditions stated.

It is important to realize that, for any $P\ (x > M)$ value, the queue length required increases very rapidly for values of $\rho > 0.85$ (see Figure 8-9). When $\rho > 1.0$, the solution is indeterminate and the queue length theoretically becomes infinite.

Analysis of Service Times. In many instances it is effective to demonstrate that a proposed design not only is inadequate to store vehicles waiting for service but will result in unacceptable wait times as well. The necessary equations are given in Table 8-10.

For purposes of checking computations it is convenient to know that the limit of $P(0)$, as the number of channels approaches infinity (in practical terms when $N > 10$), is:

$$\lim_{N \to \infty} P(0) = e^{-\lambda} \qquad \text{where } \lambda = q/Q$$

Drive-In Bank Example: Under the site-development approval requirements, representatives of a bank presented a site plan for the construction of a new bank having three service positions. Information provided by bank officials and observations at other local banks provided the following data:

- Expected average arrival rate during the design hour (4:30–5:30 p.m. on Fridays) = 70 vehicles per hour (vph)
- Average service time per customer = 2.1 minutes

Does the site plan provide for sufficient storage to accommodate all vehicles arriving 95% of the time?

$$q = 70 \text{ vph arrival rate}$$

$$Q = \frac{60 \text{ minutes per hour}}{2.1 \text{ minutes per service}} = 28.6 \text{ vph service rate}$$

$$\rho = \frac{70}{(3)(28.6)} = 0.816$$

$$\frac{q}{Q} = \frac{70}{28.6} = 2.45$$

$$Q_M = 0.674 \text{ by interpolation from Table 8-11}$$

$$P(x > M) = 1.00 - 0.95 = 0.05$$

By Equation (8-9b)

$$M = \left[\frac{\ln 0.05 - \ln 0.674}{\ln 0.816}\right] - 1 = \left[\frac{-2.996 - (-0.396)}{-0.203}\right] - 1 = 11.8, \text{ say } 12$$

Thus, it would be necessary to store 12 vehicles, exclusive of the three service positions, in order to accommodate the arriving vehicles 95% of the time; or alternatively, to have waiting vehicles extending back into the adjacent street no more than 5% of the time between 4:30 and 5:30 p.m. on Fridays. Since the site plan provides for six spaces, the site plan as submitted is inadequate and should be disapproved.

A solution to the problem would be to increase the storage, or if this is not possible add a service position in order to reduce the average service time.

Addition of a service position would reduce the number of storage spaces needed to three (three storage plus four service positions)—assuming the same arrival rate and service time:

$$M = \left[\frac{\ln 0.05 - \ln 0.301}{\ln 0.612}\right] - 1 = 2.7, \text{ say } 3$$

A redesign to provide four service positions would have the additional benefit of substantially reducing the expected waiting time (from over 4 minutes to less than $\frac{1}{2}$ minute) for the bank customers using the drive-in windows:

With Three Service Positions:

$$q = 70 \text{ vph}$$
$$Q = 28.6 \text{ vph}$$
$$\frac{q}{Q} = 2.45$$
$$\rho = \frac{70}{(3)(28.6)} = 0.816$$
$$P(0) = \left[\frac{(2.45)^0}{0!} + \frac{(2.45)^1}{1!} + \frac{(2.45)^2}{2!} + \frac{(2.45)^3}{3!\left[1 - \left(\frac{2.45}{3}\right)\right]}\right]^{-1}$$
$$= [1 + 2.45 + 3.00 + 13.37]^{-1} = 0.0505$$
$$E(m) = \left[\frac{(0.816)\left(\frac{70}{28.6}\right)^3}{3!(1 - 0.816)^2}\right] 0.0505 = 2.97$$
$$E(n) = 2.97 + \frac{70}{28.6} = 5.42$$
$$E(t) = \frac{2.97}{70} = 0.0424 \text{ hours or } 2.55 \text{ minutes}$$
$$E(w) = 0.0424 + \frac{1}{28.6} = 0.0774 \text{ hours or } 4.64 \text{ minutes}$$

With Four Service Positions:

$$q = 70 \text{ vph}$$
$$Q = 28.6 \text{ vph}$$
$$\frac{q}{Q} = 2.45$$
$$\rho = \frac{70}{(4)(28.6)} = 0.612$$
$$P(0) = \left[\frac{(2.45)^0}{0!} + \frac{(2.45)^1}{1!} + \frac{(2.45)^2}{2!} + \frac{(2.45)^3}{3!} + \frac{(2.45)^4}{4!\left[1 - \left(\frac{2.45}{4}\right)\right]}\right]^{-1}$$
$$= 0.0783$$
$$E(m) = \left[\frac{(0.612)(2.45)^4}{4!(1 - 0.612)^2}\right] 0.0783 = 0.48$$
$$E(n) = 0.48 + 2.45 = 2.93$$
$$E(t) = 0.007 + \frac{1}{28.6} = 0.042 \text{ hours or } 2.51 \text{ minutes}$$
$$E(w) = \frac{0.48}{70} = 0.007 \text{ hours or } 0.41 \text{ minutes}$$

However, the service time would increase somewhat unless an additional teller were also added. Nevertheless, an increase to 2.5 minutes, or more, would still reduce the storage space required and result in better service (less time in the system). Besides, time spent being served is less irritating to the customer than an equal time spent waiting.

Conversion of a Residence. An existing single-family residence was situated on a 2.5-acre tract fronting on the major north–south arterial in the urbanizing fringe of a metropolitan area of 100,000 population. The 85th percentile speed exceeded 50 mph; however, it was anticipated that the speed limit would be reduced to 45 mph as further urbanization occurred.

Requests for rezoning from single-family residential to general commercial had received negative recommendations from the Planning and Zoning Commission and denied by the City Council. Nevertheless, the fact that changing conditions in the vicinity of the site were making the property less desirable as a single-family residence was generally recognized. Therefore, when an application was submitted for a Conditional Use Permit to establish a private school using the existing residence for classrooms, the Planning and Zoning Commission was very favorably disposed to the request. The applicant provided the following information prior to the public hearing.

1. The completed application for a conditional use
2. A statement that the intended use was for a Montessori school using the existing structure
3. A site plan as required for all proposed development, other than single-family and duplex residential development, before a building permit will be issued for a new structure and for remodeling of an existing one

The following information was presented at the public hearing by the applicant:

1. At least 40 students would be enrolled before any change would be made in the site circulation.
2. Eighty percent of the students were expected to be picked up within a 20-minute period—a substantial additional fee was to be charged for children picked up more than 30 minutes after school.
3. A strong parent–school relationship was intended, so that average pick-up time of at least 2 minutes and visits of 5 minutes or longer would not be unusual.

The following were agreed upon at the public hearing:

1. The probability of vehicles backing up onto the main lane of the major arterial should be negligible, less than 1%.
2. The site plan, with no change in the circulation pattern, would provide for four service positions and three storage positions.

Based upon these conditions, the following analysis was performed using Equation (8-9b):

$$M = 3$$

$$N = 4$$

$$Q = 60 \text{ minutes per hour} \div 2 \text{ minutes per service} = 30 \text{ vph}$$

$$q = (40 \text{ students})\,(80\% \text{ in } 20 \text{ minutes})\left(\frac{60}{20}\right) = 96 \text{ vph}$$

$$\rho = \frac{96}{(4)\,(30)} = 0.8000$$

$$P(x > 3) = 0.01 \text{ (a 1\% chance of vehicles backing up onto the arterial)}$$

$$Q_M = 0.8585, \text{ from Table 8-11}$$

$$3 = \left[\frac{\ln P(x > 3) - \ln 0.5964}{\ln 0.8000}\right] - 1$$

$$3 = \left[\frac{\ln P(x > 3) - (-0.5168)}{-0.2231}\right] - 1$$

Then,

$$\ln P(x > 3) = (4)(-0.2231) - 0.5168 = -1.4092$$

and

$$P(x > 3) = e^{-1.4092} = 0.244 \text{ or } 24\%$$

Thus, the calculated probability that the queue could back up onto the arterial is 24% (given the stated conditions), which is considerably greater than the acceptable probability of less than 1%, and the application was denied. The Planning and Zoning Commission suggested various compromises of redesign of the site and issuance of a conditional use permit for a school (under the ordinance, a school can be located in any zoning district by condition) with the condition that the maximum enrollment would not exceed 24 students, which is the number necessary to achieve a value of $P(x > 3) < 0.01$. All such proposals were rejected by the applicant. The site was subsequently rezoned to the Administrative and Professional District (a restricted office district) and is now being used as a dentist's office.

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10. The Traffic Institute, Northwestern University, short course notes.
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The impact of PARC systems on vehicle capacity is significant. Table 14-17 highlights the service rates of various PARC systems. The service rates are affected by the approach to the access point. Sharp turns reduce the service rate. Figure 14-21 highlights the relationship between the turn radius approach to the access point and the impact on service rate. As the radius decreases, turning speed also decreases, which lowers capacity. For example, turns with a 25-ft. inside radius may reduce service rates by 7 sec. per vehicle. The increase in time per vehicle noted in Figure 14-21 can be added to the PARC service rates (shown as sec. per vehicle) in Table 14-17.

Table 14-17. PARC Service Rates.

	Vehicle/Hour	Seconds/Vehicle
No Pay, No Gate		
Entry—clear access, no controls	800	4.5
Exit—little street traffic, no controls (sensitive to street traffic flow)	400	9
Prepaid Systems—Entry or Exit System		
Card insertion	435	8.3
Proximity card	600	6
Automatic vehicle ID	800	4.5
Pay Per Use—Entry Systems		
Pushbutton ticket spitter	400	9
Auto-spit ticket	450	8
Pay on entry—flat fee, gated, ticketed	200	18
Pay on entry—flat fee, non-gated, ticketed	300	12
Pay Per Use—Exit Systems		
Cashier—cash only, variable rate	135	27
Cashier—flat rate	180	20
Cashier—credit card, online check (telephone), sign	95	38
Cashier—credit card, online check, no sign	110	33
Cashier—credit card, batch check, high speed, no sign	175	21
Validated for free parking	300	12
Pay-on-foot ticket insertion	360	10
License plate recognition	120	30

Note: These service rates can be affected by the curvature of the approach to the parking entrance or exit, the volume of traffic on the street adjacent to the parking facility and the frequency of pedestrian conflicts.

Source: Chrest, Smith, Bhuyan, Monahan and Iqbal. *Parking Structures: Planning, Design, Construction, Maintenance and Repair*, 3rd Edition. New York, NY, USA: Kluwer Academic Publishers, 2001.

2. Arrival and Departure Rates

The vehicle trip generation rate of a parking facility can be linked to its associated land use in most suburban cases. In situations where there is a single land use or a mixed-use site, *Trip Generation: An ITE Informational Report* provides a tool for estimating vehicle trip flow at peak hours in the morning or afternoon.[27]

Many parking situations do not involve a single land use. Table 14-18 provides a comparison of the peak-hour vehicle trip rates (peak a.m. and p.m. average vehicle trip rates from *Trip Generation*) for various land uses to the 85th-percentile peak parking demand (from *Parking Generation*). These ratios represent the number of vehicle trips per parked vehicle—a tool that can be used to estimate arrival and departure rates from a parking facility by multiplying the ratio times the number of spaces.

In central cities, parking lots or structures serve many land uses and commonly fall into short-term parking and long-term parking. Counts of short-term parking facilities provide trip rates per space in the peak hours.

APPENDIX J
VALET QUEUING ANALYSIS CALCULATIONS

Valet Service Time Calculations

1333 DADE BOULEVARD

Valet Service Time Drop-off	
Activity	**Service Time (min)**
Vehicle Pick-Up	0.40
Vehicle Travel Time*	0.25
Vehicle Maneuvering due to Tandem Spaces	1.20
Lift Time Get on	1.00
Return to Valet booth	0.50
Total Service Time	**3.35**

*Conservatively assumed 15 seconds

Valet Service Time Pick-up	
Activity	**Service Time (min)**
Get Ticket/Keys	0.15
Pickup Car Time	0.50
Lift Time Get off	1.50
Vehicle Maneuvering due to Tandem Spaces	1.20
Vehicle Travel Time*	0.25
Return car	0.20
Total Service Time	**3.80**

*Conservatively assumed 15 seconds

Travel Time from Valet Booth to Valet Parking Spaces

	Speed (mph)	Speed (mps)	**Distance to Vehicle Parking (m)**	Travel Time (sec)
From Valet Stand	10	4.44	27.00	6.08

Travel Time from Parking Garage to Valet Drop-Off

	Speed (mph)	Speed (mps)	**Distance to Valet Stand (m)**	Travel Time (sec)
From Valet Parking	10	4.44	27.00	6.08

Valet Parking Spaces			Time to Park (min)
Single Parking Space	1	spaces	0.15
Tandem Parking Spaces	2	spaces	1.20
Double Stackers Lift-Time	12	spaces	1.00

Valet Operator time to return tot Booth		
Return to Valet booth from Valet Parking	0.5	min

Lift Time Get On		
Double Stackers Lift-Time*	1	min

Lift Time Get Off		
Double Stackers Lift-Time*	1.5	min

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1333 DADE BOULEVARD

Estimated Service Time

Entrance Type	Time (min)*
Drop-off Valet Operation	3.35
Pick-up Valet Operation	3.80

Morning Ingress Peak Hour Valet Parking Queuing Analysis

Peak Hour Arrival Rate (veh/hr): **21**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **3.35**
Number of Operators: **3**

N	Q	q	r	Q_m	M
1	54.00	21	0.3889	0.3889	**1.2**

Morning Egress Peak Hour Valet Parking Queuing Analysis

Peak Hour Arrival Rate (veh/hr): **4**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **3.80**
Number of Operators: **3**

N	Q	q	r	Q_m	M
1	48.00	4	0.0833	0.0833	**0.0**

Afternoon Ingress Peak Hour Valet Parking Queuing Analysis

Peak Hour Arrival Rate (veh/hr): **5**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **3.35**
Number of Operators: **3**

N	Q	q	r	Q_m	M
1	54.00	5	0.0926	0.0926	**0.0**

Afternoon Egress Peak Hour Valet Parking Queuing Analysis

Peak Hour Arrival Rate (veh/hr): **21**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **3.80**
Number of Operators: **3**

N	Q	q	r	Q_m	M
1	48.00	21	0.4375	0.4375	**1.6**

Morning Peak Hour Trip Generation Summary

Land Use	ITE Code	In	Out	Total Trips
General Office	710	0	1	1
Single-Family Attached Housing	215	21	3	24
Total		**21**	**4**	**25**

Afternoon Peak Hour Trip Generation Summary

Land Use	ITE Code	In	Out	Total Trips
General Office	710	1	0	1
Single-Family Attached Housing	215	4	21	25
Total		**5**	**21**	**26**

r	N=1	2	3	4	6	8	10
0.1	0.1000	0.0182	0.0037	0.0008	0.0000	0.0000	0.0000
0.2	0.2000	0.0666	0.0247	0.0093	0.0015	0.0002	0.0000
0.3	0.3000	0.1385	0.0700	0.0370	0.0111	0.0036	0.0011
0.4	0.4000	0.2286	0.1411	0.0907	0.0400	0.0185	0.0088
0.5	0.5000	0.3333	0.2368	0.1739	0.0991	0.0591	0.0360
0.6	0.6000	0.4501	0.3548	0.2870	0.1965	0.1395	0.1013
0.7	0.7000	0.5766	0.4923	0.4286	0.3359	0.2706	0.2218
0.8	0.8000	0.7111	0.6472	0.5964	0.5178	0.4576	0.4093
0.9	0.9000	0.8526	0.8172	0.7878	0.7401	0.7014	0.6687
1.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

** ITE Transportation and Development Table 8.11*

Required queuing storage equation:

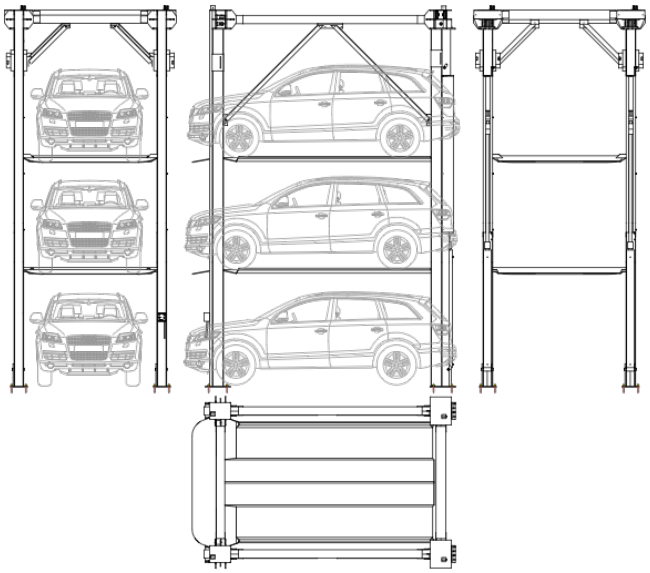
$$M = \frac{\ln(0.05) - \ln(Q_m)}{\ln \rho} - 1$$

where:

N = Number of Lanes
Q = Average Service Rate (veh/hr)
q = Peak Hour Arrival Rate (veh/hr)
r = Coefficient of Utiliation (q/NQ)
Q_m = ITE table value of relationship between queue length, number of attendants and utilization factor (ITE Transportation and Land Development Table 8.11
M = Queue length which is exceeded 5% of the time (veh)

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TPS3H
TPS3E



3 HIGH SPECIFICATIONS		
DESCRIPTION	*3 HIGH PARKING STACKER 4 POST*	*3 HIGH PARKING STACKER 4 POST*
OPERATION TYPE	*ELECTRICAL*	*HYDRAULIC*
CONTROL METHOD	*PUSH BUTTON*	*PUSH BUTTON*
LENGTH	*15'*	*15'*
WIDTH	*8'-3" - to - 8'-8"*	*8'-3" - to - 8'-8"*
HEIGTH	*18' - to - 24'*	*18' - to - 24'*
CLEARANCE REQUIREMENTS	*24'-10"*	*24'-10"*
DRIVE	*ELECTRICAL MOTORS*	*HYDRAULIC POWER PACKS*
WEIGHT OF LIFT	*8500LBS*	*8500LBS*
LIFTING SPEED	*14ft / MIN*	*10ft / MIN*
LIFTING CAPACITY OF PLATFORMS	*6,000 LBS PER PLATFORM*	*6,000 LBS PER PLATFORM*
SAFETY	*ANTI FALL*	*ANTI FALL*
ELECTRICAL	*3PH 208-480V 40AMP*	*3PH 208-480V 40AMP*
BASE REQUIREMENTS	*REINFORCED CONCRETE SLAB*	*REINFORCED CONCRETE SLAB*

AMERICAN CAR LIFT

227 US Highway 206, Byram Township NJ 07821