

# Congested Intersection Improvements

## Volume II Selected Data and Analysis

March 2008



# Congested Intersection Improvements

## Volume II Selected Data and Analysis

Prepared by:  
David Plummer & Associates, Inc.

March 2008  
DPA Project #06235



# **A. Toolbox Form**

Congested Intersections Study  
 Checklist/Toolbox of Intersection Improvements

Date: \_\_\_\_\_

| ----- Needed  
 | | ----- Applicable  
 | | | ----- Recommended  
 V V V

Intersection: \_\_\_\_\_

			Improvement	Comments
		1	LT signals	
		2	RT signals	
		3	Prohibit LTs	
		4	Control RTOR	
		5	Restripe lane assignment	
		6	Lane use signs	
		7	Variable lane assignment	
		8	Remove on-street parking	
		9	Create loading zones	
		10	Reversible lanes	
		11	Add LT lanes	
		12	Add RT lanes	
		13	Add auxiliary thru lanes	
		14	Control driveways	
		15	Channelization	
		16	Extend turn lanes	
		17	Turning radii (curb)	
		18	Median nose	
		19	Close median	
		20	Directional median opening	
		21	Raised separator	
		22	Visual obstructions	
		23	Reduce skew	
		24	Close extra legs	
		25	Straighten veh. path	
		26	Turbo lanes	
		27	Special geometrics for LT mov.	
		28	One-way streets	
		29	Roundabouts	
		30	Grade separation	
		31	Street lighting	
		32	Crosswalks	
		33	Zebra crosswalks	
		34	Ped signals	
		35	Audible ped signals	
		36	Ped refuge island	
		37	Ped ramps (construct/update)	
		38	RR ped gates	
		39	Sidewalks	
		40	Relocate bus stops	
		41	Bus bays	
		42	Bicycle routes	
		43		
		44		
		45		

## **B. W Flagler Street & W 27 Avenue**

Analyst: DPA Inter.:  
 Agency: Area Type: All other areas  
 Date: Jurisd: Miami, FL  
 Period: Existing AM Peak Hour Year :  
 Project ID: Optimized Phase  
 E/W St: Flagler Street N/S St: 27 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	3	0	1	3	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	150	904	43	153	716	119	135	1192	115	273	1492	128
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			6			10

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A		A	SB Left	A	A	
Thru				A	Thru		A	
Right				A	Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		7.0	40.1			13.0	43.9	
Yellow		3.0	4.0			3.0	4.0	
All Red		0.0	1.0			0.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	191	1770	0.83	0.43	50.3	D		
TR	1149	3438	0.87	0.33	44.7	D	45.5	D
Westbound								
L	165	1770	0.98	0.43	89.9	F		
TR	1132	3388	0.78	0.33	39.4	D	47.2	D
Northbound								
L	254	1770	0.56	0.52	26.1	C		
TR	1823	4984	0.75	0.37	35.1	D	34.2	C
Southbound								
L	254	1770	1.13	0.52	131.4	F		
TR	1826	4992	0.93	0.37	45.4	D	57.9	E

Intersection Delay = 47.1 (sec/veh) Intersection LOS = D

Analyst: DPA  
 Agency:  
 Date:  
 Period: AM Peak Hour  
 Project ID: Prohibit NB/SB LTs  
 E/W St: Flagler Street

Inter.:  
 Area Type: All other areas  
 Jurisd: Miami, FL  
 Year :  
 N/S St: 27 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	3	0	0	3	0
LGConfig	L	TR		L	TR			TR			TR	
Volume	150	1177	43	153	851	119		1327	115		1765	128
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
RTOR Vol			0			0			6			10

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left			
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
WB Left		A			SB Left			
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		7.0	46.9			53.1		
Yellow		3.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	194	1770	0.81	0.49	45.6	D		
TR	1346	3443	0.95	0.39	50.4	D	49.9	D
Westbound								
L	165	1770	0.98	0.49	92.5	F		
TR	1328	3398	0.77	0.39	34.6	C	42.5	D
Northbound								
TR	2208	4989	0.68	0.44	27.7	C	27.7	C
Southbound								
TR	2212	5000	0.90	0.44	36.2	D	36.2	D

Intersection Delay = 38.5 (sec/veh) Intersection LOS = D

Analyst: DPA Inter.:  
 Agency: Area Type: All other areas  
 Date: Jurisd: Miami, FL  
 Period: Existing PM Peak Hour Year :  
 Project ID: Optimized Phase  
 E/W St: Flagler Street N/S St: 27 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	3	0	1	3	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	218	945	115	155	863	78	153	1094	58	205	1346	233
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			6			10

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A		A	SB Left	A	A	
Thru				A	Thru		A	
Right				A	Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		11.9	48.0			10.6	49.5	
Yellow		3.0	4.0			3.0	4.0	
All Red		0.0	1.0			0.0	1.0	

Cycle Length: 136.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	224	1770	1.02	0.48	101.9	F		
TR	1202	3405	0.93	0.35	54.8	D	62.8	E
Westbound								
L	200	1685	0.81	0.48	57.0	E		
TR	1236	3503	0.80	0.35	43.6	D	45.5	D
Northbound								
L	193	1770	0.83	0.48	60.0	E		
TR	1825	5013	0.66	0.36	37.1	D	39.8	D
Southbound								
L	217	1770	1.00	0.48	89.6	F		
TR	1798	4939	0.92	0.36	49.4	D	54.1	D

Intersection Delay = 51.0 (sec/veh) Intersection LOS = D



Analyst: DPA  
 Agency:  
 Date:  
 Period: PM Peak Hour  
 Project ID: Prohibit NB & SB LT  
 E/W St: Flagler Street

Inter.:  
 Area Type: All other areas  
 Jurisd: Miami, FL  
 Year :  
 N/S St: 27 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	3	0	0	3	0
LGConfig	L	TR		L	TR			TR			TR	
Volume	218	1150	115	155	1016	78		1247	58		1551	233
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
RTOR Vol			0			0			6			10

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left			
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
WB Left		A			SB Left			
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.5	55.3			56.2			
Yellow	3.0	4.0			4.0			
All Red	0.0	1.0			1.0			

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	206	1770	1.11	0.52	131.7	F		
TR	1398	3414	0.95	0.41	52.9	D	64.5	E
Westbound								
L	184	1685	0.89	0.52	74.2	E		
TR	1437	3509	0.80	0.41	38.4	D	42.8	D
Northbound								
TR	2089	5017	0.65	0.42	32.4	C	32.4	C
Southbound								
TR	2061	4952	0.91	0.42	43.2	D	43.2	D

Intersection Delay = 46.1 (sec/veh) Intersection LOS = D

**C. Biscayne Boulevard  
From NE 178 Street  
To NE 183 Street**

Analyst: DPA Inter.: Biscayne / NE 178 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing AM Peak Hour Year :  
 Project ID:  
 E/W St: NE 178 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	4	0	1	4	0
LGConfig				L		R	L		TR	L		T
Volume				62		73	0	2028	52	99	2326	
Lane Width				12.0		12.0	12.0	12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	33.0				28.0	103.2		
Yellow	4.0				5.0	4.3		
All Red	1.5				0.0	1.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	325	1770	0.20	0.18	62.6	E	49.1	D
R	585	1583	0.13	0.37	37.7	D		

Northbound

L	63	110	0.00	0.57	16.4	B		
TR	3864	6740	0.57	0.57	24.5	C	24.5	C

Southbound

L	330	1770	0.32	0.76	23.5	C		
T	5119	6765	0.48	0.76	8.4	A	9.0	A

Intersection Delay = 17.1 (sec/veh) Intersection LOS = B

Analyst: DPA Inter.: Biscayne / NE 178 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing PM Peak Hour Year :  
 Project ID:  
 E/W St: NE 178 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	4	0	1	4	0
LGConfig				L		R	L		TR	L		T
Volume				40		79	61	2953	53	219	2607	
Lane Width				12.0		12.0	12.0	12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	33.0				28.0	103.2		
Yellow	4.0				5.0	4.3		
All Red	1.5				0.0	1.0		
Cycle Length: 180.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	325	1770	0.13	0.18	61.7	E	45.9	D
R	585	1583	0.14	0.37	37.9	D		

Northbound

L	45	79	1.42	0.57	319.5	F		
TR	3869	6748	0.82	0.57	32.3	C	38.0	D

Southbound

L	317	1770	0.73	0.76	67.3	E		
T	5119	6765	0.54	0.76	9.1	A	13.6	B

Intersection Delay = 26.7 (sec/veh) Intersection LOS = C

Analyst: DPA Inter.: Biscayne / NE 180 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing AM Peak Hour Year :  
 Project ID:  
 E/W St: NE 180 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	4	0	1	4	0
LGConfig				L		R	L		TR	L		T
Volume				77		85	13	2079	9	60	2348	
Lane Width				12.0		12.0	12.0	12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	33.0				22.0	107.7		
Yellow	4.0				6.0	4.3		
All Red	1.6				0.0	1.4		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	325	1770	0.25	0.18	63.3	E	63.8	E
R	290	1583	0.31	0.18	64.2	E		

Northbound

L	64	107	0.22	0.60	18.4	B		
TR	4045	6761	0.54	0.60	21.7	C	21.6	C

Southbound

L	276	1770	0.23	0.75	12.8	B		
T	5100	6765	0.48	0.75	8.7	A	8.8	A

Intersection Delay = 16.5 (sec/veh) Intersection LOS = B

Analyst: DPA Inter.: Biscayne / NE 180 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing PM Peak Hour Year :  
 Project ID:  
 E/W St: NE 180 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	4	0	1	4	0
LGConfig				L		R	L		TR	L		T
Volume				36		44	28	2952	32	92	2734	
Lane Width				12.0		12.0	12.0	12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	33.0				22.0	107.7		
Yellow	4.0				6.0	4.3		
All Red	1.6				0.0	1.4		
Cycle Length: 180.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	325	1770	0.12	0.18	61.5	E	61.8	E
R	290	1583	0.16	0.18	62.1	E		

Northbound

L	42	71	0.69	0.60	63.4	E		
TR	4042	6755	0.78	0.60	28.1	C	28.5	C

Southbound

L	258	1770	0.38	0.75	42.2	D		
T	5100	6765	0.56	0.75	9.6	A	10.7	B

Intersection Delay = 20.4 (sec/veh) Intersection LOS = C

Analyst: DPA Inter.: Biscayne / NE 182 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing AM Peak Hour Year :  
 Project ID:  
 E/W St: NE 182 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	4	0	1	4	0
LGConfig				L		R		TR		L	T	
Volume				60		56		2108	56	95	2313	
Lane Width				12.0		12.0		12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	22.8				21.0	120.0		
Yellow	4.0				5.4	4.3		
All Red	1.5				0.0	1.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	224	1770	0.28	0.13	71.9	E	61.0	E
R	434	1583	0.14	0.27	49.4	D		

Northbound

TR	4493	6739	0.51	0.67	15.2	B	15.2	B
----	------	------	------	------	------	---	------	---

Southbound

L	273	1770	0.37	0.81	17.6	B		
T	5502	6765	0.44	0.81	5.0	A	5.5	A

Intersection Delay = 11.3 (sec/veh) Intersection LOS = B

Analyst: DPA Inter.: Biscayne / NE 182 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing PM Peak Hour Year :  
 Project ID:  
 E/W St: NE 182 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	4	0	1	4	0
LGConfig				L		R		TR		L	T	
Volume				126		89		2914	118	81	2700	
Lane Width				12.0		12.0		12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	22.8				21.0	120.0		
Yellow	4.0				5.4	4.3		
All Red	1.5				0.0	1.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	224	1770	0.59	0.13	78.4	E	66.9	E
R	434	1583	0.22	0.27	50.7	D		

Northbound

TR	4484	6726	0.71	0.67	19.6	B	19.6	B
----	------	------	------	------	------	---	------	---

Southbound

L	247	1770	0.34	0.81	39.1	D		
T	5502	6765	0.52	0.81	5.5	A	6.5	A

Intersection Delay = 15.2 (sec/veh) Intersection LOS = B



Analyst: DPA Inter.: Biscayne / NE 183 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing AM Peak Hour Year :  
 Project ID:  
 E/W St: NE 183 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	4	0	2	4	0
LGConfig				L		R		LTR		L	T	
Volume				275		309	4	1961	199	346	2129	
Lane Width				12.0		12.0		12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru					Thru	A		
Right					Right	A		
Peds			X		Peds			
WB Left	A				SB Left	A		
Thru					Thru	A	A	
Right	A				Right			
Peds			X		Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	21.0	23.5			6.0	113.0		
Yellow	4.0				3.0	4.3		
All Red	1.5	0.0			2.5	1.2		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	207	1770	1.40	0.12	284.4	F	275.8	F
R	237	1583	1.37	0.15	268.1	F		

Northbound

LTR	3873	6169	0.59	0.63	20.0+	C	20.0+	C
-----	------	------	------	------	-------	---	-------	---

Southbound

L	115	3437	3.17	0.03	1084	F		
T	4679	6765	0.48	0.69	12.9	B	162.5	F

Intersection Delay = 116.1 (sec/veh) Intersection LOS = F

Analyst: DPA Inter.: Biscayne / NE 183 Street  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing PM Peak Hour Year :  
 Project ID:  
 E/W St: NE 183 Street N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	4	0	2	4	0
LGConfig				L		R		LTR		L	T	
Volume				235		246	0	2786	246	274	2546	
Lane Width				12.0		12.0		12.0		12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru					Thru	A		
Right					Right	A		
Peds			X		Peds			
WB Left	A				SB Left	A		
Thru					Thru	A	A	
Right	A				Right			
Peds			X		Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	21.0	23.5			6.0	113.0		
Yellow	4.0				3.0	4.3		
All Red	1.5	0.0			2.5	1.2		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

L	207	1770	1.19	0.12	204.0	F	247.4	F
R	185	1583	1.40	0.12	288.8	F		

Northbound

LTR	4195	6683	0.76	0.63	24.7	C	24.7	C
-----	------	------	------	------	------	---	------	---

Southbound

L	115	3437	2.50	0.03	789.1	F		
T	4679	6765	0.57	0.69	14.3	B	89.5	F

Intersection Delay = 70.5 (sec/veh) Intersection LOS = E

**D. Biscayne Boulevard & NE 186  
Street**

Analyst: DPA Inter.: Miami Gardens Dr / Biscayne  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing AM Peak Hour w sig op Year :  
 Project ID: MGD Extension  
 E/W St: Miami Gardens Drive N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	1	1	1	1	1	2	4	0	2	4	1
LGConfig	L	LT	R	L	T	R	L	TR		L	T	R
Volume	926	312	471	337	312	35	334	1594	315	28	1856	116
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			40			4			0			12

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
WB Left			A		SB Left		A	
Thru			A		Thru	A		
Right			A		Right	A		
Peds					Peds			
NB Right					EB Right		A	
SB Right		A			WB Right		A	
Green	37.2	35.1			63.7	20.0		
Yellow	4.0	4.0			4.0	6.0		
All Red	2.0	2.0			2.0	0.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	710	3437	1.37	0.21	248.2	F		
LT	385	1863	0.85	0.21	85.3	F	169.8	F
R	556	1583	0.82	0.35	62.4	E		
Westbound								
L	345	1770	1.03	0.19	128.6	F		
T	363	1863	0.90	0.19	95.8	F	109.7	F
R	485	1583	0.07	0.31	44.3	D		
Northbound								
L	382	3437	0.92	0.11	106.6	F		
TR	2335	6598	0.86	0.35	57.6	E	64.9	E
Southbound								
L	382	3437	0.08	0.11	71.8	E		
T	2394	6765	0.82	0.35	55.1	E	53.5	D
R	887	1583	0.12	0.56	18.7	B		
Intersection Delay = 92.7 (sec/veh)					Intersection LOS = F			

Analyst: DPA Inter.: Miami Gardens Dr / Biscayne  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: AM Peak Hour Year :  
 Project ID: MGD Extension - EB FF R; 2 SB RT; L LT TR; SB RT Light  
 E/W St: Miami Gardens Drive N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	1	1	0	2	1	2	4	0	2	4	2
LGConfig	L	LT	R		LT	R	L	TR		L	T	R
Volume	926	312	471	337	312	35	334	1594	315	28	1856	116
Lane Width	12.0	12.0	12.0		12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			4			0			12

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru		A			Thru	A		
Right		A	A		Right	A		
Peds					Peds			
WB Left			A		SB Left		A	
Thru			A		Thru	A		
Right			A		Right	A		
Peds					Peds			
NB Right					EB Right	A	A	
SB Right		A			WB Right		A	
Green		47.8	34.1			58.1	16.0	
Yellow		4.0	4.0			4.0	6.0	
All Red		2.0	2.0			2.0	0.0	

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	913	3437	1.07	0.27	115.7	F		
LT	495	1863	0.66	0.27	62.2	E	74.1	E
R	1583	1583	0.31	1.00	0.1	A		
Westbound								
LT	655	3457	1.04	0.19	119.7	F	116.4	F
R	441	1583	0.07	0.28	47.9	D		
Northbound								
L	306	3437	1.15	0.09	180.5	F		
TR	2130	6598	0.94	0.32	68.8	E	85.4	F
Southbound								
L	306	3437	0.09	0.09	75.5	E		
T	2184	6765	0.89	0.32	63.3	E	61.0	E
R	1649	2803	0.07	0.59	15.9	B		
Intersection Delay = 78.4 (sec/veh)					Intersection LOS = E			

Analyst: DPA Inter.: Miami Gardens Dr / Biscayne  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: Existing PM Peak Hour w sig op Year :  
 Project ID:  
 E/W St: Miami Gardens Drive N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	1	1	1	1	1	2	4	0	2	4	1
LGConfig	L	LT	R	L	T	R	L	TR		L	T	R
Volume	757	126	344	81	236	54	419	2533	80	71	2395	238
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			34			5			0			24

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
WB Left			A		SB Left		A	
Thru			A		Thru	A		
Right			A		Right	A		
Peds					Peds			
NB Right					EB Right		A	
SB Right		A			WB Right			
Green	40.4	13.5			80.6	21.5		
Yellow	4.0	4.0			4.0	6.0		
All Red	2.0	2.0			2.0	0.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	771	3437	1.03	0.22	111.2	F		
LT	418	1863	0.32	0.22	58.7	E	88.5	F
R	597	1583	0.55	0.38	45.0	D		
Westbound								
L	133	1770	0.64	0.08	90.8	F		
T	140	1863	1.77	0.08	457.8	F	326.0	F
R	119	1583	0.44	0.08	82.2	F		
Northbound								
L	411	3437	1.07	0.12	144.5	F		
TR	3015	6734	0.91	0.45	51.2	D	64.1	E
Southbound								
L	411	3437	0.18	0.12	71.6	E		
T	3029	6765	0.83	0.45	45.9	D	43.8	D
R	1064	1583	0.21	0.67	11.4	B		
Intersection Delay = 73.8 (sec/veh)					Intersection LOS = E			

Analyst: DPA Inter.: Miami Gardens Dr / Biscayne  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: PM Peak Hour Year :  
 Project ID: MGD Extension- EB FF R; 2 SB RT; WB: L LT TR; SB RT Signals  
 E/W St: Miami Gardens Drive N/S St: Biscayne Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	1	1	0	2	1	2	4	0	2	4	2
LGConfig	L	LT	R		LT	R	L	TR		L	T	R
Volume	757	126	344	81	236	54	419	2533	80	71	2395	238
Lane Width	12.0	12.0	12.0		12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			34			5			0			24

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru		A			Thru	A		
Right		A	A		Right	A		
Peds					Peds			
WB Left			A		SB Left		A	
Thru			A		Thru	A		
Right			A		Right	A		
Peds					Peds			
NB Right					EB Right	A	A	
SB Right		A	A		WB Right		A	
Green	38.8	16.4			79.5	21.3		
Yellow	4.0	4.0			4.0	6.0		
All Red	2.0	2.0			2.0	0.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	741	3437	1.08	0.22	125.9	F		
LT	402	1863	0.33	0.22	60.1	E	86.3	F
R	1583	1583	0.21	1.00	0.1	A		
Westbound								
LT	319	3502	1.04	0.09	144.1	F	132.5	F
R	332	1583	0.16	0.21	58.4	E		
Northbound								
L	407	3437	1.08	0.12	148.2	F		
TR	2974	6734	0.92	0.44	53.0	D	66.2	E
Southbound								
L	407	3437	0.18	0.12	71.7	E		
T	2988	6765	0.84	0.44	47.1	D	44.3	D
R	2284	2803	0.10	0.81	3.4	A		
Intersection Delay = 64.7 (sec/veh)					Intersection LOS = E			

**E. SW 127 Avenue & SW 112 Street**



Analyst: DPA Inter.: SW 112 St & SW 127 Ave  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: w/o imp AM Peak Hour (sig op) Year :  
 Project ID: Congested Intersections - #06235  
 E/W St: SW 112 Street N/S St: SW 127 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	0	1	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	282	340	309	115	123	83	227	218	184	376	323	281
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	7.0	40.0			19.0	28.0		
Yellow	3.0	4.0			3.0	4.0		
All Red	0.0	1.0			0.0	1.0		

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	470	1770	0.69	0.47	30.7	C		
TR	629	1730	1.19	0.36	134.1	F	102.8	F
Westbound								
L	181	1770	0.73	0.47	38.6	D		
TR	636	1750	0.37	0.36	26.1	C	30.6	C
Northbound								
L	386	1770	0.68	0.47	25.7	C		
TR	841	3304	0.55	0.25	36.3	D	32.5	C
Southbound								
L	473	1770	0.91	0.47	43.8	D		
TR	840	3299	0.83	0.25	45.5	D	44.9	D

Intersection Delay = 59.4 (sec/veh) Intersection LOS = E

Analyst: DPA Inter.: SW 112 St & SW 127 Ave  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: AM Peak Hour w imp Year :  
 Project ID: Congested Intersections - #06235  
 E/W St: SW 112 Street N/S St: SW 127 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	2	0	1	2	0
LGConfig	L	T	R	L	T	R	L	TR		L	TR	
Volume	282	340	309	115	123	83	227	218	184	376	323	281
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			31			8			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
NB Right					EB Right	A		
SB Right					WB Right	A		
Green		7.0	24.0			11.0	52.0	
Yellow		3.0	4.0			3.0	4.0	
All Red		0.0	1.0			0.0	1.0	

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	358	1770	0.91	0.33	63.7	E		
T	406	1863	0.96	0.22	77.6	E	58.2	E
R	576	1583	0.56	0.36	29.1	C		
Westbound								
L	181	1770	0.73	0.33	43.6	D		
T	406	1863	0.35	0.22	36.9	D	36.2	D
R	576	1583	0.15	0.36	23.7	C		
Northbound								
L	455	1770	0.57	0.62	12.7	B		
TR	1562	3304	0.30	0.47	17.9	B	16.0	B
Southbound								
L	572	1770	0.76	0.62	24.4	C		
TR	1560	3299	0.44	0.47	19.6	B	21.4	C

Intersection Delay = 33.6 (sec/veh) Intersection LOS = C

Analyst: DPA Inter.: SW 112 St & SW 127 Ave  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: w/o imp PM Peak Hour (sig op) Year :  
 Project ID: Congested Intersections - #06235  
 E/W St: SW 112 Street N/S St: SW 127 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	0	1	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	177	261	168	93	194	107	174	287	128	173	235	152
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru			A		Thru		A	
Right				A	Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	
Right				A	Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	7.9	48.4			8.5	49.2		
Yellow	3.0	4.0			3.0	4.0		
All Red	0.0	1.0			0.0	1.0		

Cycle Length: 130.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	384	1770	0.52	0.47	28.8	C		
TR	653	1753	0.74	0.37	39.7	D	36.5	D
Westbound								
L	273	1770	0.38	0.47	24.0	C		
TR	657	1764	0.51	0.37	32.4	C	30.4	C
Northbound								
L	420	1770	0.47	0.48	21.1	C		
TR	1280	3382	0.36	0.38	29.3	C	26.9	C
Southbound								
L	404	1770	0.48	0.48	21.3	C		
TR	1263	3338	0.34	0.38	29.0	C	26.6	C

Intersection Delay = 30.2 (sec/veh) Intersection LOS = C

Analyst: DPA Inter.: SW 112 St & SW 127 Ave  
 Agency: Area Type: All other areas  
 Date: Jurisd:  
 Period: PM Peak Hour w imp Year :  
 Project ID: Congested Intersections - #06235  
 E/W St: SW 112 Street N/S St: SW 127 Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	2	0	1	2	0
LGConfig	L	T	R	L	T	R	L	TR		L	TR	
Volume	177	261	168	93	194	107	174	287	128	173	235	152
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right				A	Right			A
Peds					Peds			
WB Left		A			SB Left	A		
Thru			A		Thru		A	
Right				A	Right			A
Peds					Peds			
NB Right					EB Right	A		
SB Right					WB Right	A		
Green		10.0	34.0			7.0	63.0	
Yellow		3.0	4.0			3.0	4.0	
All Red		0.0	1.0			0.0	1.0	

Cycle Length: 130.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	366	1770	0.54	0.38	34.2	C		
T	487	1863	0.60	0.26	44.2	D	37.7	D
R	560	1583	0.34	0.35	31.2	C		
Westbound								
L	305	1770	0.34	0.38	29.0	C		
T	487	1863	0.45	0.26	40.8	D	35.0-	C
R	560	1583	0.21	0.35	29.6	C		
Northbound								
L	512	1770	0.38	0.58	14.0	B		
TR	1639	3382	0.28	0.48	20.1	C	18.3	B
Southbound								
L	494	1770	0.39	0.58	14.1	B		
TR	1618	3338	0.27	0.48	19.9	B	18.1	B

Intersection Delay = 26.8 (sec/veh) Intersection LOS = C

# **David Plummer & Associates**

**1750 Ponce de Leon Blvd**

**Coral Gables, FL 33134**

**Phone: (305) 447-0900**

**Fax: (305) 444-4986**

**Email: [dpa@dplummer.com](mailto:dpa@dplummer.com)**

**[www.dplummer.com](http://www.dplummer.com)**

