CORRADINO

CITY of MIAMI BEACH

MUNICIPAL MOBILITY PLAN

EXISTING CONDITIONS REPORT

FUTURE CONDITIONS REPORT

SPECIAL USERS REPORT

TEN -YEAR PLAN

DECEMBER 1998

MIAMI BEACH MUNICIPAL MOBILITY PLAN

EXISTING TRAFFIC CONDITIONS FINAL REPORT

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MIAMI BEACH MUNICIPAL MOBILITY PLAN
EXISTING TRAFFIC CONDITIONS FINAL REPORT

EXISTING TRAFFIC CONDITIONS INTRODUCTION

An analysis of the existing traffic conditions in the City of Miami Beach is presented in this report, which is the first component of the Miami Beach Municipal Mobility Plan (MMP).

Included in this report are the results of the traffic data collection and existing conditions analysis. All raw traffic data have been adjusted to reflect 1997 peak-season traffic conditions. Level of service analysis has been conducted consistent with the procedures recommended by the Highway Capacity Manual (HCM). Results of the existing conditions analysis have been summarized in tables and figures within the report. Links and intersections presently operating at a level of service below acceptable standards have been identified. These locations will be further analyzed in future tasks to determine the mitigations required to improve their performance.

As part of the analysis, a traffic database has been developed. A key feature of the database is its consistency with the Concurrency Management System (CMS). The CMS is a task within the MMP that will require traffic data as input. The format of the database developed for the MMP is planned to serve both purposes.

An addendum to this report will be prepared documenting the results of additional traffic counts taken during the peak season to verify seasonal variation factors. Additionally, special users needs and analysis including transit, bicycle mobility, pedestrian mobility and internal waterways will be added to the report. The special users assessment will also examine unusual traffic conditions such as heavy late night and weekend traffic patterns.

STUDY AREA

The City of Miami Beach is a barrier island that is connected to the main land by four causeways. The City is bounded by the Atlantic Ocean to the east, Biscayne Bay to the west, the City of Surfside to the north and Government Cut to the south. There are only 7 roadways linking the City to other parts of Miami-Dade County: the MacArthur Causeway (I-395), the Venetian Causeway (closed until 1999), the Julia Tuttle Causeway (I-195), the John F. Kennedy Causeway (SR-934), Byron Avenue, Harding Avenue (SR A1A), and Collins Avenue (SR A1A).

Because of the narrow and long shape of the barrier island, the majority of the City's main east-west arterials: 5th Street, 41st Street, and 71st Street are extensions of the causeways. Other east-west roadways are generally local streets that function as collectors feeding the north-south arterials. The major north-south arterials: Collins Avenue / Harding Avenue (SR-A1A), and Alton

Road (SR-934) serve as connections between the causeways and the barrier island communities north of the City limit.

For the purpose of the existing traffic conditions analysis, the City of Miami Beach has been divided into the three geographic areas listed below:

- North Beach, north of 63rd Street
- Mid Beach, from Dade Boulevard to 63rd Street
- South Beach, south of Dade Boulevard

The three areas are recognized as distinct residential and commercial communities in the City. Notably, each area is connected by one of the major causeways, and between each of the study areas, north-south connections are constrained at water bridge bottlenecks to few roadway connections.

A reason for the geographic separation was to identify and analyze different traffic characteristics for each area. For example, one characteristic that identifies South Beach is its high traffic volumes during non-commute hours. Traffic volumes are typically highest during the traditional morning and afternoon rush hours (commute hours), as people travel to and from work. In contrast, South Beach attracts a substantial number of trips to its beaches on weekends and has a very intense night activity that is reflected in its traffic patterns.

Roadway Network Functionality

The Miami Beach roadway network is an orthogonal street grid. Essential to its definition are the opportunities of multiple paths. These grids can function even in the densest urban settings because of the robust functionality of multiple paths when certain individual links fail from traffic congestion, construction, temporary closures, or emergencies.

Among the elements of street grid, roadways have specific functions related to adjacent land uses, the existence of other arterials at endpoints, and the character of the street's use as open space for pedestrians and non-motorized traffic.

Arterials function to carry through traffic and to move large volumes of vehicular traffic to local commercial and residential uses. The accommodation of through traffic satisfies the demand to move longer-distance regional traffic over multiple paths.

Local streets provide access to residences, and are often distinguished from arterials by mixed use of the street space. Whereas arterials prioritize traffic movement, local streets must accommodate a variety of potential non-motorized uses, including pedestrians.

Neighborhood collectors also provide direct access to residences, but place greater emphasis on vehicular movement in the mix of uses. Generally, separation of pedestrian and vehicular flows is appropriate on these facilities. Streets in commercial areas of high pedestrian activity,

such as the Ocean Drive, Collins Avenue, and Washington Avenue, must also balance the mix of pedestrian activity and vehicular movement.

If the arterial street network cannot adequately accommodate longer-distance through traffic and commuter traffic originating or ending in the City, then there is a greater likelihood that some motorists will intrude upon and use local residential streets as alternate paths. Conversely, if the arterial facilities provide adequate speed, level-of-service, and roadway capacity, then there is greater likelihood that few operational or physical alterations will be necessary to reduce or eliminate neighborhood traffic intrusion.

The development of the database and the calculation of the existing performance of the transportation network are described next.

DATABASE DEVELOPMENT

Traffic data compiled for this phase of the project are included in a database built using the DBASE IV software. The database contains:

- The physical characteristics of the roadways such as facility type (arterial, collector), the number of lanes and other features, such as one-way or two-way facility
- The location of traffic signals
- The date and location of traffic counts
- The time of day when peak traffic volumes occur
- Existing (1997) peak season directional traffic volumes
- Link levels of service
- Intersection levels of service

The main role of the database will be to serve as one of the two main inputs to the CMS. One purpose of the CMS is to determine the level of future development in the City that does not degrade traffic performance below acceptable conditions. The CMS is described under a separate section in this report.

The database could also be used as an independent tool to monitor traffic conditions in Miami Beach. The database provides the usual DABASE IV querying capabilities. For example, street names can be input to find the facility type, the number of lanes, the traffic counts or the report that contains the traffic data.

Two distinct sets of data are contained in the database: a) network characteristics, with roadway geometry and traffic control information; and b) traffic volumes. These are described in more detail below.

NETWORK DATABASE

Basic characteristics of the roadway network are included in the database. These were obtained as follows:

- The location of traffic signals was obtained from the Dade County Traffic Control System map and confirmed through field inspection
- The geometry of the streets was obtained mainly through field inspection

Figures 1, 2, and 3 illustrate, respectively, the roadway network and the location of the traffic signals (existing and planned) in North Beach, Middle Beach, and South Beach. Many of the links and intersections shown in Figures 1 through 3 were selected to be included in the database. The selection of the database was made to provide a fairly accurate picture of traffic conditions in Miami Beach. The criteria for selection include, but are not limited to:

- All County and State roads
- All major north-south and east-west roadways
- All extensions of the Causeways
- All one-way pairs
- All alternate routes for the main arterials

The links and intersections included in the database are described next.

TRAFFIC COUNTS DATABASE

Sources of Traffic Counts

Two sources of traffic counts were used to develop the database:

- Recent traffic reports submitted to the City between 1995 and 1997
- Field surveys conducted specifically for the MMP to obtain additional data

Traffic counts in the database are summarized in the Tables and Figures listed below:

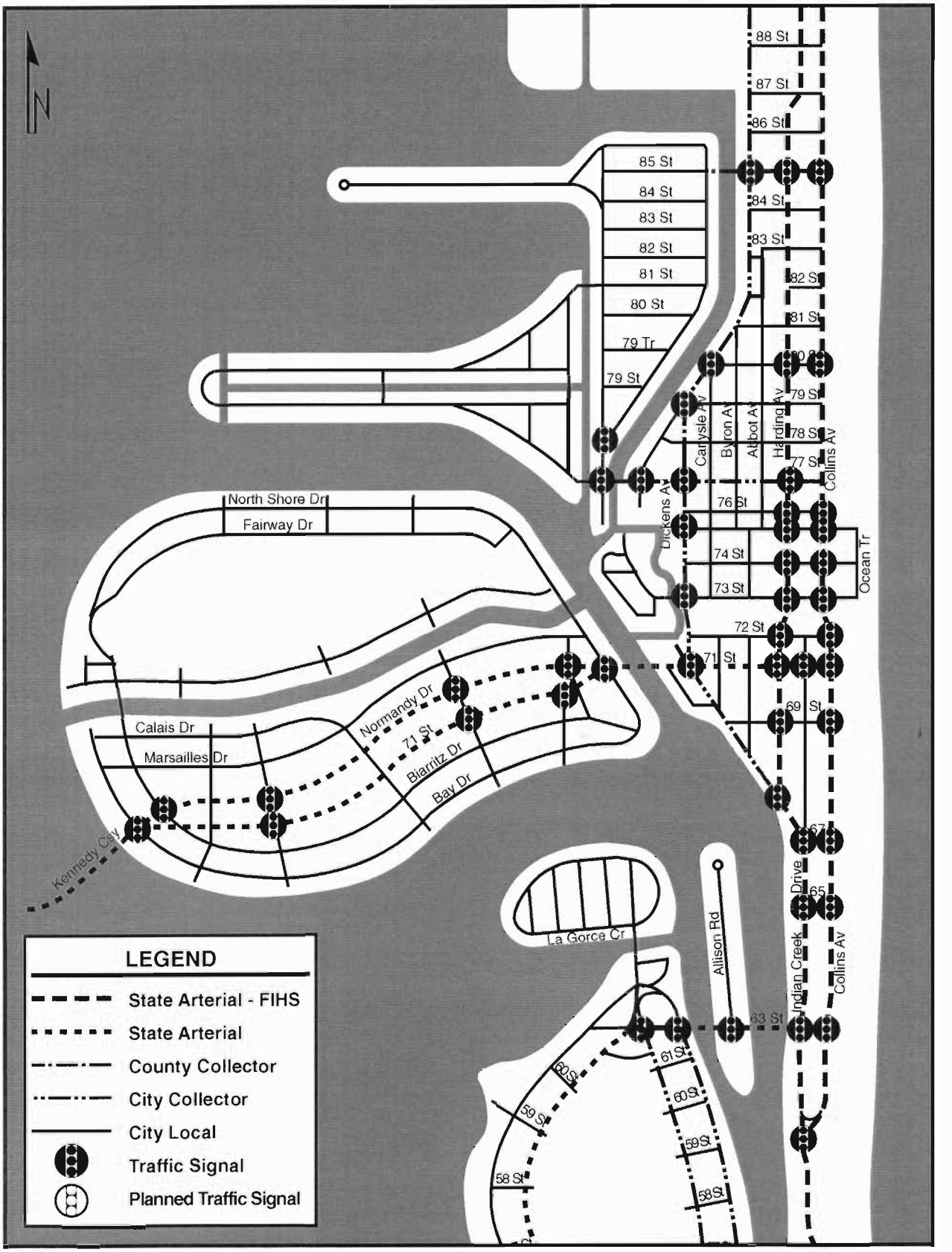
- Table 1 and Figure 4 – Traffic counts in North Beach
- Table 2 and Figure 5 – Traffic counts in Mid Beach
- Table 3 and Figure 6 – Traffic counts in South Beach

Traffic counts in the database consist of 24-hour machine counts and peak hour turning movement counts. The former are counts taken at mid-block locations. They help to identify hourly variations in traffic volume. If conveniently located, they help to identify the spots with the highest traffic volumes along the arterials. Machine counts collected specifically for the MMP were taken on both weekdays and weekends. The purpose of collecting traffic data on weekends was to determine if volumes were higher than on the average weekday. Turning movement counts, on the other hand, identify conflicting movements that cause the performance

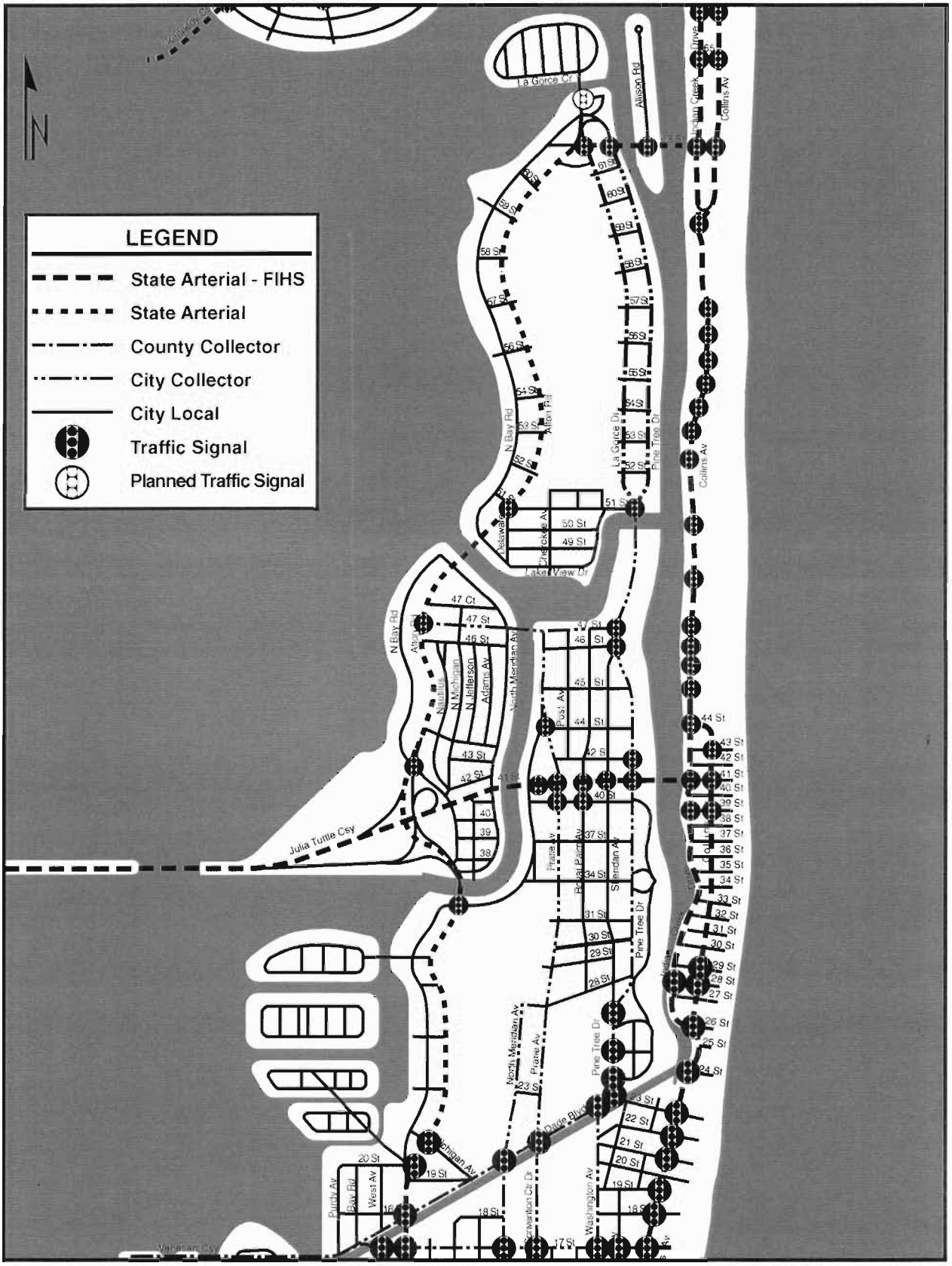
of intersections to deteriorate. Both machine counts and turning movement counts are used to calculate traffic performance.

Traffic counts were obtained at different times of the year. In order to obtain a consistent basis for comparison, the data were adjusted to reflect 1997 peak-season conditions. Yearly growth rates were calculated from historic traffic volume data and weekly volume adjustment factors were obtained from FDOT. These factors were utilized to adjust the raw traffic counts.

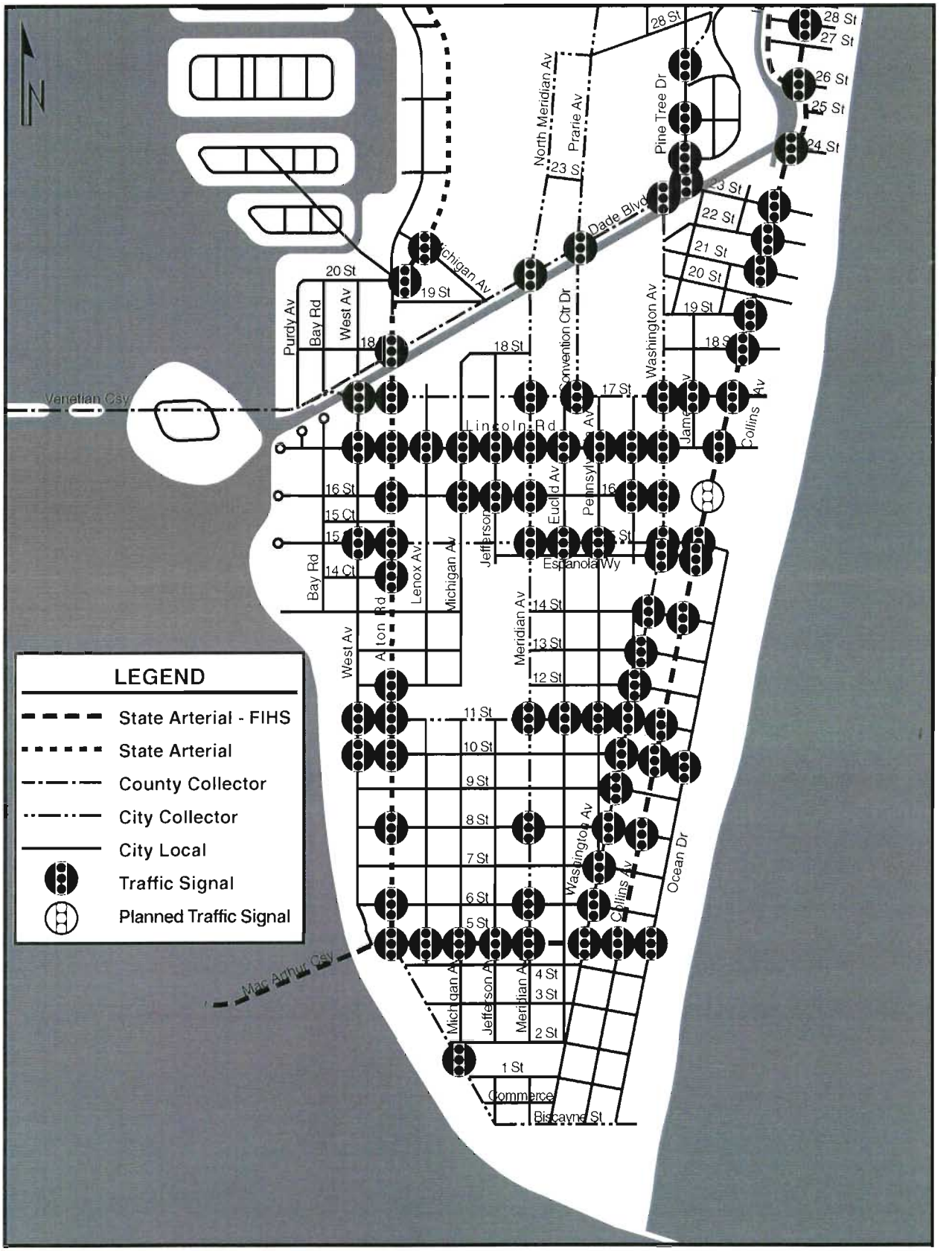
The location of traffic counts for the North, Mid and South Beach are described below, preceded by a discussion on through traffic. This is followed by a detailed explanation on traffic count normalization.



North Beach Roadway Network
Figure 1



Middle Beach Roadway Network
Figure 2



South Beach Roadway Network
Figure 3

Through Traffic

Through traffic can be defined as traffic passing over an area. In citywide traffic and corridor analysis, the determination of through traffic represents a key factor to help a) understand the behavior of the traffic, and b) forecast future traffic. In some cases, through traffic represents a significant share of the city traffic, for which capacity needs to be provided and whose growth is not within the city's control.

Miami Beach, however, attracts very few through trips because of its geographic shape. It has no neighboring cities to the east, thus preventing through traffic in the east-west direction. Miami Beach does not have adjacent cities to the south, either, thus eliminating north-south through traffic.

The only other possible source of through traffic would be the diversion of the north-south traffic on the main land to Miami Beach. However, the three-mile distance between Miami Beach and the main land acts as a deterrent for such trips, in particular during rush hours. A certain number of north-south through trips could be attracted during off-peak hours by tourists. This would happen, however, when the available roadway capacity is the largest and would result in small impact to the capacity of the City's roadway network.

Traffic Counts in North Beach

North Beach is connected to the main land by the Kennedy Causeway. Two major north-south and one major east-west thoroughfares complete the main arterial network in North Beach.

- Collins Avenue/Harding Avenue
- Indian Creek Drive
- Normandy Drive/71st Street (John F. Kennedy Causeway)

The facilities above are used by trips destined to/originated from areas outside North Beach (external trips). They are, therefore, facilities that provide regional connections. As such, they carry larger volumes of traffic than other streets in North Beach.

Table 1 and Figure 4 indicate the location of traffic counts in North Beach. 24-hour machine counts were taken:

- Along Collins Avenue at five locations at regular intervals
- Along Harding Avenue/Abbott Avenue at four locations at regular intervals
- Along Indian Creek Drive at three locations at regular intervals
- Along Normandy Drive/71st Street at three locations at regular intervals
- On Waterway Drive north of 80th Street

Turning movement counts were taken:

- Along Collins Avenue and Harding Avenue at 85th Street, 77th Street and 71st Street

- At other intersections along 85th Street, 77th Street and 71st Street

Figure 4 shows broad traffic count coverage of the transportation network in North Beach. Table 1 lists the type, location and date of counts, as well as additional facilities information.

Traffic Counts in Mid Beach

The Julia Tuttle Causeway and the Venetian Causeway, which is temporarily closed while undergoing improvements, provide the mainland connection to Mid Beach. Mid Beach has three main north-south corridors and three main east-west arterials. These are listed below:

- Alton Road/North Bay Road
- Pine Tree Drive/LaGorce Drive
- Indian Creek Drive/Collins Avenue
- 63rd Street (northern east-west extension of Alton Road)
- 41st Street (extension of the Julia Tuttle Causeway)
- Dade Boulevard (extension of the Venetian Causeway)

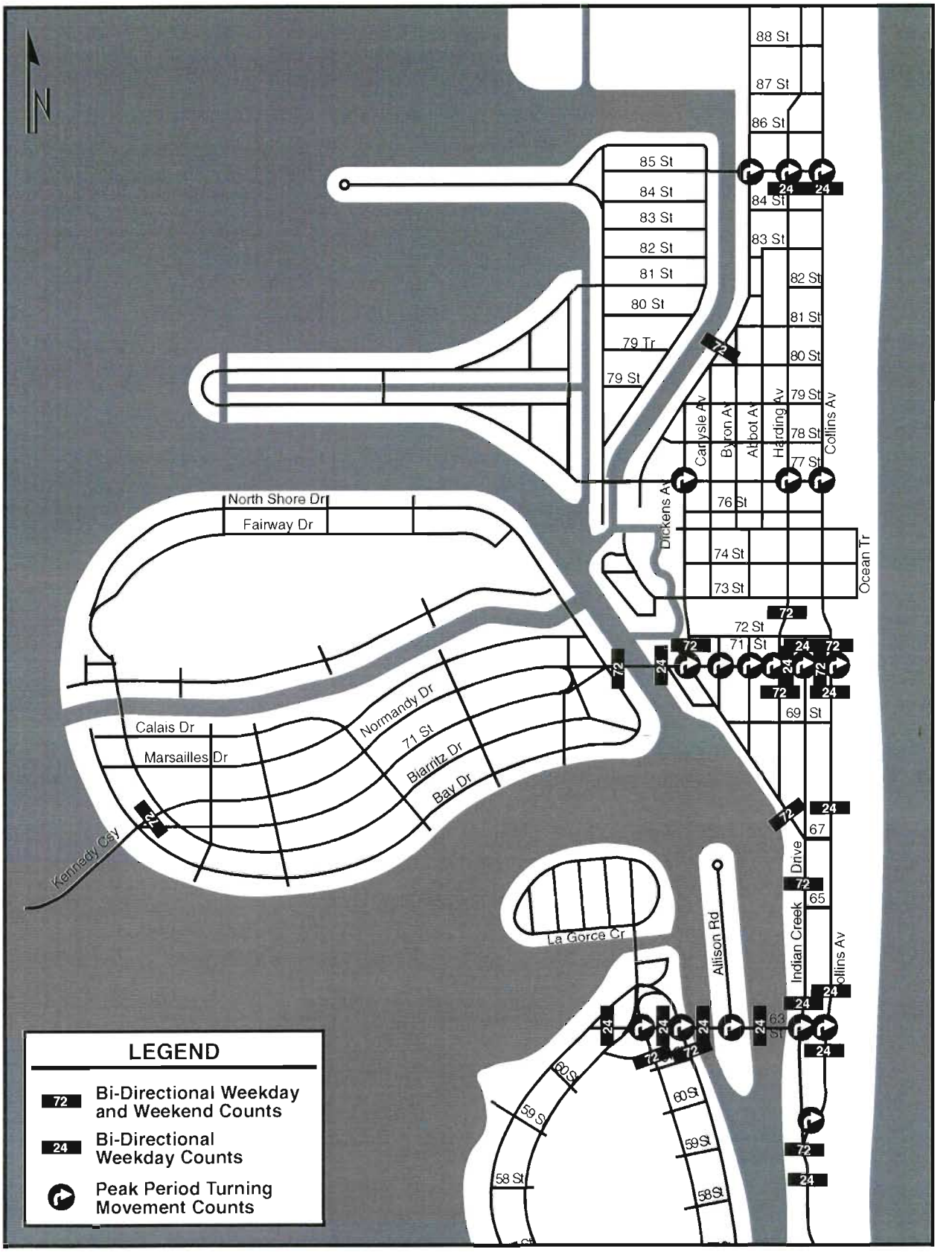
At least five 24-hour machine counts were taken along each arterial or corridor. Turning movement counts were taken at major intersections along the major north-south arterials. Additional turning movement counts were taken at almost every major intersection along 41st Street and Dade Boulevard. The count locations, illustrated in Figure 5 and listed in Table 2, provide a broad coverage of Mid Beach.

Traffic Counts in South Beach

South Beach is connected to the mainland via the MacArthur and Venetian Causeways. As previously mentioned, the Venetian Causeway is temporarily closed for improvements. The following streets are the main arterials in South Beach:

- Collins Avenue
- Washington Avenue
- Meridian Avenue
- Alton Road
- 17th Street (extension of the Venetian Causeway)
- 11th Street
- 5th Street (extension of the MacArthur Causeway)

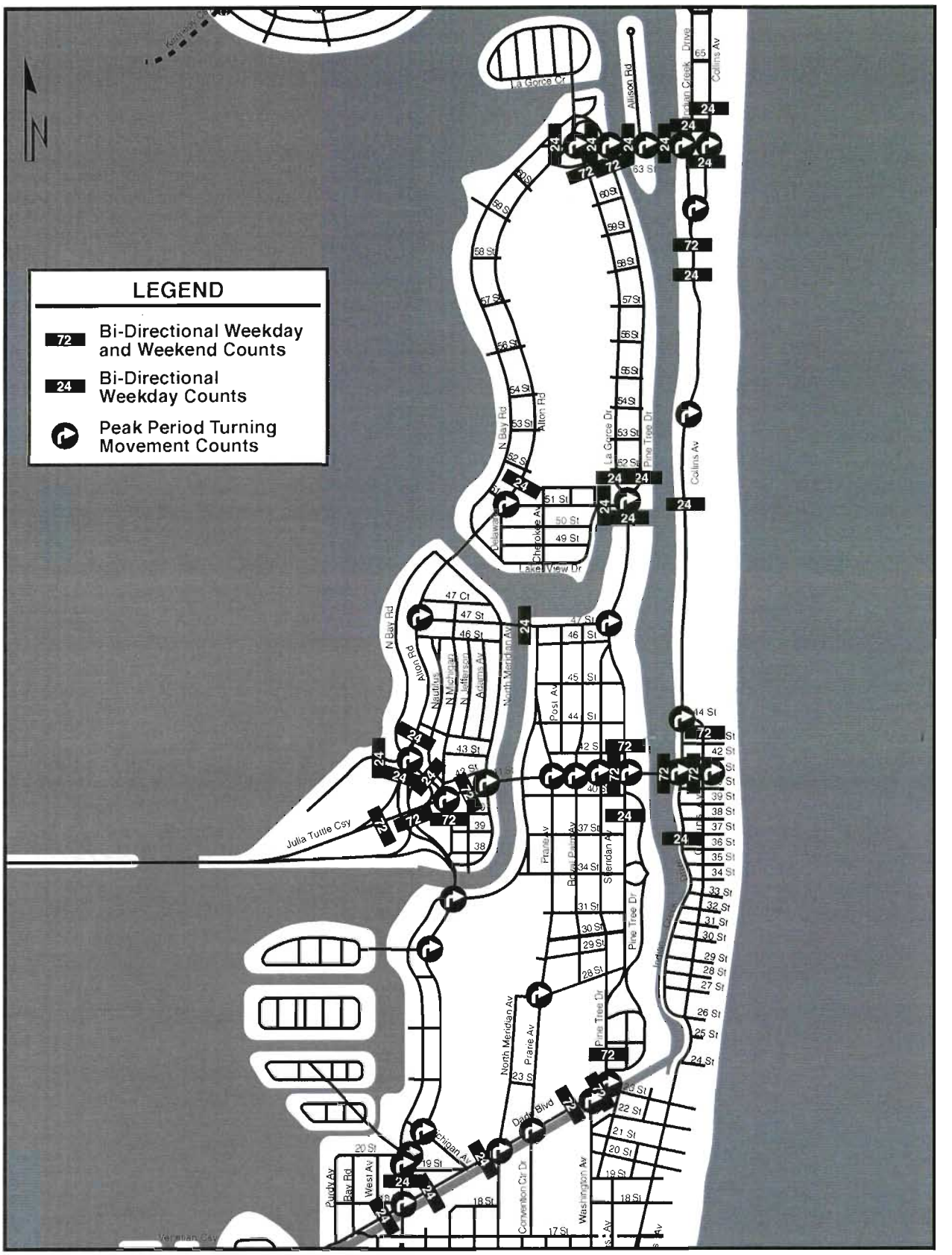
24-hour machine counts were collected at over 20 locations along Collins Avenue. Along other major arterials, several 24-hour machine counts were taken. Along 17th Street, however, only two machine counts were taken; this is because traffic volumes on 17th Street are artificially low due to the closing of the Venetian Causeway. The two machine counts taken were east of Alton Road, where the traffic volumes are impacted less by the closing of the Venetian Causeway. The count locations in South Beach are illustrated in Figure 6 and listed in Table 3.



North Beach Traffic Counts
Figure 4

Table 1: Traffic Count Locations in North Beach

Ref No.	Study Area	Count #	TAZ	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Data Type	Peds	Bicycle	Date of Count	Lanes, Config	Time Periods for Data Collection									Existing Count Source
														Weekday	Saturday	Sunday	24-Hr	AM Peak	Midday	PM Peak	Sat. Night	Winter	
0																							
1	NB		30	Collins Ave		N of 63rd St	State Major Arterial		Bi-Dir Count			Jun-97	3 OW	W			24						PBSJ, Mirabella
2	NB		31	Collins Ave		S of 67th St	State Major Arterial		Class Count			Jul-97	3 OW	W			24						DPA, Flamingo Hotel
3	NB	C71	35	Collins Ave		N of 71st St	State Major Arterial		Machine Count			Aug-97	3 OW	W	S	S	72						CSC, Miami Beach Mobility
4	NB		31	Collins Ave		S of 71st St	State Major Arterial		Machine Count			1995	3 OW	W			24						FRH, Miami Beach Area Wide TIS
5	NB		36	Collins Ave		S of 85th St	State Major Arterial		Machine Count			1995	3 OW	W			24						FRH, Miami Beach Area Wide TIS
6	NB	H71	31	Harding Ave		N of 71st St	State Major Arterial		Machine Count			Aug-97	3 OW	W	S	S	72						CSC, Miami Beach Mobility
7	NB	H70	31	Harding Ave		S of 71st St	State Major Arterial		Machine Count			Aug-97	3 OW	W	S	S	72						CSC, Miami Beach Mobility
8	NB		36	Harding Ave		S of 85th St	State Major Arterial		Machine Count			1995	3 OW	W			24						FRH, Miami Beach Area Wide TIS
9	NB		31	Indian Creek Dr		N of 63rd St	State Major Arterial		Bi-Dir Count			Jul-97	6D	W			24						DPA, Fontainebleau Resort
10	NB	IC70	31	Indian Creek Dr		S of 71st St	City Collector		Bi-Dir Count			Oct-97	6D	W	S	S	72						CSC, Miami Beach Mobility
11	NB	IC67	31	Indian Creek Dr		S of Harding Ave	State Major Arterial		Bi-Dir Count			Oct-97	6D	W	S	S	72						CSC, Miami Beach Mobility
12	NB	W80	36	Waterway Dr		N of 80th St	City Collector		Bi-Dir Count			Aug-97	2U	W	S	S	72						CSC, Miami Beach Mobility
13	NB	71C	31/35		71 St	W of Collins Ave	State Major Arterial		Bi-Dir Count			Oct-97	4U	W	S	S	72						CSC, Miami Beach Mobility
14	NB		31/35		71 St	W of Indian Creek Dr	State Major Arterial		Bi-Dir Count			1995	6U	W			24						FRH, Miami Beach Area Wide TIS
15	NB	N32	32/34		Normandy Dr	E of Bay Dr	State Major Arterial		Bi-Dir Count			Aug-97	6U	W	S	S	72						CSC, Miami Beach Mobility
16	NB	N32	32/34		Normandy Dr	W of Bay Dr	State Major Arterial		Bi-Dir Count			Aug-97	6D	W	S	S	72						CSC, Miami Beach Mobility
17	NB		31/35	Abbott Ave	71 St	Intersection	SMjA/SMjA		Turn Movement			Jun-97	2/4	W						PM			PBSJ, Mirabella
18	NB	471	31/35	Byron Ave	71 St	Intersection	CC/CC		Turn Movement			Oct-97		W						PM			CSC, Miami Beach Mobility
19	NB	485	36	Byron Ave	85 St	Intersection	CC/CC		Turn Movement			Oct-97	2/2	W						PM			CSC, Miami Beach Mobility
20	NB		31/35	Collins Ave	71 St	Intersection	SMjA/SMjA		Turn Movement			Jun-97	3/4	W						PM			PBSJ, Mirabella
21	NB		31/35	Collins Ave	71 St	Intersection	SMjA/SMjA		Turn Movement			Jul-97	3/4	W						PM			DPA, Fontainebleau Resort
22	NB	177	35/36	Collins Ave	77 St	Intersection	SMjA/CC		Turn Movement			Oct-97	3/2	W						PM			CSC, Miami Beach Mobility
23	NB	185	36	Collins Ave	85 St	Intersection	SMjA/CC		Turn Movement			Oct-97	3/2	W						PM			CSC, Miami Beach Mobility
24	NB		31/35	Dickens Ave	71 St	Intersection	CC/SMjA		Turn Movement			Jul-97	2/4	W						PM			DPA, Flamingo Hotel
25	NB	677	35/36	Dickens Ave	77 St	Intersection	CC/CC		Turn Movement			Oct-97	2/2	W						PM			CSC, Miami Beach Mobility
26	NB	271	31/35	Harding Ave	71 St	Intersection	CC/CC		Turn Movement			Oct-97	3/2	W						PM			CSC, Miami Beach Mobility
27	NB	271	31/35	Harding Ave	71 St	Intersection	SMjA/SMjA		Turn Movement			Oct-97	3/4	W						PM			CSC, Miami Beach Mobility
28	NB	277	35/36	Harding Ave	77 St	Intersection	SMjA/CC		Turn Movement			Oct-97	3/2	W						PM			CSC, Miami Beach Mobility
29	NB	285	36	Harding Ave	85 St	Intersection	SMjA/CC		Turn Movement			Oct-97	3/2	W						PM			CSC, Miami Beach Mobility
30	NB		31/35	Indian Creek Dr	71 St	Intersection	CC/SMjA		Turn Movement			Jul-97	5/4/6/4	W						PM			DPA, Fontainebleau Resort



Middle Beach Traffic Counts
Figure 5

Table 2: Traffic Count Locations in Middle Beach

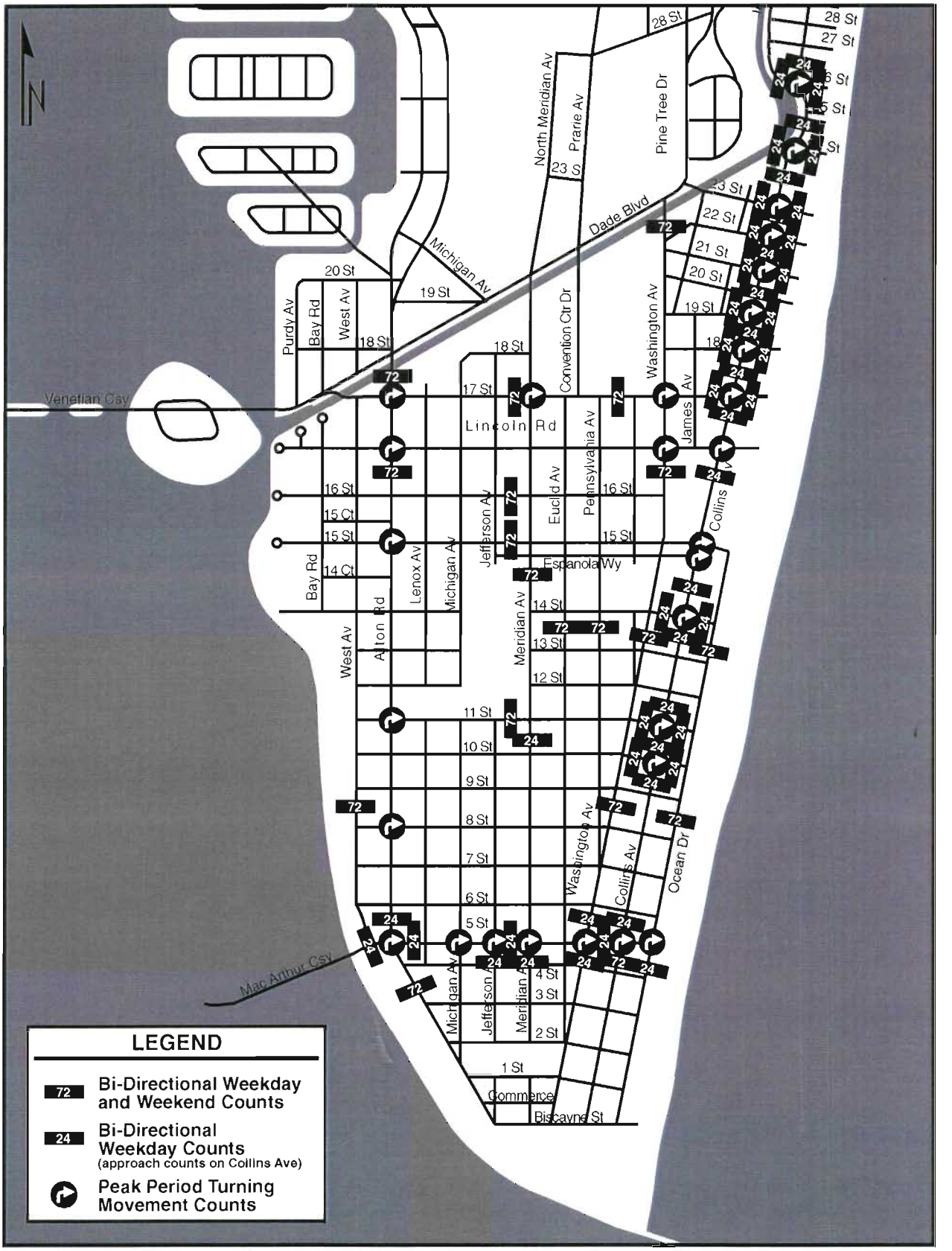
Ref No.	Study Area	Count #	TAZ	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Data Type	Peds	Bicycle	Date of Count	Lanes, Config	Time Periods for Data Collection									Existing Count Source
														Weekday	Saturday	Sunday	24-Hr	AM Peak	Midday	PM Peak	Sat. Night	Winter	
0																							
31	MB	A41	28	Alton Rd		N of 41st St	State Minor Arterial		Bi-Dir Count			Oct-97	4D	W	S	S	72						CSC, Miami Beach Mobility
32	MB		28	Alton Rd		S of 43rd St	State Minor Arterial		Bi-Dir Count			Jan-96	4D	W			24						CSC, Mt Sinai Intermodal Ctr.
33	MB		28	Alton Rd		N of 43rd St	State Minor Arterial		Bi-Dir Count			Jan-96	4D	W			24						CSC, Mt Sinai Intermodal Ctr.
34	MB		29	Alton Rd		N of 51st St	State Minor Arterial		Bi-Dir Count			1995	4D	W			24						DPA, Fontainebleau
35	MB	A18	22/23	Alton Rd		N of Dade Blvd	State Minor Arterial		Bi-Dir Count			Oct-97	4D	W	S	S	72						CSC, Miami Beach Mobility
36	MB	A40	28	Alton Rd		S of 41st St	State Minor Arterial		Bi-Dir Count			Oct-97	4D	W	S	S	72						CSC, Miami Beach Mobility
37	MB		30	Collins Ave		5800 Block	State Major Arterial		Bi-Dir Count			Jun-97	6D	W			24						PBSJ, Mirabella
38	MB		26	Collins Ave		N of 41 / S of 44	State Major Arterial		Machine Count			Jul-97	3 OW	W			24						DPA, Flamingo Hotel
39	MB		30	Collins Ave		Opposite 51st St	State Major Arterial		Bi-Dir Count			1995	6D	W			24						FRH, Miami Beach Area Wide TIS
40	MB		30	Collins Ave		S of 63rd St	State Major Arterial		Machine Count			Jun-97	3 OW	W			24						DPA, La Maison by Lapidus TIS
41	MB	C24	24	Collins Ave		S of Indian Creek Dr	State Major Arterial		Bi-Dir Count				4U	W	S	S	72						CSC, Miami Beach Mobility
42	MB		23	Flamingo Dr		N of 37th St	City Local		Class Count			Jul-97	2U	W			24						DPA, Flamingo Hotel
43	MB		30	Indian Creek Dr		5800 Block	State Major Arterial		Bi-Dir Count			Jun-97		W			24						PBSJ, Mirabella
44	MB		30	Indian Creek Dr		N of 63rd St	State Major Arterial		Bi-Dir Count			Jun-97	6D	W			24						PBSJ, Mirabella
45	MB		25	Indian Creek Dr		S of 37th St	State Major Arterial		Class Count			Jul-97	2 OW	W			24						DPA, Flamingo Hotel
46	MB		31	Indian Creek Dr		S of 67th St	State Major Arterial		Class Count			Jul-97	6D	W			24						DPA, Flamingo Hotel
47	MB	H67	31	Harding Ave		N of Indian Creek Dr	State Major Arterial		Bi-Dir Count				3 OW	W	S	S	72						CSC, Miami Beach Mobility
48	MB		29	La Gorce Dr		S of 52nd St	City Collector		Machine Count			Jan-96	2 OW	W			24						DCPW, LaGorce Bike Lane
49	MB	LG62	29	La Gorce Dr		S of 63rd St	City Collector		Machine Count			Jan-96	2 OW	W	S	S	72						DCPW, LaGorce Bike Lane
50	MB		23	Pine Tree Dr		N of 37th St	City Collector		Class Count			Jul-97	4D	W			24						DPA, Flamingo Hotel
51	MB	PT41	27	Pine Tree Dr		N of Arthur Godfrey Rd	City Collector		Bi-Dir Count			Oct-97	4D	W	S	S	72						CSC, Miami Beach Mobility
52	MB	PT24	23	Pine Tree Dr		N of Dade Blvd	City Collector		Bi-Dir Count			Oct-97	4D	W	S	S	72						CSC, Miami Beach Mobility
53	MB		29	Pine Tree Dr		S of 63rd St	City Collector		Bi-Dir Count			Jun-97	2 OW	W			24						DPA, La Maison by Lapidus TIS
54	MB		27	Pine Tree Dr		S of 51st St	City Collector		Bi-Dir Count			Jan-96	4D	W			24						DCPW, LaGorce Bike Lane
55	MB		27	Pine Tree Dr		S of 52nd St	City Collector		Bi-Dir Count			Jan-96	2 OW	W			24						DCPW, LaGorce Bike Lane
56	MB	41G	28		41st St	E of Alton Rd	State Major Arterial		Bi-Dir Count			Oct-97	4U	W	S	S	72						CSC, Miami Beach Mobility
57	MB	41A	28		41st St	W of Alton Rd	State Major Arterial		Bi-Dir Count			Oct-97	6U	W	S	S	72						CSC, Miami Beach Mobility
58	MB	41A	28		41st St	W of Collins Ave	State Major Arterial		Bi-Dir Count			Oct-97	6U	W	S	S	72						CSC, Miami Beach Mobility
59	MB		27		41st St	W of Indian Creek Dr	State Major Arterial		Bi-Dir Count			1995	4U	W			24						FRH, Miami Beach Area wide TIS
60	MB	41IC	27		41st St	W of Indian Creek Dr	State Major Arterial		Bi-Dir Count			Oct-97	4U	W	S	S	72						CSC, Miami Beach Mobility
61	MB	41PT	27		41st St	W of Pine Tree Dr	State Major Arterial		Bi-Dir Count			Oct-97	4U	W	S	S	72						CSC, Miami Beach Mobility
62	MB		28		43rd St	E of Alton Rd	City Local		Bi-Dir Count			Jan-96	4U	W			24						CSC, Mt Sinai Intermodal Ctr.
63	MB		28		43rd St	W of Alton Rd	City Local		Bi-Dir Count			Jan-96	4U	W			24						CSC, Mt Sinai Intermodal Ctr.
64	MB	47P	27/28		47th St	W of Prarie/Chase	City Local		Bi-Dir Count			Oct-97	2U	W	S	S	72						CSC, Miami Beach Mobility
65	MB		29		51st St	W of Pine Tree Dr	City Local		Bi-Dir Count			Jan-96	2U	W			24						DCPW, LaGorce Bike Lane
66	MB		29		63rd St	E of Alton Rd	State Major Arterial		Bi-Dir Count			Jan-96	4U	W			24						DCPW, LaGorce Bike Lane
67	MB		30		63rd St	E of Indian Creek Dr	State Major Arterial		Bi-Dir Count			1997	4U	W			24						DPA, Fontainebleau Resort
68	MB		29		63rd St	E of Pine Tree Dr	State Major Arterial		Bi-Dir Count			Jan-96	4U	W			24						DCPW, LaGorce Bike Lane
69	MB		29		63rd St	W of Indian Creek Dr	State Major Arterial		Class Count			Jul-97	4U	W			24						DPA, Flamingo Hotel
70	MB		21/23		Dade Blvd	E of Alton Rd	County Collector		Bi-Dir Count			Jul-97	4U	W			24						DPA, Fontainebleau Resort
71	MB	DB23	23/24		Dade Blvd	W of 23rd St	County Collector		Bi-Dir Count			Oct-97	4U	W	S	S	72						CSC, Miami Beach Mobility
72	MB		17/22		Dade Blvd	W of Alton Rd	County Collector		Bi-Dir Count			1996	4U	W			24						BA, Publix on the Bay TS
73	MB		21/23		Dade Blvd	W of Meridian Av	County Collector		Class Count			Jul-97	4U	W			24						DPA, Flamingo Hotel

Table 2: Traffic Count Locations in Middle Beach

Ref No.	Study Area	Count #	TAZ	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Data Type	Peds	Bicycle	Date of Count	Lanes, Config	Time Periods for Data Collection: Weekday	Saturday	Sunday	24-Hr	AM Peak	Midday	PM Peak	Sat. Night	Winter	Existing Count Source
0																							
74	MB	DBW	20/23		Dade Blvd	W of Washington Ave	County Collector		Bi-Dir Count			Oct-97	4U	W	S	S	72						CSC, Miami Beach Mobility
75	MB		20/23/24	23rd St	Dade Blvd	Intersection	SMnA/DCMnA		Turn Movement			Jul-97	T 4/4	W						PM			DPA, Flamingo Hotel
76	MB	363	29	Allison Rd / Hosp	63rd St	Intersection	CC/SMnA		Turn Movement			Jul-97	4/2	W						PM			CSC, Miami Beach Mobility
77	MB	841	28	Alton Rd	41st St	Intersection	SMnA/SMjA		Turn Movement			Oct-97	4/4	W				AM		PM			CSC, Miami Beach Mobility
78	MB	851	29	Alton Rd	51st St	Intersection	SMnA/CL		Turn Movement			Oct-97	4/4	W				AM		PM			CSC, Miami Beach Mobility
79	MB	847	28	Alton Rd	47th St	Intersection	SMnA/CL		Turn Movement			Oct-97	4/4	W				AM		PM			CSC, Miami Beach Mobility
80	MB		28	Alton Rd	43rd St	Intersection	SMnA/CL		Turn Movement			Jan-96	4/4	W				AM	MD	PM			CSC, Mt Sinai Intermodal Ctr.
81	MB	834	23/28	Alton Rd	Chase Ave	Intersection	SMnA/CL		Turn Movement			Oct-97	4/2	W				AM		PM			CSC, Miami Beach Mobility
82	MB	829	22/23	Alton Rd	29th St	Intersection	SMnA/CL		Turn Movement			Oct-97	4/2	W				AM		PM			CSC, Miami Beach Mobility
83	MB	821	22/23	Alton Rd	Michigan Ave	Intersection	SMnA/CL		Turn Movement			Oct-97	T 4/2	W				AM	MD	PM			CSC, Miami Beach Mobility
84	MB	820	22/23	Alton Rd	20th St	Intersection	SMnA/CL		Turn Movement			Oct-97	T 4/2	W				AM	MD	PM			CSC, Miami Beach Mobility
85	MB	819	22/23	Alton Rd	19th St	Intersection	SMnA/CL		Turn Movement			Oct-97	T 4/2	W				AM	MD	PM			CSC, Miami Beach Mobility
86	MB		17/21/22/2	Alton Rd	Dade Blvd	Intersection	SMnA/DCMnA		Turn Movement			Jan-96	4/4	W						PM			DPA, The Lofts at So. Beach TIS
87	MB		17/21/22/2	Alton Rd	Dade Blvd	Intersection	SMnA/DCMnA		Turn Movement			1996	4/4	W				AM		PM			FDOT, Alton Rd/Dade Blvd Inters.
88	MB		26	Collins / In Cr Dr	44th St	Intersection	SMnA/SMnA		Turn Movement			Jul-97	T 6/3	W						PM			DPA, Fontainebleau Resort
89	MB		26	Collins / In Cr Dr	44th St	Intersection	SMnA/SMnA		Turn Movement			Jul-97	T 6/3	W						PM			DPA, Flamingo Hotel
90	MB	129	25	Collins Av	29th St	Intersection	SMjA/CL		Turn Movement			Oct-97	4/2	W	S	S			MD	PM			CSC, Miami Beach Mobility
91	MB	154	25	Collins Av	54th St Parking Lot	Intersection	SMjA/Access		Turn Movement			Oct-97	T6/2	W	S	S			MD	PM			CSC, Miami Beach Mobility
92	MB		25/26	Collins Av	41st St	Intersection	SMnA/SMjA		Turn Movement			Jul-97	3/2	W						PM			DPA, Fontainebleau Resort
93	MB		25/26	Collins Av	41st St	Intersection	SMnA/SMjA		Turn Movement			Jul-97	3/2	W						PM			DPA, Flamingo Hotel
94	MB	163	30/31	Collins Ave	63rd St	Intersection	SMnA/SMnA		Turn Movement			Oct-97	T 4/4	W						PM			CSC, Miami Beach Mobility
95	MB		30/31	Collins Ave	63rd St	Intersection	SMnA/SMnA		Turn Movement			Jun-97	T 4/4	W						PM			PBSJ, Mirabella
96	MB		30/31	Collins Ave	63rd St	Intersection	SMnA/SMnA		Turn Movement			Jun-97	T 4/4	W						PM			DPA, Flamingo Hotel
97	MB		30/31	Collins Ave	U-turn @ 60 St	Intersection	SMnA/SMnA		Turn Movement			Jun-97	T 4/4	W						PM			PBSJ, Mirabella
98	MB		23/25/26/2	Indian Creek Dr	41st St	Intersection	SMjA/SMjA		Turn Movement			Jul-97	4/4	W						PM			DPA, Fontainebleau Resort
99	MB		23/25/26/2	Indian Creek Dr	41st St	Intersection	SMjA/SMjA		Turn Movement			Jul-97	4/4	W						PM			DPA, Flamingo Hotel
100	MB		29/30/31	Indian Creek Dr	63rd St	Intersection	SMnA/SMnA		Turn Movement			Jun-97	T/6/3/4	W						PM			DPA, La Maison by Lapidus TIS
101	MB		29/30/31	Indian Creek Dr	63rd St	Intersection	SMnA/SMnA		Turn Movement			Jul-97	T/6/3/4	W						PM			DPA, Fontainebleau Resort
102	MB		29/30/31	Indian Creek Dr	63rd St	Intersection	SMnA/SMnA		Turn Movement			Jul-97	T/6/3/4	W						PM			DPA, Flamingo Hotel
103	MB		29/30/31	Indian Creek Dr	63rd St	Intersection	SMnA/SMnA		Turn Movement			Jun-97	T/6/3/4	W						PM			PBSJ, Mirabella
104	MB		29	La Gorce Dr	63rd St	Intersection	CC/SMnA		Turn Movement			Jan-96	T/6/3/4	W						PM			DCPW, LaGorce Bike Lane
105	MB		23/27	Pine Tree Dr	41st St	Intersection	CC/SMjA		Turn Movement			Jul-97	4/4	W						PM			DPA, Fontainebleau Resort
106	MB		23/27	Pine Tree Dr	41st St	Intersection	CC/SMjA		Turn Movement			Jul-97	4/4	W						PM			DPA, Flamingo Hotel
107	MB	341	23/27	Pine Tree Dr	41st St	Intersection	CC/SMjA		Turn Movement			Oct-97	4/4	W				AM	MD				CSC, Miami Beach Mobility
108	MB	441	23/27	Sheridan Ave	41st St	Intersection	CL/SMjA		Turn Movement			Oct-97	2/4	W				AM		PM			CSC, Miami Beach Mobility
109	MB	541	23/27	Royal Palm Ave	41st St	Intersection	CL/SMjA		Turn Movement			Oct-97	2/4	W				AM		PM			CSC, Miami Beach Mobility
110	MB	641	23/27	Prarie Ave	41st St	Intersection	CC/SMjA		Turn Movement			Oct-97	2/4	W				AM		PM			CSC, Miami Beach Mobility
111	MB	741	28	N Meridian Ave	41st St	Intersection	CL/SMjA		Turn Movement			Oct-97	2/4	W				AM		PM			CSC, Miami Beach Mobility
112	MB	347	23/27	Pine Tree Dr	47th St	Intersection	CC/CL		Turn Movement			Oct-97	4/2	W						PM			CSC, Miami Beach Mobility
113	MB	351	23/27	Pine Tree Dr	51st St	Intersection	CC/CL		Turn Movement			Oct-97	4/2	W						PM			CSC, Miami Beach Mobility
114	MB		29	Pine Tree Dr	63rd St	Intersection	CC/SMnA		Turn Movement			Jun-97	T/6/3/4	W						PM			DPA, Flamingo Hotel
115	MB		29	Pine Tree Dr	63rd St	Intersection	CC/SMnA		Turn Movement			Jan-96	T/6/3/4	W						PM			DCPW, LaGorce Bike Lane
116	MB	628	23	Prarie Ave	28th St	Intersection	CC/CL		Turn Movement			Oct-97	2/2	W						PM			CSC, Miami Beach Mobility

Table 2: Traffic Count Locations in Middle Beach

Ref No.	Study Area	Count #	TAZ	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Data Type	Peds	Bicycle	Date of Count	Lanes, Config	Time Periods for Data Collection									Existing Count Source
														Weekday	Saturday	Sunday	24-Hr	AM Peak	Midday	PM Peak	Sat. Night	Winter	
0																							
117	MB	620	23	Prarie Ave	Dade Blvd	Intersection	CC/DcMnA		Turn Movement			Oct-97	2/4	W				AM		PM			CSC, Miami Beach Mobility
118	MB	720	23	Meridian Ave	Dade Blvd	Intersection	CC/DcMnA		Turn Movement			Oct-97	2/4	W				AM		PM			CSC, Miami Beach Mobility
119	MB	522	20/21/23	Washington Ave	Dade Blvd	Intersection	CC/DCMnA		Turn Movement			Oct-97	T 4/4	W						PM			CSC, Miami Beach Mobility



South Beach Traffic Counts
Figure 6

Table 3: Traffic Count Locations in South Beach

Ref No.	Study Area	Count #	TAZ	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Data Type	Peds	Bicycle	Date of Count	Lanes, Config	Time Periods for Data Collection: Weekday	Saturday	Sunday	24-Hr	AM Peak	Midday	PM Peak	Sat. Night	Winter	Existing Count Source
0																							
120	SB		5	Alton Rd		S of 4th St	City Collector		Bi-Dir Count			Nov-96	4D	W	S		48				SN		KA, Portofino DRI
121	SB		10	Alton Rd		N of 5th St	State Minor Arterial		Bi-Dir Count			1995	4D	W			24						FRH, Miami Beach Area Wide TIS
122	SB	A8	10/11	Alton Rd		N of 8th St	State Minor Arterial		Bi-Dir Count			Nov-96	4U	W	S	S	72						CSC, Miami Beach Mobility
123	SB	A14	17/18	Alton Rd		N of 14th St	State Minor Arterial		Bi-Dir Count			Nov-96	4U	W	S	S	72						CSC, Miami Beach Mobility
124	SB	A16	17/18	Alton Rd		S of 17th St	State Minor Arterial		Bi-Dir Count			Nov-96	4D	W	S	S	72						CSC, Miami Beach Mobility
125	SB		17/21	Alton Rd		N of 17th St	State Minor Arterial		Bi-Dir Count			Oct-96	4U		S	S	24				SN		CSC, Miami Beach Electric Shuttle
126	SB		17/21	Alton Rd		S of Dade Blvd	State Minor Arterial		Bi-Dir Count			1996	4D	W			24						BA, Publix on the Bay TS
127	SB	A16	17/18	Alton Rd		S of Lincoln Rd	State Minor Arterial		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
128	SB		7	Collins Ave		S of 5th St	State Major Arterial		Bi-Dir Count			Nov-96	2U	W	S		48				SN		KA, Portofino DRI
129	SB		7	Collins Ave		N of 5th St	State Major Arterial		Bi-Dir Count			1995	2U	W			24						FRH, Miami Beach Area Wide TIS
130	SB		7	Collins Ave		N of 5th St	State Major Arterial		Bi-Dir Count			Jan-95	2U	W			24						KH, Dade Blvd Connector
131	SB	C8	7	Collins Ave		N of 8th St	State Major Arterial		Bi-Dir Count			Nov-97	2U	W	S	S	72						CSC, Miami Beach Mobility
132	SB	C13	7	Collins Ave		N of 13th St	State Major Arterial		Bi-Dir Count			Nov-97	2U	W	S	S	72						CSC, Miami Beach Mobility
133	SB		19	Collins Ave		S of Lincoln Rd	State Major Arterial		Bi-Dir Count				4U										
134	SB		20	Collins Ave		N of 17th St	State Major Arterial		Bi-Dir Count			Oct-96	4U		S	S	24				SN		CSC, Miami Beach Electric Shuttle
135	SB		24	Collins Ave		S of 24th St	State Major Arterial		Bi-Dir Count			1995	4U	W			24						FRH, Miami Beach Area Wide TIS
136	SB	E13	14	Euclid Ave		N of 13th St	City Local		Bi-Dir Count			Nov-97	2U	W	S	S	72				SN		CSC, Miami Beach Mobility
137	SB		8	Jefferson Ave		S of 5th St	City Local		Bi-Dir Count			Nov-96	4D	W	S		24				SN		KA, Portofino DRI
138	SB		8	Meridian Ave		S of 5th St	City Local		Bi-Dir Count			Nov-96	4D	W	S		24				SN		KA, Portofino DRI
139	SB		7/8	Meridian Ave		N of 5th St	City Collector		Bi-Dir Count			Feb-97	2U	W			24						KA, Portofino DRI
140	SB		11/12	Meridian Ave		S of 11th St	City Collector		Bi-Dir Count			Feb-97	2U	W			24						KA, Portofino DRI
141	SB	M13	14	Meridian Ave		N of 13th St	City Local		Bi-Dir Count			Nov-97	2U	W	S	S	72				SN		CSC, Miami Beach Mobility
142	SB		7	Ocean Dr		S of 5th St	City Local		Bi-Dir Count			Nov-96	4D	W	S		24				SN		KA, Portofino DRI
143	SB	O8	12	Ocean Dr		N of 8th St	City Local		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
144	SB	O13	13	Ocean Dr		N of 13th St	City Local		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
145	SB	P13	14	Pennsylvania Ave		N of 13th St	City Local		Bi-Dir Count			Nov-97	2U	W	S	S	72				SN		CSC, Miami Beach Mobility
146	SB	W5	7/8	Washington Ave		N of 5th St	City Collector		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
147	SB		7/8	Washington Ave		S of 5th St	City Collector		Bi-Dir Count			Nov-96	4D	W	S		24				SN		KA, Portofino DRI
148	SB	W5		Washington Ave		N of 5th St	City Collector		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
149	SB	W8		Washington Ave		N of 8th St	City Collector		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
150	SB	W13		Washington Ave		N of 13th St	City Collector		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
151	SB	W16	18/19	Washington Ave		S of Lincoln Rd	City Collector		Bi-Dir Count			Nov-97	4D	W	S	S	72						CSC, Miami Beach Mobility
152	SB	W21	20/21	Washington Ave		S of Dade Blvd	City Collector		Bi-Dir Count			Nov-97	4U	W	S	S	72						CSC, Miami Beach Mobility
153	SB		15	West Ave		N of 8th St	City Local		Bi-Dir Count			Nov-97	2U	W	S	S	72				SN		CSC, Miami Beach Mobility
154	SB		8		I-395	W of Alton Rd	State Major Arterial		Bi-Dir Count			Nov-96	6D	W	S		24				SN		KA, Portofino DRI
155	SB		9		I-395	W of Alton Rd	State Major Arterial		Bi-Dir Count			Oct-96	6D		S	S	24				SN		CSC, Miami Beach Electric Shuttle
156	SB		8		5th St	E of Alton Rd	State Major Arterial		Bi-Dir Count			1995	6D	W			24						FRH, Miami Beach Area Wide TIS
157	SB		10		5th St	W of Alton Rd	State Major Arterial		Bi-Dir Count			1995	6D	W			24						FRH, Miami Beach Area Wide TIS
158	SB		8		5th St	W of Meridian Ave	State Major Arterial		Bi-Dir Count			Nov-96	6D	W	S		24				SN		KA, Portofino DRI
159	SB	5W	7		5th St	E of Washington Ave	State Major Arterial		Bi-Dir Count			Nov-97	6D	W	S	S	72						CSC, Miami Beach Mobility
160	SB	11	11/14		11th St	W of Meridian Ave	City Local		Bi-Dir Count			Nov-97	2U	W	S	S	72						CSC, Miami Beach Mobility
161	SB	15	14/18		15th St	W of Meridian Ave	City Local		Bi-Dir Count			Nov-97	2U	W	S	S	72						CSC, Miami Beach Mobility
162	SB	16	18		16th St	W of Meridian Ave	City Local		Bi-Dir Count			Nov-97	2U	W	S	S	72						CSC, Miami Beach Mobility

Table 3: Traffic Count Locations in South Beach

Ref No.	Study Area	Count #	TAZ	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Data Type	Peds	Bicycle	Date of Count	Lanes, Config	Time Periods for Data Collection									Existing Count Source
														Weekday	Saturday	Sunday	24-Hr	AM Peak	Midday	PM Peak	Sat. Night	Winter	
0																							
163	SB	17E	18/21		17th St	E of Pennsylvania Av	City Collector		Bi-Dir Count			Nov-97	4U	W	S	S	72						CSC, Miami Beach Mobility
164	SB	17W	18/21		17th St	W of Meridian Ave	City Collector		Bi-Dir Count			Nov-97	4U	W	S	S	72						CSC, Miami Beach Mobility
165	SB		12	Collins Ave	10th	Approaches	SMjA/CL		Approach			1995	2/2	W			24						DCL, SRA1A Collins Av Improvmnts
166	SB		12/13	Collins Ave	11th St	Approaches	SMjA/CC		Approach			1995	2/2	W			24						DCL, SRA1A Collins Av Improvmnts
167	SB		13	Collins Ave	14th St	Approaches	SMjA/CL		Approach			1995	2/2	W			24						DCL, SRA1A Collins Av Improvmnts
168	SB		19	Collins Ave	15th St	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
169	SB		19	Collins Ave	17th St	Approaches	SMjA/CC		Approach			1995	4/4	W			24						DCL, SRA1A Collins Av Improvmnts
170	SB		19	Collins Ave	18th St	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
171	SB		20	Collins Ave	20th St	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
172	SB		20	Collins Ave	21st St	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
173	SB		20	Collins Ave	22nd St	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
174	SB		20	Collins Ave	23rd St	Approaches	SMjA/DCMnA		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
175	SB		24	Collins Ave	24th St	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
176	SB		24	Collins Ave	26th St	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
177	SB		7	Collins Ave	5th St	Approaches	SMjA/SMjA		Approach			1995	2/6	W			24						DCL, SRA1A Collins Av Improvmnts
178	SB		12	Collins Ave	8th St	Approaches	SMjA/CL		Approach			1995	2/2	W			24						DCL, SRA1A Collins Av Improvmnts
179	SB		13/19	Collins Ave	Espanola Way	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
180	SB		19	Collins Ave	Lincoln Rd	Approaches	SMjA/CL		Approach			1995	4/2	W			24						DCL, SRA1A Collins Av Improvmnts
181	SB		14/15	Alton Rd	11th St	Intersection	SMjA / CC		Turn Movement			Oct-96	4/2	W				AM	MD	PM			CSC, Miami Beach Electric Shuttle
182	SB		17/18	Alton Rd	15th St	Intersection	SMjA / CL		Turn Movement			Oct-96	4/2	W				AM	MD	PM			CSC, Miami Beach Electric Shuttle
183	SB		17/18/21	Alton Rd	17th St	Intersection	SMnA / CC		Turn Movement			1996	4/4	W				AM		PM			CW, Morton Towers TCS
184	SB		17/18/21	Alton Rd	17th St	Intersection	SMnA / CC		Turn Movement			1997	4/4	W						PM			DPA, The Parkshore So. Beach TIS
185	SB		17/18/21	Alton Rd	17th St	Intersection	SMjA / CC		Turn Movement			Oct-96	4/4	W				AM	MD	PM			CSC, Miami Beach Electric Shuttle
186	SB		8	Alton Rd	5th St	Intersection	SMnA / SMjA		Turn Movement			1996	F 4/6	W	S			AM		PM			TAP, SR A1A Flyover to Alton Rd
187	SB		8	Alton Rd	5th St	Intersection	SMjA / SMjA		Turn Movement			Nov-96	2/6	W	S			AM		PM			KA, Portofino DRI
188	SB		8/10	Alton Rd	5th St	Intersection	SMjA / SMjA		Turn Movement			Oct-96	4/6	W				AM	MD	PM			
189	SB		10/11	Alton Rd	8th St	Intersection	SMjA / CL		Turn Movement			Oct-96	4/2	W				AM	MD	PM			CSC, Miami Beach Electric Shuttle
190	SB		17/18	Alton Rd	Lincoln Rd	Intersection	SMnA / CL		Turn Movement			1996	4/2									eveni	KSA, So. Beach Cinema
191	SB		17/18	Alton Rd	Lincoln Rd	Intersection	SMjA / CL		Turn Movement			Oct-96	4/2	W				AM	MD	PM			CSC, Miami Beach Electric Shuttle
192	SB		12	Collins Ave	10th	Intersection	SMjA/CL		Turn Movement			1995	2/2	W						PM			DCL, SRA1A Collins Av Improvmnts
193	SB		12/13	Collins Ave	11th St	Intersection	SMjA/CC		Turn Movement			1995	2/2	W						PM			DCL, SRA1A Collins Av Improvmnts
194	SB		13	Collins Ave	14th St	Intersection	SMjA/CL		Turn Movement			1995	2/2	W						PM			DCL, SRA1A Collins Av Improvmnts
195	SB		19	Collins Ave	15th St	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
196	SB		19	Collins Ave	17th St	Intersection	SMjA / CC		Turn Movement			Jun-95	4/4	W						PM			DLC, SR A1A/Collins Ave
197	SB		19	Collins Ave	17th St	Intersection	SMjA/CC		Turn Movement			1995	4/4	W						PM			DCL, SRA1A Collins Av Improvmnts
198	SB		19	Collins Ave	18th St	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
199	SB		6	Collins Ave	1st St	Intersection	SMjA / CL		Turn Movement			Nov-96	2/2	W				AM		PM			KA, Portofino DRI
200	SB		20	Collins Ave	20th St	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
201	SB		20	Collins Ave	21st St	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
202	SB		20	Collins Ave	22nd St	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
203	SB		20	Collins Ave	23rd St	Intersection	SMjA/DCMnA		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
204	SB		24	Collins Ave	24th St	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
205	SB		24	Collins Ave	26th St	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts

Table 3: Traffic Count Locations in South Beach

Ref No.	Study Area	Count #	TAZ	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Data Type	Peds	Bicycle	Date of Count	Lanes, Config	Time Periods for Data Collection									Existing Count Source
														Weekday	Saturday	Sunday	24-Hr	AM Peak	Midday	PM Peak	Sat. Night	Winter	
0																							
206	SB		7	Collins Ave	5th St	Intersection	SMjA / SMjA		Turn Movement			Nov-96	2/6	W	S			AM		PM			KA, Portofino DRI
207	SB		7	Collins Ave	5th St	Intersection	SMjA/SMjA		Turn Movement			1995	2/6	W						PM			DCL, SRA1A Collins Av Improvmnts
208	SB		12	Collins Ave	8th St	Intersection	SMjA/CL		Turn Movement			1995	2/2	W						PM			DCL, SRA1A Collins Av Improvmnts
209	SB		6	Collins Ave	Biscayne St	Intersection	SMjA / CL		Turn Movement			Nov-96	2/2	W				AM		PM			KA, Portofino DRI
210	SB		13/19	Collins Ave	Espanola Way	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
211	SB		19	Collins Ave	Lincoln Rd	Intersection	SMjA / CL		Turn Movement			1997	4/4	W				AM	MD	PM			DPA, Saint Moritz Hotel TS
212	SB		19	Collins Ave	Lincoln Rd	Intersection	SMjA/CL		Turn Movement			1995	4/2	W						PM			DCL, SRA1A Collins Av Improvmnts
213	SB		8	Jefferson Ave	5th St	Intersection	SMjA / SMjA		Turn Movement			Nov-96	2/6	W	S			AM		PM			KA, Portofino DRI
214	SB		18/21	Meridian Ave	17th St	Intersection	CC/ CC		Turn Movement			Oct-96	2/4	W				AM	MD	PM			CSC, Miami Beach Electric Wave
215	SB		8	Meridian Ave	5th St	Intersection	SMjA / SMjA		Turn Movement			Nov-96	2/6	W	S			AM		PM			KA, Portofino DRI
216	SB		8	Michigan Ave	5th St	Intersection	SMjA / SMjA		Turn Movement			Nov-96	2/6	W	S			AM		PM			KA, Portofino DRI
217	SB		7	Ocean Dr	5th St	Intersection	CC / SMjA		Turn Movement			Nov-96	4/6	W	S			AM		PM			KA, Portofino DRI
218	SB		6	Ocean Dr	Biscayne St	Intersection	CL/CL		Turn Movement			Nov-96	2/2	W				AM		PM			KA, Portofino DRI
219	SB		18/19/21	Washington Ave	17th St	Intersection	CC/ CC		Turn Movement			Oct-96	4/4	W				AM	MD	PM			CSC, Miami Beach Electric Wave
220	SB		7/8	Washington Ave	5th St	Intersection	SMjA / SMjA		Turn Movement			Nov-96	2/6	W	S			AM		PM			KA, Portofino DRI
221	SB		6	Washington Ave	Biscayne St	Intersection	CL/CL		Turn Movement			Nov-96	2/2	W				AM		PM			KA, Portofino DRI
222	SB		18/19	Washington Ave	Lincoln Rd	Intersection	CC/ CL		Turn Movement				T 4/4										
223																							
224																							

Key to abbreviations:

CSC=Corradino; FRH=Frederic R. Harris; BA=Barton-Aschman; KH=Kimley-Horn; DPA=David Powers, Assoc.

DCL=DeLew, Cather; TAP=Transp. Analysis Professionals; KSA=Kunde, Sprecher & Assoc.

TIS = Traffic Impact Study, TS = Traffic Study; TA = Traffic Analysis; TCS = Traffic Concurrency Study

NORMALIZED TRAFFIC COUNTS

Traffic counts are normalized for the same year and same period of the year before they are used for area wide performance analysis. In this study, the 1997 peak season was elected as the standard condition. In South Florida, and in particular in Miami Beach, traffic analysis is conducted for the peak season (between November and April) as it presents the highest traffic volumes in a year.

FDOT provided Weekly Volume Adjustment Factors, which are used to factor counts taken in off-peak months to average peak season conditions. The conversion of counts taken in 1995 or 1996 to 1997 volumes was accomplished by using growth factors developed from historic traffic volumes. Historic traffic volumes were obtained from FDOT, which routinely surveys traffic volumes on State roads. The growth factors, therefore, are specific to State roads. However, similar behavior is expected of other roadways in Miami Beach. This is because of the limited spread of the roadway network in Miami Beach due to the shape of the island.

Linear regression analysis of historic counts was attempted as a method to adjust counts collected prior to 1997. Although linear regression is accepted as a reasonably accurate tool to forecast traffic volumes, it did not prove to be effective for Miami Beach. Lack of sufficient data and large year-to-year variations were the main causes for the poor fit. Instead, a simpler approach was used; an average of yearly variations was calculated for the years with traffic counts. The growth factor calculation is included in Appendix A and summarized below.

Yearly Traffic Growth Factors in Miami Beach

	State Roadways		
Location	East-West	North-South	Average
North Beach	Negligible	N/A	Negligible
Mid Beach	4.2%	0.2%	2.0%
South Beach	7.9%	0.7%	5.0%

METHODOLOGY OF ANALYSIS

Traffic conditions are analyzed through a methodology recommended in the 1994 edition of the *Highway Capacity Manual* (HCM). The HCM established the level of service (LOS) concept as the tool to measure traffic congestion. Level of service is a measure of the quality of traffic flow. This concept uses measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers. The descriptions of individual levels of service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

The level of service calculation for intersections uses the *Highway Capacity Software* (HCS). HCS replicates the methodology recommended in the HCM. Data input to conduct HCS analysis includes intersection lane configurations, turning movement volumes and traffic signal

phasing information. Outputs of the HCS analysis include levels of service, delays and capacities.

The analysis for this report calculates link levels of service for the morning and aftemoon peak periods. Intersection levels of service are calculated for the morning, mid-day or afternoon peak hours, depending upon the location. In the special users assessment additional peak traffic periods including evenings and weekends will be analyzed.

Level of Service Characteristics

Six levels of service are defined and they are given letter designations from A to F. Each level of service represents a range of operating conditions. LOS A represents the best operating conditions characterized by free flow, uninterrupted conditions with small delays; LOS F represents the worst operating conditions characterized by heavy congestion with high delays. The volume of traffic that can be served under the stop-and-go conditions of LOS F is lower than the volume that can be served at LOS E. Therefore, service flow rate E corresponds to the maximum flow rate, or capacity, on the facility. Level of service calculations follow different methodologies for links and intersections as described next.

Service flow rate is used to measure link level of service. Service flow rate is the maximum hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a roadway during a given period under prevailing roadway, traffic and control conditions while maintaining a designated level of service. Maximum rates of flow are established for various facility types for each level of service except LOS F, for which flows are unstable. Thus, each facility type has five maximum service flow rates, one for each LOS A through E. Because service flow rates are defined as maximums for each level of service, they define flow boundaries between the various levels of service. Link peak hour, peak direction maximum flow rates were obtained from Table 5-1 of FDOT's 1995 *Florida's Level of Service Standards and Guidelines Manual for Planning* (commonly known as the *LOS Manual*). These maximum flow rates are based upon the definitions and methodologies of the HCM.

Level of Service is a measure of satisfaction, which the vehicular traveler experiences on public roads. Generally, drivers' satisfaction is dependent on vehicular density, speed, delay, and ability to maneuver.

Vehicular density is the number of vehicles per mile per lane. A more familiar related concept is vehicle spacing, given in the following table. Generally, a car length for every 10-mph is considered a safe distance which is comfortable for most drivers. This would mean that at 30 mph, a spacing of 80 feet would be comfortable, while at 45 mph, 110 feet would be needed, and at 60 mph, about 140 feet are needed. On a 60 mph freeway, this spacing would translate to Level of Service E (132 feet, see table). Below that, distances are too short for safety. Lane changes, maneuvers, and other disruptions cause tension, and wave effects of delay upstream (to the vehicles behind) in the traffic.

The density of vehicles also affects speed. When the spacing becomes too short, drivers tend to slow down. The difference between the freeflow speed, which would be experienced when there are no other vehicles close enough to impact the driver's behavior, and the impeded speed, due to congestion, is delay.

It should be noted that in urban areas drivers' behavior has adjusted to varying degrees of congestion. It is common to see drivers maintaining spacing far less than safe distances for a given speed. The reaction too slow down is diminished. Even still, driver satisfaction is seriously affected by tension and reduced safety. Furthermore, maneuvers disturb upstream traffic (vehicle behind) and cause delay.

On urban streets, the same concepts are applicable; however, delay is caused by many other factors. The largest contribution to delay on urban streets is average signal delay. This is the average time spent stopped at lights, including slowing down, reaction time, and acceleration from the stop.

Delay on urban streets is also caused by delay from left and right turning vehicles in the travel lane. If there are turn bays, and signal phases for these movements, then delay may be experienced by turns from opposing traffic turn time.

Slowing down for turns from cross traffic, bus and delivery stops, pedestrian crossings, parking cars, and adjacent activities and land uses are all part of what is referred to as random delay factors. The speeds that are shown in the following table for different level of service criteria are average speeds, which include delay.

Free flow speed is adjusted for median type, lane width, lateral clearance, access point density, and vehicle mix. Signalized arterials are also effected by signal density, critical intersections, average and weighted green time (green time / cycle length), progression, and arrival patterns.

The following characteristics are ranges taken from the ITE Highway Capacity Manual, 1995:

Level of Service Driver-Perceived Characteristics

LOS	Travel Speed / Volume / Spacing Highway	Urban Arterial Class 1 <4.5 Sig/Mi	Class 2 >4.5 Sig/Mi	Class 3 >4.5 Sig/Mi .in CBD	Avg. Signal Stopped Delay	Ability To Maneuver	Comments
Freeflow Speed		60mph	40mph	33mph	27mph		
Volume		45-35	35-30	30-25			
Spacing							
A	60 mph 720 v/hr/ln 440 ft.	≥35mph	≥30mph	≥25mph	≤ 5 sec.	completely unimpeded	
B	60 mph 1,200 v/hr/ln 264 ft.	≥28mph	≥24mph	≥19mph	>5≤15 sec.	slightly restricted	drivers not subject to appreciable tension
C	59 mph 1,650 v/hr/ln 189 ft.	≥22mph	≥18mph	≥13mph	>15≤25 sec.	stable flow,	more restricted than B; appreciable tension
D	57 mph 1,940 v/hr/ln 155 ft.	≥17mph	≥14mph	≥ 9mph	>25≤40 sec.	unstable flow,	small increases in flow cause delay; appreciable tension
E	55 mph 2,200 v/hr/ln 132 ft.	≥13mph	≥10mph	≥ 7mph	>40≤60 sec.	impeded	extensive queues at critical intersections
F	< 55 mph > 2,200 v/hr/ln < 132 ft.	<13mph	<10mph	< 7mph	>60 sec.	very restricted	extensive queues that may not clear

Although a decrease in level of service is generally considered an adverse impact on the quality of life of residents and visitors, increasing the level of service (satisfaction) for vehicular traffic causes adverse impacts to other contributors to quality of life. Furthermore, correlation between traffic level of service and developer interest, economic development, and land value is not clear. Degradation of level of service may not always decrease quality of life. Attempts to increase traffic performance must be balanced with other planning concerns. For example:

- Attempting to increase vehicular performance, many of the County's signalized intersections may have no pedestrian phase on major arterials with left turn phases. On others, a signal phase may leave only 15 to 20 seconds for crossing 100 to 120 feet. This is often too little time for an average pedestrian, who walks at a speed of 3.5 ft./sec., to clear an intersection.

- Increasing speed, improving signal progression, and decreasing interruptions, increases the performance on an urban arterial such Collins, Washington, or Alton; however, these same measures decrease pedestrian safety, contribute to a more hostile sidewalk environment, and increase dangers for parking cars in commercial districts or for driveway access in residential areas.

- Increasing the satisfaction of drivers creates greater impedance to transit ridership, and leads to the self-fulfilling prophecy of greater dependence on private vehicular

transportation. The future implications are that the City is faced with trying to satisfy ever growing demands on the transportation system, while being constrained in a built-out environment with land value too high for capacity enhancements.

A holistic approach to transportation management must be used to assure that improving traffic levels of service does not adversely impact other needs.

Peak Direction

The level of service tables and maps are shown for both bi-directional traffic, and peak direction traffic. Bi-directional levels of service are calculated based on the traffic in both directions, and the level of service characteristics estimated as an average in both directions. This method works well where the directional split is not significant: where the peak direction on a roadway link is found to be carrying approximately 55% of the traffic in two directions.

The bi-directional method is less applicable for concurrency purposes and less relevant to driver perceptions when the directional split is higher. This condition is most often found during the AM and PM commute to/from work peaks. The peak direction is then a better indicator of relevant conditions and the need for traffic mitigation and/or travel demand management. In Miami Beach, examples of strong directional movements occur at their most severe along the southbound commute path from North Beach along Indian Creek Drive, 63rd Street, and Alton Road. One of the most significant examples is the directional split along Indian Creek Drive, north of 63rd Street, where 80% of the AM peak hour traffic is in the southbound direction. This forces 50% of the road's capacity to carry 80% of the traffic.

Level of Service Standard

Miami Beach has adopted LOS D for bi-directional traffic during the PM peak hour as its level of service standard. Corrective measures will be required at locations where performance is determined or expected to be below LOS D.

Following the 1992 ELMS (Environmental Land Management Study) revision of the State's concurrency legislation, certain revisions were adopted as legislation to further the development of sustainable communities, reduce sprawl, and preserve the State's natural environment. Specifically, the intent of the revisions is to provide greater flexibility to local governments by rewarding infill development, higher densities, transit, and sustainable development (including development patterns with high internal capture). As part of the Urban Infill Area, the City may adopt a less restrictive level of service for transportation. The adopted level of service for the UIA is E. Additionally, in areas within the UIA served by (1/4 mile service band) transit characterized by a 20 minute or less headway, adopted level of service may be set to 120% E (E+20). In areas within the UIA served by (1/4 mile service band) fixed guide transit or express transit characterized by a 20 minute or less headway, adopted level of service may be set to 150% E (E+50).

Therefore, under State and County minimum level of service standards, with the exception of four roadway segments, all roads in Miami Beach are operating under 120% of LOS E, and therefore at acceptable levels of service.

When the City of Miami Beach Comprehensive Plan was adopted in 1989, the allowances did not exist. When the CMB CP was re-adopted in 1992, and amended in 1994, a more restrictive LOS D was retained to assure that there would be adequate capacity for background growth in trips without new development.

Parameters Affecting Traffic Volumes

Traffic volumes are directly or indirectly affected by other parameters such as land use intensities and other transportation modes. This is especially evident in the directional patterns illustrated by the peak direction LOS maps for AM and PM peaks. The effect of land use intensities on traffic will be discussed in the section describing the CMS. Other transportation modes such as transit, pedestrian and bicycle will be discussed in the special users assessment.

RESULTS OF LEVEL OF SERVICE ANALYSIS

Results of level of service calculations are summarized as follows:

- Table 4 and Figures 7, 8, 9 and 10 – Link levels of service for North Beach
- Table 5 and Figures 7 and 8 – Intersection levels of service for North Beach
- Table 6 and Figures 11, 12, 13, and 14 – Link levels of service for Mid Beach
- Table 7 and Figures 11 and 12 – Intersection levels of service for Mid Beach
- Table 8 and Figures 15, 16, 17, and 18 – Link levels of service for South Beach
- Table 9 and Figures 15 and 16 – Intersection levels of service for South Beach

A brief analysis of the results is provided below.

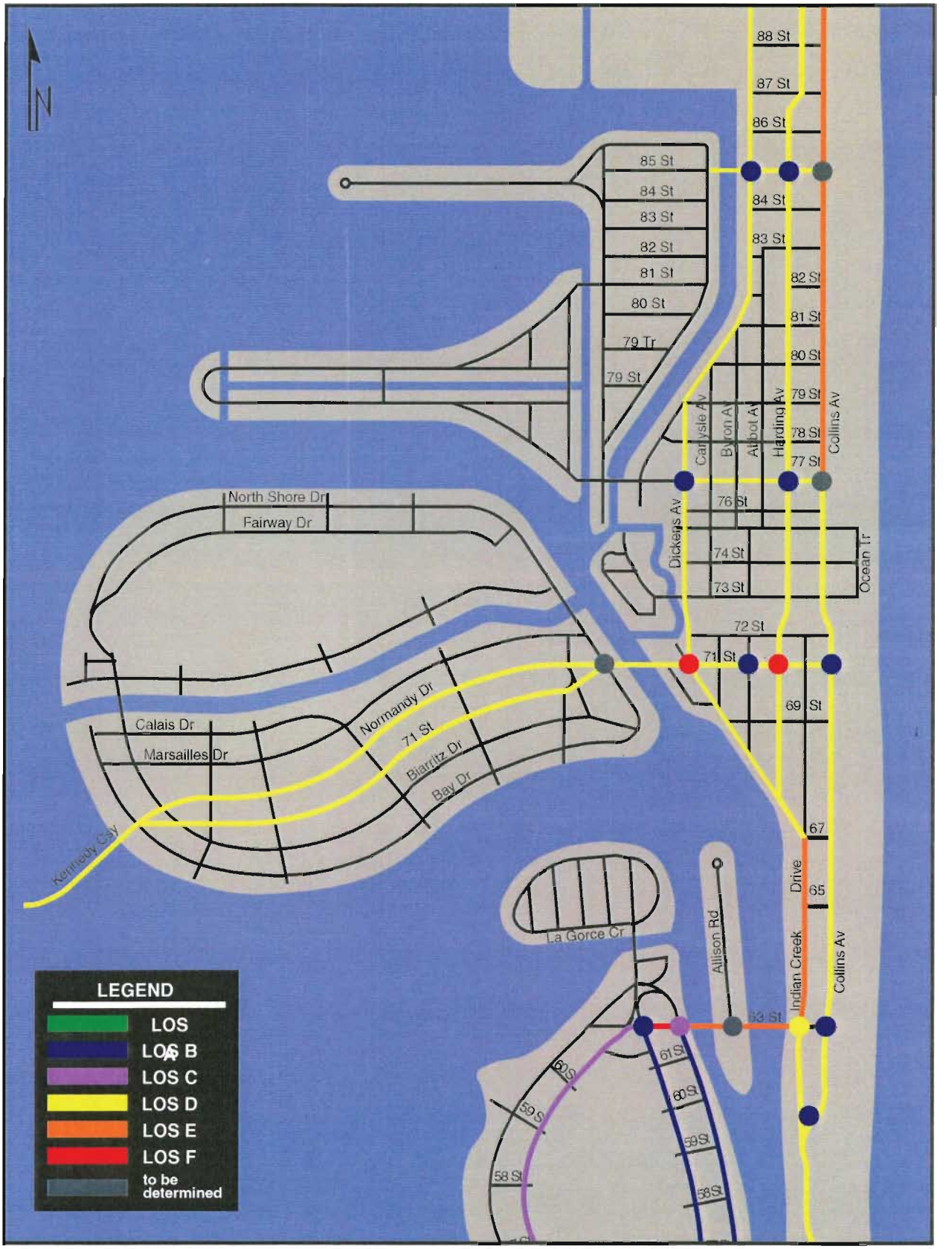
North Beach Level of Service Analysis

Table 4 indicates that the majority of links in North Beach are operating at or above the adopted level of service standard (LOS D) on a bi-directional basis. There is, however, one exception:

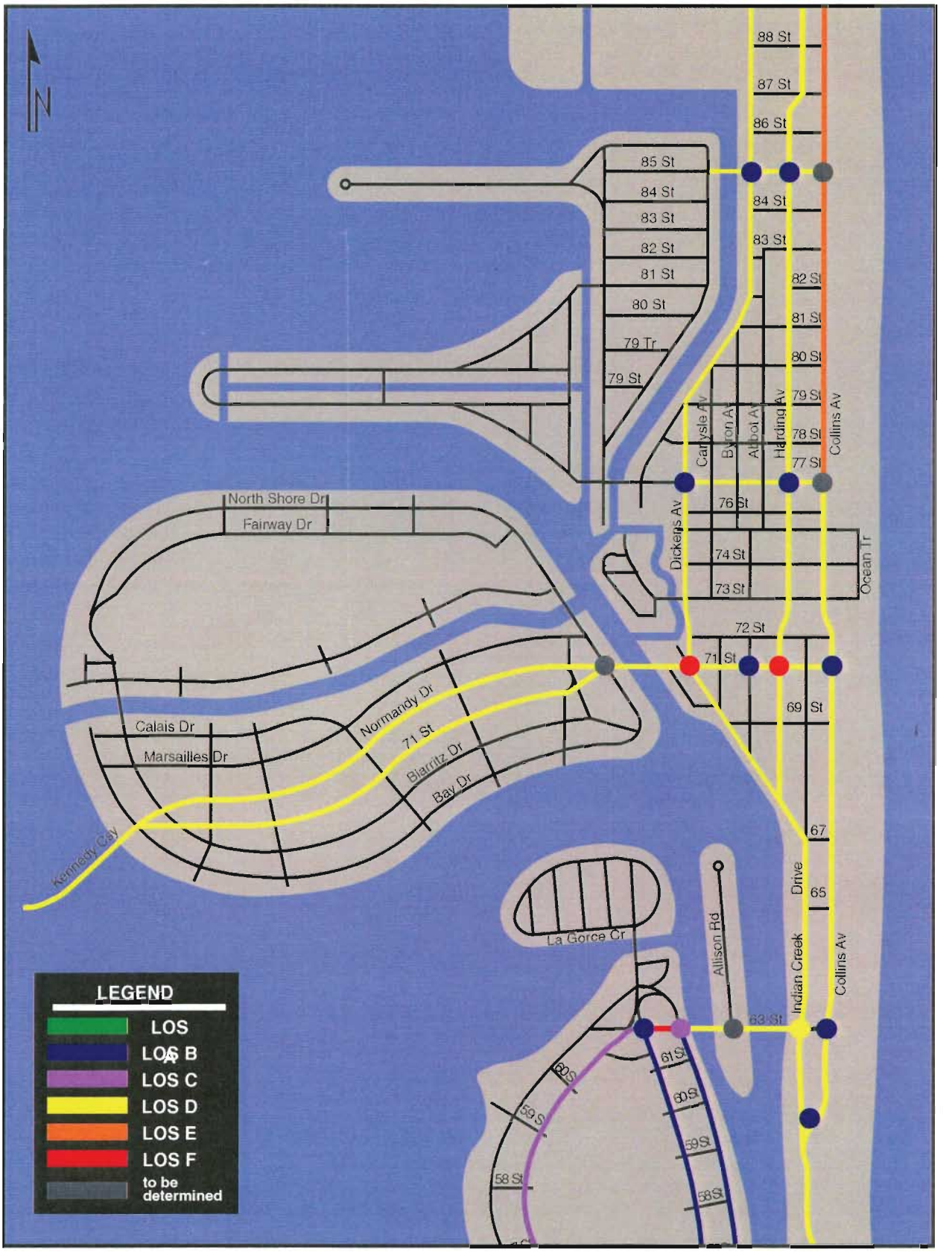
- Indian Creek Drive, from 63rd Street to 67th Street/Harding Avenue– This segment of Indian Creek Drive is a six-lane divided arterial with traffic flows heavily oriented toward the south during the morning peak hour. If analyzed on a bi-directional basis as required by the City's concurrency management policy, this roadway segment operates at LOS E during the PM peak, thus failing to satisfy concurrency standards. Furthermore, on a bi-directional basis the segment performs at LOS F during the AM peak hour. However, a more detailed analysis was conducted utilizing FDOT's ART_PLAN software. This software replicates the procedures recommended by the *1994 Highway Capacity Manual*. Results of the ART_PLAN analysis indicate that on a directional basis, Indian Creek Drive operates at LOS D during both the AM and PM peak hours.

Intersection levels of service for North Beach are presented in Table 5. Most intersections are operating at an acceptable level of service; however, there are the following exceptions:

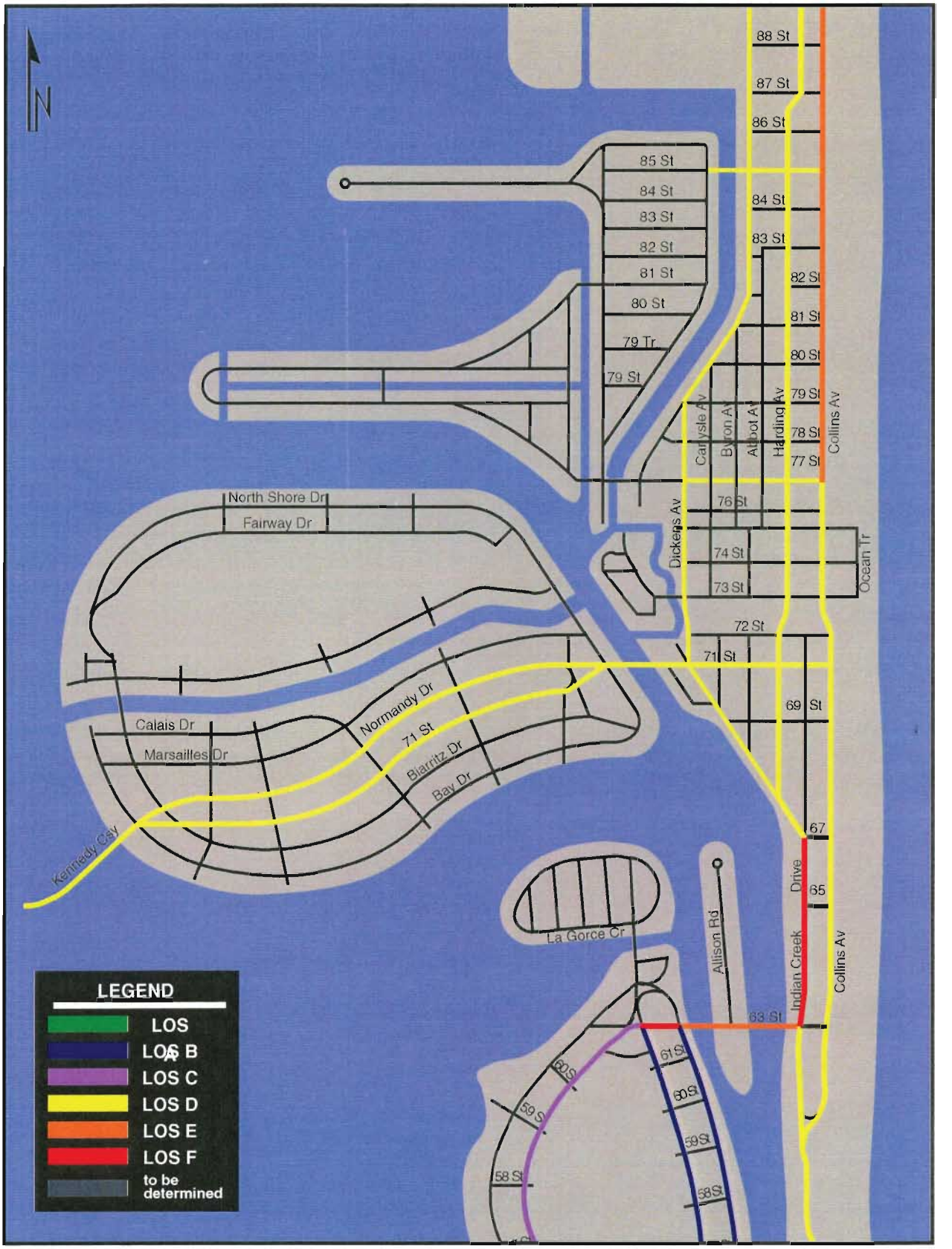
- Harding Avenue at 71st Street – This intersection is operating at LOS F during the PM peak hour. The intersection's poor performance is a result of excessive delay on the northbound approach.
- Indian Creek Drive/Dickens Avenue at 71st Street – This intersection is also operating at LOS F during the PM peak hour. A heavy eastbound left-turning movement is causing this intersection to experience excessive delay. Improvements, which are expected to raise the intersection's level of service to an acceptable level, have been identified for implementation.



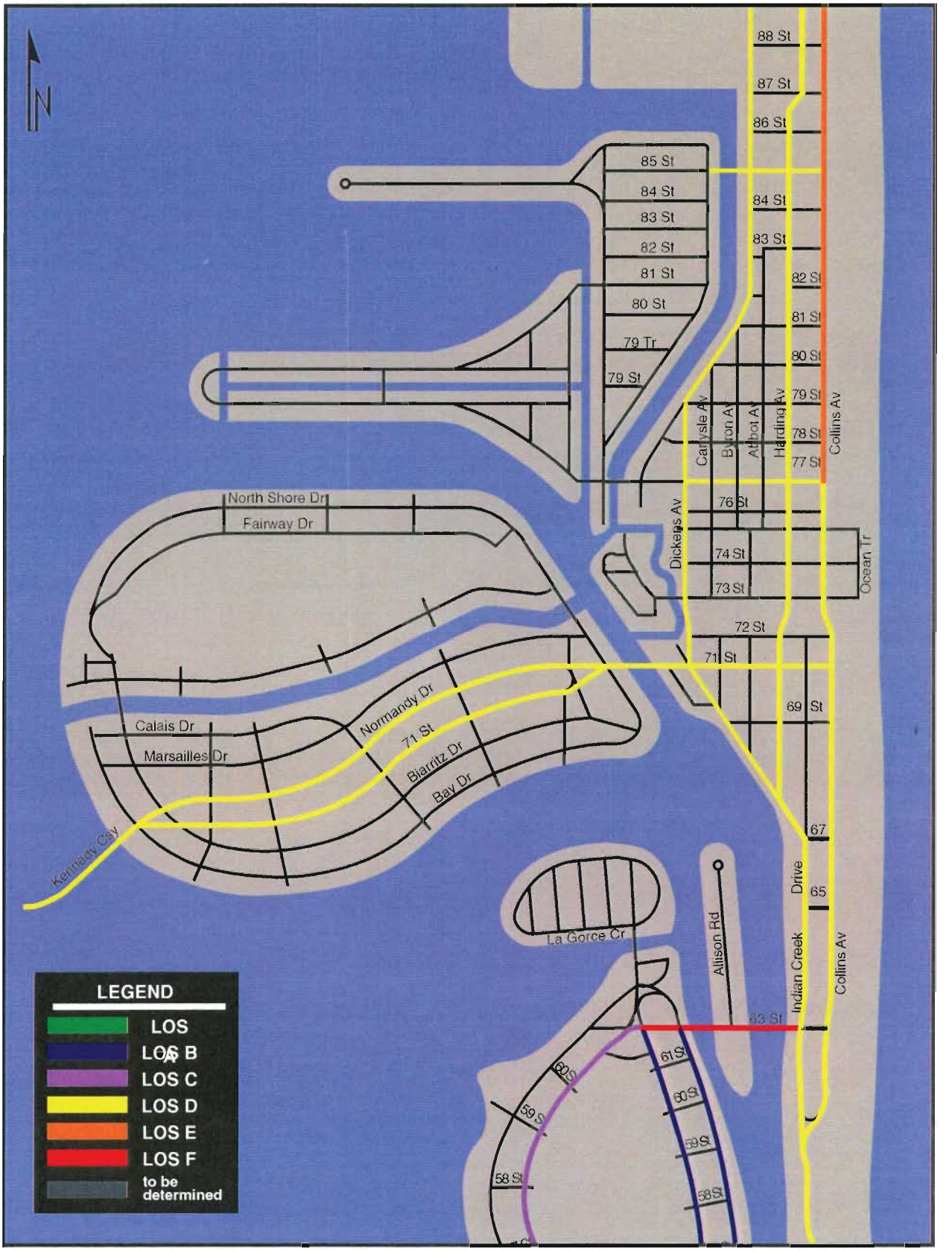
North Beach PM Peak Bidirectional Level of Service
Figure 7



North Beach PM Peak, Peak-Direction Level of Service
Figure 8



North Beach AM Peak Bidirectional Level of Service
Figure 9



North Beach AM Peak, Peak-Direction Level of Service
Figure 10

Table 4: Directional Link Levels of Service for North Beach - PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
1	NB	Collins Ave		N of 63rd St	State Major Arterial	Class II	3 OW	10:45-11:45	1,244	NB	1,244	D	6:15-7:15	2,107	NB	2,107	D
2	NB	Collins Ave		S of 67th St	State Major Arterial	Class II	3 OW	11:30-12:30	973	NB	973	D	5:15-6:15	1,422	NB	1,422	D
3	NB	Collins Ave		N of 71st St	State Major Arterial	Class II	3 OW	11:15-12:15	1,428	NB	1,428	D	5:15-6:15	2,460	NB	2,460	D
4	NB	Collins Ave		S of 85th St	State Major Arterial	Class II	3 OW	11:00-12:00	1,843	NB	1,843	D	5:15-6:15	3,112	NB	3,112	D
5	NB	Abbott Ave		N of 71st St	State Major Arterial	Class II	3 OW	8:00-9:00	2,452	SB	2,452	D	4:00-5:00	1,947	SB	1,947	D
6	NB	Harding Ave		N of Indian Creek Dr	City Collector	Class II	2 OW	11:15-12:15	406	NB	406	D	4:45-5:45	735	NB	735	D
7	NB	Harding Ave		N of 71st St	City Collector	Class II	2U	11:00-12:00	505	NB	294	D	4:45-5:45	710	NB	390	D
8	NB	Harding Ave		S of 85th St	State Major Arterial	Class II	3 OW	8:00-9:00	2,288	SB	2,288	D	5:00-6:00	1,746	SB	1,746	D
9	NB	Indian Creek Dr		N of 63rd St	State Major Arterial	Class II	6D	7:45-8:45	5,131	SB	4,192	D	5:00-6:00	4,521	NB	2,261	D
10	NB	Indian Creek Dr		S of 71st St	City Collector	Class II	6D	7:45-8:45	2,046	SB	1,449	D	5:15-6:15	2,067	NB	1,463	D
11	NB	Waterway Dr		N of 80th St	City Collector	Class II	2U	8:15-9:15	417	NB	231	D	5:30-6:30	641	NB	467	D
12	NB		71 St	W of Collins Ave	State Major Arterial	Class II	2U	11:15-12:15	662	EB	446	D	12:45-1:45	713	EB	456	D
14	NB		Normandy Dr	E of Bay Dr	State Major Arterial	Class II	6U	8:00-9:00	2,931	EB	1,616	D	5:00-6:00	3,108	WB	1,756	D
15	NB		Normandy Dr	W of Bay Dr	State Major Arterial	Class II	6D	8:00-9:00	2,551	EB	1,357	D	5:00-6:00	2,637	EB	1,349	D

Table 4: Bidirectional Link Levels of Service for North Beach
PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
1	NB	Collins Ave		N of 63rd St	State Major Arterial	Class II	3 OW	10:45-11:45	1,244	D	6:15-7:15	2,107	D
2	NB	Collins Ave		S of 67th St	State Major Arterial	Class II	3 OW	11:30-12:30	973	D	5:15-6:15	1,422	D
3	NB	Collins Ave		N of 71st St	State Major Arterial	Class II	3 OW	11:15-12:15	1,428	D	5:15-6:15	2,460	D
4	NB	Collins Ave		S of 85th St	State Major Arterial	Class II	3 OW	11:00-12:00	1,843	D	5:15-6:15	3,112	D
5	NB	Abbott Ave		N of 71st St	State Major Arterial	Class II	3 OW	8:00-9:00	2,452	D	4:00-5:00	1,947	D
6	NB	Harding Ave		N of Indian Creek Dr	City Collector	Class II	2 OW	11:15-12:15	406	D	4:45-5:45	735	D
7	NB	Harding Ave		N of 71st St	City Collector	Class II	2U	11:00-12:00	505	D	4:45-5:45	710	D
8	NB	Harding Ave		S of 85th St	State Major Arterial	Class II	3 OW	8:00-9:00	2,288	D	5:00-6:00	1,746	D
9	NB	Indian Creek Dr		N of 63rd St	State Major Arterial	Class II	6D	7:45-8:45	5,131	F	5:00-6:00	4,521	E
10	NB	Indian Creek Dr		S of 71st St	City Collector	Class II	6D	7:45-8:45	2,046	D	5:15-6:15	2,067	D
11	NB	Waterway Dr		N of 80th St	City Collector	Class II	2U	8:15-9:15	417	D	5:30-6:30	641	D
12	NB		71 St	W of Collins Ave	State Major Arterial	Class II	2U	11:15-12:15	662	D	12:45-1:45	713	D
14	NB		Normandy Dr	E of Bay Dr	State Major Arterial	Class II	6U	8:00-9:00	2,931	D	5:00-6:00	3,108	D
15	NB		Normandy Dr	W of Bay Dr	State Major Arterial	Class II	6D	8:00-9:00	2,551	D	5:00-6:00	2,637	D

Table 4: Peak Hour Directional Link Levels of Service for North Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
1	NB	Collins Ave		N of 63rd St	State Major Arterial	Class II	3 OW	8:00-9:00	541	NB	541	D	5:00-6:00	1,441	NB	1,441	D
2	NB	Collins Ave		S of 67th St	State Major Arterial	Class II	3 OW	8:00-9:00	712	NB	712	D	5:00-6:00	1,381	NB	1,381	D
3	NB	Collins Ave		N of 71st St	State Major Arterial	Class II	3 OW	8:00-9:00	1,246	NB	1,246	D	5:00-6:00	2,457	NB	2,457	D
4	NB	Collins Ave		S of 85th St	State Major Arteria	Class II	3 OW	8:00-9:00	1,608	NB	1,608	D	5:00-6:00	3,112	NB	3,112	D
5	NB	Abbott Ave		N of 71st St	State Major Arterial	Class II	3 OW	8:00-9:00	2,452	SB	2,452	D	5:00-6:00	1,767	SB	1,767	D
6	NB	Harding Ave		N of Indian Creek Dr	City Collector	Class II	2 OW	8:00-9:00	389	NB	406	D	5:00-6:00	727	NB	735	D
7	NB	Harding Ave		N of 71st St	City Collector	Class II	2U	8:00-9:00	364	NB	213	D	5:00-6:00	703	NB	400	D
8	NB	Harding Ave		S of 85th St	State Major Arterial	Class II	3 OW	8:00-9:00	2,288	SB	2,288	D	5:00-6:00	1,746	SB	1,746	D
9	NB	Indian Creek Dr		N of 63rd St	State Major Arterial	Class II	6D	8:00-9:00	5,046	SB	4,089	D	5:00-6:00	4,521	NB	2,261	D
10	NB	Indian Creek Dr		S of 71st St	City Collector	Class II	6D	8:00-9:00	2,007	SB	1,395	D	5:00-6:00	2,018	NB	1,437	D
11	NB	Waterway Dr		N of 80th St	City Collector	Class II	2U	8:00-9:00	407	NB	220	D	5:00-6:00	565	NB	431	D
12	NB		71 St	W of Collins Ave	State Major Arterial	Class II	2U	8:00-9:00	260	EB	153	D	5:00-6:00	564	EB	395	D
14	NB		Normandy Dr	E of Bay Dr	State Major Arterial	Class II	6U	8:00-9:00	2,915	EB	1,602	D	5:00-6:00	3,108	WB	1,752	D
15	NB		Normandy Dr	W of Bay Dr	State Major Arterial	Class II	6D	8:00-9:00	2,551	EB	1,357	D	5:00-6:00	2,637	EB	1,349	D

Table 4: Peak Hour Bidirectional Link Levels of Service for North Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
1	NB	Collins Ave		N of 63rd St	State Major Arterial	Class II	3 OW	8:00-9:00	541	D	5:00-6:00	1,441	D
2	NB	Collins Ave		S of 67th St	State Major Arterial	Class II	3 OW	8:00-9:00	712	D	5:00-6:00	1,381	D
3	NB	Collins Ave		N of 71st St	State Major Arterial	Class II	3 OW	8:00-9:00	1,246	D	5:00-6:00	2,457	D
4	NB	Collins Ave		S of 85th St	State Major Arterial	Class II	3 OW	8:00-9:00	1,608	D	5:00-6:00	3,112	D
5	NB	Abbott Ave		N of 71st St	State Major Arterial	Class II	3 OW	8:00-9:00	2,452	D	5:00-6:00	1,767	D
6	NB	Harding Ave		N of Indian Creek Dr	City Collector	Class II	2 OW	8:00-9:00	389	D	5:00-6:00	727	D
7	NB	Harding Ave		N of 71st St	City Collector	Class II	2U	8:00-9:00	364	D	5:00-6:00	703	D
8	NB	Harding Ave		S of 85th St	State Major Arterial	Class II	3 OW	8:00-9:00	2,288	D	5:00-6:00	1,746	D
9	NB	Indian Creek Dr		N of 63rd St	State Major Arterial	Class II	6D	8:00-9:00	5,046	F	5:00-6:00	4,521	E
10	NB	Indian Creek Dr		S of 71st St	City Collector	Class II	6D	8:00-9:00	2,007	D	5:00-6:00	2,018	D
11	NB	Waterway Dr		N of 80th St	City Collector	Class II	2U	8:00-9:00	407	D	5:00-6:00	565	D
12	NB		71 St	W of Collins Ave	State Major Arterial	Class II	2U	8:00-9:00	260	D	5:00-6:00	564	D
14	NB		Normandy Dr	E of Bay Dr	State Major Arterial	Class II	6U	8:00-9:00	2,915	D	5:00-6:00	3,108	D
15	NB		Normandy Dr	W of Bay Dr	State Major Arterial	Class II	6D	8:00-9:00	2,551	D	5:00-6:00	2,637	D

Table 4: Directional Link Levels of Service for North Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS					Evening LOS				
								Mid-Day Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Evening LOS
1	NB	Collins Ave		N of 63rd St	State Major Arterial	Class II	3 OW	12:00-1:00	1,233	NB	1,233	D	8:00-9:00	1,117	NB	1,117	D
2	NB	Collins Ave		S of 67th St	State Major Arterial	Class II	3 OW	12:00-1:00	1,094	NB	1,094	D	8:00-9:00	1,012	NB	1,012	D
3	NB	Collins Ave		N of 71st St	State Major Arterial	Class II	3 OW	12:00-1:00	1,614	NB	1,614	D	8:00-9:00	1,485	NB	1,485	D
4	NB	Collins Ave		S of 85th St	State Major Arterial	Class II	3 OW	12:00-1:00	2,009	NB	2,009	D	8:00-9:00	1,532	NB	1,532	D
5	NB	Abbott Ave		N of 71st St	State Major Arterial	Class II	3 OW	12:00-1:00	1,575	SB	1,575	D	8:00-9:00	1,511	SB	1,511	D
6	NB	Harding Ave		N of Indian Creek Dr	City Collector	Class II	2 OW	12:00-1:00	420	NB	420	D	8:00-9:00	272	NB	272	D
7	NB	Harding Ave		N of 71st St	City Collector	Class II	2U	12:00-1:00	397	NB	240	D	8:00-9:00	289	NB	186	D
8	NB	Harding Ave		S of 85th St	State Major Arterial	Class II	3 OW	12:00-1:00	1,357	SB	1,357	D	8:00-9:00	1,041	SB	1,041	D
9	NB	Indian Creek Dr		N of 63rd St	State Major Arterial	Class II	6D	12:00-1:00	3,159	SB	2,115	D	8:00-9:00	2,318	SB	1,362	D
10	NB	Indian Creek Dr		S of 71st St	City Collector	Class II	6D	12:00-1:00	1,280	NB	783	D	8:00-9:00	1,040	NB	646	D
11	NB	Waterway Dr		N of 80th St	City Collector	Class II	2U	12:00-1:00	343	NB	208	D	8:00-9:00	352	NB	254	D
12	NB		71 St	W of Collins Ave	State Major Arterial	Class II	2U	12:00-1:00	682	EB	465	D	8:00-9:00	533	EB	353	D
14	NB		Normandy Dr	E of Bay Dr	State Major Arterial	Class II	6U	12:00-1:00	2,393	WB	1,249	D	8:00-9:00	1,955	WB	1,041	D
15	NB		Normandy Dr	W of Bay Dr	State Major Arterial	Class II	6D	12:00-1:00	2,051	WB	1,040	D	8:00-9:00	1,685	EB	859	D

Table 4: Bidirectional Link Levels of Service for North Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS			Evening LOS		
								Mid-Day Hour	Bi-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Evening LOS
1	NB	Collins Ave		N of 63rd St	State Major Arterial	Class II	3 OW	12:00-1:00	1,233	D	8:00-9:00	1,117	D
2	NB	Collins Ave		S of 67th St	State Major Arterial	Class II	3 OW	12:00-1:00	1,094	D	8:00-9:00	1,012	D
3	NB	Collins Ave		N of 71st St	State Major Arterial	Class II	3 OW	12:00-1:00	1,614	D	8:00-9:00	1,485	D
4	NB	Collins Ave		S of 85th St	State Major Arterial	Class II	3 OW	12:00-1:00	2,009	D	8:00-9:00	1,532	D
5	NB	Abbott Ave		N of 71st St	State Major Arterial	Class II	3 OW	12:00-1:00	1,575	D	8:00-9:00	1,511	D
6	NB	Harding Ave		N of Indian Creek Dr	City Collector	Class II	2 OW	12:00-1:00	420	D	8:00-9:00	272	D
7	NB	Harding Ave		N of 71st St	City Collector	Class II	2U	12:00-1:00	397	D	8:00-9:00	289	D
8	NB	Harding Ave		S of 85th St	State Major Arterial	Class II	3 OW	12:00-1:00	1,357	D	8:00-9:00	1,041	D
9	NB	Indian Creek Dr		N of 63rd St	State Major Arterial	Class II	6D	12:00-1:00	3,159	D	8:00-9:00	2,318	D
10	NB	Indian Creek Dr		S of 71st St	City Collector	Class II	6D	12:00-1:00	1,280	D	8:00-9:00	1,040	D
11	NB	Waterway Dr		N of 80th St	City Collector	Class II	2U	12:00-1:00	343	D	8:00-9:00	352	D
12	NB		71 St	W of Collins Ave	State Major Arterial	Class II	2U	12:00-1:00	682	D	8:00-9:00	533	D
14	NB		Normandy Dr	E of Bay Dr	State Major Arterial	Class II	6U	12:00-1:00	2,393	D	8:00-9:00	1,955	D
15	NB		Normandy Dr	W of Bay Dr	State Major Arterial	Class II	6D	12:00-1:00	2,051	D	8:00-9:00	1,685	D

Table 5: Intersection Levels of Service for North Beach

Ref No.	N-S Road	E-W Road	Jurisdiction & Functional Classification	AM Peak Hour LOS			Mid-Day Peak Hour LOS			PM Peak Hour LOS		
				AM Peak Hour	Intersection Delay (sec/veh)	Intersection LOS	Mid-Day Peak Hour	Intersection Delay (sec/veh)	Intersection LOS	PM Peak Hour	Intersection Delay (sec/veh)	Intersection LOS
16	Abbott Ave	71 St	SMjA/SMjA			NA			NA	4:30-5:30	12.6	B
17	Byron Ave	85 St	CC/CC			NA			NA	5:00-6:00	7.8	B
18	Collins Ave	71 St	SMjA/SMjA			NA			NA	4:00-5:00	13.8	B
19	Dickens Ave	77 St	CC/CC			NA			NA	5:30-6:30	9.5	B
20	Harding Ave	71 St	CC/CC			NA			NA	4:45-5:45	*	F
21	Harding Ave	77 St	SMjA/CC			NA			NA	5:00-6:00	5.1	B
22	Harding Ave	85 St	SMjA/CC			NA			NA	4:30-5:30	7.0	B
23	Indian Creek Dr	71 St	CC/SMjA			NA			NA	4:00-5:00	*	F

Middle Beach Level of Service Analysis

Table 6 presents link levels of service for Mid Beach. With the exception of Alton Road all north-south roadways are operating at or above the adopted level of service standard (LOS D). There are two east-west roadways that are operating below the adopted level of service standard. These roadways are 41st Street (Arthur Godfrey Road) and 63rd Street. The roadways operating below the adopted level of service standard are discussed in more detail below.

- Alton Road, from Chase Avenue to LaGorce Drive – This segment of Alton Road is primarily a four-lane divided arterial. Traffic flow is oriented heavily toward the south during the morning peak hours and toward the north during the afternoon peak hours. On a bi-directional basis, the portion of Alton Road between Chase Avenue and the entrance to the Mt. Sinai Medical Center operates at LOS F during both the AM and PM peak hours. A more detailed directional analysis of the entire segment of Alton Road from Chase Avenue to LaGorce Drive was conducted utilizing the ART_PLAN software. Results indicate that Alton Road operates at LOS F during both the AM and PM peak hours.

- 41st Street (Arthur Godfrey Road), from Alton Road to Collins Avenue – 41st Street, which is the eastern extension of the Julia Tuttle Causeway (Interstate 195), is primarily a four-lane undivided arterial with left-turn lanes at signalized intersections. The roadway makes its transition from an expressway to an arterial just to the west of Alton Road. On a bi-directional basis, the portion 41st Street between Alton Road and Chase Avenue operates at LOS F during both the AM and PM peak hours. Additionally, the portion of 41st Street between Chase Avenue and Indian Creek Drive operates at LOS E during both the AM and PM peak hours. A more detailed directional analysis of the entire segment of 41st Street from Alton Road to Collins Avenue was conducted utilizing the ART_PLAN software. Results indicate that 41st Street operates at LOS F during both the AM and PM peak hours.

- 63rd Street, from LaGorce Drive to Collins Avenue – 63rd Street is a four-lane undivided arterial, which is the northern east-west extension of Alton Road. Traffic flow is oriented heavily toward the west during the morning peak hours and heavily toward the east during the afternoon peak hours. On a bi-directional basis, this roadway operates at LOS F during both the AM and PM peak hours. A more detailed directional analysis, which utilized the ART_PLAN software, confirmed these results.

Intersection levels of service for Mid Beach are presented in Table 7. Most intersections are operating at an acceptable level of service, however there are the following exceptions, which are concentrated mainly along Alton Road and 41st Street:

- Alton Road at 41st Street – This intersection is operating at LOS F during both the AM and PM peak hours. The intersection's poor performance is a result of excessive delay for the eastbound left-turn movement.

- Alton Road at 47th Street – This intersection is operating at LOS F during both the AM and PM peak hours. Excessive delay on the southbound approach is responsible for the poor performance during the AM peak hour. During the PM peak hour, the poor performance is a result of excessive delay on the northbound approach.

- Alton Road at 43rd Street - This intersection is operating at LOS F during the AM, mid-day and PM peak hours. All approaches to this intersection are experiencing substantial delay during the AM peak hour. During the mid-day peak hour, only the eastbound approach to the intersection is experiencing excessive delay. During the PM peak hour, both eastbound and westbound approaches are experiencing substantial delays during the afternoon peak hour.

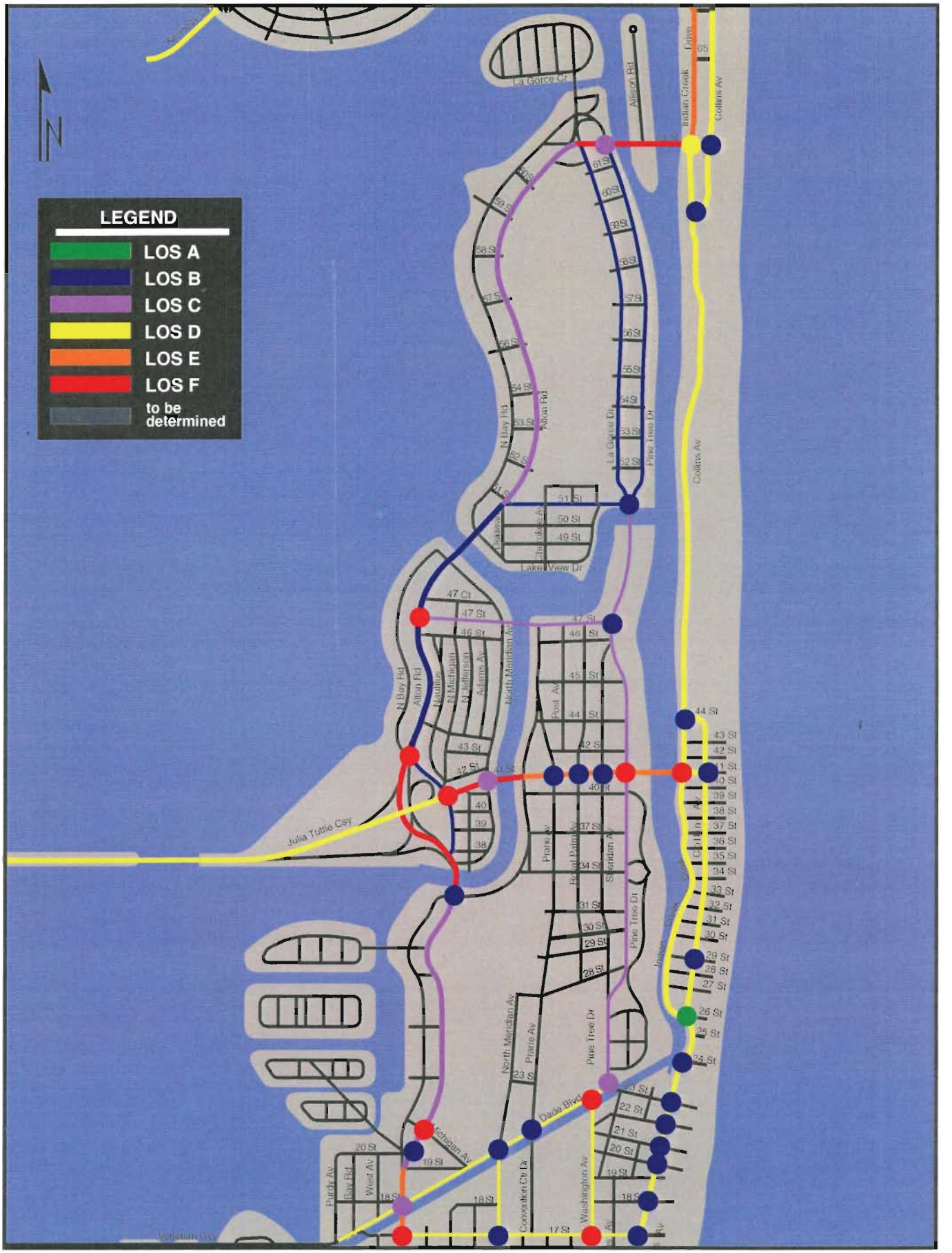
- Alton Road at Michigan Avenue – This intersection is operating at LOS F during the AM, mid-day and PM peak hours. The poor performance is a result of excessive delay for the southbound left-turn movement.

- Indian Creek Drive at 41st Street – This intersection is operating at LOS F during the PM peak hour. A heavy eastbound left-turning movement is causing this intersection to experience excessive delay.

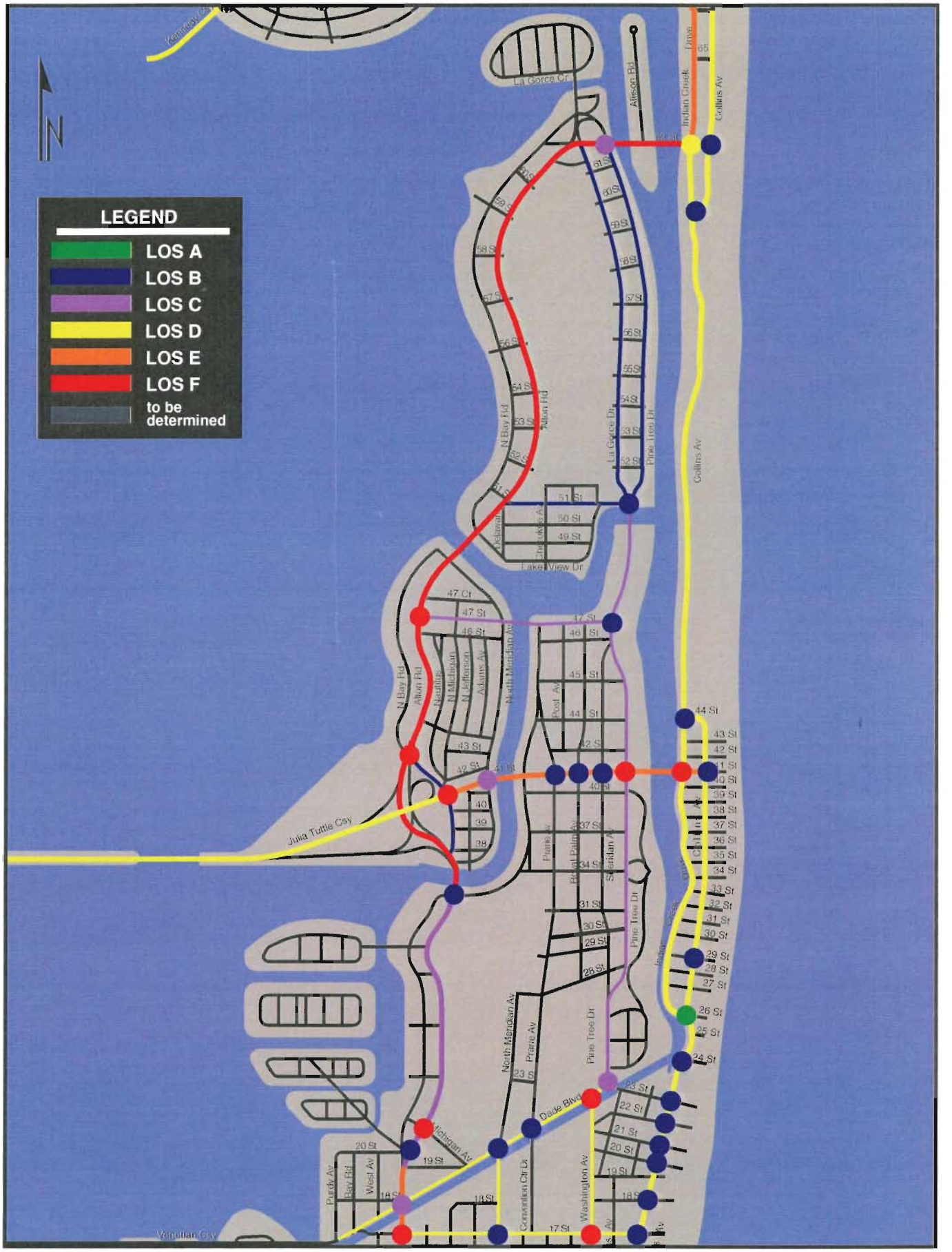
- Pine Tree Drive at 41st Street – This intersection is operating at LOS F during both the AM and PM peak hours. Excessive delays for the eastbound and westbound left-turn movements are causing the performance of this intersection to fall below an acceptable level.

- Meridian Avenue at 41st Street – This intersection is operating at LOS F during the AM peak hour. The poor performance is the result of excessive delay on the westbound approach.

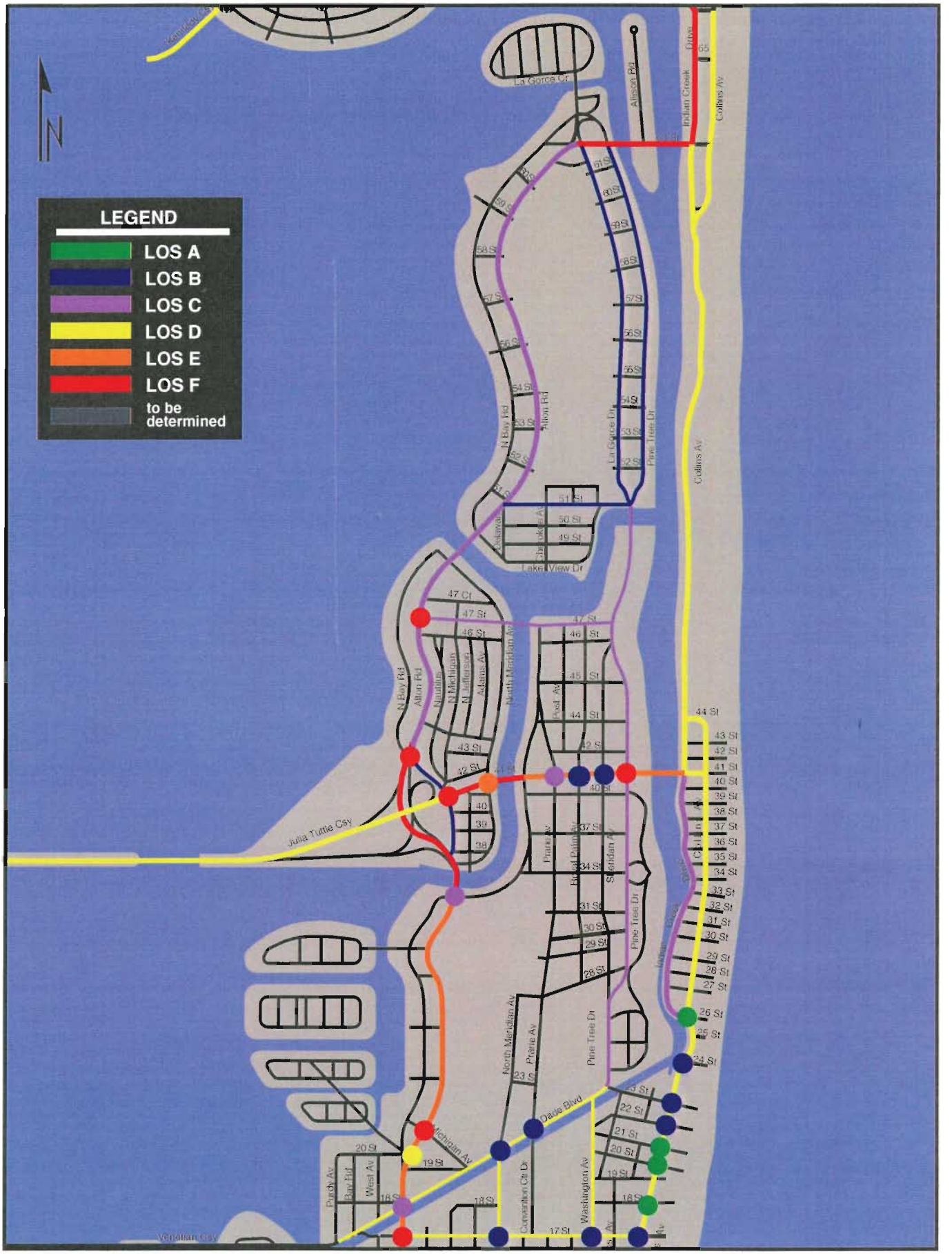
- Washington Avenue at Dade Boulevard – This intersection is operating at LOS F during the PM peak hour. The poor performance is the result of excessive delay on the eastbound and westbound approaches.



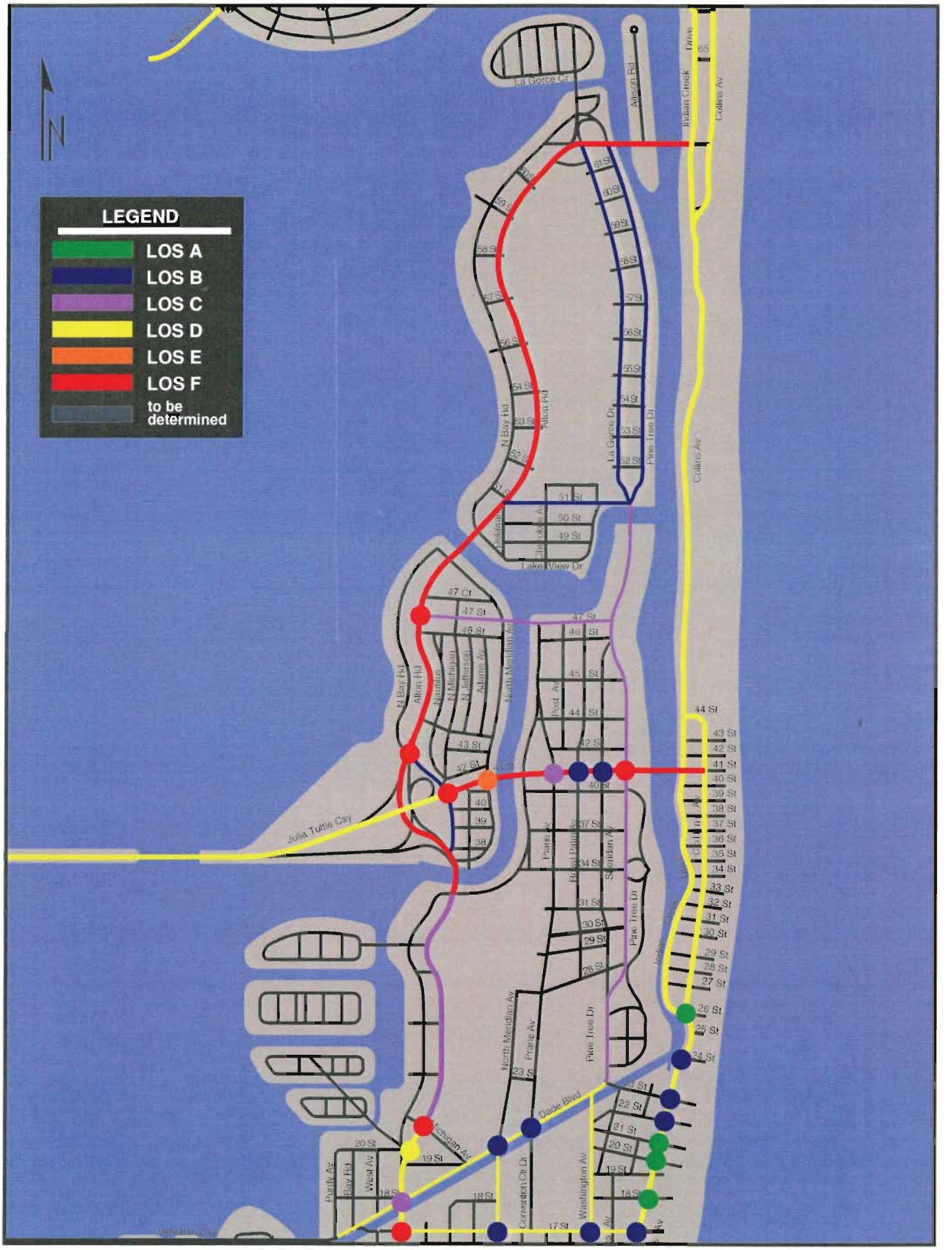
Middle Beach PM Peak, Bidirectional Level of Service
Figure 11



Middle Beach PM Peak, Peak-Direction Level of Service
Figure 12



Middle Beach AM Peak, Bidirectional Level of Service
Figure 13



Middle Beach AM Peak, Peak-Direction Level of Service
Figure 14

Table 6: Directional Link Levels of Service for Middle Beach - PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
25	MB	East Alton Rd		N of 41st St	City Local	Class IA	4D	11:30-12:30	584	NB	297	B	2:45-3:45	715	NB	358	B
26	MB	Alton Rd		S of 43rd St	State Minor Arterial	Class IA	4D	7:30-8:30	4,050	SB	2,816	F	3:15-4:15	3,365	SB	2,251	F
27	MB	Alton Rd		N of 43rd St	State Minor Arterial	Class IA	4D	8:00-9:00	2,480	SB	1,769	F	3:15-4:15	2,480	SB	1,481	F
28	MB	Alton Rd		N of 51st St	State Minor Arterial	Class IA	4D	8:00-9:00	3,047	SB	2,275	F	5:15-6:15	2,669	NB	1,644	F
29	MB	Alton Rd		N of Dade Blvd	State Minor Arterial	Class IA	4D	8:00-9:00	2,910	SB	1,563	C	5:15-6:15	3,318	SB	1,723	C
30	MB	East Alton Rd		S of 41st St	City Local	Class IA	4U	8:15-9:15	507	SB	270	B	2:30-3:30	501	SB	266	B
31	MB	Collins Ave		5800 Block	State Major Arteria	Class II	6D	11:00-12:00	1,746	NB	898	D	4:30-5:30	2,064	SB	1,278	D
32	MB	Collins Ave		N of 41 / S of 44	State Major Arterial	Class II	3 OW	10:45-11:45	510	NB	510	D	1:15-2:15	642	SB	642	D
33	MB	Collins Ave		S of 63rd St	State Major Arterial	Class II	3 OW	11:30-12:30	892	NB	892	D	5:00-6:00	1,292	SB	1,292	D
34	MB	Collins Ave		S of Indian Creek Dr	State Major Arterial	Class II	6D	8:00-9:00	2,307	SB	1,759	D	5:00-6:00	2,497	SB	1,296	D
35	MB	Flamingo Dr		N of 37th St	City Local	Class IA	2U	10:30-11:30	53	NB	29	B	1:45-2:45	60	NB	40	B
36	MB	Indian Creek Dr		S of 37th St	State Major Arterial	Class IB	2 OW	10:30-11:30	782	SB	782	C	5:15-6:15	908	SB	908	C
37	MB	La Gorce Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	960	SB	960	B	5:00-6:00	368	SB	368	B
38	MB	La Gorce Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	878	SB	878	B	5:00-6:00	336	SB	336	B
39	MB	Pine Tree Dr		N of 37th St	City Collector	Class IB	4D	8:45-9:45	875	SB	563	C	5:30-6:30	913	NB	579	C
40	MB	Pine Tree Dr		N of Arthur Godfrey Rd	City Collector	Class IB	4D	8:00-9:00	968	SB	530	C	5:00-6:00	1,067	NB	714	C
41	MB	Pine Tree Dr		N of Dade Blvd	City Collector	Class IB	4D	8:15-9:15	1,296	SB	823	C	5:00-6:00	1,704	NB	1,080	D
42	MB	Pine Tree Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	375	NB	375	B	5:00-6:00	863	NB	863	B
43	MB	Pine Tree Dr		S of 51st St	City Collector	Class IB	4D	9:00-10:00	1,422	SB	996	C	6:00-7:00	1,254	NB	874	C
44	MB	Pine Tree Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	361	NB	361	B	5:00-6:00	845	NB	845	B
45	MB		41st St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	3,883	WB	1,956	F	3:15-4:15	4,008	EB	2,055	E
46	MB		41st St	W of Alton Rd	State Major Arterial	Class II	6U	7:45-8:45	3,443	WB	1,849	F	3:15-4:15	3,103	WB	1,676	E
47	MB		41st St	W of Collins Ave	State Major Arterial	Class II	2U	8:15-9:15	627	WB	519	F	5:15-6:15	648	WB	458	E
48	MB		41st St	W of Indian Creek Dr	State Major Arterial	Class II	4U	8:00-9:00	2,514	WB	1,579	F	5:00-6:00	2,592	EB	1,593	E
49	MB		41st St	W of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	2,580	WB	1,502	F	3:00-4:00	2,828	WB	1,488	E
50	MB		43rd St	E of Alton Rd	City Local	Class II	4U	10:30-11:30	475	WB	298	D	2:45-3:45	601	WB	338	D
51	MB		43rd St	W of Alton Rd	City Local	Class II	4U	7:45-8:45	1,645	WB	1,326	E	2:15-3:15	1,543	WB	1,011	D
52	MB		47th St	W of Prarie/Chase	City Local	Class IB	2U	8:00-9:00	585	WB	356	C	3:00-4:00	414	EB	208	C
53	MB		51st St	W of Pine Tree Dr	City Local	Class IA	2U	8:00-9:00	249	EB	144	B	5:00-6:00	212	EB	126	B

Table 6: Directional Link Levels of Service for Middle Beach - PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
54	MB		63rd St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	2,694	WB	1,966	F	6:00-7:00	2,469	EB	1,292	F
55	MB		63rd St	E of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	3,823	WB	2,850	F	5:00-6:00	3,467	EB	2,197	F
56	MB		Dade Blvd	W of 23rd St	County Collector	Class II	4U	8:00-9:00	1,640	WB	1,065	D	5:00-6:00	1,996	EB	1,203	D
57	MB		Dade Blvd	W of Alton Rd	County Collector	Class II	4U	9:30-10:30	583	WB	331	D	5:15-6:15	635	WB	364	D
58	MB		Dade Blvd	W of Meridian Av	County Collector	Class II	4U	9:00-10:00	1,736	EB	1,042	D	5:00-6:00	1,764	WB	892	D
59	MB		Dade Blvd	W of Washington Ave	County Collector	Class II	4U	7:45-8:45	1,363	WB	918	D	5:00-6:00	1,536	WB	779	D

Table 6: Bidirectional Link Levels of Service for Middle Beach
PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
25	MB	East Alton Rd		N of 41st St	City Local	Class IA	4D	11:30-12:30	584	B	2:45-3:45	715	B
26	MB	Alton Rd		S of 43rd St	State Minor Arterial	Class IA	4D	7:30-8:30	4,050	**F**	3:15-4:15	3,365	**F**
27	MB	Alton Rd		N of 43rd St	State Minor Arterial	Class IA	4D	8:00-9:00	2,480	B	3:15-4:15	2,480	B
28	MB	Alton Rd		N of 51st St	State Minor Arterial	Class IA	4D	8:00-9:00	3,047	C	5:15-6:15	2,669	C
29	MB	Alton Rd		N of Dade Blvd	State Minor Arterial	Class IA	4D	8:00-9:00	2,910	C	5:15-6:15	3,318	D
30	MB	East Alton Rd		S of 41st St	City Local	Class IA	4U	8:15-9:15	507	B	2:30-3:30	501	B
31	MB	Collins Ave		5800 Block	State Major Arterial	Class II	6D	11:00-12:00	1,746	D	4:30-5:30	2,064	D
32	MB	Collins Ave		N of 41 / S of 44	State Major Arterial	Class II	3 OW	10:45-11:45	510	D	1:15-2:15	642	D
33	MB	Collins Ave		S of 63rd St	State Major Arterial	Class II	3 OW	11:30-12:30	892	D	5:00-6:00	1,292	D
34	MB	Collins Ave		S of Indian Creek Dr	State Major Arterial	Class II	6D	8:00-9:00	2,307	D	5:00-6:00	2,497	D
35	MB	Flamingo Dr		N of 37th St	City Local	Class IA	2U	10:30-11:30	53	B	1:45-2:45	60	B
36	MB	Indian Creek Dr		S of 37th St	State Major Arterial	Class IB	2 OW	10:30-11:30	782	C	5:15-6:15	908	C
37	MB	La Gorce Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	960	B	5:00-6:00	368	B
38	MB	La Gorce Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	878	B	5:00-6:00	336	B
39	MB	Pine Tree Dr		N of 37th St	City Collector	Class IB	4D	8:45-9:45	875	C	5:30-6:30	913	C
40	MB	Pine Tree Dr		N of Arthur Godfrey Rd	City Collector	Class IB	4D	8:00-9:00	968	C	5:00-6:00	1,067	C
41	MB	Pine Tree Dr		N of Dade Blvd	City Collector	Class IB	4D	8:15-9:15	1,296	C	5:00-6:00	1,704	C
42	MB	Pine Tree Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	375	B	5:00-6:00	863	B
43	MB	Pine Tree Dr		S of 51st St	City Collector	Class IB	4D	9:00-10:00	1,422	C	6:00-7:00	1,254	C
44	MB	Pine Tree Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	361	B	5:00-6:00	845	B
45	MB		41st St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	3,883	**F**	3:15-4:15	4,008	**F**
46	MB		41st St	W of Alton Rd	State Major Arterial	Class II	6U	7:45-8:45	3,443	D	3:15-4:15	3,103	D
47	MB		41st St	W of Collins Ave	State Major Arterial	Class II	2U	8:15-9:15	627	D	5:15-6:15	648	D
48	MB		41st St	W of Indian Creek Dr	State Major Arterial	Class II	4U	8:00-9:00	2,514	**E**	5:00-6:00	2,592	**E**
49	MB		41st St	W of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	2,580	**E**	3:00-4:00	2,828	**E**
50	MB		43rd St	E of Alton Rd	City Local	Class II	4U	10:30-11:30	475	D	2:45-3:45	601	D
51	MB		43rd St	W of Alton Rd	City Local	Class II	4U	7:45-8:45	1,645	D	2:15-3:15	1,543	D
52	MB		47th St	W of Prarie/Chase	City Local	Class IB	2U	8:00-9:00	585	C	3:00-4:00	414	C
53	MB		51st St	W of Pine Tree Dr	City Local	Class IA	2U	8:00-9:00	249	B	5:00-6:00	212	B

Table 6: Bidirectional Link Levels of Service for Middle Beach
PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
54	MB		63rd St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	2,694	E	6:00-7:00	2,469	E
55	MB		63rd St	E of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	3,823	F	5:00-6:00	3,467	F
56	MB		Dade Blvd	W of 23rd St	County Collector	Class II	4U	8:00-9:00	1,640	D	5:00-6:00	1,996	D
57	MB		Dade Blvd	W of Alton Rd	County Collector	Class II	4U	9:30-10:30	583	D	5:15-6:15	635	D
58	MB		Dade Blvd	W of Meridian Av	County Collector	Class II	4U	9:00-10:00	1,736	D	5:00-6:00	1,764	D
59	MB		Dade Blvd	W of Washington Ave	County Collector	Class II	4U	7:45-8:45	1,363	D	5:00-6:00	1,536	D

Table 6: Peak Hour Directional Link Levels of Service for Middle Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
25	MB	East Alton Rd		N of 41st St	City Local	Class IA	4D	8:00-9:00	576	NB	381	B	5:00-6:00	566	NB	309	B
26	MB	Alton Rd		S of 43rd St	State Minor Arterial	Class IA	4D	8:00-9:00	3,980	SB	2,713	F	5:00-6:00	2,975	SB	1,507	F
27	MB	Alton Rd		N of 43rd St	State Minor Arterial	Class IA	4D	8:00-9:00	2,480	SB	1,769	F	5:00-6:00	2,354	NB	1,422	F
28	MB	Alton Rd		N of 51st St	State Minor Arterial	Class IA	4D	8:00-9:00	3,047	SB	2,275	F	5:00-6:00	2,654	NB	1,615	F
29	MB	Alton Rd		N of Dade Blvd	State Minor Arterial	Class IA	4D	8:00-9:00	2,910	SB	1,563	C	5:00-6:00	3,231	NB	1,624	C
30	MB	East Alton Rd		S of 41st St	City Local	Class IA	4U	8:00-9:00	510	SB	285	B	5:00-6:00	433	SB	253	B
31	MB	Collins Ave		5800 Block	State Major Arterial	Class II	6D	8:00-9:00	1,619	SB	1,037	D	5:00-6:00	2,029	NB	1,286	D
32	MB	Collins Ave		N of 41 / S of 44	State Major Arterial	Class II	3 OW	8:00-9:00	322	NB	322	D	5:00-6:00	641	SB	641	D
33	MB	Collins Ave		S of 63rd St	State Major Arterial	Class II	3 OW	8:00-9:00	608	NB	608	D	5:00-6:00	1,292	SB	1,292	D
34	MB	Collins Ave		S of Indian Creek Dr	State Major Arterial	Class II	6D	8:00-9:00	2,307	SB	1,759	D	5:00-6:00	2,497	SB	1,296	D
35	MB	Flamingo Dr		N of 37th St	City Local	Class IA	2U	8:00-9:00	33	NB	21	B	5:00-6:00	49	NB	35	B
36	MB	Indian Creek Dr		S of 37th St	State Major Arterial	Class IB	2 OW	8:00-9:00	652	SB	652	C	5:00-6:00	792	SB	792	C
37	MB	La Gorce Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	960	SB	960	B	5:00-6:00	368	SB	368	B
38	MB	La Gorce Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	878	SB	878	B	5:00-6:00	336	SB	336	B
39	MB	Pine Tree Dr		N of 37th St	City Collector	Class IB	4D	8:00-9:00	688	SB	412	C	5:00-6:00	880	NB	540	C
40	MB	Pine Tree Dr		N of 41st St	City Collector	Class IB	4D	8:00-9:00	968	SB	530	C	5:00-6:00	1,067	NB	714	C
41	MB	Pine Tree Dr		N of Dade Blvd	City Collector	Class IB	4D	8:00-9:00	1,293	SB	836	C	5:00-6:00	1,704	NB	1,080	D
42	MB	Pine Tree Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	375	NB	375	B	5:00-6:00	863	NB	863	B
43	MB	Pine Tree Dr		S of 51st St	City Collector	Class IB	4D	8:00-9:00	1,422	SB	996	C	5:00-6:00	1,072	NB	742	C
44	MB	Pine Tree Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	361	NB	361	B	5:00-6:00	845	NB	845	B
45	MB		41st St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	3,883	WB	1,956	F	5:00-6:00	3,551	EB	2,209	E
46	MB		41st St	W of Alton Rd	State Major Arterial	Class II	6U	8:00-9:00	3,423	WB	1,894	F	5:00-6:00	3,027	EB	1,781	E
47	MB		41st St	W of Collins Ave	State Major Arterial	Class II	2U	8:00-9:00	611	WB	510	F	5:00-6:00	596	WB	410	E
48	MB		41st St	W of Indian Creek Dr	State Major Arterial	Class II	4U	8:00-9:00	2,514	WB	1,579	F	5:00-6:00	2,592	EB	1,593	E
49	MB		41st St	W of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	2,580	WB	1,502	F	5:00-6:00	2,590	EB	1,551	E
50	MB		43rd St	E of Alton Rd	City Local	Class II	4U	8:00-9:00	441	WB	308	D	5:00-6:00	486	WB	297	D
51	MB		43rd St	W of Alton Rd	City Local	Class II	4U	8:00-9:00	1,592	WB	1,297	D	5:00-6:00	948	EB	541	D
52	MB		47th St	W of Prarie/Chase	City Local	Class IB	2U	8:00-9:00	585	WB	356	C	5:00-6:00	341	EB	211	C

Table 6: Peak Hour Directional Link Levels of Service for Middle Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
53	MB		51st St	W of Pine Tree Dr	City Local	Class IA	2U	8:00-9:00	249	EB	144	B	5:00-6:00	212	EB	126	B
54	MB		63rd St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	2,694	WB	1,966	F	5:00-6:00	2,355	EB	1,450	F
55	MB		63rd St	E of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	3,823	WB	2,850	F	5:00-6:00	3,467	EB	2,197	F
56	MB		Dade Blvd	W of 23rd St	County Collector	Class II	4U	8:00-9:00	1,640	WB	1,065	D	5:00-6:00	1,996	EB	1,203	D
57	MB		Dade Blvd	W of Alton Rd	County Collector	Class II	4U	8:00-9:00	551	EB	284	D	5:00-6:00	612	WB	334	D
58	MB		Dade Blvd	W of Meridian Av	County Collector	Class II	4U	8:00-9:00	1,421	EB	777	D	5:00-6:00	1,423	EB	872	D
59	MB		Dade Blvd	W of Washington Ave	County Collector	Class II	4U	8:00-9:00	1,348	WB	917	D	5:00-6:00	1,536	WB	779	D

Table 6: Peak Hour Bidirectional Link Levels of Service for Middle Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
25	MB	East Alton Rd		N of 41st St	City Local	Class IA	4D	8:00-9:00	576	B	5:00-6:00	566	B
26	MB	Alton Rd		S of 43rd St	State Minor Arterial	Class IA	4D	8:00-9:00	3,980	F	5:00-6:00	2,975	C
27	MB	Alton Rd		N of 43rd St	State Minor Arterial	Class IA	4D	8:00-9:00	2,480	B	5:00-6:00	2,354	B
28	MB	Alton Rd		N of 51st St	State Minor Arterial	Class IA	4D	8:00-9:00	3,047	C	5:00-6:00	2,654	C
29	MB	Alton Rd		N of Dade Blvd	State Minor Arterial	Class IA	4D	8:00-9:00	2,910	C	5:00-6:00	3,231	D
30	MB	East Alton Rd		S of 41st St	City Local	Class IA	4U	8:00-9:00	510	B	5:00-6:00	433	B
31	MB	Collins Ave		5800 Block	State Major Arterial	Class II	6D	8:00-9:00	1,619	D	5:00-6:00	2,029	D
32	MB	Collins Ave		N of 41 / S of 44	State Major Arterial	Class II	3 OW	8:00-9:00	322	D	5:00-6:00	641	D
33	MB	Collins Ave		S of 63rd St	State Major Arterial	Class II	3 OW	8:00-9:00	608	D	5:00-6:00	1,292	D
34	MB	Collins Ave		S of Indian Creek Dr	State Major Arterial	Class II	6D	8:00-9:00	2,307	D	5:00-6:00	2,497	D
35	MB	Flamingo Dr		N of 37th St	City Local	Class IA	2U	8:00-9:00	33	B	5:00-6:00	49	B
36	MB	Indian Creek Dr		S of 37th St	State Major Arterial	Class IB	2 OW	8:00-9:00	652	C	5:00-6:00	792	C
37	MB	La Gorce Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	960	B	5:00-6:00	368	B
38	MB	La Gorce Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	878	B	5:00-6:00	336	B
39	MB	Pine Tree Dr		N of 37th St	City Collector	Class IB	4D	8:00-9:00	688	C	5:00-6:00	880	C
40	MB	Pine Tree Dr		N of 41st St	City Collector	Class IB	4D	8:00-9:00	968	C	5:00-6:00	1,067	C
41	MB	Pine Tree Dr		N of Dade Blvd	City Collector	Class IB	4D	8:00-9:00	1,293	C	5:00-6:00	1,704	C
42	MB	Pine Tree Dr		S of 63rd St	City Collector	Class IA	2 OW	8:00-9:00	375	B	5:00-6:00	863	C
43	MB	Pine Tree Dr		S of 51st St	City Collector	Class IB	4D	8:00-9:00	1,422	C	5:00-6:00	1,072	C
44	MB	Pine Tree Dr		S of 52nd St	City Collector	Class IA	2 OW	8:00-9:00	361	B	5:00-6:00	845	C
45	MB		41st St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	3,883	F	5:00-6:00	3,551	F
46	MB		41st St	W of Alton Rd	State Major Arterial	Class II	6U	8:00-9:00	3,423	D	5:00-6:00	3,027	D
47	MB		41st St	W of Collins Ave	State Major Arterial	Class II	2U	8:00-9:00	611	D	5:00-6:00	596	D
48	MB		41st St	W of Indian Creek Dr	State Major Arterial	Class II	4U	8:00-9:00	2,514	E	5:00-6:00	2,592	E
49	MB		41st St	W of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	2,580	E	5:00-6:00	2,590	E
50	MB		43rd St	E of Alton Rd	City Local	Class II	4U	8:00-9:00	441	D	5:00-6:00	486	D
51	MB		43rd St	W of Alton Rd	City Local	Class II	4U	8:00-9:00	1,592	D	5:00-6:00	948	D
52	MB		47th St	W of Prarie/Chase	City Local	Class IB	2U	8:00-9:00	585	C	5:00-6:00	341	C
53	MB		51st St	W of Pine Tree Dr	City Local	Class IA	2U	8:00-9:00	249	B	5:00-6:00	212	B

Table 6: Peak Hour Bidirectional Link Levels of Service for Middle Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
54	MB		63rd St	E of Alton Rd	State Major Arterial	Class II	4U	8:00-9:00	2,694	**E**	5:00-6:00	2,355	**E**
55	MB		63rd St	E of Pine Tree Dr	State Major Arterial	Class II	4U	8:00-9:00	3,823	**F**	5:00-6:00	3,467	**F**
56	MB		Dade Blvd	W of 23rd St	County Collector	Class II	4U	8:00-9:00	1,640	D	5:00-6:00	1,996	D
57	MB		Dade Blvd	W of Alton Rd	County Collector	Class II	4U	8:00-9:00	551	D	5:00-6:00	612	D
58	MB		Dade Blvd	W of Meridian Av	County Collector	Class II	4U	8:00-9:00	1,421	D	5:00-6:00	1,423	D
59	MB		Dade Blvd	W of Washington Ave	County Collector	Class II	4U	8:00-9:00	1,348	D	5:00-6:00	1,536	D

Table 6: Directional Link Levels of Service for Middle Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS						Evening LOS					
								Mid-Day Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Mid-Day LOS		Evening Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Evening LOS	
25	MB	East Alton Rd		N of 41st St	State Minor Arterial	Class IA	4D	12:00-1:00	605	NB	303	B		8:00-9:00	211	NB	126	B	
26	MB	Alton Rd		S of 43rd St	State Minor Arterial	Class IA	4D	12:00-1:00	2,525	SB	1,541	C		8:00-9:00	1,492	SB	870	B	
27	MB	Alton Rd		N of 43rd St	State Minor Arterial	Class IA	4D	12:00-1:00	1,744	SB	987	B		8:00-9:00	1,084	NB	552	B	
28	MB	Alton Rd		N of 51st St	State Minor Arterial	Class IA	4D	12:00-1:00	1,729	SB	930	B		8:00-9:00	1,168	NB	741	B	
29	MB	Alton Rd		N of Dade Blvd	State Minor Arterial	Class IA	4D	12:00-1:00	2,628	NB	1,333	B		8:00-9:00	1,575	NB	798	B	
30	MB	East Alton Rd		S of 41st St	State Minor Arterial	Class IA	4U	12:00-1:00	414	SB	216	B		8:00-9:00	247	SB	141	B	
31	MB	Collins Ave		5800 Block	State Major Arterial	Class II	6D	12:00-1:00	1,668	NB	897	D		8:00-9:00	1,539	NB	848	D	
32	MB	Collins Ave		N of 41 / S of 44	State Major Arterial	Class II	3 OW	12:00-1:00	558	NB	558	D		8:00-9:00	514	SB	514	D	
33	MB	Collins Ave		S of 63rd St	State Major Arterial	Class II	3 OW	12:00-1:00	925	NB	925	D		8:00-9:00	838	SB	838	D	
34	MB	Collins Ave		S of Indian Creek Dr	State Major Arterial	Class II	6D	12:00-1:00	2,157	SB	1,296	D		8:00-9:00	1,622	SB	944	D	
35	MB	Flamingo Dr		N of 37th St	City Local	Class IA	2U	12:00-1:00	49	NB	37	B		8:00-9:00	25	NB	13	B	
36	MB	Indian Creek Dr		S of 37th St	State Major Arterial	Class IB	2 OW	12:00-1:00	768	SB	768	C		8:00-9:00	786	SB	786	C	
37	MB	La Gorce Dr		S of 52nd St	City Collector	Class IA	2 OW	12:00-1:00	347	SB	347	B		8:00-9:00	202	SB	202	B	
38	MB	La Gorce Dr		S of 63rd St	City Collector	Class IA	2 OW	12:00-1:00	333	SB	333	B		8:00-9:00	205	SB	205	B	
39	MB	Pine Tree Dr		N of 37th St	City Collector	Class IB	4D	12:00-1:00	724	NB	396	C		8:00-9:00	647	NB	355	C	
	MB	Pine Tree Dr		N of 41st St	City Collector	Class IB	4D	12:00-1:00	818	NB	454	C		8:00-9:00	532	NB	344	C	
41	MB	Pine Tree Dr		N of Dade Blvd	City Collector	Class IB	4D	12:00-1:00	1,110	NB	586	C		8:00-9:00	927	NB	559	C	
42	MB	Pine Tree Dr		S of 63rd St	City Collector	Class IA	2 OW	12:00-1:00	404	NB	404	B		8:00-9:00	345	NB	345	B	
43	MB	Pine Tree Dr		S of 51st St	City Collector	Class IB	4D	12:00-1:00	803	SB	412	C		8:00-9:00	675	NB	424	C	
44	MB	Pine Tree Dr		S of 52nd St	City Collector	Class IA	2 OW	12:00-1:00	406	NB	406	B		8:00-9:00	362	NB	362	B	
45	MB		41st St	E of Alton Rd	State Major Arteria	Class II	4U	12:00-1:00	2,909	EB	1,540	E		8:00-9:00	1,770	EB	1,136	D	
46	MB		41st St	W of Alton Rd	State Major Arterial	Class II	6U	12:00-1:00	2,238	WB	1,123	D		8:00-9:00	1,499	EB	953	D	
47	MB		41st St	W of Collins Ave	State Major Arterial	Class II	2U	12:00-1:00	600	WB	423	D		8:00-9:00	344	WB	230	D	
48	MB		41st St	W of Indian Creek Dr	State Major Arterial	Class II	4U	12:00-1:00	2,126	WB	1,088	D		8:00-9:00	1,613	EB	998	D	
49	MB		41st St	W of Pine Tree Dr	State Major Arterial	Class II	4U	12:00-1:00	2,307	WB	1,195	D		8:00-9:00	1,545	EB	977	D	
50	MB		43rd St	E of Alton Rd	City Local	Class II	4U	12:00-1:00	469	WB	282	D		8:00-9:00	192	WB	125	D	
51	MB		43rd St	W of Alton Rd	City Local	Class II	4U	12:00-1:00	1,160	WB	703	D		8:00-9:00	296	EB	170	D	
52	MB		47th St	W of Prarie/Chase	City Local	Class IB	2U	12:00-1:00	315	WB	163	C		8:00-9:00	138	WB	71	C	

Table 6: Directional Link Levels of Service for Middle Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS						Evening LOS					
								Mid-Day Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Evening LOS
53	MB		51st St	W of Pine Tree Dr	City Local	Class IA	2U	12:00-1:00	173	EB	90	B	8:00-9:00	103	EB	56	B
54	MB		63rd St	E of Alton Rd	State Major Arterial	Class II	4U	12:00-1:00	1,483	WB	758	D	8:00-9:00	1,247	EB	685	D
55	MB		63rd St	E of Pine Tree Dr	State Major Arterial	Class II	4U	12:00-1:00	2,207	WB	1,120	D	8:00-9:00	1,673	EB	1,021	D
56	MB		Dade Blvd	W of 23rd St	County Collector	Class II	4U	12:00-1:00	1,510	EB	822	D	8:00-9:00	1,106	EB	657	D
57	MB		Dade Blvd	W of Alton Rd	County Collector	Class II	4U	12:00-1:00	496	WB	281	D	8:00-9:00	253	WB	152	D
58	MB		Dade Blvd	W of Meridian Av	County Collector	Class II	4U	12:00-1:00	1,163	EB	778	D	8:00-9:00	1,194	EB	623	D
59	MB		Dade Blvd	W of Washington Ave	County Collector	Class II	4U	12:00-1:00	1,215	WB	625	D	8:00-9:00	814	WB	416	D

Table 6: Bidirectional Link Levels of Service for Middle Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS			Evening LOS		
								Mid-Day Hour	Bi-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Evening LOS
25	MB	East Alton Rd		N of 41st St	State Minor Arterial	Class IA	4D	12:00-1:00	605	B	8:00-9:00	211	B
26	MB	Alton Rd		S of 43rd St	State Minor Arterial	Class IA	4D	12:00-1:00	2,525	B	8:00-9:00	1,492	B
27	MB	Alton Rd		N of 43rd St	State Minor Arterial	Class IA	4D	12:00-1:00	1,744	B	8:00-9:00	1,084	B
28	MB	Alton Rd		N of 51st St	State Minor Arterial	Class IA	4D	12:00-1:00	1,729	B	8:00-9:00	1,168	B
29	MB	Alton Rd		N of Dade Blvd	State Minor Arterial	Class IA	4D	12:00-1:00	2,628	C	8:00-9:00	1,575	B
30	MB	East Alton Rd		S of 41st St	State Minor Arterial	Class IA	4U	12:00-1:00	414	B	8:00-9:00	247	B
31	MB	Collins Ave		5800 Block	State Major Arterial	Class II	6D	12:00-1:00	1,668	D	8:00-9:00	1,539	D
32	MB	Collins Ave		N of 41 / S of 44	State Major Arteria	Class II	3 OW	12:00-1:00	558	D	8:00-9:00	514	D
33	MB	Collins Ave		S of 63rd St	State Major Arterial	Class II	3 OW	12:00-1:00	925	D	8:00-9:00	838	D
34	MB	Collins Ave		S of Indian Creek Dr	State Major Arterial	Class II	6D	12:00-1:00	2,157	D	8:00-9:00	1,622	D
35	MB	Flamingo Dr		N of 37th St	City Local	Class IA	2U	12:00-1:00	49	B	8:00-9:00	25	B
36	MB	Indian Creek Dr		S of 37th St	State Major Arterial	Class IB	2 OW	12:00-1:00	768	C	8:00-9:00	786	C
37	MB	La Gorce Dr		S of 52nd St	City Collector	Class IA	2 OW	12:00-1:00	347	B	8:00-9:00	202	B
38	MB	La Gorce Dr		S of 63rd St	City Collector	Class IA	2 OW	12:00-1:00	333	B	8:00-9:00	205	B
39	MB	Pine Tree Dr		N of 37th St	City Collector	Class IB	4D	12:00-1:00	724	C	8:00-9:00	647	C
40	MB	Pine Tree Dr		N of 41st St	City Collector	Class IB	4D	12:00-1:00	818	C	8:00-9:00	532	C
41	MB	Pine Tree Dr		N of Dade Blvd	City Collector	Class IB	4D	12:00-1:00	1,110	C	8:00-9:00	927	C
42	MB	Pine Tree Dr		S of 63rd St	City Collector	Class IA	2 OW	12:00-1:00	404	B	8:00-9:00	345	B
43	MB	Pine Tree Dr		S of 51st St	City Collector	Class IB	4D	12:00-1:00	803	C	8:00-9:00	675	C
44	MB	Pine Tree Dr		S of 52nd St	City Collector	Class IA	2 OW	12:00-1:00	406	B	8:00-9:00	362	B
45	MB		41st St	E of Alton Rd	State Major Arterial	Class II	4U	12:00-1:00	2,909	E	8:00-9:00	1,770	D
46	MB		41st St	W of Alton Rd	State Major Arterial	Class II	6U	12:00-1:00	2,238	D	8:00-9:00	1,499	D
47	MB		41st St	W of Collins Ave	State Major Arterial	Class II	2U	12:00-1:00	600	D	8:00-9:00	344	D
48	MB		41st St	W of Indian Creek Dr	State Major Arterial	Class II	4U	12:00-1:00	2,126	D	8:00-9:00	1,613	D
49	MB		41st St	W of Pine Tree Dr	State Major Arterial	Class II	4U	12:00-1:00	2,307	D	8:00-9:00	1,545	D
50	MB		43rd St	E of Alton Rd	City Local	Class II	4U	12:00-1:00	469	D	8:00-9:00	192	D
51	MB		43rd St	W of Alton Rd	City Local	Class II	4U	12:00-1:00	1,160	D	8:00-9:00	296	D
52	MB		47th St	W of Prarie/Chase	City Local	Class IB	2U	12:00-1:00	315	C	8:00-9:00	138	C
53	MB		51st St	W of Pine Tree Dr	City Local	Class IA	2U	12:00-1:00	173	B	8:00-9:00	103	B

Table 6: Bidirectional Link Levels of Service for Middle Beach Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS			Evening LOS		
								Mid-Day Hour	Bi-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Evening LOS
54	MB		63rd St	E of Alton Rd	State Major Arterial	Class II	4U	12:00-1:00	1,483	D	8:00-9:00	1,247	D
55	MB		63rd St	E of Pine Tree Dr	State Major Arterial	Class II	4U	12:00-1:00	2,207	D	8:00-9:00	1,673	D
56	MB		Dade Blvd	W of 23rd St	County Collector	Class II	4U	12:00-1:00	1,510	D	8:00-9:00	1,106	D
57	MB		Dade Blvd	W of Alton Rd	County Collector	Class II	4U	12:00-1:00	496	D	8:00-9:00	253	D
58	MB		Dade Blvd	W of Meridian Av	County Collector	Class II	4U	12:00-1:00	1,163	D	8:00-9:00	1,194	D
59	MB		Dade Blvd	W of Washington Ave	County Collector	Class II	4U	12:00-1:00	1,215	D	8:00-9:00	814	D

Table 7: Intersection Levels of Service for Middle Beach

Ref No.	N-S Road	E-W Road	Jurisdiction & Functional Classification	AM Peak Hour LOS			Mid-Day Peak Hour LOS			PM Peak Hour LOS		
				AM Peak Hour	Intersection Delay (sec/veh)	Intersection LOS	Mid-Day Peak Hour	Intersection Delay (sec/veh)	Intersection LOS	PM Peak Hour	Intersection Delay (sec/veh)	Intersection LOS
61	23rd St	Dade Blvd	SMnA/DCMnA							5:00-6:00	25.0	C
62	Alton Rd	41st St	SMnA/SMjA	8:00-9:00	*	F				4:30-5:30	*	F
63	Alton Rd	47th St	SMnA/CL	7:45-8:45	*	F				5:00-6:00	*	F
64	Alton Rd	43rd St	SMnA/CL	7:45-8:45	*	F	12:15-1:15	*	F	5:00-6:00	*	F
65	Alton Rd	Chase Ave	SMnA/CL	8:00-9:00	21.0	C				4:45-5:45	9.0	B
66	Alton Rd	Michigan Ave	SMnA/CL	8:00-9:00	*	F	12:30-1:30	*	F	5:00-6:00	*	F
67	Alton Rd	20th St	SMnA/CL	8:00-9:00	31.7	D	12:30-1:30	11.4	B	4:30-5:30	13.6	B
68	Alton Rd	Dade Blvd	SMnA/DCMnA	8:00-9:00	16.7	C				4:30-5:30	22.8	C
69	Collins / Indian Creek	44th St	SMnA/SMnA							5:00-6:00	9.8	B
70	Collins Av	29th St	SMjA/CL				12:30-1:30	8.5	B	5:00-6:00	8.9	B
71	Collins Av	41st St	SMnA/SMjA							4:00-5:00	5.9	B
72	Collins Ave	63rd St	SMnA/SMnA							4:15-5:15	11.0	B
73	Collins Ave	5800 Block	SMnA/SMnA							5:00-6:00	6.3	B
74	Indian Creek Dr	41st St	SMjA/SMjA							5:00-6:00	*	F
75	Indian Creek Dr	63rd St	SMnA/SMnA							4:45-5:45	38.4	D
76	Pine Tree Dr	41st St	CC/SMjA	8:00-9:00	*	F	11:30-12:30	19.8	C	5:00-6:00	*	F
77	Sheridan Ave	41st St	CL/SMjA	8:15-9:15	10.1	B				5:00-6:00	11.7	B
78	Royal Palm Ave	41st St	CL/SMjA	8:30-9:30	10.1	B				4:00-5:00	11.6	B
79	Prarie Ave	41st St	CC/SMjA	8:30-9:30	17.0	C				4:30-5:30	11.2	B
80	N Meridian Ave	41st St	CL/SMjA	8:15-9:15	51.6	E				4:30-5:30	16.4	C
81	Pine Tree Dr	47th St	CC/CL							4:30-5:30	8.8	B
82	Pine Tree Dr	51st St	CC/CL							4:30-5:30	9.0	B
83	Pine Tree Dr	63rd St	CC/SMnA							4:45-5:45	17.3	C
84	Prarie Ave/Convention Center Dr	Dade Blvd	CC/DcMnA	8:00-9:00	11.1	B				4:45-5:45	12.3	B
85	Meridian Ave	Dade Blvd	CC/DcMnA	8:00-9:00	11.6	B				4:45-5:45	11.7	B
86	Washington Ave	Dade Blvd	CC/DCMnA							5:00-6:00	*	F

South Beach Level of Service Analysis

Table 8 presents link levels of service for South Beach. Among the north-south roadways, Alton Road, Collins Avenue and Ocean Drive are operating below the adopted level of service standard (LOS D) on a bi-directional basis. Among the east-west roadways, the MacArthur Causeway (I-395) is operating below the adopted standard on a bi-directional basis. Additionally, 15th and 16th Streets are operating below the adopted standard on a directional basis. Roadways operating below the adopted standard are discussed in more detail below.

- Alton Road, from 5th Street to Dade Boulevard – This segment of Alton Road is primarily a four-lane undivided arterial. On a bi-directional basis, the portion of Alton Road between 11th Street and 17th Street operates at LOS F during the peak hours. The portions of Alton Road between 8th Street and 11th Street and between 17th Street and Dade Boulevard operate at LOS E. A more detailed directional analysis of the entire segment of Alton Road from 5th Street to Dade Boulevard was conducted utilizing the ART_PLAN software. Results indicate that Alton Road operates at LOS D during the AM peak hour and LOS E during the PM peak hour.

- Collins Avenue, from 5th Street to 17th Street – This segment of Collins Avenue is primarily a two-lane undivided arterial with few exclusive turn-lanes at its intersections. Results of the bi-directional level of service analysis indicate that segments of Collins Avenue are operating below LOS D during both the AM and PM peak hours. However, a detailed directional analysis conducted with the ART_PLAN software indicated that Collins Avenue is operating at LOS C during the AM peak hour and LOS D during the PM peak hour.

- Ocean Drive, from 5th Street to 10th Street – This segment of Ocean Drive is a two-lane undivided roadway. Parking and pedestrian activities often impede the movement of traffic along this section. Also unique are the hours of peak traffic volumes, which occur between 10:00 PM and 1:00 AM. On a bi-directional basis, Ocean Drive operates at LOS F during both the AM and PM peak hours. If examined on a directional basis, the performance improves to LOS E during the AM peak hour.

- MacArthur Causeway (I-395) – The MacArthur Causeway is a six-lane divided arterial that connects the City to the mainland. The bi-directional level of service analysis indicated that the Causeway was operating at LOS F during both the AM and PM peak hours. However, the bi-directional capacities contained in FDOT's *LOS Manual*, upon which the level of service results are based, have a number of built-in assumptions that are not representative of operating conditions on the Causeway. For example, the capacities in the *LOS Manual* assume that a roadway receives 45% of the green time at its signalized intersections. The Causeway actually receives approximately 70% of the green time at its signalized intersections. Therefore, a detailed directional analysis conducted with the ART_PLAN software demonstrated that the Causeway is operating at LOS A and LOS B during the AM and PM peak hours, respectively.

- 15th Street, from Alton Road to Washington Avenue – 15th Street is a two-lane undivided roadway, which functions as a collector. The roadway satisfies the adopted level of service standard, as it operates at LOS D on a bi-directional basis during the PM peak hour. However, a detailed directional analysis conducted with the ART_PLAN software indicated that 15th Street operates at LOS E during the PM peak hour.

- 16th Street, from Alton Road to Washington Avenue – 16th Street is a two-lane undivided roadway, which functions as a collector. The roadway satisfies the adopted level of service standard, as it operates at LOS D on a bi-directional basis during the PM peak hour. However, a detailed directional analysis conducted with the ART_PLAN software indicated that 16th Street operates at LOS E during the PM peak hour.

Intersection levels of service for South Beach are presented in Table 9. Most intersections are operating at an acceptable level of service. However, several intersections (in particular, along Alton Road) are performing poorly. Intersections operating below acceptable standards include the following:

- Alton Road at 11th Street – This intersection is operating at LOS F during the AM and PM peak hours. Excessive delay for southbound left-turns is causing the performance of this intersection to fall below acceptable standards.

- Alton Road at 15th Street – This intersection is operating at LOS F during the AM, mid-day and PM peak hours. Excessive delay for southbound left-turns is causing the performance of this intersection to fall below acceptable standards.

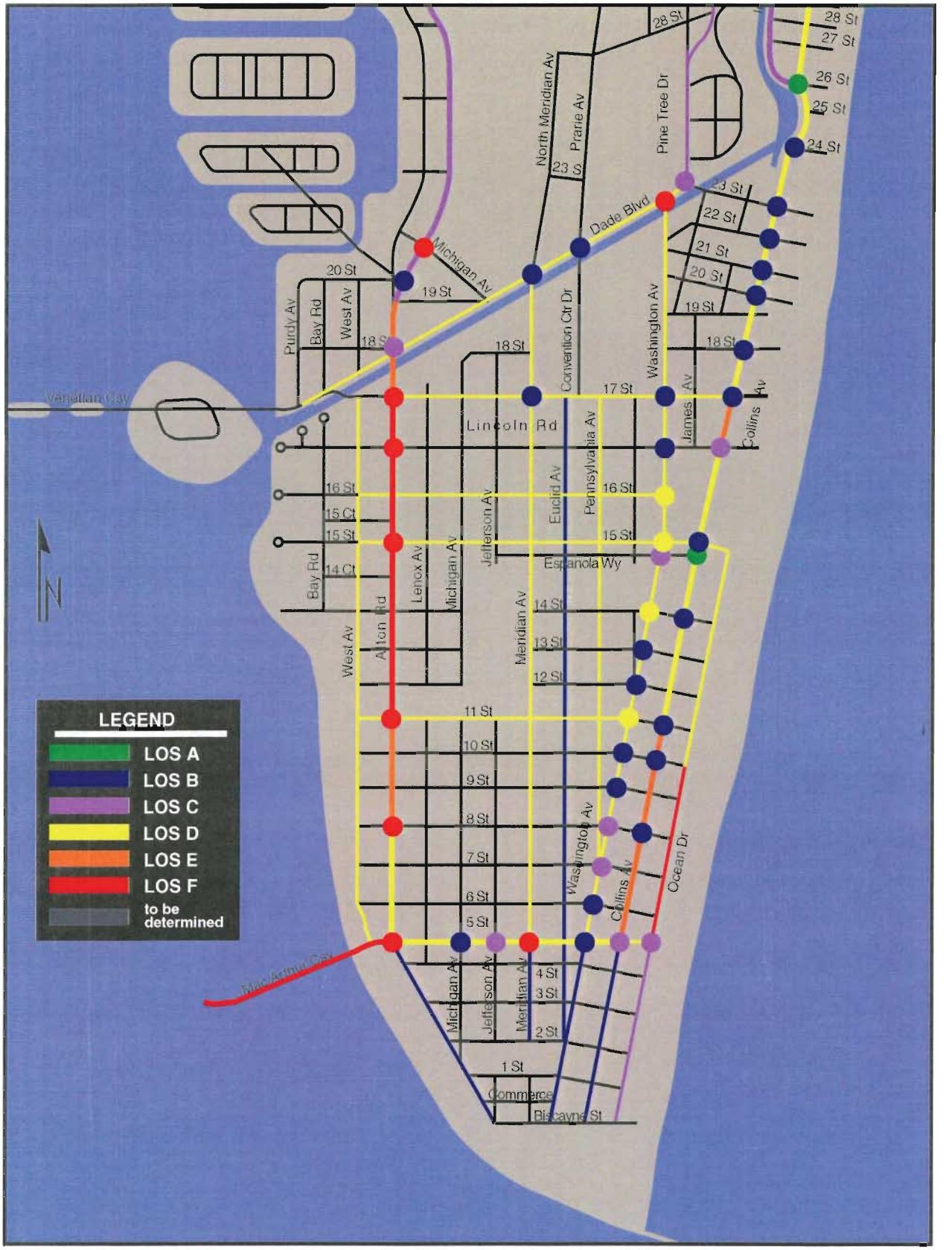
- Alton Road at 17th Street - This intersection is operating at LOS F during the AM, mid-day and PM peak hours. Excessive delay for southbound left-turns is causing the performance of this intersection to fall below acceptable standards during the AM peak hour. During the mid-day peak hour, the southbound, eastbound and westbound left-turning movements are experiencing excessive delays. The performance of the southbound approach, as well as excessive delays for eastbound and westbound left-turns, are causing the intersection to operate below an acceptable level of service in the afternoon peak hour.

- Alton Road at 5th Street - This intersection is operating at LOS F during the PM peak hour. Excessive delay for southbound left-turns is causing the poor performance.

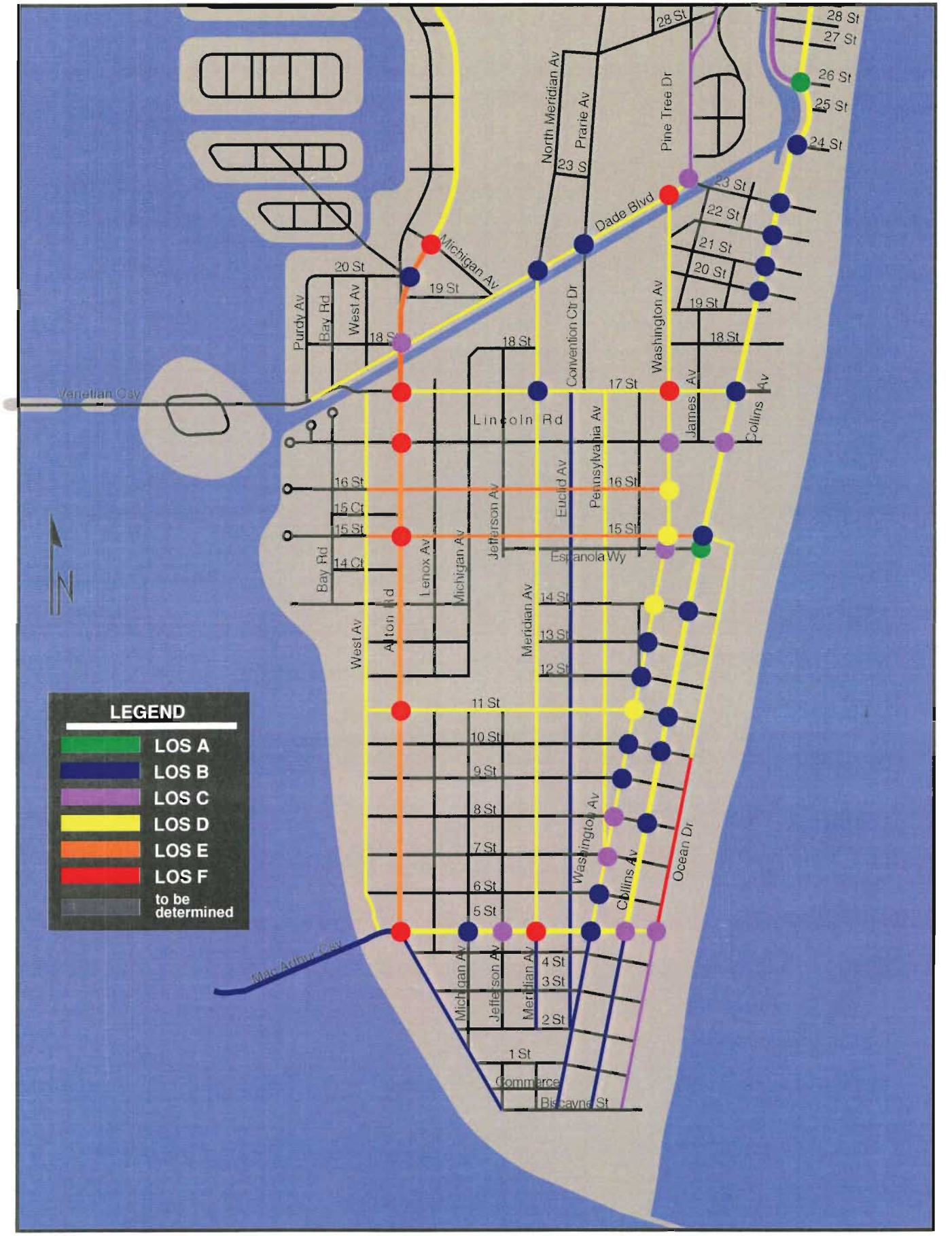
- Alton Road at Lincoln Road - This intersection is operating at LOS F during the mid-day and PM peak hours. Excessive delay for northbound left-turns movement is causing the poor performance.

- Meridian Avenue at 5th Street – This intersection is operating at LOS F during the PM peak hour. The poor performance is the result of excessive delay for the eastbound left-turn movement.

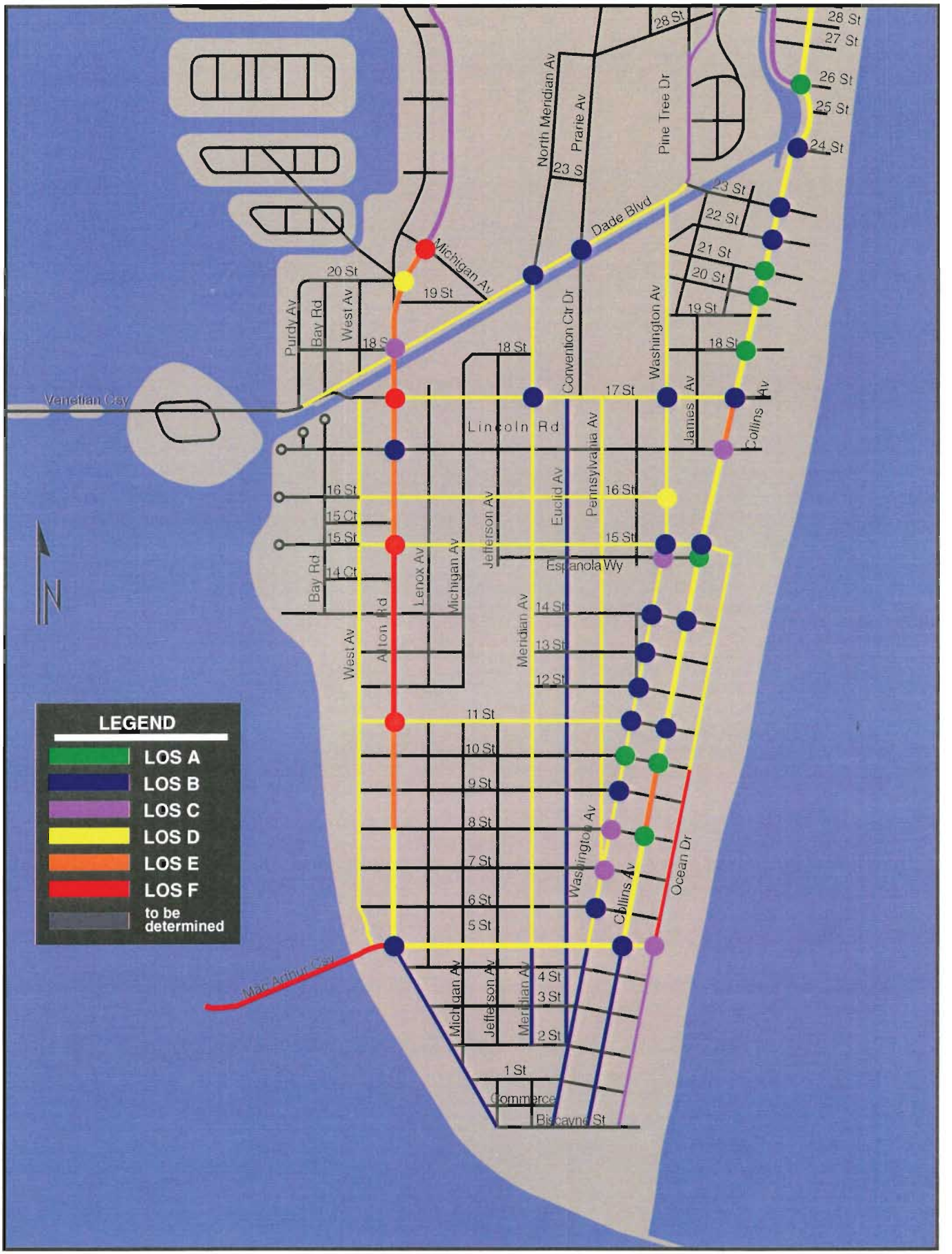
- Washington Avenue at 17th Street - This intersection is operating at LOS F during the PM peak hour. Excessive delay for eastbound left-turns is causing the poor performance.



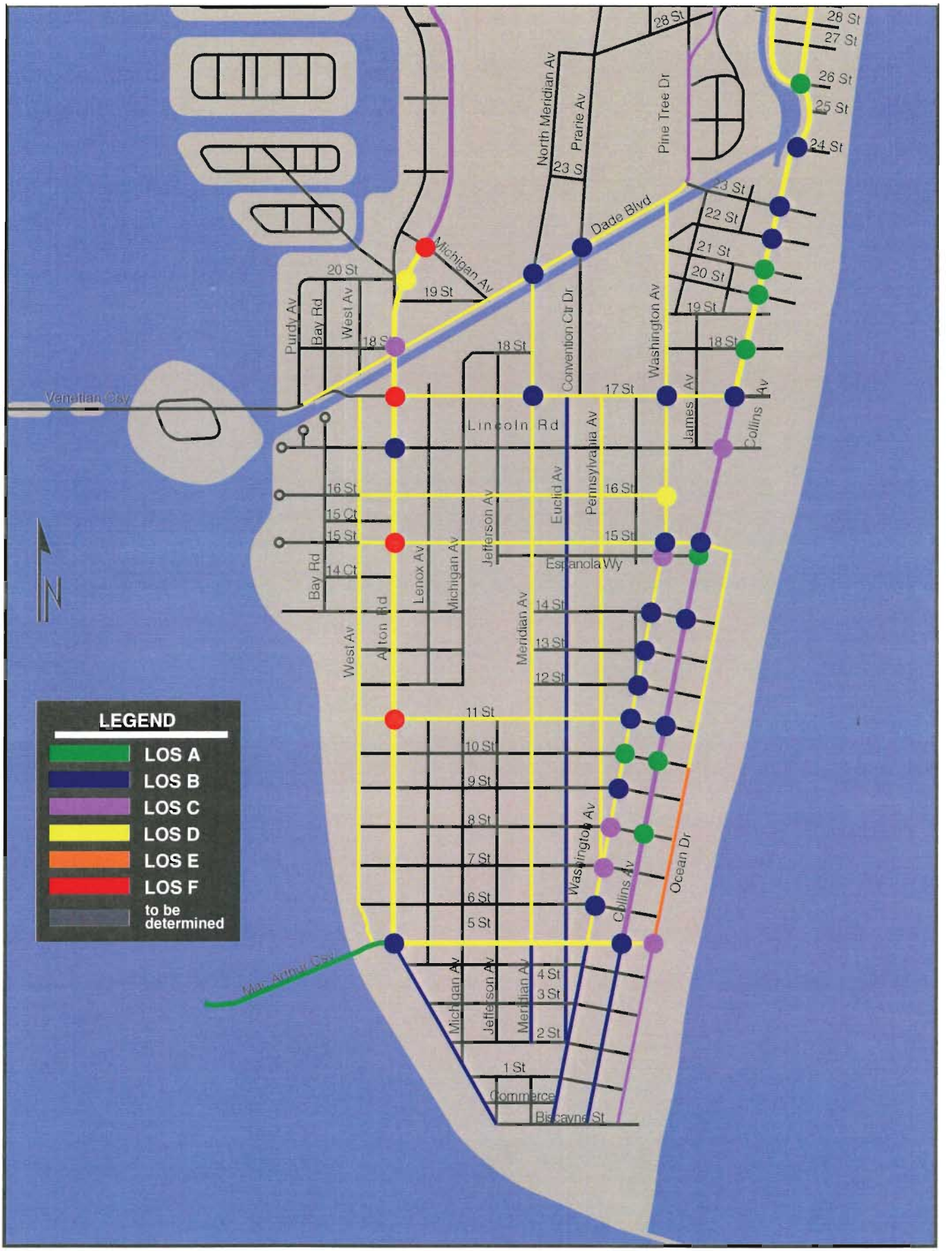
South Beach AM Peak, Bidirectional Level of Service
Figure 15



South Beach PM Peak, Peak-Direction Level of Service
Figure 16



South Beach AM Peak, Bidirectional Level of Service
Figure 17



South Beach AM Peak, Peak-Direction Level of Service
Figure 18

Table 8: Directional Link Levels of Service for South Beach - PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
90	SB	Alton Rd		N of 14th St	State Minor Arterial	Class II	4U	11:30-12:30	3,215	NB	1,754	D	5:00-6:00	3,992	NB	2,319	E
91	SB	Alton Rd		N of 5th St	State Minor Arterial	Class II	4D	8:00-9:00	1,185	SB	1,053	D	2:00-3:00	1,062	SB	763	E
92	SB	Alton Rd		N of 8th St	State Minor Arterial	Class II	4U	7:45-8:45	2,359	SB	1,327	D	5:30-6:30	2,746	NB	1,747	E
93	SB	Alton Rd		S of 5th St	City Collector	Class IA	4D	8:00-9:00	873	SB	529	B	3:00-4:00	926	NB	552	B
94	SB	Alton Rd		S of Dade Blvd	State Minor Arterial	Class II	4D	11:00-12:00	2,500	SB	1,256	D	6:00-7:00	3,047	NB	1,544	E
95	SB	Alton Rd		S of 17th St	State Minor Arterial	Class II	4U	11:30-12:30	2,536	NB	1,333	D	5:00-6:00	3,073	NB	1,784	E
96	SB	Collins Ave		N of 13th St	State Major Arterial	Class II	2U	10:15-11:15	780	SB	511	C	3:00-4:00	954	SB	547	D
97	SB	Collins Ave		N of 5th St	State Major Arterial	Class II	2U	11:15-12:15	1,053	SB	719	C	2:45-3:45	1,207	SB	845	D
98	SB	Collins Ave		N of 8th St	State Major Arterial	Class II	2U	11:30-12:30	1,306	SB	826	C	3:30-4:30	1,553	SB	997	D
99	SB	Collins Ave		S of 24th St	State Major Arterial	Class II	4U	11:00-12:00	1,786	SB	921	D	4:45-5:45	1,881	NB	1,134	D
100	SB	Collins Ave		S of 5th St	State Major Arterial	Class IA	2U	11:00-12:00	274	SB	171	B	2:00-3:00	337	SB	207	B
101	SB	Collins Ave		N of Lincoln Rd	State Major Arterial	Class II	2U	11:30-12:30	1,317	SB	703	C	4:45-5:45	1,379	NB	773	D
102	SB	Euclid Ave		N of 13th St	City Local	Class IA	2U	11:15-12:15	272	NB	150	B	5:15-6:15	349	NB	200	B
103	SB	Jefferson Ave		S of 5th St	City Local	Class IA	2U	8:00-9:00	108	NB	62	B	4:00-5:00	93	SB	49	B
104	SB	Meridian Ave		N of 14th St	City Collector	Class II	2U	11:15-12:15	743	NB	384	D	5:00-6:00	974	SB	495	D
105	SB	Meridian Ave		N of 5th St	City Collector	Class II	2U	8:00-9:00	266	SB	163	D	5:00-6:00	325	SB	168	D
106	SB	Meridian Ave		S of 11th St	City Collector	Class II	2U	8:00-9:00	318	SB	180	D	4:00-5:00	474	SB	280	D
107	SB	Meridian Ave		S of 5th St	City Local	Class IA	2U	11:00-12:00	99	SB	51	B	3:00-4:00	122	SB	62	B
108	SB	Ocean Dr		N of 13th St	City Local	Other Signalized Rd	2U	11:30-12:30	619	NB	322	D	2:00-3:00	868	SB	494	D
109	SB	Ocean Dr		N of 8th St	City Local	Other Signalized Rd	2U	**12:00-1:00**	1,080	NB	563	**E**	**10:30-11:30**	1,241	NB	738	**F**
110	SB	Ocean Dr		S of 5th St	City Local	Other Signalized Rd	2U	11:00-12:00	308	NB	167	C	12:00-1:00	402	NB	202	C
111	SB	Pennsylvania Ave		N of 13th St	City Local	Class II	2U	10:30-11:30	290	SB	157	D	5:00-6:00	445	SB	254	D
112	SB	Washington Ave		N of 13th St	City Collector	Class II	4D	**12:00-1:00**	1,657	SB	984	D	5:00-6:00	1,850	SB	1,054	D
113	SB	Washington Ave		N of 5th St	City Collector	Class II	4D	11:30-12:30	966	SB	590	D	12:00-1:00	1,003	SB	617	D
114	SB	Washington Ave		N of 8th St	City Collector	Class II	4D	11:15-12:15	1,475	SB	748	D	1:45-2:45	1,678	SB	870	D
115	SB	Washington Ave		S of 5th St	City Collector	Class IA	4D	11:00-12:00	383	NB	192	B	3:00-4:00	599	NB	308	B
116	SB	Washington Ave		S of Dade Blvd	City Collector	Class II	4U	11:30-12:30	961	SB	592	D	4:45-5:45	1,246	NB	748	D
117	SB	Washington Ave		N of Lincoln Rd	City Collector	Class II	4D	11:00-12:00	865	SB	482	D	3:00-4:00	998	SB	535	D
118	SB	West Ave		N of 8th St	City Local	Class IB	2U	7:45-8:45	1,072	SB	921	D	5:15-6:15	830	SB	469	D

Table 8: Directional Link Levels of Service for South Beach - PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
119	SB		11th St	W of Meridian Ave	City Collector	Class II	2U	8:00-9:00	599	EB	331	D	5:30-6:30	751	EB	381	D
120	SB		15th St	W of Meridian Ave	City Local	Class II	2U	11:30-12:30	781	EB	499	D	2:45-3:45	1,041	EB	691	E
121	SB		16th St	W of Meridian Ave	City Local	Class II	2U	11:30-12:30	911	WB	535	D	3:00-4:00	1,021	WB	641	E
122	SB		17th St	E of Pennsylvania Ave	City Collector	Class II	4U	11:30-12:30	1,258	EB	689	D	3:15-4:15	1,373	EB	769	D
123	SB		17th St	E of Alton Rd	City Collector	Class II	4U	9:00-10:00	973	EB	599	D	3:00-4:00	985	EB	528	D
124	SB		5th St	E of Alton Rd	State Major Arterial	Class II	6D	11:00-12:00	2,112	EB	1,090	D	5:00-6:00	2,184	EB	1,154	D
125	SB		5th St	E of Washington Ave	State Major Arterial	Class II	6D	11:00-12:00	1,122	WB	589	D	3:00-4:00	1,262	WB	687	D
126	SB		5th St	W of Meridian Ave	State Major Arterial	Class II	6D	11:00-12:00	2,230	WB	1,149	D	4:00-5:00	2,501	WB	1,402	D
127	SB		I-395	W of Alton Rd	State Major Arterial	Class IA	6D	8:00-9:00	5,019	WB	3,079	A	5:00-6:00	5,720	EB	3,123	B

Table 8: Bidirectional Link Levels of Service for South Beach
PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
90	SB	Alton Rd		N of 14th St	State Minor Arterial	Class II	4U	11:30-12:30	3,215	F	5:00-6:00	3,992	F
91	SB	Alton Rd		N of 5th St	State Minor Arterial	Class II	4D	8:00-9:00	1,185	D	2:00-3:00	1,062	D
92	SB	Alton Rd		N of 8th St	State Minor Arterial	Class II	4U	7:45-8:45	2,359	E	5:30-6:30	2,746	E
93	SB	Alton Rd		S of 5th St	City Collector	Class IA	4D	8:00-9:00	873	B	3:00-4:00	926	B
94	SB	Alton Rd		S of Dade Blvd	State Minor Arterial	Class II	4D	11:00-12:00	2,500	E	6:00-7:00	3,047	E
95	SB	Alton Rd		S of 17th St	State Minor Arterial	Class II	4U	11:30-12:30	2,536	E	5:00-6:00	3,073	F
96	SB	Collins Ave		N of 13th St	State Major Arterial	Class II	2U	10:15-11:15	780	D	3:00-4:00	954	D
97	SB	Collins Ave		N of 5th St	State Major Arterial	Class II	2U	11:15-12:15	1,053	D	2:45-3:45	1,207	E
98	SB	Collins Ave		N of 8th St	State Major Arterial	Class II	2U	11:30-12:30	1,306	E	3:30-4:30	1,553	F
99	SB	Collins Ave		S of 24th St	State Major Arterial	Class II	4U	11:00-12:00	1,786	D	4:45-5:45	1,881	D
100	SB	Collins Ave		S of 5th St	State Major Arterial	Class IA	2U	11:00-12:00	274	B	2:00-3:00	337	B
101	SB	Collins Ave		N of Lincoln Rd	State Major Arterial	Class II	2U	11:30-12:30	1,317	E	4:45-5:45	1,379	E
102	SB	Euclid Ave		N of 13th St	City Local	Class IA	2U	11:15-12:15	272	B	5:15-6:15	349	B
103	SB	Jefferson Ave		S of 5th St	City Local	Class IA	2U	8:00-9:00	108	B	4:00-5:00	93	B
104	SB	Meridian Ave		N of 14th St	City Collector	Class II	2U	11:15-12:15	743	D	5:00-6:00	974	D
105	SB	Meridian Ave		N of 5th St	City Collector	Class II	2U	8:00-9:00	266	D	5:00-6:00	325	D
106	SB	Meridian Ave		S of 11th St	City Collector	Class II	2U	8:00-9:00	318	D	4:00-5:00	474	D
107	SB	Meridian Ave		S of 5th St	City Local	Class IA	2U	11:00-12:00	99	B	3:00-4:00	122	B
108	SB	Ocean Dr		N of 13th St	City Local	Other Signalized Rd	2U	11:30-12:30	619	D	2:00-3:00	868	D
109	SB	Ocean Dr		N of 8th St	City Local	Other Signalized Rd	2U	**12:00-1:00**	1,080	F	**10:30-11:30**	1,241	F
110	SB	Ocean Dr		S of 5th St	City Local	Other Signalized Rd	2U	11:00-12:00	308	C	12:00-1:00	402	C
111	SB	Pennsylvania Ave		N of 13th St	City Local	Class II	2U	10:30-11:30	290	D	5:00-6:00	445	D
112	SB	Washington Ave		N of 13th St	City Collector	Class II	4D	12:00-1:00	1,657	D	5:00-6:00	1,850	D
113	SB	Washington Ave		N of 5th St	City Collector	Class II	4D	11:30-12:30	966	D	12:00-1:00	1,003	D
114	SB	Washington Ave		N of 8th St	City Collector	Class II	4D	11:15-12:15	1,475	D	1:45-2:45	1,678	D
115	SB	Washington Ave		S of 5th St	City Collector	Class IA	4D	11:00-12:00	383	B	3:00-4:00	599	B
116	SB	Washington Ave		S of Dade Blvd	City Collector	Class II	4U	11:30-12:30	961	D	4:45-5:45	1,246	D
117	SB	Washington Ave		N of Lincoln Rd	City Collector	Class II	4D	11:00-12:00	865	D	3:00-4:00	998	D
118	SB	West Ave		N of 8th St	City Local	Class IB	2U	7:45-8:45	1,072	D	5:15-6:15	830	D

Table 8: Bidirectional Link Levels of Service for South Beach
PM and AM Peak

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
119	SB		11th St	W of Meridian Ave	City Collector	Class II	2U	8:00-9:00	599	D	5:30-6:30	751	D
120	SB		15th St	W of Meridian Ave	City Local	Class II	2U	11:30-12:30	781	D	2:45-3:45	1,041	D
121	SB		16th St	W of Meridian Ave	City Local	Class II	2U	11:30-12:30	911	D	3:00-4:00	1,021	D
122	SB		17th St	E of Pennsylvania Ave	City Collector	Class II	4U	11:30-12:30	1,258	D	3:15-4:15	1,373	D
123	SB		17th St	E of Alton Rd	City Collector	Class II	4U	9:00-10:00	973	D	3:00-4:00	985	D
124	SB		5th St	E of Alton Rd	State Major Arterial	Class II	6D	11:00-12:00	2,112	D	5:00-6:00	2,184	D
125	SB		5th St	E of Washington Ave	State Major Arterial	Class II	6D	11:00-12:00	1,122	D	3:00-4:00	1,262	D
126	SB		5th St	W of Meridian Ave	State Major Arterial	Class II	6D	11:00-12:00	2,230	D	4:00-5:00	2,501	D
127	SB		I-395	W of Alton Rd	State Major Arterial	Class IA	6D	8:00-9:00	5,019	F	5:00-6:00	5,720	F

Table 8: Peak Hour Directional Link Levels of Service for South Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref-No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
90	SB	Alton Rd		N of 14th St	State Minor Arterial	Class II	4U	8:00-9:00	2,940	NB	1,574	D	5:00-6:00	3,992	NB	2,319	E
91	SB	Alton Rd		N of 5th St	State Minor Arterial	Class II	4D	8:00-9:00	1,185	SB	1,053	D	5:00-6:00	1,017	SB	751	E
92	SB	Alton Rd		N of 8th St	State Minor Arterial	Class II	4U	8:00-9:00	2,351	SB	1,282	D	5:00-6:00	2,701	NB	1,705	E
93	SB	Alton Rd		S of 5th St	City Collector	Class IA	4D	8:00-9:00	873	SB	529	B	5:00-6:00	803	NB	421	B
94	SB	Alton Rd		S of Dade Blvd	State Minor Arterial	Class II	4D	8:00-9:00	2,463	SB	1,347	D	5:00-6:00	3,047	NB	1,544	E
95	SB	Alton Rd		S of 17th St	State Minor Arterial	Class II	4U	8:00-9:00	2,420	NB	1,222	D	5:00-6:00	3,073	NB	1,784	E
96	SB	Collins Ave		N of 13th St	State Major Arterial	Class II	2U	8:00-9:00	501	SB	363	C	5:00-6:00	922	SB	464	D
97	SB	Collins Ave		N of 5th St	State Major Arterial	Class II	2U	8:00-9:00	782	SB	510	C	5:00-6:00	952	SB	561	D
98	SB	Collins Ave		N of 8th St	State Major Arterial	Class II	2U	8:00-9:00	912	SB	573	C	5:00-6:00	1,356	SB	841	D
99	SB	Collins Ave		S of 24th St	State Major Arterial	Class II	4U	8:00-9:00	1,418	SB	899	D	5:00-6:00	1,875	NB	1,138	D
100	SB	Collins Ave		S of 5th St	State Major Arterial	Class IA	2U	8:00-9:00	171	SB	98	B	5:00-6:00	286	SB	168	B
101	SB	Collins Ave		N of Lincoln Rd	State Major Arterial	Class II	2U	8:00-9:00	923	SB	524	C	5:00-6:00	1,333	NB	725	D
102	SB	Euclid Ave		N of 13th St	City Local	Class IA	2U	8:00-9:00	264	SB	141	B	5:00-6:00	340	NB	196	B
103	SB	Jefferson Ave		S of 5th St	City Local	Class IA	2U	8:00-9:00	108	NB	62	B	5:00-6:00	78	NB	39	B
104	SB	Meridian Ave		N of 14th St	City Collector	Class II	2U	8:00-9:00	725	SB	382	D	5:00-6:00	974	SB	495	D
105	SB	Meridian Ave		N of 5th St	City Collector	Class II	2U	8:00-9:00	266	SB	163	D	5:00-6:00	325	SB	168	D
106	SB	Meridian Ave		S of 11th St	City Collector	Class II	2U	8:00-9:00	318	SB	180	D	5:00-6:00	448	SB	280	D
107	SB	Meridian Ave		S of 5th St	City Local	Class IA	2U	8:00-9:00	82	SB	44	B	5:00-6:00	100	SB	56	B
108	SB	Ocean Dr		N of 13th St	City Local	Other Signalized Rd	2U	8:00-9:00	231	NB	127	C	5:00-6:00	632	NB	324	D
109	SB	Ocean Dr		N of 8th St	City Local	Other Signalized Rd	2U	8:00-9:00	569	NB	291	D	5:00-6:00	919	SB	481	D
110	SB	Ocean Dr		S of 5th St	City Local	Other Signalized Rd	2U	8:00-9:00	168	NB	90	C	5:00-6:00	291	NB	147	C
111	SB	Pennsylvania Ave		N of 13th St	City Local	Class II	2U	8:00-9:00	66	SB	34	D	5:00-6:00	445	SB	254	D
112	SB	Washington Ave		N of 13th St	City Collector	Class II	4D	8:00-9:00	672	NB	393	D	5:00-6:00	1,850	SB	1,054	D
113	SB	Washington Ave		N of 5th St	City Collector	Class II	4D	8:00-9:00	610	SB	348	D	5:00-6:00	919	SB	474	D
114	SB	Washington Ave		N of 8th St	City Collector	Class II	4D	8:00-9:00	965	SB	489	D	5:00-6:00	1,502	SB	786	D
115	SB	Washington Ave		S of 5th St	City Collector	Class IA	4D	8:00-9:00	194	SB	104	B	5:00-6:00	399	NB	224	B
116	SB	Washington Ave		S of Dade Blvd	City Collector	Class II	4U	8:00-9:00	802	SB	665	D	5:00-6:00	1,244	NB	758	D
117	SB	Washington Ave		N of Lincoln Rd	City Collector	Class II	4D	8:00-9:00	794	SB	447	D	5:00-6:00	883	NB	457	D

Table 8: Peak Hour Directional Link Levels of Service for South Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS					PM Peak Hour LOS				
								AM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
118	SB	West Ave		N of 8th St	City Local	Class IB	2U	8:00-9:00	1,057	SB	881	D	5:00-6:00	829	SB	470	D
119	SB		11th St	W of Meridian Ave	City Collector	Class II	2U	8:00-9:00	599	EB	331	D	5:00-6:00	710	EB	375	D
120	SB		15th St	W of Meridian Ave	City Local	Class II	2U	8:00-9:00	766	EB	484	D	5:00-6:00	969	EB	600	E
121	SB		16th St	W of Meridian Ave	City Local	Class II	2U	8:00-9:00	763	WB	429	D	5:00-6:00	1,003	WB	600	E
122	SB		17th St	E of Pennsylvania Ave	City Collector	Class II	4U	8:00-9:00	912	EB	483	D	5:00-6:00	1,250	EB	742	D
123	SB		17th St	E of Alton Rd	City Collector	Class II	4U	8:00-9:00	940	EB	572	D	5:00-6:00	996	EB	510	D
124	SB		5th St	E of Alton Rd	State Major Arterial	Class II	6D	8:00-9:00	2,022	WB	1,077	D	5:00-6:00	2,184	EB	1,154	D
125	SB		5th St	E of Washington Ave	State Major Arterial	Class II	6D	8:00-9:00	923	WB	515	D	5:00-6:00	1,118	EB	643	D
126	SB		5th St	W of Meridian Ave	State Major Arterial	Class II	6D	8:00-9:00	2,008	WB	1,154	D	5:00-6:00	2,353	EB	1,178	D
127	SB		I-395	W of Alton Rd	State Major Arterial	Class IA	6D	8:00-9:00	5,019	WB	3,079	A	5:00-6:00	5,720	EB	3,123	B

Table 8: Peak Hour Bidirectional Link Levels of Service for South Beach
AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
90	SB	Alton Rd		N of 14th St	State Minor Arterial	Class II	4U	8:00-9:00	2,940	F	5:00-6:00	3,992	F
91	SB	Alton Rd		N of 5th St	State Minor Arterial	Class II	4D	8:00-9:00	1,185	D	5:00-6:00	1,017	D
92	SB	Alton Rd		N of 8th St	State Minor Arterial	Class II	4U	8:00-9:00	2,351	E	5:00-6:00	2,701	E
93	SB	Alton Rd		S of 5th St	City Collector	Class IA	4D	8:00-9:00	873	B	5:00-6:00	803	B
94	SB	Alton Rd		S of Dade Blvd	State Minor Arterial	Class II	4D	8:00-9:00	2,463	E	5:00-6:00	3,047	E
95	SB	Alton Rd		S of 17th St	State Minor Arterial	Class II	4U	8:00-9:00	2,420	E	5:00-6:00	3,073	F
96	SB	Collins Ave		N of 13th St	State Major Arterial	Class II	2U	8:00-9:00	501	D	5:00-6:00	922	D
97	SB	Collins Ave		N of 5th St	State Major Arterial	Class II	2U	8:00-9:00	782	D	5:00-6:00	952	D
98	SB	Collins Ave		N of 8th St	State Major Arteria	Class II	2U	8:00-9:00	912	D	5:00-6:00	1,356	E
99	SB	Collins Ave		S of 24th St	State Major Arterial	Class II	4U	8:00-9:00	1,418	D	5:00-6:00	1,875	D
100	SB	Collins Ave		S of 5th St	State Major Arterial	Class IA	2U	8:00-9:00	171	B	5:00-6:00	286	B
101	SB	Collins Ave		N of Lincoln Rd	State Major Arteria	Class II	2U	8:00-9:00	923	D	5:00-6:00	1,333	E
102	SB	Euclid Ave		N of 13th St	City Local	Class IA	2U	8:00-9:00	264	B	5:00-6:00	340	B
103	SB	Jefferson Ave		S of 5th St	City Local	Class IA	2U	8:00-9:00	108	B	5:00-6:00	78	B
104	SB	Meridian Ave		N of 14th St	City Collector	Class II	2U	8:00-9:00	725	D	5:00-6:00	974	D
105	SB	Meridian Ave		N of 5th St	City Collector	Class II	2U	8:00-9:00	266	D	5:00-6:00	325	D
106	SB	Meridian Ave		S of 11th St	City Collector	Class II	2U	8:00-9:00	318	D	5:00-6:00	448	D
107	SB	Meridian Ave		S of 5th St	City Local	Class IA	2U	8:00-9:00	82	B	5:00-6:00	100	B
108	SB	Ocean Dr		N of 13th St	City Local	Other Signalized Rd	2U	8:00-9:00	231	C	5:00-6:00	632	D
109	SB	Ocean Dr		N of 8th St	City Local	Other Signalized Rd	2U	8:00-9:00	569	D	5:00-6:00	919	D
110	SB	Ocean Dr		S of 5th St	City Local	Other Signalized Rd	2U	8:00-9:00	168	C	5:00-6:00	291	C
111	SB	Pennsylvania Ave		N of 13th St	City Local	Class II	2U	8:00-9:00	66	D	5:00-6:00	445	D
112	SB	Washington Ave		N of 13th St	City Collector	Class II	4D	8:00-9:00	672	D	5:00-6:00	1,850	D
113	SB	Washington Ave		N of 5th St	City Collector	Class II	4D	8:00-9:00	610	D	5:00-6:00	919	D
114	SB	Washington Ave		N of 8th St	City Collector	Class II	4D	8:00-9:00	965	D	5:00-6:00	1,502	D
115	SB	Washington Ave		S of 5th St	City Collector	Class IA	4D	8:00-9:00	194	B	5:00-6:00	399	B
116	SB	Washington Ave		S of Dade Blvd	City Collector	Class II	4U	8:00-9:00	802	D	5:00-6:00	1,244	D
117	SB	Washington Ave		N of Lincoln Rd	City Collector	Class II	4D	8:00-9:00	794	D	5:00-6:00	883	D
118	SB	West Ave		N of 8th St	City Local	Class IB	2U	8:00-9:00	1,057	D	5:00-6:00	829	D

Table 8: Peak Hour Bidirectional Link Levels of Service for South Beach AM Peak (8:00-9:00) and PM Peak (5:00-6:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS			PM Peak Hour LOS		
								AM Peak Hour	Bi-Directional Volume	AM Peak LOS	PM Peak Hour	Bi-Directional Volume	PM LOS
119	SB		11th St	W of Meridian Ave	City Collector	Class II	2U	8:00-9:00	599	D	5:00-6:00	710	D
120	SB		15th St	W of Meridian Ave	City Local	Class II	2U	8:00-9:00	766	D	5:00-6:00	969	D
121	SB		16th St	W of Meridian Ave	City Local	Class II	2U	8:00-9:00	763	D	5:00-6:00	1,003	D
122	SB		17th St	E of Pennsylvania Ave	City Collector	Class II	4U	8:00-9:00	912	D	5:00-6:00	1,250	D
123	SB		17th St	E of Alton Rd	City Collector	Class II	4U	8:00-9:00	940	D	5:00-6:00	996	D
124	SB		5th St	E of Alton Rd	State Major Arterial	Class II	6D	8:00-9:00	2,022	D	5:00-6:00	2,184	D
125	SB		5th St	E of Washington Ave	State Major Arterial	Class II	6D	8:00-9:00	923	D	5:00-6:00	1,118	D
126	SB		5th St	W of Meridian Ave	State Major Arterial	Class II	6D	8:00-9:00	2,008	D	5:00-6:00	2,353	D
127	SB		I-395	W of Alton Rd	State Major Arterial	Class IA	6D	8:00-9:00	5,019	F	5:00-6:00	5,720	F

Table 8: Directional Link Levels of Service for South Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS					Evening LOS				
								Mid-Day Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Evening LOS
90	SB	Alton Rd		N of 14th St	State Minor Arterial	Class II	4U	12:00-1:00	3,120	NB	1,660	D	8:00-9:00	1,946	NB	994	D
91	SB	Alton Rd		N of 5th St	State Minor Arterial	Class II	4D	12:00-1:00	991	SB	748	D	8:00-9:00	533	SB	386	D
92	SB	Alton Rd		N of 8th St	State Minor Arterial	Class II	4U	12:00-1:00	1,987	NB	1,221	D	8:00-9:00	1,462	NB	856	D
93	SB	Alton Rd		S of 5th St	City Collector	Class IA	4D	12:00-1:00	765	SB	423	B	8:00-9:00	442	NB	244	B
94	SB	Alton Rd		S of Dade Blvd	State Minor Arterial	Class II	4D	12:00-1:00	2,708	NB	1,388	D	8:00-9:00	2,019	NB	1,074	D
95	SB	Alton Rd		S of 17th St	State Minor Arterial	Class II	4U	12:00-1:00	2,548	NB	1,375	D	8:00-9:00	1,780	NB	956	C
96	SB	Collins Ave		N of 13th St	State Major Arterial	Class II	2U	12:00-1:00	752	SB	506	D	8:00-9:00	559	SB	436	C
97	SB	Collins Ave		N of 5th St	State Major Arterial	Class II	2U	12:00-1:00	1,056	SB	725	C	8:00-9:00	896	SB	539	C
98	SB	Collins Ave		N of 8th St	State Major Arterial	Class II	2U	12:00-1:00	1,294	SB	767	C	8:00-9:00	957	NB	493	C
99	SB	Collins Ave		S of 24th St	State Major Arterial	Class II	4U	12:00-1:00	1,818	NB	911	D	8:00-9:00	1,255	NB	647	D
100	SB	Collins Ave		S of 5th St	State Major Arterial	Class IA	2U	12:00-1:00	296	SB	181	B	8:00-9:00	176	SB	101	B
101	SB	Collins Ave		N of Lincoln Rd	State Major Arterial	Class II	2U	12:00-1:00	1,263	SB	663	C	8:00-9:00	1289	SB	725	D
102	SB	Euclid Ave		N of 13th St	City Local	Class IA	2U	12:00-1:00	260	SB	131	B	8:00-9:00	187	NB	102	B
103	SB	Jefferson Ave		S of 5th St	City Local	Class IA	2U	12:00-1:00	48	NB	31	B	8:00-9:00	54	SB	30	B
104	SB	Meridian Ave		N of 14th St	City Collector	Class II	2U	12:00-1:00	772	NB	396	D	8:00-9:00	427	SB	239	D
105	SB	Meridian Ave		N of 5th St	City Collector	Class II	2U	12:00-1:00	255	SB	153	D	8:00-9:00	166	NB	88	D
106	SB	Meridian Ave		S of 11th St	City Collector	Class II	2U	12:00-1:00	371	SB	207	D	8:00-9:00	299	SB	177	D
107	SB	Meridian Ave		S of 5th St	City Local	Class IA	2U	12:00-1:00	99	SB	58	B	8:00-9:00	59	SB	39	B
108	SB	Ocean Dr		N of 13th St	City Local	Other Signalized Rd	2U	12:00-1:00	696	SB	348	D	8:00-9:00	575	SB	315	D
109	SB	Ocean Dr		N of 8th St	City Local	Other Signalized Rd	2U	12:00-1:00	1,073	SB	544	E	8:00-9:00	1,134	NB	700	F
110	SB	Ocean Dr		S of 5th St	City Local	Other Signalized Rd	2U	12:00-1:00	402	NB	202	C	8:00-9:00	260	SB	135	C
111	SB	Pennsylvania Ave		N of 13th St	City Local	Class II	2U	12:00-1:00	249	SB	138	D	8:00-9:00	362	SB	195	D
112	SB	Washington Ave		N of 13th St	City Collector	Class II	4D	12:00-1:00	1,502	SB	761	D	8:00-9:00	1,661	SB	1,150	D
113	SB	Washington Ave		N of 5th St	City Collector	Class II	4D	12:00-1:00	1,003	SB	617	D	8:00-9:00	895	NB	494	D
114	SB	Washington Ave		N of 8th St	City Collector	Class II	4D	12:00-1:00	1,577	SB	802	D	8:00-9:00	1,188	SB	750	D
115	SB	Washington Ave		S of 5th St	City Collector	Class IA	4D	12:00-1:00	490	NB	257	B	8:00-9:00	461	NB	255	B
116	SB	Washington Ave		S of Dade Blvd	City Collector	Class II	4U	12:00-1:00	960	SB	569	D	8:00-9:00	924	NB	604	D
117	SB	Washington Ave		N of Lincoln Rd	City Collector	Class II	4D	12:00-1:00	947	SB	477	D	8:00-9:00	705	NB	410	D

Table 8: Directional Link Levels of Service for South Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS						Evening LOS				
								Mid-Day Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	Evening LOS
118	SB	West Ave		N of 8th St	City Local	Class IB	2U	12:00-1:00	676	SB	468	D	8:00-9:00	365	SB	209	C
119	SB		11th St	W of Meridian Ave	City Collector	Class II	2U	12:00-1:00	596	EB	304	D	8:00-9:00	429	EB	248	D
120	SB		15th St	W of Meridian Ave	City Local	Class II	2U	12:00-1:00	815	EB	528	D	8:00-9:00	719	EB	474	D
121	SB		16th St	W of Meridian Ave	City Local	Class II	2U	12:00-1:00	922	WB	501	D	8:00-9:00	566	WB	346	D
122	SB		17th St	E of Pennsylvania Ave	City Collector	Class II	4U	12:00-1:00	1,296	EB	706	D	8:00-9:00	726	EB	389	D
123	SB		17th St	E of Alton Rd	City Collector	Class II	4U	12:00-1:00	1,010	EB	579	D	8:00-9:00	699	WB	355	D
124	SB		5th St	E of Alton Rd	State Major Arterial	Class II	6D	12:00-1:00	2,317	EB	1,239	D	8:00-9:00	2,021	EB	1,088	D
125	SB		5th St	E of Washington Ave	State Major Arterial	Class II	6D	12:00-1:00	1,136	WB	573	D	8:00-9:00	1,015	EB	576	D
126	SB		5th St	W of Meridian Ave	State Major Arterial	Class II	6D	12:00-1:00	2,258	EB	1,177	D	8:00-9:00	1,704	EB	945	D
127	SB		I-395	W of Alton Rd	State Major Arterial	Class IA	6D	12:00-1:00	4,562	WB	2,310	A	8:00-9:00	3,054	EB	1,674	A

Table 8: Bidirectional Link Levels of Service for South Beach
Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS			Evening LOS		
								Mid-Day Hour	Bi-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Evening LOS
90	SB	Alton Rd		N of 14th St	State Minor Arterial	Class II	4U	12:00-1:00	3,120	F	8:00-9:00	1,946	D
91	SB	Alton Rd		N of 5th St	State Minor Arterial	Class II	4D	12:00-1:00	991	D	8:00-9:00	533	D
92	SB	Alton Rd		N of 8th St	State Minor Arterial	Class II	4U	12:00-1:00	1,987	D	8:00-9:00	1,462	D
93	SB	Alton Rd		S of 5th St	City Collector	Class IA	4D	12:00-1:00	765	B	8:00-9:00	442	B
94	SB	Alton Rd		S of Dade Blvd	State Minor Arterial	Class II	4D	12:00-1:00	2,708	E	8:00-9:00	2,019	D
95	SB	Alton Rd		S of 17th St	State Minor Arterial	Class II	4U	12:00-1:00	2,548	E	8:00-9:00	1,780	D
96	SB	Collins Ave		N of 13th St	State Major Arterial	Class II	2U	12:00-1:00	752	D	8:00-9:00	559	D
97	SB	Collins Ave		N of 5th St	State Major Arterial	Class II	2U	12:00-1:00	1,056	D	8:00-9:00	896	D
98	SB	Collins Ave		N of 8th St	State Major Arterial	Class II	2U	12:00-1:00	1,294	E	8:00-9:00	957	D
99	SB	Collins Ave		S of 24th St	State Major Arterial	Class II	4U	12:00-1:00	1,818	D	8:00-9:00	1,255	D
100	SB	Collins Ave		S of 5th St	State Major Arterial	Class IA	2U	12:00-1:00	296	B	8:00-9:00	176	B
101	SB	Collins Ave		N of Lincoln Rd	State Major Arterial	Class II	2U	12:00-1:00	1,263	E	8:00-9:00	1,289	E
102	SB	Euclid Ave		N of 13th St	City Local	Class IA	2U	12:00-1:00	260	B	8:00-9:00	187	B
103	SB	Jefferson Ave		S of 5th St	City Local	Class IA	2U	12:00-1:00	48	B	8:00-9:00	54	B
104	SB	Meridian Ave		N of 14th St	City Collector	Class II	2U	12:00-1:00	772	D	8:00-9:00	427	D
105	SB	Meridian Ave		N of 5th St	City Collector	Class II	2U	12:00-1:00	255	D	8:00-9:00	166	D
106	SB	Meridian Ave		S of 11th St	City Collector	Class II	2U	12:00-1:00	371	D	8:00-9:00	299	D
107	SB	Meridian Ave		S of 5th St	City Local	Class IA	2U	12:00-1:00	99	B	8:00-9:00	59	B
108	SB	Ocean Dr		N of 13th St	City Local	Other Signalized Rd	2U	12:00-1:00	696	D	8:00-9:00	575	D
109	SB	Ocean Dr		N of 8th St	City Local	Other Signalized Rd	2U	12:00-1:00	1,073	F	8:00-9:00	1,188	F
110	SB	Ocean Dr		S of 5th St	City Local	Other Signalized Rd	2U	12:00-1:00	402	C	8:00-9:00	260	C
111	SB	Pennsylvania Ave		N of 13th St	City Local	Class II	2U	12:00-1:00	249	D	8:00-9:00	362	D
112	SB	Washington Ave		N of 13th St	City Collector	Class II	4D	12:00-1:00	1,502	D	8:00-9:00	1,661	D
113	SB	Washington Ave		N of 5th St	City Collector	Class II	4D	12:00-1:00	1,003	D	8:00-9:00	895	D
114	SB	Washington Ave		N of 8th St	City Collector	Class II	4D	12:00-1:00	1,577	D	8:00-9:00	1,188	D
115	SB	Washington Ave		S of 5th St	City Collector	Class IA	4D	12:00-1:00	490	B	8:00-9:00	461	B
116	SB	Washington Ave		S of Dade Blvd	City Collector	Class II	4U	12:00-1:00	960	D	8:00-9:00	924	D
117	SB	Washington Ave		N of Lincoln Rd	City Collector	Class II	4D	12:00-1:00	947	D	8:00-9:00	705	D
118	SB	West Ave		N of 8th St	City Local	Class IB	2U	12:00-1:00	676	C	8:00-9:00	365	C

Table 8: Bidirectional Link Levels of Service for South Beach Mid-Day (12:00-1:00 PM) and Evening (8:00-9:00)

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	Mid-Day LOS			Evening LOS		
								Mid-Day Hour	Bi-Directional Volume	Mid-Day LOS	Evening Hour	Bi-Directional Volume	Evening LOS
119	SB		11th St	W of Meridian Ave	City Collector	Class II	2U	12:00-1:00	596	D	8:00-9:00	429	D
120	SB		15th St	W of Meridian Ave	City Local	Class II	2U	12:00-1:00	815	D	8:00-9:00	719	D
121	SB		16th St	W of Meridian Ave	City Local	Class II	2U	12:00-1:00	922	D	8:00-9:00	566	D
122	SB		17th St	E of Pennsylvania Ave	City Collector	Class II	4U	12:00-1:00	1,296	D	8:00-9:00	726	D
123	SB		17th St	E of Alton Rd	City Collector	Class II	4U	12:00-1:00	1,010	D	8:00-9:00	699	D
124	SB		5th St	E of Alton Rd	State Major Arterial	Class II	6D	12:00-1:00	2,317	D	8:00-9:00	2,021	D
125	SB		5th St	E of Washington Ave	State Major Arterial	Class II	6D	12:00-1:00	1,136	D	8:00-9:00	1,015	D
126	SB		5th St	W of Meridian Ave	State Major Arterial	Class II	6D	12:00-1:00	2,258	D	8:00-9:00	1,704	D
127	SB		I-395	W of Alton Rd	State Major Arterial	Class IA	6D	12:00-1:00	4,562	C	8:00-9:00	3,054	B

Table 9: Intersection Levels of Service for South Beach

Ref No.	N-S Road	E-W Road	Jurisdiction & Functional Classification	AM Peak Hour LOS			Mid-Day Peak Hour LOS			PM Peak Hour LOS		
				AM Peak Hour	Intersection Delay (sec/veh)	Intersection LOS	Mid-Day Peak Hour	Intersection Delay (sec/veh)	Intersection LOS	PM Peak Hour	Intersection Delay (sec/veh)	Intersection LOS
129	Alton Rd	11th St	SMjA / CC	8:00-9:00	*	F				5:30-6:30	*	F
130	Alton Rd	15th St	SMjA / CL	8:00-9:00	*	F	12:00-1:00	*	F	5:30-6:30	*	F
131	Alton Rd	17th St	SMnA / CC	8:00-9:00	*	F	12:00-1:00	*	F	5:15-6:15	*	F
132	Alton Rd	5th St	SMjA / SMjA	8:00-9:00	14.1	B				3:00-4:00	*	F
133	Alton Rd	8th St	SMjA / CL							4:45-5:45	*	F
134	Alton Rd	Lincoln Rd	SMjA / CL	7:45-8:45	8.1	B	11:00-12:00	*	F	5:30-6:30	*	F
135	Collins Ave	10th	SMjA/CL		4.8	A		6.4	B		7.0	B
136	Collins Ave	11th St	SMjA/CC		5.3	B		9.6	B		9.7	B
137	Collins Ave	14th St	SMjA/CL		5.1	B		6.5	B		6.4	B
138	Collins Ave	15th St	SMjA/CL		7.9	B		9.1	B		11.3	B
139	Collins Ave	17th St	SMjA/CC		8.4	B		11.4	B		11.5	B
140	Collins Ave	18th St	SMjA/CL		4.4	A		5.1	B		6.0	B
141	Collins Ave	20th St	SMjA/CL		4.6	A		5.5	B		5.4	B
142	Collins Ave	21st St	SMjA/CL		4.7	A		5.1	B		5.8	B
143	Collins Ave	22nd St	SMjA/CL		5.2	B		5.7	B		6.1	B
144	Collins Ave	23rd St	SMjA/DCMnA		10.6	B		12.0	B		13.7	B
145	Collins Ave	24th St	SMjA/CL		10.7	B		11.1	B		11.8	B
146	Collins Ave	26th St	SMjA/CL		4.5	A		4.2	A		3.9	A
147	Collins Ave	5th St	SMjA/SMjA	8:00-9:00	13.7	B	12:00-1:00	22.8	C	4:45-5:45	18.8	C
148	Collins Ave	8th St	SMjA/CL		5.0	A		6.5	B		6.6	B
149	Collins Ave	Espanola Way	SMjA/CL		4.1	A		5.0	A		5.0	A
150	Collins Ave	Lincoln Rd	SMjA/CL	8:00-9:00	15.4	C	12:00-1:00	18.9	C	4:00-5:00	23.6	C
151	Jefferson Ave	5th St	SMjA / SMjA							4:00-5:00	15.9	C
152	Meridian Ave	17th St	CC/ CC	8:00-9:00	10.1	B	12:00-1:00	11.3	B	5:00-6:00	11.1	B
153	Meridian Ave	5th St	SMjA / SMjA							4:00-5:00	*	F
154	Michigan Ave	5th St	SMjA / SMjA							4:00-5:00	13.8	B
155	Ocean Dr	5th St	CC / SMjA	8:00-9:00	17.8	C				5:00-6:00	24.1	C
156	Washington Ave	17th St	CC/ CC	8:00-9:00	12.8	B	12:00-1:00	15.6	C	5:00-6:00	*	F
157	Washington Ave	5th St	SMjA / SMjA							4:45-5:45	13.2	B
158	Washington Ave	Lincoln Rd	CC/ CL							5:00-6:00	7.5	B

Seasonal Traffic Volume Comparison

The majority of the traffic count data was collected for the MMP during the late summer and fall of 1997. This time of the year does not represent the peak traffic season. Therefore, weekly volume adjustment factors were subsequently obtained from FDOT to convert the count data to volumes representative of peak season traffic. Weekly volume adjustment factors convert traffic volumes obtained at any time of the year to average annual daily traffic (AADT) conditions. FDOT periodically calculates the seasonal factors from permanent count stations at several locations in the State. FDOT provides weekly adjustment factors in Miami-Dade County for the following:

- Countywide
- I-195 (Julia Tuttle Causeway)
- I-395 (MacArthur Causeway)
- Homestead Extension of the Florida's Turnpike (HEFT)
- I-75 in Miami-Dade County
- I-95 in Miami-Dade County

Because of the proximity of I-195 and 1-395 to Miami Beach, their volume adjustment factors were the prime candidates for utilization in the MMP. There was no need to choose between the I-195 and I-395 weekly adjustment factors, as they were found to be identical.

FDOT weekly volume adjustment factors were first applied to the daily traffic count data to convert to AADT. A peak season factor was then applied to the AADT to produce peak season traffic volumes. The peak season factor represents the average of the 13 consecutive weeks of the year with the highest traffic volume. The factor utilized for the MMP was 1.06.

Additional traffic counts were taken for the MMP during the month of February 1998, which is representative of the area's peak traffic season, as traffic volumes are highest along both I-195 and I-395 during this time of year. The purpose of collecting additional traffic data was to compare traffic volumes on specific streets within Miami Beach during the peak and off-peak traffic seasons. The comparison would also help to identify if traffic characteristics are markedly different among the three areas of Miami Beach (North, Middle and South). The comparison of seasonal traffic volumes is summarized in Table 10.

The following can be observed from Table 10:

- Total traffic volumes observed over a 24-hour (daily) period remain approximately constant throughout the year

- Afternoon peak hour volumes are higher in the peak-season months

- Morning peak hour volumes are lower in the peak-season months in Middle Beach and South Beach, but higher in North Beach. However, it should be noted that traffic counts in North Beach were collected during the summer, whereas traffic counts in Middle and South Beaches were collected in the fall. This could partially contribute to the difference in traffic patterns.

Table 10: Seasonal Traffic Volume Comparison

Roadway	Location	Off-Peak Season Ddily Volume	Peak Season Daily Volume	Peak-Season to Off-Peak Season Daily Volume Ratio	Off-Peak Season AM Peak Hour Volume	Peak Season AM Peak Hour Volume	Peak-Season to Off-Peak Season AM Peak Hour Ratio	Off-Peak Season PM Peak Hour Volume	Peak Season PM Peak Hour Volume	Peak-Season to Off-Peak Season PM Peak Hour Ratio
	North Beach									
Collins Avenue	North of 71st Street	27,094	21,430	0.79	1,137	975	0.86	2,242	1,808	0.81
Abbott Avenue	North of 71st Street	26,288	26,583	1.01	2,238	2,108	0.94	1,777	1,702	0.96
Dickens Avenue	North of 71st Street	17,941	22,555	1.26	1,207	1,700	1.41	1,395	1,811	1.30
71st Street	West of Indian Creek Dr.	39,748	40,674	1.02	2,660	2,924	1.10	2,836	3,211	1.13
	North Beach Average			1.00			1.06			1.03
	Middle Beach									
Collins Avenue	South of Indian Creek Dr.	33,167	28,515	0.86	2,085	1,742	0.84	2,257	1,823	0.81
Pine Tree Drive	North of 41st Street	12,063	11,765	0.98	875	739	0.84	964	1,124	1.17
Alton Road	North of 51st Street	30,590	36,981	1.21	2,754	2,961	1.08	2,399	3,006	1.25
41st Street	West of Pine Tree Drive	35,692	34,009	0.95	2,332	2,006	0.86	2,341	2,406	1.03
	Middle Beach Average			1.00			0.93			1.05
	South Beach									
Ocean Drive	North of 13th Street	10,712	7,331	0.68	213	231	1.08	677	488	0.72
Collins Avenue	South of 24th Street	25,737	26,500	1.03	1,282	1,105	0.86	1,700	1,794	1.06
Washington Ave.	North of 13th Street	26,728	24,757	0.93	607	773	1.27	1,672	1,603	0.96
Alton Road	South of 17th Street	38,922	36,467	0.94	2,230	2,131	0.96	2,832	2,650	0.94
5th Street	East of Washington Ave.	18,910	24,123	1.28	851	877	1.03	1,074	1,419	1.32
11th Street	West of Meridian Avenue	9,694	11,409	1.18	541	523	0.97	642	921	1.43
15th Street	West of Meridian Avenue	13,217	8,203	0.62	706	402	0.57	893	618	0.69
	South Beach Average			0.96			0.94			1.00
	Total Average			0.99			0.98			1.03

- Analysis of individual facilities indicated that traffic volumes varied substantially by location, facility type and time of day, without any noticeable pattern.

- There is an absence of noticeable traffic patterns that uniquely identify any of the three areas of Miami Beach.

The lack of significant patterns in peak season versus off-peak season traffic volumes could be explained by the small sample size of the traffic data collected for the MMP. Traffic volumes can vary substantially on a daily basis, and, although traffic data were collected at a number of locations, the data were obtained for a limited time period. In view of the above findings, it is appropriate to use the FDOT weekly volume adjustment factors for I-195 and I-395 to adjust traffic counts on Miami Beach.

CONCLUSIONS

This interim report has presented the results of the traffic data collection and existing conditions analysis. The report is the first component of the Miami Beach Municipal Mobility Plan (MMP). The two main objectives of this effort were to create a traffic database to serve as an input to the Concurrency Management System (CMS) and to determine the traffic performance of the roadway network.

Data compiled for inclusion in the traffic database includes:

- The physical characteristics of the roadways such as facility type (arterial, collector), the number of lanes and other features, such as one-way or two-way facility
- The location of traffic signals
- The date and location of traffic counts
- Time of day when peak traffic volumes occur
- Existing (1997) peak season directional traffic volumes
- Link levels of service
- Intersection levels of service

The traffic database is an up-to-date reference instrument. It is broad and encompassing in geographic scope, as it captures the City's major arteries. The traffic database is comprehensive and accurate in furnishing a representation of existing traffic conditions. It provides a baseline, which the City can employ as a valuable instrument as it moves toward accomplishing its planning objectives.

General Traffic Patterns

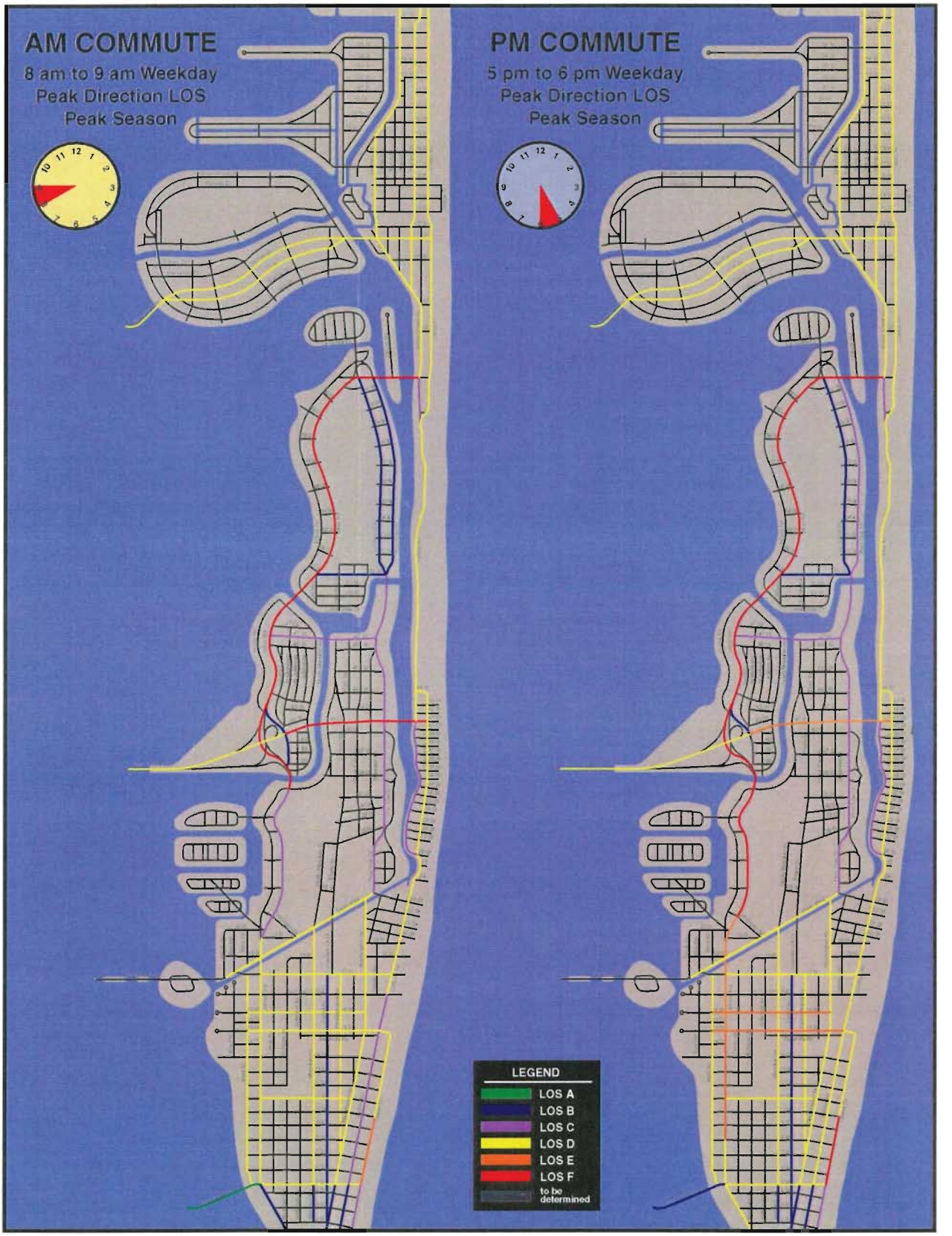
Figures 19 and 20 have been included to provide an overall "snapshot of the City's traffic conditions, irrespective of the particular peaks of each roadway link. These snapshots provide a description of traffic conditions, which is relevant to what is experienced at four times of a weekday in peak season:

- AM Commute Peak, all roads from 8:00 am to 9:00 am;
- PM Commute Peak, all roads from 5:00 pm to 6:00 pm;
- Midday Lunch Hour, all roads from 12:00 noon to 1:00 pm;
- Evening (stores closing and dinner hours), all roads from 8:00 pm to 9:00 pm.

Some generalizations of traffic patterns and operations in Miami Beach include:

- There is a heavy southbound directional flow during the morning peak hours. This movement is associated with the morning commute to work, as many people are accessing the causeways.

During the afternoon peak hours there is not a marked directional split. This can be explained by the presence of a diversity of trip purposes during the afternoon peak hours including work to home trips, shopping trips and recreational trips.



AM and PM Commute Peak Direction Level of Service
Figure 19

Midday and Weekday Evening Peak Direction Level of Service
Figure 20

Traffic performance was evaluated consistent with methodologies recommended in the 1994 edition of the *Highway Capacity Manual* (HCM). The level of service (LOS) concept was employed as the measure of traffic congestion. Link peak hour, peak direction maximum flow rates were obtained from Table 5-1 of FDOT's 1995 *Florida's Level of Service Standards and Guidelines Manual for Planning* (commonly known as the *LOS Manual*). Additionally, roadways identified as operating at a poor level of service were further analyzed utilizing FDOT's ART_PLAN software. The Highway Capacity Software (HCS) was utilized to calculate intersection level of service.

Roadway link and intersection performance have been summarized in tables and figures included in the report. Links and intersections operating below the adopted level of service have been identified. These links and intersections will be further analyzed in subsequent stages of the project to determine the mitigations required to obtain acceptable levels of service. A number of deficient intersections could be brought to acceptable levels of service through minor operational improvements such as adjusting signal timings or restriping the existing approach lanes.

Special Users Addendum to Existing Conditions

An addendum to this report will be prepared documenting the results of the special users assessment. This analysis will examine transit, bicycle mobility, pedestrian mobility and internal waterways. Additionally, unusual traffic patterns such as late night and weekend traffic peaking phenomenon will be examined.

Possible Mitigation Strategies

While it is premature in the Municipal Mobility Study to recommend a unified set of mitigation strategies, some methods are described here for a general understanding. Basically they fall into four categories of improvements:

1. Operational Improvements

These are improvements in the operation of roadways that refine movement and coordination without adding additional capacity. Generally these improvements are often categorized as Transportation System Management (TSM) techniques. They include:

- Changes to signal timing or phasing
- Signal progression to enhance major movement flow
- Signal progression to manage speeds
- Signal preference to transit vehicles
- Restriction of turning movements at intersections
- Institution of one way pairs in areas
- Restriction of commercial vehicle deliveries

2. Travel Demand Management (TDM)

Travel demand measures are techniques for lowering the number of automotive trips each person makes in a community. The technique includes a mix of design factors, land use factors, and institutional factors to decrease the Single Occupant Vehicle (SOV) mode split, or simply reduce trip demand altogether. Since Miami Beach is a built-out city, only the land use and institutional methods are listed. Many of the institutional techniques are already effectively operating in Miami Beach because of the very different composition of trip purposes and business hours in comparison to other cities.

- Changing land development code to allow greater flexibility for mixed use, so that over time, more employees work and live in the same area, or so that more shopping demands are met by community retail businesses.
- Ride share, vanpool, and transit incentives
- Managing peak travel demand with staggered work hours
- Managing peak travel demand with employee flex time
- Managing peak travel demand with compressed workweeks
- Incentives for certain businesses to allow employees to work at home.

3. Capacity Increases

These include:

- addition of service lanes , which can be accommodated within existing rights of way;
- addition of a median within existing rights of way;
- addition of bus/taxi/pick-up turn out bays, which can be accommodated within existing rights of way;
- intersection geometry improvements, intersection turn bays, right turn slip lanes;
- improvements to service alleys for delivery operations or other urban space needs;
- grade-separated intersection features such as flyovers;
- increasing the number of travel lanes to a roadway.

While these are some of the most common improvements for improving roadway level of service, most of the roadways in the City of Miami Beach are constrained. Pavement widths cannot be increased, especially as the sidewalk space of some of the roadways may also be over loaded at peaks. Where increases could be made, land values are prohibitively high, and the use of additional land for vehicular traffic may be inconsistent with the needs of the community.

In some cases, capacity enhancements can be made using best design practices. Using best design practices, parking impacts would be mitigated, the pedestrian environment would be protected, and community aesthetic goals are met.

4. Concurrency Methods

Concurrency Methods for mitigation and corrective action provide for the flexibility in addressing the impacts of development, that allows for the implementation of the appropriate measures listed above. These methods include:

1. Developer pays directly for traffic improvements needed to serve the additional traffic produced by the development.

2. Developer includes pedestrian/transit/bicycle features in the development, which will increase the use of other travel modes.

3. Developer pays a fair share (based on trip generation) of the implementation of transportation facilities, and the developer can build if:

   - the City has a Comprehensive Plan, which is in compliance
   - the development is consistent with the future land use designation
   - the Comprehensive Plan includes a financially feasible capital improvement program (CIP)
   - the City provides a means of assessing the developers fair share (Concurrency Management System)
   - the landowner has made a binding commitment
   - the City executes its CIP

   The fair share transportation payments can be collectively used by the City for multimodal transportation strategies that are based on the Comprehensive Plan and the CIP.

4. Transportation concurrency exemptions should be reserved for corridor segments where planning and public policy goals are in conflict with the provision of adequate public facilities and services. The unintended result of concurrency requirements for transportation corridors is often the discouragement of urban infill development, therefore exemptions are granted. The City must establish guidelines for exemptions in its Comprehensive Plan, and must assure that they are limited to specific areas for urban infill development, urban redevelopment, or downtown revitalization, including Historic Districts for preservation of the urban environment. Within these areas, developments, which pose only special part- time demands on the transportation system, are exempt from the concurrency requirements for transportation facilities. This demand must not have more than 200 scheduled events or affect the 100th highest traffic hour.

5. City can adopt a less restrictive Level of Service Standard in its Comprehensive Plan to meet increasing needs. In some cases, corrective measures may not bring the level of service to compliance, and appropriate policy changes will be required.

APPENDIX A
TRAFFIC GROWTH FACTOR CALCULATION

Estimated Growth Rates for North Beach

I - North-South Roads

II - East-West Roads

1. SR 934 (N Bay Causeway) E of Treas

FDOT Station: 533

Annual Growth Rate: -0.013

Year	AADT	Delta
1988	29,920	
1989	32,537	2,617
1990	29,607	(2,930)
1991	30,890	1,283
1992	34,500	3,610
1993	33,500	(1,000)
1994	34,500	1,000
1995	30,500	(4,000)
1996	30,000	(500)
Average	31,773	(423)

3. North-South Average

Annual Growth Rate:

AADT	Delta

6. East-West Average

Annual Growth Rate: 0.000

AADT	Delta
31,773	10

7. Central Beach Average

Annual Growth Rate: 0.000

AADT	Delta
31,773	10

Estimated Growth Rates for Central Beach

I - North-South Roads

1. Alton Rd @ 51st St

FDOT Station: 1018

Annual Growth Rate: 0.015

Year	AADT	Delta
1985	21,843	
1987	23,624	1,781
1988	23,626	2
1989	26,813	3,187
1990	25,589	(1,224)
1991	23,904	(1,685)
1993	29,000	5,096
1994	30,500	1,500
1995	28,500	(2,000)
1996	26,000	(2,500)
Average	25,940	378

2. A1A/Collins & 47th St

FDOT Station: 11

Annual Growth Rate: -0.012

Year	AADT	Delta
1988	33,631	
1989	32,628	(1,003)
1990	29,532	(3,096)
1991	29,708	176
1993	39,500	9,792
1994	37,500	(2,000)
1995	37,000	(500)
1996	30,500	(6,500)
Average	33,750	(391)

3. North-South Average

Annual Growth Rate: 0.002

AADT	Delta
29,411	54

II - East-West Roads

4. Julia Tuttle Causeway E of bridge

FDOT Station: 5385

Annual Growth Rate: 0.041

Year	AADT	Delta
1990	63,475	
1991	64,064	589
1993	85,000	20,936
1994	78,500	(6,500)
1995	82,500	4,000
1996	82,000	(500)
Average	75,923	3,088

5. Arthur Godfrey Rd W of Collins

FDOT Station: 5388

Annual Growth Rate: 0.029

Year	AADT	Delta
1993	16,500	
1994	17,000	500
1995	16,500	(500)
1996	18,000	1,500
Average	17,000	500

6. East-West Average

Annual Growth Rate: 0.042

AADT	Delta
52,354	2,225

7. Central Beach Average

Annual Growth Rate: 0.020

AADT	Delta
37,605	752

Estimated Growth Rates for South Beach

I - North-South Roads

1. A1A/Collins Ave N of MacArthur

FDOT Station: 5159

Annual Growth Rate: 0.028

Year	AADT	Delta
1993	15,300	
1994	13,900	(1,400)
1995	19,700	5,800
1996	16,700	(3,000)
Average	16,400	467

2. A1A/Collins @ 21st St

FDOT Station: 5170

Annual Growth Rate: -0.007

Year	AADT	Delta
1993	25,500	
1994	24,000	(1,500)
1995	26,500	2,500
1996	25,000	(1,500)
Average	25,250	(167)

3. North-South Average

Annual Growth Rate: 0.007

AADT	Delta
20,825	150

II - East-West Roads

4. MacArthur Causeway E of bridge

FDOT Station: 2527

Annual Growth Rate: 0.057

Year	AADT	Delta
1994	62,000	
1995	65,000	3,000
1996	69,500	4,500
Average	65,500	3,750

5. MacArthur Causeway E of Alton Rd

FDOT Station: 2528

Annual Growth Rate: 0.117

Year	AADT	Delta
1994	31,500	
1995	37,500	6,000
1996	40,000	2,500
Average	36,333	4,250

6. East-West Average

Annual Growth Rate: 0.079

AADT	Delta
50,917	4,000

7. South Beach Average

Annual Growth Rate: 0.050

	AADT	Delta
Averages	33,721	1,690

MIAMI BEACH MUNICIPAL MOBILITY PLAN

FUTURE YEAR 2010 TRAFFIC CONDITIONS
FINAL REPORT

MIAMI BEACH MUNICIPAL MOBILITY PLAN

YEAR 2010 TRAFFIC CONDITIONS

Traffic volume projections for the main intersections and links in Miami Beach were made through 2010. The projection methodology and results of the level of service calculations are described next.

Traffic Projections

The traffic projection methodology used in this study is based on data provided by the Miami-Dade Urban Area Transportation Study (MUATS) traffic-forecasting model.

Traffic forecasting models are generally accepted as reliable tools to predict trends in traffic volumes, rather than to forecast absolute values for traffic volumes. This strength was used to forecast future traffic volumes in each Miami Beach roadway present in the model as follows:

- Year 1990 (latest model calibration year) traffic volumes were obtained from the MUATS model
- Year 2010 traffic forecasts were obtained from the MUATS model
- Based on the results above, a growth factor was calculated between 1990 and 2010
- A linear interpolation was completed to obtain the growth between 1997/1998 and 2010
- The growth factor between 1997/1998 and 2010 was applied to the 1997/1998 traffic counts

Intersection Performance Analysis

Detailed 2010 intersection level of service calculations were performed using the HCS software and are summarized in Tables 10, 12 and 14. Traffic signal phasings were optimized to maximize performance based on projected traffic volumes. The majority of the study intersections are expected to present acceptable performance without geometric improvements. The only two exceptions are:

Indian Creek Drive at 41st Street – This intersection is expected to perform at LOS E in 2010, even with improvements that are programmed for implementation. The programmed improvements include restriping the center lane of the eastbound approach to a shared left-turn/through lane and adjusting the signal phasing.

Alton Road at 17th Street – This intersection is also expected to perform at LOS E in 2010, even with improvements that are programmed for implementation. The programmed improvements at this intersection include:

- Restriping the eastbound approach to consist of one exclusive left-turn lane, one shared left-turn/through lane and one shared right-turn/through lane

- Restriping the westbound approach to consist of one exclusive left-turn lane, one shared left-turn/through lane and one exclusive right-turn lane

Additionally, the intersection of Alton Road at Dade Boulevard is programmed for reconfiguration. A southbound left-turn lane will be added at this intersection. The purpose of this improvement is to relieve the heavy southbound left-turn demand at the Alton Road at 17th Street intersection.

Link Performance Analysis

Tables 11, 13 and 15 summarize the link level of service calculations for year 2010. Most links present adequate performance of LOS D or better. However, the following links are projected to perform below LOS D:

- Indian Creek Drive between 63rd Street and 71st Street – This link is projected to operate at LOS F during both the AM and PM peak periods.

- 41st Street (Arthur Godfrey Road) between Alton Road and Collins Avenue- This link is projected to operate at LOS F during both the AM and PM peak periods.

- 63rd Street between LaGorce Drive and Collins Avenue - This link is projected to operate at LOS F during both the AM and PM peak periods.

- Alton Road between 5th Street and Dade Boulevard - This link is projected to operate at LOS F during both the AM and PM peak periods.

- Ocean Drive between 5th Street and 10th Street - This link is projected to operate at LOS F during both the AM and PM peak periods.

- Ocean Drive between 10th Street and 15th Street – This link is projected to operate at LOS E during the PM peak period.

- 15th Street between Washington Avenue and Alton Road – This link is projected to operate at LOS F during the PM peak period.

- 16th Street between Washington Avenue and Alton Road – This link is projected to operate at LOS E during the AM peak period and LOS F during the PM peak period.

The next section of the report presents mitigation alternatives for the intersections and links projected to operate below the adopted level of service standard (LOS D).

Mitigation Alternatives

The purpose of identifying several mitigation options at each location is to provide alternatives that address sustainable community objectives, as well as alternatives that maximize traffic flow. Sustainable community objectives may include preserving a neighborhood's character or prioritizing alternative modes of transportation such as bicyclists and pedestrians.

The strengths and weaknesses of the various alternatives are discussed in the following matrices.

Intersection: Indian Creek Drive at 41st Street (Arthur Godfrey Road)

Alt.	Description	Improvements	Comments
I	1. Programmed Improvements	1. Restripe EB middle lane to shared LT/THRU Lane 2. Adjust signal timing	1. Improves existing conditions performance to LOS D 2. Year 2010 performance deteriorates to LOS E
II	1. One-Way Concept	1. Restripe EB middle lane to shared LT/THRU Lane 2. Convert 41st St. to one-way EB between Indian Creek Dr. and Collins Ave. 3. Divert WB traffic to signalized intersection at Collins Ave. and 44th St.	1. Year 2010 performance satisfies concurrency standard 2. Low cost to implement 3. Circuitous route for NB traffic on Collins Ave. that desires to travel WB on 41st St.
III	1. EB to NB Flyover	1. Construct flyover ramp providing grade separated free-flow movement from 41st St. EB to Indian Creek Dr. NB	1. Year 2010 performance satisfies concurrency standard 2. Maximizes vehicular traffic flow 3. Costly mitigation to implement 4. Possible environmental impacts in the construction of a flyover ramp over Indian Creek Waterway 5. Possible neighborhood opposition

Intersection: Alton Road at 17th Street

Alt.	Description	Improvements	Comments
I	1. Programmed Improvements	1. Restripe EB approach to consist of 1 LT lane, 1 shared LT/THRU lane and 1 shared RT/THRU lane 2. Restripe WB approach to consist of 1 LT lane, 1 shared LT/THRU lane and 1 RT lane 3. Add a SB LT lane on Alton Rd. at Dade Blvd. and permit SB left turns at this intersection	1. Improves existing conditions performance to LOS D 2. Year 2010 performance deteriorates to LOS E
II	1. Programmed Improvements 2. SB RT Lane	1. Restripe EB approach to consist of 1 LT lane, 1 shared LT/THRU lane and 1 shared RT/THRU lane 2. Restripe WB approach to consist of 1 LT lane, 1 shared LT/THRU lane and 1 RT lane 3. Add SB RT lane on Alton Rd. by eliminating on-street parking and relocating the median 4. Add a SB LT lane on Alton Rd. at Dade Blvd. and permit SB left turns at this intersection	1. Year 2010 performance satisfies concurrency standard 2. Low cost to implement 3. Removes a limited number of parking spaces along Alton Rd.

Link: Indian Creek Drive between 63rd Street and 71st Street

Alt.	Description	Improvements	Comments
I	1. Programmed Improvements at Indian Creek Dr. and 63rd St	1. Remove EB to NB flyover at Indian Creek Dr./63rd St. and reconstruct intersection at grade 2. Restripe EB approach to consist of 2 LT lanes, 1 shared LT/THRU lane and 1 shared RT/THRU lane 3. Permit WB thru movement	1. Year 2010 intersection performance satisfies concurrency standard 2. EB and WB movements require large green times, which causes the link performance of Indian Creek Dr. to deteriorate to LOS F in 2010
II	1. Programmed Improvements at Indian Creek Dr./63rd St; 2. One-Way Pair Concept	1. Remove EB to NB flyover at Indian Creek Dr./63rd St. and reconstruct intersection at grade 2. Restripe EB approach to consist of 2 LT lanes, 1 shared LT/THRU lane and 1 shared RT/THRU lane 3. Convert 63rd St. to one-way EB between Indian Creek Dr. and Collins Ave. 4. Convert 65th St. to one-way WB between Collins Ave. and Indian Creek Dr.	1. Year 2010 intersection performance satisfies concurrency standard 2. Elimination of WB movement at intersection permits additional green time for SB movement, allowing Indian Creek Dr. link to operate at LOS D in 2010 3. Elimination of EB movement on 65th St. allows an additional lane for WB movement; thus green time can be transferred to NB/SB flow on Indian Creek Dr.
III	1. EB to NB Flyover	1. Reconstruct flyover ramp providing grade separated free-flow movement from 63rd St. EB to Indian Creek Dr. NB and also providing increased clearance over Indian Creek Dr.	1. Year 2010 intersection and link performance satisfy concurrency standard 2. Maximizes vehicular traffic flow 3. Costly mitigation to implement 4. Possible neighborhood opposition

Link: 41st Street (Arthur Godfrey Road) between Alton Road and Collins Avenue

Alt.	Description	Improvements	Comments
I	1. Programmed Improvements	1. Restripe EB middle lane at 41st St./Indian Creek Dr. to shared LT/THRU Lane 2. Adjust signal timing	1. Improves performance of 41st St. between Pine Tree Dr. and Collins Ave. 2. Year 2010 intersection performance at 41st St. and Indian Creek Dr. deteriorates to LOS E 3. Link performance of 41st St. between Alton Rd. and Indian Creek Dr. is LOS F in 2010 4. Signal phasing provides ample time for pedestrian movements 5. Requires amending comprehensive plan to recognize 41st St. corridor as a transportation concurrency exception area
II	1. One-Way Concept	1. Restripe EB middle lane at 41st St./Indian Creek Dr. to shared LT/THRU Lane 2. Convert 41st St. to one-way EB between Indian Creek Dr. and Collins Ave. 3. Divert WB traffic at 41st St./Indian Creek Dr. to signalized intersection at Collins Ave. and 44th St.	1. Improves performance of 41st St. between Pine Tree Dr. and Collins Ave. 2. Year 2010 intersection performance at 41st St. and Indian Creek Dr. satisfies concurrency standards 3. Link performance of 41st Street between Alton Rd and Collins Ave. is LOS F in 2010 4. Signal phasing provides ample time for pedestrian movements 5. Requires amending comprehensive plan to recognize 41st St. corridor as a transportation concurrency exception area
III	1. One-Way Concept 2. Adjust Traffic Signal Phasing to Prioritize EB/WB Flows on 41st Street	1. Restripe EB middle lane at 41st St./Indian Creek Dr. to shared LT/THRU Lane 2. Convert 41st St. to one-way EB between Indian Creek Dr. and Collins Ave. 3. Divert WB traffic at 41st St./Indian Creek Dr. to signalized intersection at Collins Ave. and 44th St. 4. Adjust signal phasing to allow increased green time for EB/WB movements at signalized intersections along 41st St.	1. Year 2010 intersection performance at 41st St. and Indian Creek Dr. satisfies concurrency standards 2. Year 2010 link performance of 41st St. between Alton Rd. and Collins Ave. satisfies concurrency standards 3. Signal phasing prioritizes EB/WB vehicular flow at the expense of NB/SB pedestrian flow

Link: 63rd Street between LaGorce Drive and Collins Avenue

Alt.	Description	Improvements	Comments
I	1. Programmed Improvements at 63rd St. and Indian Creek Dr.	1. Remove EB to NB flyover at 63rd St./Indian Creek Dr. and reconstruct intersection at grade 2. Restripe EB approach at 63rd St./Indian Creek Dr. to consist of 2 LT lanes, 1 shared LT/THRU lane and 1 shared RT/THRU lane 3. Permit WB thru movement at 63rd St./Indian Creek Dr.	1. Year 2010 intersection performance of 63rd St. at Indian Creek Dr. satisfies concurrency standard 2. Because WB movements requires substantial green time at 63rd St./Indian Creek Dr. intersection, 63rd Street link performance is LOS F in 2010
II	1. Programmed Improvements at Indian Creek Dr./63rd St. 2. One-Way Pair Concept 3. Adjust Traffic Signal Phasing to Prioritize the EB/WB Flow on 63rd St.	1. Remove EB to NB flyover at 63rd St./Indian Creek Dr. and reconstruct intersection at grade 2. Restripe EB approach at 63rd St./Indian Creek Dr. to consist of 2 LT lanes, 1 shared LT/THRU lane and 1 shared RT/THRU lane 3. Convert 63rd St. to one-way EB between Indian Creek Dr. and Collins Ave. 4. Convert 65th St. to one-way WB between Collins Ave. and Indian Creek Dr. 5. Adjust signal phasing to allow increased green time for EB/WB movements at signalized intersections along 63rd St.	1. Year 2010 intersection performance satisfies concurrency standard 2. Elimination of WB movement at intersection permits additional green time for EB movement, allowing 63rd St. to operate at LOS D in 2010 3. Increased delays for NB/SB movements at signalized intersections along 63rd St.
III	1. EB to NB Flyover at Indian Creek Dr./ 63rd St. 2. Adjust Traffic Signal Phasing to Prioritize the EB/WB Flow on 63rd St.	1. Reconstruct flyover ramp providing grade separated free-flow movement from 63rd St. EB to Indian Creek Dr. NB and also provide increased clearance over Indian Creek Dr. 2. Adjust signal phasing to allow increased green time for EB/WB movements at signalized intersections along 63rd St.	1. Year 2010 intersection and link performance satisfy concurrency standards 2. Maximizes vehicular traffic flow 3. Costly mitigation to implement 4. Possible neighborhood opposition 5. Increased delays for NB/SB movements at signalized intersections along 63rd St.

Link: Alton Road between 5th Street and Dade Boulevard

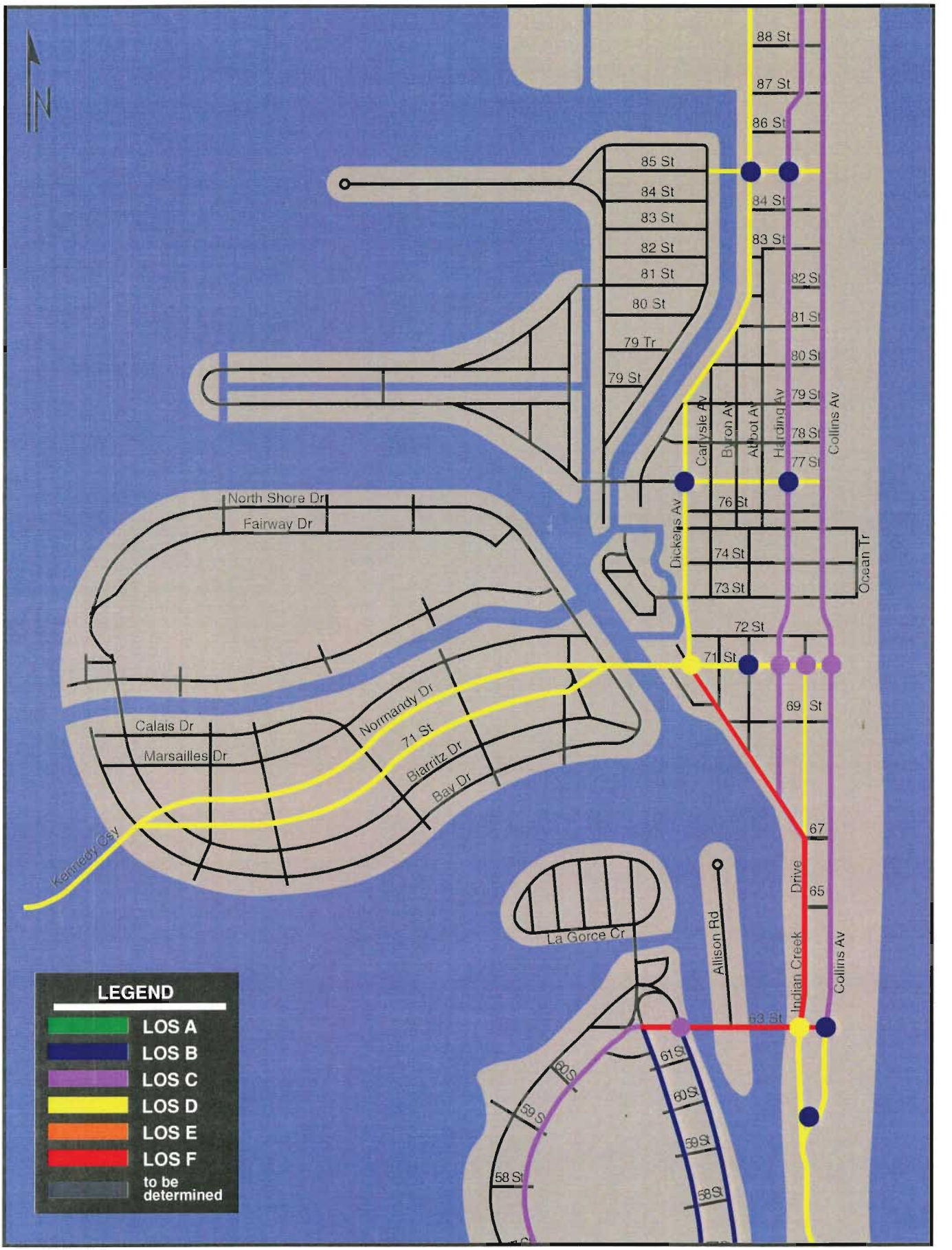
Alt.	Description	Improvements	Comments
I	1. Programmed Intersection Improvements	1. Restripe EB approach at Alton Rd./17th St. to consist of 1 LT lane, 1 shared LT/THRU lane and 1 shared RT/THRU lane 2. Restripe WB approach at Alton Rd./17th St. to consist of 1 LT lane, 1 shared LT/THRU lane and 1 RT lane 3. Add a SB LT lane on Alton Rd at Dade Blvd. and permit SB left turns at this intersection	1. Existing conditions intersection performance of Alton Rd. at 17th St. satisfies concurrency standard 2. Year 2010 intersection performance of Alton Rd. at 17th Street deteriorates to LOS E 3. Link performance of Alton Rd. between 5th Street and Dade Blvd. fails to satisfy concurrency standard 4. Signal phasing provides ample time for pedestrian movements
II	1. Programmed Intersection Improvements 2. SB RT Lane at Alton Rd./17th St.	1. Restripe EB approach at Alton Rd./17th St. to consist of 1 LT lane, 1 shared LT/THRU lane and 1 shared RT/THRU lane 2. Restripe WB approach at Alton Rd./17th St. to consist of 1 LT lane, 1 shared LT/THRU lane and 1 RT lane 3. Add SB RT lane on Alton Rd. by eliminating on-street parking and relocating the median 4. Add a SB LT lane on Alton Rd. at Dade Blvd. and permit SB left turns at this intersection	1. Year 2010 intersection performance of Alton Rd. at 17th St. satisfies concurrency standard 2. Link performance of Alton Rd. between 5th Street and Dade Blvd. fails to satisfy concurrency standard 3. Removes a limited number of parking spaces along Alton Rd. between 17th St. and Dade Blvd. 4. Signal phasing provides ample time for pedestrian movements
III	1. Programmed Intersection Improvements 2. SB RT Lane at Alton Rd./17th St. 3. Adjust Traffic Signal Phasing to Prioritize the NB/SB Flow on Alton Rd.	1. Restripe EB approach at Alton Rd./17th St. to consist of 1 LT lane, 1 shared LT/THRU lane and 1 shared RT/THRU lane 2. Restripe WB approach at Alton Rd./17th St. to consist of 1 LT lane, 1 shared LT/THRU lane and 1 RT lane 3. Add SB RT lane on Alton Rd by eliminating on-street parking and relocating the median 4. Add a SB LT lane on Alton Rd at Dade Blvd. and permit SB left turns at this intersection 5. Adjust signal phasing to allow increased green time for NB/SB movements at signalized intersections along Alton Rd.	1. Year 2010 intersection performance of Alton Rd. at 17th St. satisfies concurrency standard 2. Link performance of Alton Rd. between 5th Street and Dade Blvd. satisfies concurrency standard 3. Removes a limited number of parking spaces along Alton Rd between 17th St. and Dade Blvd. 4. Signal phasing prioritizes vehicular flow at the expense of pedestrians

Link: Ocean Drive between 5th Street and 15th Street

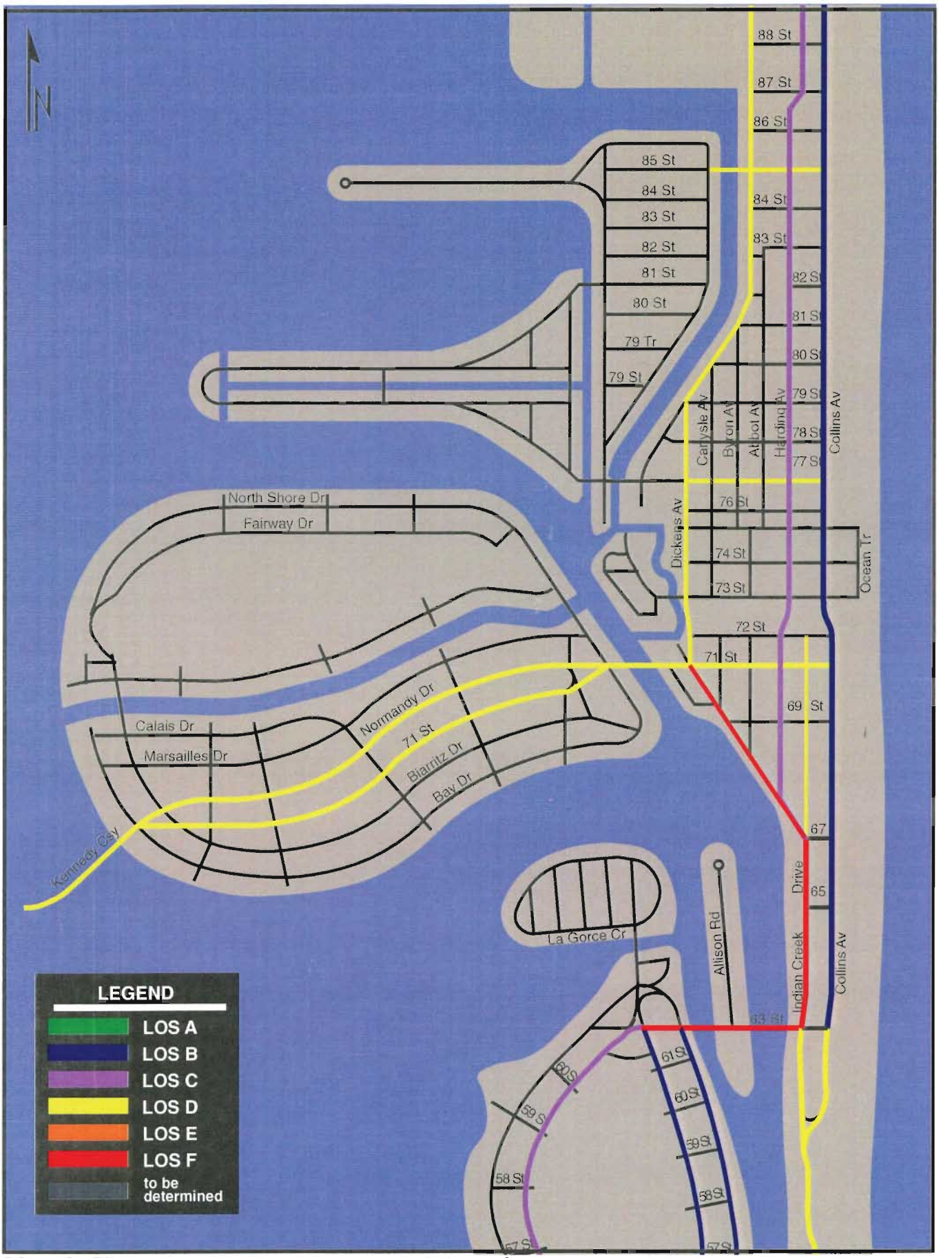
Alt.	Description	Improvements	Comments
I	1. Do Nothing	1. No improvements	1. Existing link performance of Ocean Dr. between 5th Street and 15th St. fails to satisfy concurrency standard 2. Requires amending comprehensive plan to recognize Ocean Dr. as a transportation concurrency exception area 3. Prioritizes sustainable community objectives including pedestrian friendly environment and curb-side activity over vehicular traffic flow
II	1. Convert Ocean Drive to Auto Restricted Zone during Peak Periods	1. Signage required throughout corridor to notify motorists of auto restriction. 2. Requires additional enforcement by the police and parking departments	1. Year 2010 link performance of Ocean Dr. between 5th Street and 15th St. satisfies concurrency standard 2. Prioritizes sustainable community objectives including pedestrian friendly environment and curb-side activity over vehicular traffic flow 3. May have a negative impact on the performance of the surrounding roadway network
III	1. Removal of On-Street Parking to Create Continuous Through Lane	1. Removal of on-street parking along Ocean Dr. to create continuous through lane 2. LT lanes on Ocean Drive at high volume intersection along with traffic signals to facilitate movements	1. Year 2010 link performance of Ocean Dr. between 5th Street and 15th St. satisfies concurrency standard 2. Improves vehicular flow along Ocean Dr. 3. New traffic signals provide pedestrians with increased options to cross Ocean Dr. 4. Increased vehicular speeds in corridor may adversely effect pedestrian safety 5. Removal of parking likely to be opposed by neighborhood groups
IV	1. One-Way Pair Concept on Sidestreets	1. Convert sidestreets between 5th St. and 15th St. to one-way pairs (5th St., 10th St. and 15th St. to remain two-way) 2. Install LT lanes at appropriate intersections along Ocean Drive by removing a limited number of on-street parking spaces	1. Improves traffic flow along Ocean Dr. by concentrating LT movements at certain intersections 2. Removal of a limited number of on-street parking spaces for LT lanes along Ocean Dr. 3. Pedestrian safety and other sustainable community objectives are not adversely impacted
V	1. One-Way Pair Concept on Sidestreets 2. Ocean Dr. One-Way SB	1. Convert Ocean Drive to a two-lane one-way SB roadway with on-street parking on both sides of street 2. Convert sidestreets between 5th St. and 15th St. to one-way pairs (5th St., 10th St. and 15th St. to remain two-way)	1. Year 2010 link performance of Ocean Dr. between 5th Street and 15th St. satisfies concurrency standard 2. Maximizes vehicular traffic flow 3. Eliminates need for LT lanes along Ocean Dr. 4. Prioritizes movement of vehicles over sustainable community objectives such as pedestrian friendliness

Links: 15th and 16th Streets between Washington Avenue and Alton Road

Alt.	Description	Improvements	Comments
I	1. Do Nothing	1. No improvements	1. Existing link performances of 15th and 16th Streets fail to satisfy concurrency standard 2. Does not address neighborhood traffic intrusion issue
II	1. Adjust Traffic Signal Phasing to Prioritize the EB/WB Flow on 15th and 16th Streets	1. Adjust signal phasing to allow increased green time for EB/WB movements at signalized intersections along 15th and 16th Streets	1. Year 2010 link performance of 15th and 16th Streets satisfy concurrency standard 2. Improved vehicular flow may have adverse impact on pedestrians 3. Does not address neighborhood traffic intrusion issue
III	1. One-Way Pair Concept	1. Convert 15th and 16th Streets to a one-way pair with 15th St. serving EB traffic and 16th St. serving WB traffic 2. Designate 16th St. as a collector (15th St. is presently designated as a collector)	1. Year 2010 link performance of 15th and 16th Streets satisfy concurrency standard 2. Maximizes vehicular traffic flow 3. Improved vehicular flow may have adverse impact on pedestrians 4. Does not address neighborhood traffic intrusion issue
IV	1. Traffic Calming Measures	1. Implement traffic calming measures on 15th and 16th Streets to slow vehicular speed and discourage cut-through traffic	1. Prioritizes neighborhood preservation and sustainable community objectives over vehicular traffic flow 2. May have a negative impact on the performance of the surrounding roadway network



North Beach PM Peak Level of Service
Includes Programmed Improvements Only
Figure 21



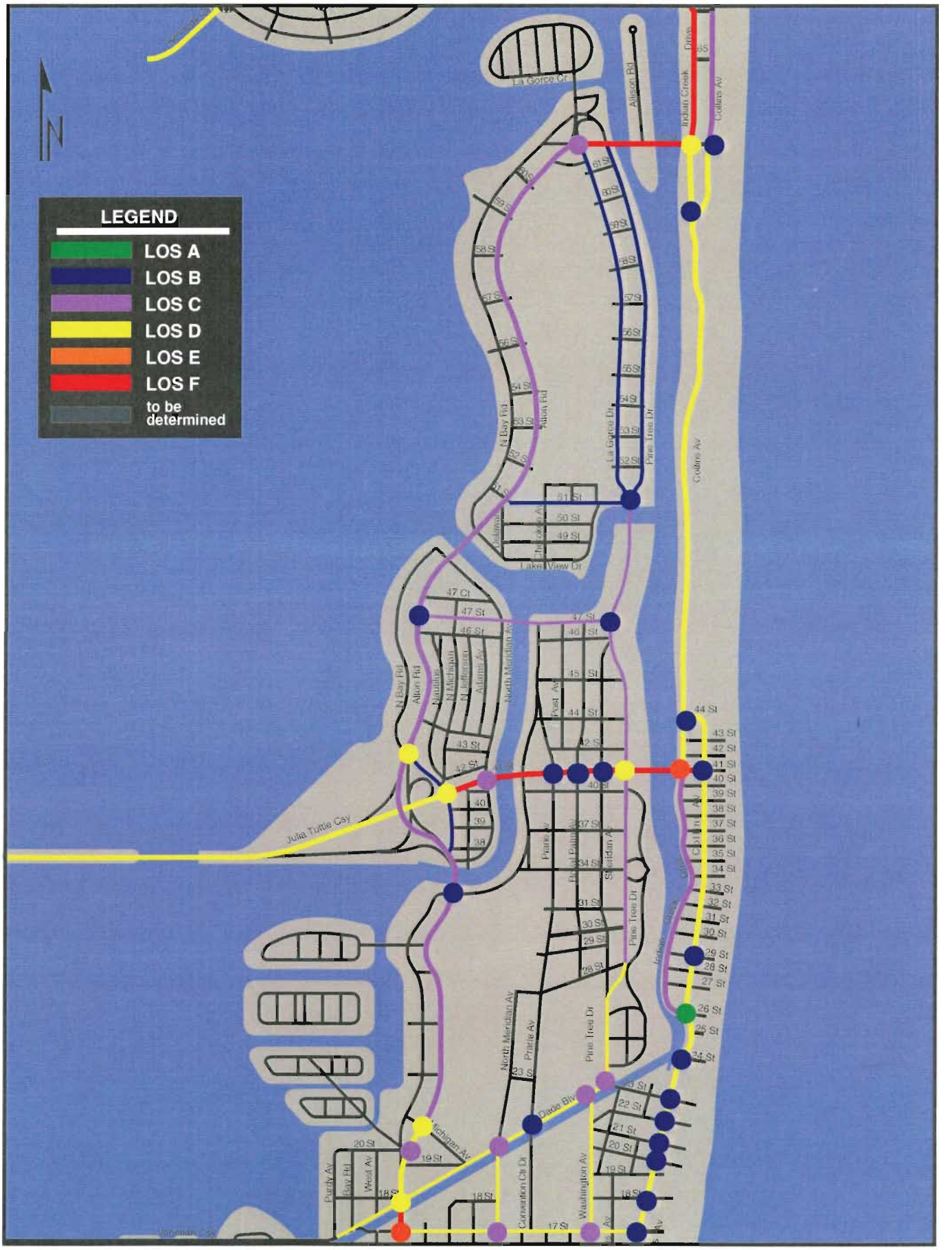
North Beach AM Peak Level of Service
Includes Programmed Improvements Only
Figure 22

Table 10: Year 2010 Directional Link Levels of Service for North Beach - PM and AM Peak Includes Programmed Improvements Only

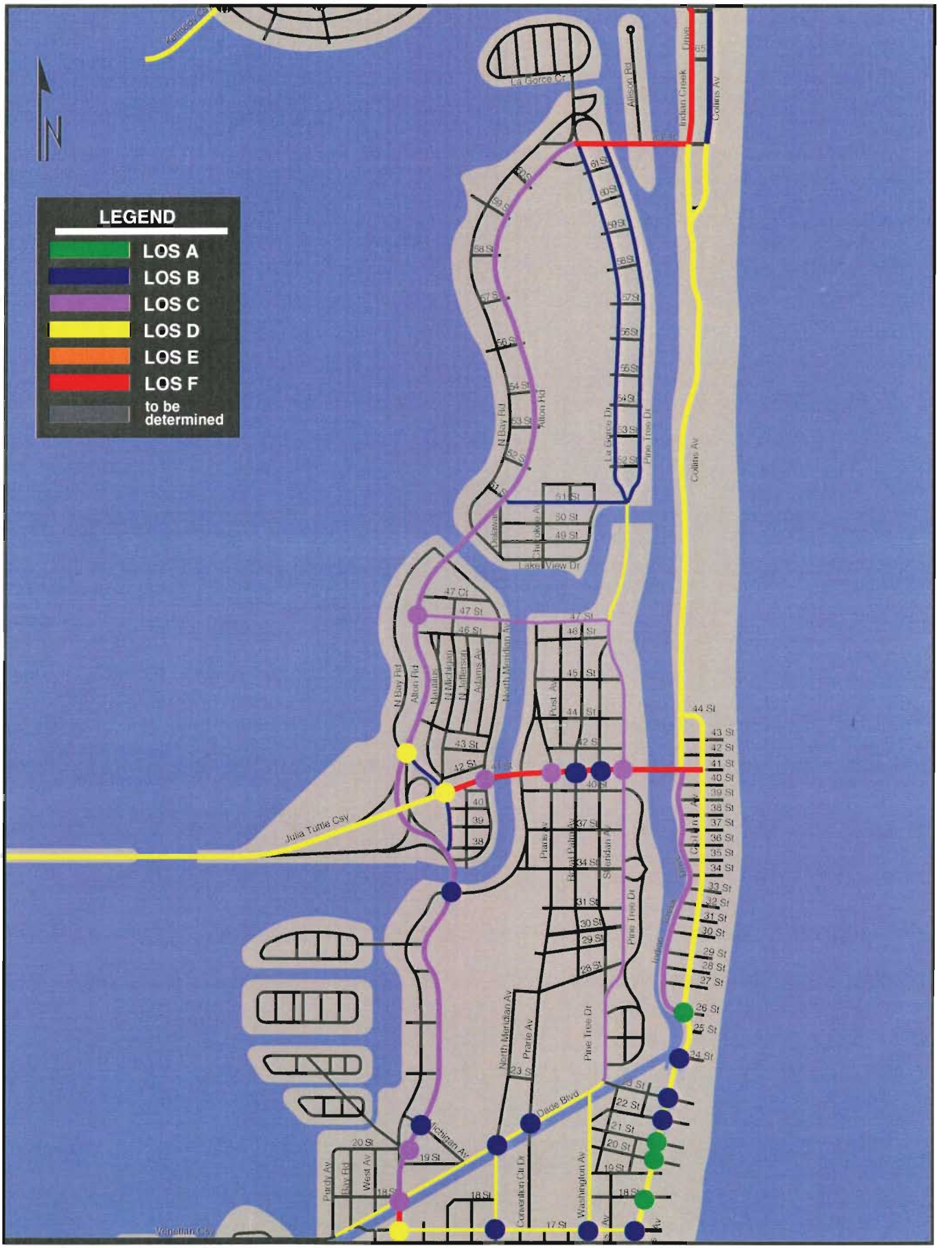
Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS				PM Peak Hour LOS			
								Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
1	NB	Collins Ave		N of 63rd St	State Major Arterial	Class II	3 OW	1,343	NB	1,343	B	2,275	NB	2,275	C
2	NB	Collins Ave		S of 67th St	State Major Arterial	Class II	3 OW	1,051	NB	1,051	B	1,536	NB	1,536	C
3	NB	Collins Ave		N of 71st St	State Major Arterial	Class II	3 OW	1,585	NB	1,585	B	2,731	NB	2,731	C
4	NB	Collins Ave		S of 85th St	State Major Arterial	Class II	3 OW	2,046	NB	2,046	B	3,454	NB	3,454	C
5	NB	Abbott Ave		N of 71st St	State Major Arterial	Class II	3 OW	2,673	SB	2,673	D	2,122	SB	2,122	C
6	NB	Harding Ave		N of Indian Creek Dr	City Collector	Class II	2 OW	483	NB	483	D	874	NB	874	D
7	NB	Harding Ave		N of 71st St	City Collector	Class II	2U	571	NB	332	D	802	NB	441	D
8	NB	Harding Ave		S of 85th St	State Major Arterial	Class II	3 OW	2,585	SB	2,585	D	1,973	SB	1,973	C
9	NB	Indian Creek Dr		N of 63rd St	State Major Arterial	Class II	6D	6,106	SB	4,989	F	5,380	NB	2,691	F
10	NB	Indian Creek Dr		S of 71st St	City Collector	Class II	6D	2,434	SB	1,725	F	2,459	NB	1,741	F
11	NB	Waterway Dr		N of 80th St	City Collector	Class II	2U	455	NB	252	D	699	NB	509	D
12	NB		71 St	W of Collins Ave	State Major Arterial	Class II	2U	721	EB	486	D	777	EB	497	D
14	NB		Normandy Dr	E of Bay Dr	State Major Arterial	Class II	6U	3,195	EB	1,762	D	3,387	WB	1,915	D
15	NB		Normandy Dr	W of Bay Dr	State Major Arterial	Class II	6D	2,780	EB	1,479	D	2,875	EB	1,470	D

Table 11: Year 2010 Intersection Levels of Service for North Beach
Includes Programmed Improvements Only

Ref No.	N-S Road	E-W Road	Jurisdiction & Functional Classification	AM Peak Hour		Mid-Day Peak Hour		PM Peak Hour	
				Intersection Delay (sec/veh)	Intersection LOS	Intersection Delay (sec/veh)	Intersection LOS	Intersection Delay (sec/veh)	Intersection LOS
16	Abbott Ave	71 St	SMJA/SMJA		NA		NA	13.9	B
17	Byron Ave	85 St	CC/CC		NA		NA	8.2	B
18	Collins Ave	71 St	SMJA/SMJA		NA		NA	17.5	C
19	Dickens Ave	77 St	CC/CC		NA		NA	10.5	B
20	Harding Ave	71 St	CC/CC		NA		NA	18.8	C
21	Harding Ave	77 St	SMJA/CC		NA		NA	5.4	B
22	Harding Ave	85 St	SMJA/CC		NA		NA	7.6	B
23	Indian Creek Dr/Dickens Ave	71 St	CC/SMJA		NA		NA	34.2	D



Middle Beach PM Peak Level of Service
Includes Programmed Improvements Only
Figure 23



Middle Beach AM Peak Level of Service
Includes Programmed Improvements Only
Figure 24

Table 12: Year 2010 Directional Link Levels of Service for Middle Beach - PM and AM Peak Includes Programmed Improvements Only

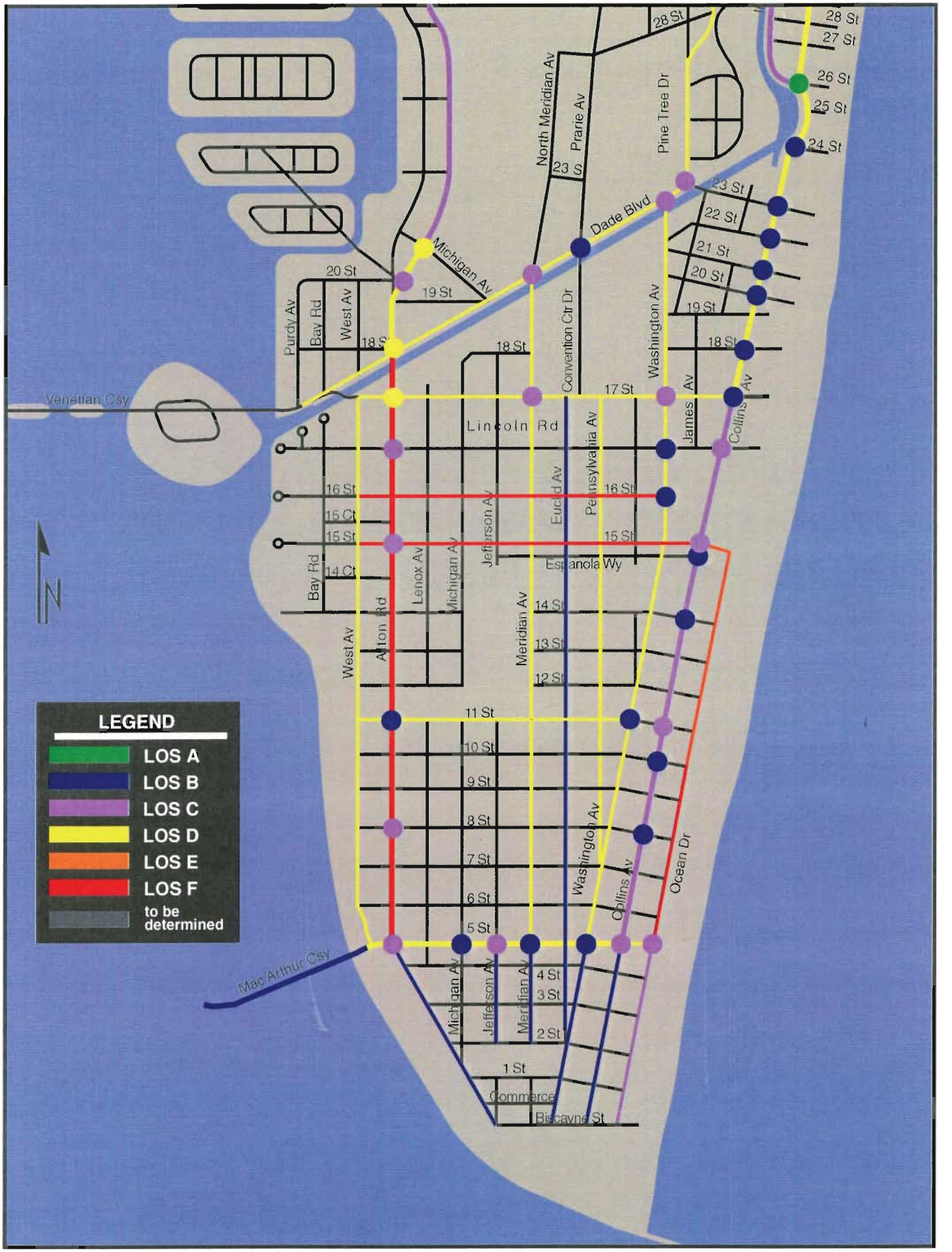
Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS				PM Peak Hour LOS			
								Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
25	MB	East Alton Rd		N of 41st St	City Local	Class IA	4D	596	NB	302	B	729	NB	366	B
26	MB	Alton Rd		S of 43rd St	State Minor Arterial	Class IA	4D	4,131	SB	2,873	C	3,432	SB	2,296	C
27	MB	Alton Rd		N of 43rd St	State Minor Arterial	Class IA	4D	2,529	SB	1,804	C	2,529	SB	1,511	C
28	MB	Alton Rd		N of 51st St	State Minor Arterial	Class IA	4D	3,108	SB	2,320	C	2,722	NB	1,677	C
29	MB	Alton Rd		N of Dade Blvd	State Minor Arterial	Class IA	4D	3,230	SB	1,735	C	3,683	SB	1,912	D
30	MB	East Alton Rd		S of 41st St	City Local	Class IA	4U	562	SB	300	B	556	SB	295	B
31	MB	Collins Ave		5800 Block	State Major Arterial	Class II	6D	1,920	NB	986	D	2,271	SB	1,406	D
32	MB	Collins Ave		N of 41 / S of 44	State Major Arterial	Class II	3 OW	561	NB	561	D	706	SB	706	D
33	MB	Collins Ave		S of 63rd St	State Major Arterial	Class II	3 OW	981	NB	981	D	1,421	SB	1,421	D
34	MB	Collins Ave		S of Indian Creek Dr	State Major Arterial	Class II	6D	2,537	SB	1,935	D	2,747	SB	1,425	D
35	MB	Flamingo Dr		N of 37th St	City Local	Class IA	2U	59	NB	32	B	66	NB	44	B
36	MB	Indian Creek Dr		S of 37th St	State Major Arterial	Class IB	2 OW	986	SB	986	C	1,145	SB	1,145	C
37	MB	La Gorce Dr		S of 52nd St	City Collector	Class IA	2 OW	1,056	SB	1,056	B	405	SB	405	B
38	MB	La Gorce Dr		S of 63rd St	City Collector	Class IA	2 OW	986	SB	986	B	370	SB	370	B
39	MB	Pine Tree Dr		N of 37th St	City Collector	Class IB	4D	893	SB	574	C	931	NB	590	C
40	MB	Pine Tree Dr		N of Arthur Godfrey Rd	City Collector	Class IB	4D	1,085	SB	583	C	1,173	NB	765	C
41	MB	Pine Tree Dr		N of Dade Blvd	City Collector	Class IB	4D	1,321	SB	840	C	1,736	NB	1,101	D
42	MB	Pine Tree Dr		S of 63rd St	City Collector	Class IA	2 OW	413	NB	413	B	949	NB	949	B
43	MB	Pine Tree Dr		S of 51st St	City Collector	Class IB	4D	1,564	SB	1,096	D	1,380	NB	961	C
44	MB	Pine Tree Dr		S of 52nd St	City Collector	Class IA	2 OW	397	NB	397	B	929	NB	929	B
45	MB		41st St	E of Alton Rd	State Major Arterial	Class II	4U	4,233	WB	2,132	F	4,369	EB	2,239	F
46	MB		41st St	W of Alton Rd	State Major Arterial	Class II	6U	3,753	WB	2,015	D	3,383	WB	1,827	D
47	MB		41st St	W of Collins Ave	State Major Arterial	Class II	2U	684	WB	566	F	707	WB	499	F
48	MB		41st St	W of Indian Creek Dr	State Major Arterial	Class II	4U	2,740	WB	1,721	F	2,826	EB	1,737	F
49	MB		41st St	W of Pine Tree Dr	State Major Arterial	Class II	4U	2,812	WB	1,638	F	3,082	WB	1,622	F
50	MB		43rd St	E of Alton Rd	City Local	Class II	4U	485	WB	304	D	613	WB	344	D
51	MB		43rd St	W of Alton Rd	City Local	Class II	4U	1,678	WB	1,353	D	1,574	WB	1,031	D
52	MB		47th St	W of Prarie/Chase	City Local	Class IB	2U	597	WB	383	C	422	EB	212	C
53	MB		51st St	W of Pine Tree Dr	City Local	Class IA	2U	254	EB	147	B	216	EB	129	B

Table 12: Year 2010 Directional Link Levels of Service for Middle Beach - PM and AM Peak Includes Programmed Improvements Only

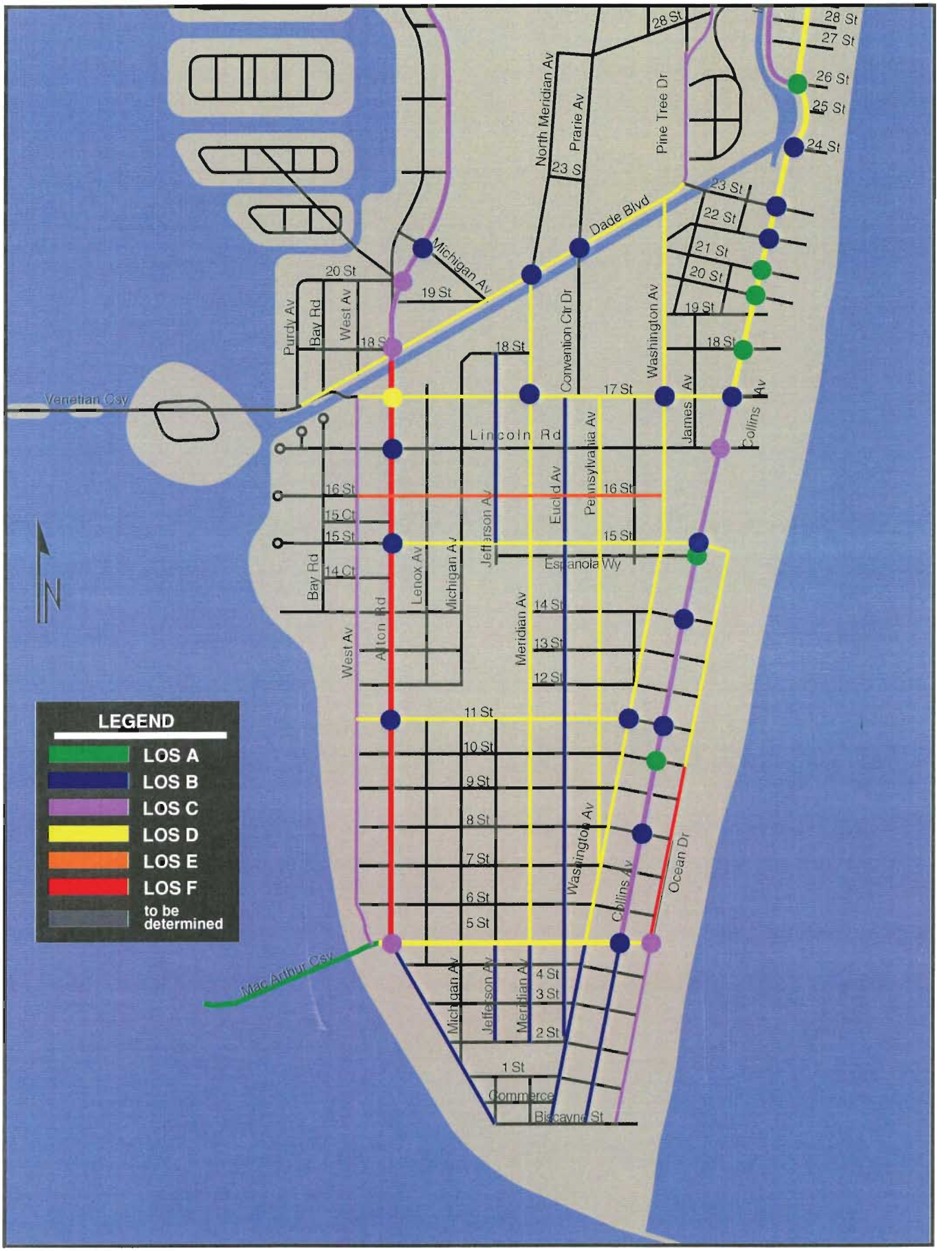
Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS				PM Peak Hour LOS			
								Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
54	MB		63rd St	E of Alton Rd	State Major Arterial	Class II	4U	2,694	WB	1,966	F	2,469	EB	1,292	F
55	MB		63rd St	E of Pine Tree Dr	State Major Arterial	Class II	4U	3,823	WB	2,850	F	3,467	EB	2,197	F
56	MB		Dade Blvd	W of 23rd St	County Collector	Class II	4U	1,672	WB	1,087	D	2,036	EB	1,227	D
57	MB		Dade Blvd	W of Alton Rd	County Collector	Class II	4U	595	WB	337	D	648	WB	371	D
58	MB		Dade Blvd	W of Meridian Av	County Collector	Class II	4U	1,771	EB	1,063	D	1,799	WB	910	D
59	MB		Dade Blvd	W of Washington Ave	County Collector	Class II	4U	1,390	WB	937	D	1,566	WB	794	D

Table 13: Year 2010 Intersection Levels of Service for Middle Beach
Includes Programmed Improvements Only

Ref No.	N-S Road	E-W Road	Jurisdiction & Functional Classification	AM Peak Hour		Mid-Day Peak Hour		PM Peak Hour	
				Intersection Delay (sec/veh)	Intersection LOS	Intersection Delay (sec/veh)	Intersection LOS	Intersection Delay (sec/veh)	Intersection LOS
61	23rd St	Dade Blvd	SMnA/DCMnA					20.7	C
62	Alton Rd	41st St	SMnA/SMJA	27.4	D			30.1	D
63	Alton Rd	47th St	SMnA/CL	15.1	C			11.3	B
64	Alton Rd	43rd St	SMnA/CL	37.0	D	28.3	D	32.9	D
65	Alton Rd	Chase Ave	SMnA/CL	13.5	B			13.2	B
66	Alton Rd	Michigan Ave	SMnA/CL	12.9	B	11.4	B	25.7	D
67	Alton Rd	20th St	SMnA/CL	20.7	C	12.6	B	16.8	C
68	Alton Rd	Dade Blvd	SMnA/DCMnA	18.0	C			26.9	D
69	Collins / Indian Creek	44th St	SMnA/SMnA					12.1	B
70	Collins Av	29th St	SMJA/CL			9.0	B	9.6	B
71	Collins Av	41st St	SMnA/SMJA					6.4	B
72	Collins Ave	63rd St	SMnA/SMnA					12.1	B
73	Collins Ave	5800 Block	SMnA/SMnA					5.7	B
74	Indian Creek Dr	41st St	SMJA/SMJA					49.0	E
75	Indian Creek Dr	63rd St	SMnA/SMnA					26.7	D
76	Pine Tree Dr	41st St	CC/SMJA	18.7	C	19.0	C	25.8	D
77	Sheridan Ave	41st St	CL/SMJA	9.2	B			12.8	B
78	Royal Palm Ave	41st St	CL/SMJA	11.1	B			12.6	B
79	Prarie Ave	41st St	CC/SMJA	22.0	C			14.7	B
80	N Meridian Ave	41st St	CL/SMJA	15.6	C			21.2	C
81	Pine Tree Dr	47th St	CC/CL					9.2	B
82	Pine Tree Dr	51st St	CC/CL					9.6	B
83	Pine Tree Dr	63rd St	CC/SMnA					17.3	C
84	Prarie Ave/Convention Center Dr	Dade Blvd	CC/DcMnA	11.3	B			12.6	B
85	Meridian Ave	Dade Blvd	CC/DcMnA	14.0	B			18.6	C
86	Washington Ave	Dade Blvd	CC/DCMnA					15.5	C



South Beach PM Peak Level of Service
Includes Programmed Improvements Only
Figure 25



South Beach AM Peak Level of Service
Includes Programmed Improvements Only
Figure 26

Table 14: Year 2010 Directional Link Levels of Service for South Beach - PM and AM Peak
Includes Programmed Improvements Only

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS				PM Peak Hour LOS			
								Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
90	SB	Alton Rd		N of 14th St	State Minor Arterial	Class II	4U	3,408	NB	1,859	F	4,231	NB	2,458	F
91	SB	Alton Rd		N of 5th St	State Minor Arterial	Class II	4D	1,257	SB	1,118	F	1,125	SB	809	F
92	SB	Alton Rd		N of 8th St	State Minor Arterial	Class II	4U	2,500	SB	1,408	F	2,911	NB	1,852	F
93	SB	Alton Rd		S of 5th St	City Collector	Class IA	4D	926	SB	561	B	982	NB	585	B
94	SB	Alton Rd		S of Dade Blvd	State Minor Arterial	Class II	4D	2,650	SB	1,332	F	3,230	NB	1,637	F
95	SB	Alton Rd		S of 17th St	State Minor Arterial	Class II	4U	2,688	NB	1,412	F	3,257	NB	1,891	F
96	SB	Collins Ave		N of 13th St	State Major Arterial	Class II	2U	889	SB	583	C	1,087	SB	623	C
97	SB	Collins Ave		N of 5th St	State Major Arterial	Class II	2U	1,200	SB	820	C	1,376	SB	964	C
98	SB	Collins Ave		N of 8th St	State Major Arterial	Class II	2U	1,488	SB	942	C	1,771	SB	1,136	C
99	SB	Collins Ave		S of 24th St	State Major Arterial	Class II	4U	2,198	SB	1,132	D	2,313	NB	1,395	D
100	SB	Collins Ave		S of 5th St	State Major Arterial	Class IA	2U	312	SB	195	B	384	SB	236	B
101	SB	Collins Ave		N of Lincoln Rd	State Major Arterial	Class II	2U	1,620	SB	865	C	1,696	NB	950	C
102	SB	Euclid Ave		N of 13th St	City Local	Class IA	2U	321	NB	178	B	411	NB	236	B
103	SB	Jefferson Ave		S of 5th St	City Local	Class IA	2U	128	NB	73	B	110	SB	56	B
104	SB	Meridian Ave		N of 14th St	City Collector	Class II	2U	877	NB	453	D	1,149	SB	584	D
105	SB	Meridian Ave		N of 5th St	City Collector	Class II	2U	314	SB	193	D	383	SB	199	D
106	SB	Meridian Ave		S of 11th St	City Collector	Class II	2U	375	SB	213	D	559	SB	330	D
107	SB	Meridian Ave		S of 5th St	City Local	Class IA	2U	117	SB	60	B	144	SB	73	B
108	SB	Ocean Dr		N of 13th St	City Local	Other Signalized Rd	2U	730	NB	380	D	1,024	SB	583	E
109	SB	Ocean Dr		N of 8th St	City Local	Other Signalized Rd	2U	1,274	NB	665	F	1,465	NB	871	F
110	SB	Ocean Dr		S of 5th St	City Local	Other Signalized Rd	2U	364	NB	197	C	474	NB	239	C
111	SB	Pennsylvania Ave		N of 13th St	City Local	Class II	2U	342	SB	185	D	525	SB	300	D
112	SB	Washington Ave		N of 13th St	City Collector	Class II	4D	1,956	SB	1,161	D	2,183	SB	1,244	D
113	SB	Washington Ave		N of 5th St	City Collector	Class II	4D	1,140	SB	697	D	1,183	SB	729	D
114	SB	Washington Ave		N of 8th St	City Collector	Class II	4D	1,740	SB	883	D	1,980	SB	1,026	D
115	SB	Washington Ave		S of 5th St	City Collector	Class IA	4D	452	NB	227	B	707	NB	364	B
116	SB	Washington Ave		S of Dade Blvd	City Collector	Class II	4U	1,135	SB	698	D	1,470	NB	883	D
117	SB	Washington Ave		N of Lincoln Rd	City Collector	Class II	4D	1,064	SB	593	D	1,227	SB	659	D
118	SB	West Ave		N of 8th St	City Local	Class IB	2U	1,136	SB	976	C	880	SB	497	D

Table 14: Year 2010 Directional Link Levels of Service for South Beach - PM and AM Peak Includes Programmed Improvements Only

Ref No.	Study Area	N-S Road	E-W Road	Location	Jurisdiction & Functional Classification	Arterial LOS Classification (FDOT LOS Manual)	Lanes, Config	AM Peak Hour LOS				PM Peak Hour LOS			
								Bi-Directional Volume	Peak Direction	Peak-Directional Volume	AM Peak LOS	Bi-Directional Volume	Peak Direction	Peak-Directional Volume	PM LOS
119	SB		11th St	W of Meridian Ave	City Collector	Class II	2U	700	EB	387	D	879	EB	445	D
120	SB		15th St	W of Meridian Ave	City Local	Class II	2OW	914	EB	584	D	1,218	EB	809	F
121	SB		16th St	W of Meridian Ave	City Local	Class II	2OW	1,065	WB	627	E	1,195	WB	749	F
122	SB		17th St	E of Pennsylvania Ave	City Collector	Class II	4U	1,283	EB	703	D	1,400	EB	785	D
123	SB		17th St	E of Alton Rd	City Collector	Class II	4U	992	EB	611	D	1,004	EB	538	D
124	SB		5th St	E of Alton Rd	State Major Arterial	Class II	6D	2,197	EB	1,133	D	2,271	EB	1,200	D
125	SB		5th St	E of Washington Ave	State Major Arterial	Class II	6D	1,167	WB	613	D	1,312	WB	714	D
126	SB		5th St	W of Meridian Ave	State Major Arterial	Class II	6D	2,319	WB	1,195	D	2,601	WB	1,459	D
127	SB		I-395	W of Alton Rd	State Major Arterial	Class IA	6D	5,219	WB	3,202	A	5,949	EB	3,248	B

Table 15: Year 2010 Intersection Levels of Service for South Beach
Includes Programmed Improvements Only

Ref No.	N-S Road	E-W Road	Jurisdiction & Functional Classification	AM Peak Hour		Mid-Day Peak Hour		PM Peak Hour	
				Intersection Delay (sec/veh)	Intersection LOS	Intersection Delay (sec/veh)	Intersection LOS	Intersection Delay (sec/veh)	Intersection LOS
129	Alton Rd	11th St	SMJA / CC	10.9	B			12.9	B
130	Alton Rd	15th St	SMJA / CL	14.6	B	24.8	C	18.7	C
131	Alton Rd	17th St	SMnA / CC	25.5	D	45.6	E	37.3	D
132	Alton Rd	5th St	SMJA / SMJA	18.8	C			21.1	C
133	Alton Rd	8th St	SMJA / CL					18.7	C
134	Alton Rd	Lincoln Rd	SMJA / CL	8.9	B	14.0	B	24.6	C
135	Collins Ave	10th	SMJA/CL	5.0	A	7.0	B	7.8	B
136	Collins Ave	11th St	SMJA/CC	6.4	B	28.6	D	16.5	C
137	Collins Ave	14th St	SMJA/CL	5.2	B	7.6	B	7.8	B
138	Collins Ave	15th St	SMJA/CL	8.3	B	10.4	B	20.5	C
139	Collins Ave	17th St	SMJA/CC	9.0	B	12.8	B	14.1	B
140	Collins Ave	18th St	SMJA/CL	4.5	A	6.2	B	6.9	B
141	Collins Ave	20th St	SMJA/CL	4.7	A	6.4	B	6.4	B
142	Collins Ave	21st St	SMJA/CL	4.8	A	5.9	B	6.8	B
143	Collins Ave	22nd St	SMJA/CL	5.5	B	6.7	B	6.9	B
144	Collins Ave	23rd St	SMJA/DCMnA	11.2	B	13.6	B	21.1	B
145	Collins Ave	24th St	SMJA/CL	11.9	B	13.6	B	14.2	B
146	Collins Ave	26th St	SMJA/CL	4.6	A	4.4	A	4.2	A
147	Collins Ave	5th St	SMJA/SMJA	14.2	B	17.8	C	16.0	C
148	Collins Ave	8th St	SMJA/CL	5.1	B	7.5	B	7.3	B
149	Collins Ave	Espanola Way	SMJA/CL	4.2	A	5.3	B	6.5	B
150	Collins Ave	Lincoln Rd	SMJA/CL	16.7	C	19.0	C	22.8	C
151	Jefferson Ave	5th St	SMJA / SMJA					16.5	C
152	Meridian Ave	17th St	CC/ CC	10.2	B	11.7	B	15.6	C
153	Meridian Ave	5th St	SMJA / SMJA					11.9	B
154	Michigan Ave	5th St	SMJA / SMJA					14.1	B
155	Ocean Dr	5th St	CC / SMJA	17.9	C			25.0	C
156	Washington Ave	17th St	CC/ CC	13.1	B	17.6	C	20.6	C
157	Washington Ave	11th St	CC/ CC	7.4	B	9.0	B	9.8	B
158	Washington Ave	5th St	CC/ SMJA					14.1	B
159	Washington Ave	Lincoln Rd	CC/ CL					8.8	B

MIAMI BEACH MUNICIPAL MOBILITY PLAN

SPECIAL USERS REPORT

MIAMI BEACH MUNICIPAL MOBILITY PLAN
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SPECIAL USERS REPORT

INTRODUCTION

Miami Beach enjoys a culture, environment, and urban pattern that is already producing a multimodal and pedestrian city for which the residents support an unusually wide array of transportation choices. Based on the results of the 1995 *South Beach Residents' Perceptions of Parking and Traffic Conditions*, the mode split for leisure purposes includes:

Mode	Percent of Leisure Trips
Walk	32%
Personal Car	42%
Bicycle	2%
Taxi	12%
Public Transportation	10%
Friend/Spouse (ride sharing)	1%
Roller Blade	1%
Hospital Transportation (paratransit)	<1%

The survey found that the average resident makes 8.6 trips per week in the general area, 1.7 trips in the South Beach area, and 6.1 trips per week out of the area. The average trip to work is 12.3 miles, with 23.5% of the trips less than 5 miles. The under 5 mile trips are the best prospect for travel mode alternatives to automobiles. (This does not include 27.1% of the respondents that answered not applicable and 6.4% that didn't know. Those who answered "not applicable" may have trips of less than 1 mile.)

Despite its perceived traffic problems, Miami Beach continues to grow to satisfy market demands. Between 1991 and 1995, the City grew by about 3,200 residential units. This growth is expected to continue with residential units expanding by 3,800 by the year 2000, and an increase of another 2,100 units by the year 2005. In addition to the increase in the number of residential units, the density of residential development is also increasing.

There is a need to plan for safe, efficient, integrated transportation in the City. While addressing the actual trip demand, mode split, and network distribution, the City must also explore means to bring its system into concurrency, using a holistic, multimodal approach that reduces the dependence on roadway infrastructure.

Residents' Survey

With regard to perceptions of traffic, the 1995 *South Beach Residents' Perceptions of Parking and Traffic Conditions* found the following:

- Over 96% of the surveyed residents rate traffic conditions as congested. Over 56% rated traffic conditions as very congested.

- Over 56% stated that traffic congestion was getting worse in 1995, compared to 1994. Only 4.9% thought that traffic congestion improved in that year.

- Over 85% of the residents that were surveyed believe that traffic has an effect on the quality of life. More than 38% said that it has a great impact on the quality of life.

- Most residents (72%) stated that weekends are when their experience of traffic congestion is the worst. Evenings and nights were found to be the worst time of day (46.1%). When asked for more exact times of day, 5.6% stated that 4:00 p.m. to 8:00 p.m. is the worst time, and 4.6% said that 8:00 p.m. to midnight was the worst period for traffic congestion.

Visitors' Survey

The *South Beach Transportation Management Association Visitor Survey*, also conducted in 1995, focused on the attitudes of visitors to Miami Beach toward traffic, parking, and transportation alternatives. Visitors were surveyed primarily in hotels, restaurants, or bars.

- Whether originating from an airport, seaport, or other land link, 59% of the visitors arrived on South Beach by automobile. Twenty percent came by taxi, and 12% by Super Shuttle, hotel shuttle, or tour bus.

- Only 22% used transit (bus, shuttle, or taxi) during their stay. Of those who did use transit, 50% stated that the price of parking was a motivating factor.

Demographic Influences on Modal Choice

Miami Beach is becoming a younger city with more diverse transportation needs than ever before. In 1980, these 25 to 44 age cohorts for the entire city represented 13.7 % (13,193) of the population, while 50.6% of the population were over 64. In 1990, the 25 to 44 age category more than doubled in proportion and real numbers to 28.8% (26,680), while those over 64 shrank to 30.1% of the population. The younger population demands a greater number of trips per capita. Exemplified by survey findings, this population and the city's visitors also have a greater propensity to use alternative transportation modes for leisure trips than many other cities.

In addition to the city's travel demand generated by its residences, trips are also attracted by the city's 38,000 jobs (approx., 1990 U.S. Bureau of Census), 81.5% of which are in sales, trades, services and administration. Many of the retail and service jobs present better opportunities for demand management strategies, such as staggered work hours. Additionally, many of the retail and service positions are filled by city residents, who can be served by alternative modes. The City's five largest employers (1996 data) provide over 20% of the jobs. The number of jobs provided by the city's largest employers are listed below:

Employer	Jobs
Mount Sinai Medical Center	3,500
City of Miami Beach	1,574
Fountainbleau Hilton	1,200
Miami Heart Institute	1,150
South Shore Hospital	725
Eden Roc Resort and Spa	530
Doral on the Beach	500

Miami Beach is also home to Miami Beach Senior High School, Nautilus Middle School, three public elementary schools and eleven private, parochial, and vocational schools. The combined enrollment among these schools numbered 8,854 in 1996. Many of these students cannot drive, and their transportation modes include walking, bicycle, roller skates, skateboards, transit, and being driven by another person. Providing mobility for many of the students underscores the need to assure safe coexistence among various transportation modes.

Parking – Survey Results

The surveys found that one of the primary issues affecting the quality of life for the residents of Miami Beach is parking. Parking is also the primary transportation-related disincentive to the patronage of tourist, service, and entertainment businesses in South Beach. Conversely, difficulty and high cost of parking can be a critical tool to encourage the use of alternative transportation modes.

Residents

The findings of the 1995 *South Beach Residents' Perceptions of Parking and Traffic Conditions* show that 55.1% of the residents of South Beach see parking as having a great effect on their quality of life. Over 90% feel that parking has at least some effect on their quality-of-life and that parking problems need immediate attention.

Parking is considered at its worst on weekends (74.7% of respondents), especially on Saturdays. Evenings and nights are perceived as the worst times of the day (50.5%). When asked for more exact times of day, the period between 8:00 p.m. to midnight was identified as having the worst parking conditions.

When asked to suggest the one thing that could be done that would most improve parking, the majority of respondents suggested that more garages be built. Among 19 recorded suggestions, the top five ranking responses of things that could be done to improve parking are:

1. Build more garages (37.9%)
2. Build more lots (22.8%)
3. Increase public transit (4.7%)
4. Free or reduced cost (4.5%)
5. Municipal parking (3.9%)
6. Tow ticket abusers (3.9%)

The majority of residents indicated that increased parking capacity would improve parking. Transit and management suggestions follow in rank.

Currently Miami Beach has over 10,000 metered parking spaces in 80 metered zones. 5,000 of these parking spaces are on-street spaces. Approximately one-half of the parking supply is provided off street in 64 facilities. Additionally, the most acute parking demand is located in South Beach.

Visitors

Visitors to Miami Beach rated the availability and convenience of parking as poor. Even though visitors expected parking conditions would be poor, they did not expect it to be as bad as they found it. Results of visitors experience and expectations of parking are summarized below:

- Visitor experience of parking availability and convenience (1=Excellent, 5=Poor) = 4.98
- Visitor expectation of parking availability and convenience (1=Excellent, 5=Poor) = 3.46

Fifty percent of the visitors to Miami Beach parked on the street, while only 15% used garages. Of those who used transit, the availability and convenience of parking was a motivating factor. The price of parking was a motivating factor for over 50% of the visitors that utilized transit.

Multi-modalism

An essential component of the Municipal Mobility Plan is to address the impacts of traffic congestion on quality-of-life, the urban environment, tourism, and growth management are through a multi-modal strategy geared toward inducing greater use and enjoyment of transit, pedestrian, non-motorized, and marine travel modes.

Traffic congestion presently constrains the mobility of pedestrians and bicyclists, and the congestion is perceived as getting worse each year. Alternative transportation is one way of mitigating traffic to some extent, yet currently 60% of the population claim they never use public transit. Many residents would be more willing to use public transportation if the cost were reduced and if there was better transit information. However, the availability, convenience and price of parking are the primary motivations for using transit.

The Electrowave electric shuttle in South Beach began service in January 1998. Part of the mission of the shuttle is to develop greater reliance on transit within the City by encouraging park-and-ride activities through serving South Beach from its major parking facilities. An interim, interceptor park-and-ride lot with low parking rates is located on 5th Street. The Electrowave has been very successful since its inception carrying approximately 3,500 riders per day. The implications of its success confirm that transportation alternatives targeted to market needs outperform traditional multi-modal expectations.

The quality of the public realm, quality-of-life, and the livability of the city are all impacted by its transportation network and investments. The transportation network must support other elements in addition to vehicles that affect the experience of residents and visitors alike. These elements include providing for safe pedestrian mobility, including providing for mobility impaired pedestrians, providing a well integrated bicycle network and facilities, and providing transit service that attracts choice riders. Choice riders can be defined as persons that choose to ride transit although they have the opportunity to utilize other modes of travel such as taxis or personal automobiles. Additionally, transportation issues that are unique to Miami Beach must be considered. These issues include the following:

- Safety problems associated with the scale of vehicles sharing the roadways, ranging from scooters to trucks;

- Integrating roller skaters and skateboarders into the network without jeopardizing safety and damaging public investments;

- Developing an infrastructure for a water taxi system to take advantage of the city's network of inland waterways, as well as increasing public access to the bay and ocean.

Neighborhood Traffic Management

The impact of high traffic volumes and speeding on neighborhood streets must also be managed. The City's street network includes state roads that front single family residences. In particular, the portion of Alton Road from Dade Boulevard to 62nd Street has been the subject of intense police enforcement efforts to reduce speeds along this sections that is largely bordered by residences. Furthermore, several north/south and east/west cut-through routes bring large volumes of traffic at high speeds through residential streets. The dual concerns of maintaining neighborhood character while fully utilizing the urban grid must be negotiated by well designed traffic management.

Special Users Report Outline

The Special Users' Report is organized into the following 6 sections to address the needs presented in this introduction:

1. Neighborhood Traffic Management - Page 6
2. Bicycle and Non-Motorized Vehicles - Page 17
3. Pedestrians - Page 23
4. Roller Skating and Skateboarding - Page 34
5. Transit - Page 37
6. Inland Marine and Water Taxi - Page 46

NEIGHBORHOOD TRAFFIC MANAGEMENT

This section is a summary of issues associated with neighborhood traffic intrusion and the need for traffic management on neighborhood streets in Miami Beach.

The City of Miami Beach is situated on a barrier island that is linked to the mainland of Miami-Dade County by four causeways. The City is connected to the City of Surfside to the north by the arterial pair of Collins and Harding Avenues, along with Byron Avenue, which is closed to through traffic. Location and geographic share are major components of the City's traffic patterns. The City's long narrow shape concentrates traffic flows in the north and south directions.

The City's roadway network is laid out on an orthogonal street grid, which provides the opportunities of multiple trip paths. A significant asset to urban areas, orthogonal grids can continue to function even in the most dense settings because of the robust functionality of multiple paths when certain individual links fail from traffic congestion, construction, temporary closures, or emergencies. As bottlenecks occur, traffic flows on residential through streets increase, reducing both the safety and overall quality of life to residents of those streets.

Hierarchical Street Functions

The Miami Beach street grid is a hierarchical one. Roadways have specific functions related to the following:

- adjacent land uses
- existence of other traffic facilities at the endpoints
- character of the street's use as open space for pedestrians and non-motorized traffic.

Arterials function to carry through traffic and to move large volumes of vehicular traffic between other arterials, and to provide access to local commercial and residential centers. State Principal Arterials are designed to function with greater emphasis on throughput, and less emphasis on providing access to fronting land uses. Arterials in Miami Beach include:

- Collins Avenue / Harding Avenue (SR-A1A) (State Principal Arterial)
- 5th Street, MacArthur Causeway (I-395) (SR-A1A) (State Principal Arterial)
- 41st Street, Julia Tuttle Causeway (I-195) (SR-112) (State Principal Arterial)
- 71st Street, Normandy Causeway, Kennedy Causeway (SR-934)(State Principal Arterial)
- Alton Road (SR-907) (State Minor Arterial)

Local streets provide access to residences, and are often distinguished from arterials by mixed use of the street space. Whereas arterials prioritize traffic movement, local streets must accommodate pedestrian uses and a variety of urban open space activities.

Neighborhood collectors also provide direct access to residences and commercial uses, but place greater emphasis on vehicular movement in the mix of uses. Generally, separation of pedestrian and vehicular spaces is appropriate on these facilities. Collectors in Miami Beach include:

- Washington Avenue (City Collector)

- Dade Boulevard (Dade County Collector)
- Venetian Causeway (Dade County Collector)
- Pine Tree Drive (Dade County Collector)
- LaGorce Drive (Dade County Collector)
- 11th Street (City Collector)
- 15th Street (City Collector)
- 77th Street (City Collector)
- 85th Street (City Collector)

Several roadways, which are classified as arterials or collectors, have single family residential abutting land uses or other features that make their traffic and/or transit functions inconsistent with safety and quality of life considerations. These roadways are listed in the table below along with their conflicting uses.

Roadway	Classification	Configuration	Abutting Land Use	Bike Route or Usage	Other Conflicts
Alton Road 5th St. to Dade Blvd.	Major Arterial	4 lanes undivided	Commercial	Planned Facility	Parallel Parking PedestrianActivity School Zones
Alton Road Dade to 63rd St.	Major Arterial	4 lanes divided	S.F. Residential	Planned Facility	Parallel Parking
Pine Tree Drive Dade Blvd. to 51st St.	City Collector	4 lanes divided	S.F. Residential	Planned Facility	School Zones
Pine Tree Drive 51st St. to 63rd St.	City Collector	2 lanes one-way pair	S.F. Residential	Planned Facility	
LaGorce Drive 51st St. to 63rd St.	City Collector	2 lanes one-way pair	S.F. Residential	Planned Facility	
Sheridan Ave. Pinetree Drive to 46th St.	City Collector	2 lanes undivided	S.F. Residential	Use	MDTA Bus Route
11th Street	City Collector	2 lanes undivided	Multi-family Residential City Park	Use	Parallel Parking PedestrianActivity
15th Street	City Collector	2 lanes undivided	Multi-family Residential	Planned Facility	Parallel Parking PedestrianActivity
41st Street	Major Arterial	4 lanes undivided	Community Commercial	Planned Facility	Parallel Parking PedestrianActivity School Zones
71st Street & Normandy Dr.	Major Arterial	3 lanes one-way pairs	Multi-family Residential	Planned Facility	Parallel Parking PedestrianActivity

Arterial and Collector Deficiencies

If the arterial and collector street network cannot adequately accommodate longer-distance through traffic, there is a greater likelihood that motorists will intrude upon and use local residential streets as alternate paths. Conversely, if the arterial facilities provide adequate speed, level-of-service, and roadway capacity, there is greater likelihood that few operational or physical alterations will be necessary to reduce or eliminate neighborhood traffic intrusion. Based on the citywide level-of-service analysis for this study, the following roadways have deficient conditions during peak periods or conditions sufficient to cause motorists to seek cut-through paths.

Roadway	Location	Peak LOS	
		AM	PM
Collins Avenue	5th St. to Lincoln Rd.	C	D
Collins Avenue	Lincoln Rd. to 26th St.	D	D
Collins Avenue	26th St. to 44th St.	D	D
Indian Creek Drive	26th St. to 44th St.	D	D
Collins Avenue	44th St. to 63rd St.	D	D
Collins Avenue	63rd St. to 85th St.	D	D
Indian Creek Drive	63rd St. to 85th St.	D	D
Meridian Avenue	5th St. to Dade Blvd.	D	D
Alton Road	5th St. to Dade Blvd.	D	E
Alton Road	Dade Blvd. to Chase Av.	C	D
Alton Road	Chase Av. to 63rd St.	F	F
5th Street	Alton Rd. to Ocean Dr.	D	D
11th Street	Alton Rd. to Ocean Dr.	D	D
15th Street	Alton Rd. to Collins Av.	D	D
17th Street	Alton Rd. to Collins Av.	D	D
Dade Boulevard	Alton Rd. to Pine Tree Blvd.	D	D
41st Street	Alton Rd. to Collins Av.	F	E
63rd Street	Alton Rd. to Collins Av.	F	F
71st Street	Kennedy Csy. to Collins Av.	D	D

Residential Local Street Traffic Intrusion

When local residential streets are used as alternate paths, the problem of traffic intrusion on cut-through routes is encountered. Residents concerns are related to their individual experience of the cut-through traffic as it adversely impacts the livability of their street, their public space, and their neighborhood. Some issues are summarized below:

- Excessive vehicle speeds within residential neighborhoods.

- At a minimum the County speed limit for local streets of 30 mph should be adhered to. Best development practices support an 85th percentile speed for residential local streets of 20 mph. The chances of a pedestrian surviving a traffic accident go from 10% at 40 mph, to 60% at 30 mph, to 95% at 20 mph. The update of the FDOT

Green Book allows design speeds as low as 20 mph where local streets have short segments, frequent stop signs, and other speed reduction measures.

- The appropriate 85th percentile speed for residential collector streets with separated pedestrian, bicycle, and vehicular uses is 35 mph.

- Cut-through traffic or traffic intrusion caused by diversion from arterials, or by the presence of major generators at one end of the street.

- High traffic volumes on arterials and collectors that are fronted by single-family residences. Although this is not traffic intrusion, the use of the roadway conflicts with the adjacent land use. Street closures are not feasible and traffic calming alternatives are limited.

- Safety of pedestrians and bicyclists as many of streets have inadequate or poorly maintained sidewalks, which are sometimes blocked by vehicles in driveways. Additionally, pedestrians and bicycles share the same space as vehicles on many of these streets.

- Perception of increasing crime.

- High truck traffic volumes as a result of traffic intrusion.

- Increased noise as a result of high traffic volumes.

- Perceived increase or decrease in property value as a result of traffic intrusion and street closures.

- Increased response time for emergency vehicles to reach residences and hospitals or other emergency facilities.

Street Usage Conflicts

While the usefulness of alternate paths is essential to the function of the urban orthogonal grid, many neighborhood streets are now carrying traffic volumes for which they were never intended and are unsuited to accommodate. Problems are exacerbated by the elevated performance of modern vehicles resulting in speeds and driving behavior that are both dangerous and intimidating to pedestrians sharing the street.

The function of many residential streets is first to provide public space and abutting use access, then to operate as circulation facilities. In many cases pedestrians and cyclists have been forced off of the roads and meeting, exercising, or other outdoor street space activities have been seriously encroached by vehicular traffic.

Traffic Intrusion in Miami Beach Neighborhoods

Figure 27 shows the specific traffic intrusion problems that exist in the City. Streets shown in yellow exhibit volumes that are high enough to impact the quality-of-life of their residents. These streets have volumes that exceed the daily or peak hour livability thresholds, as established in the *Metro Dade Street Closure/ Traffic Flow Modification Study*. Because peak hour volumes vary widely in Miami Beach due to seasonal variation, special event conditions, and weekend and night time entertainment traffic, the typical peak hour may not indicate the worst conditions.

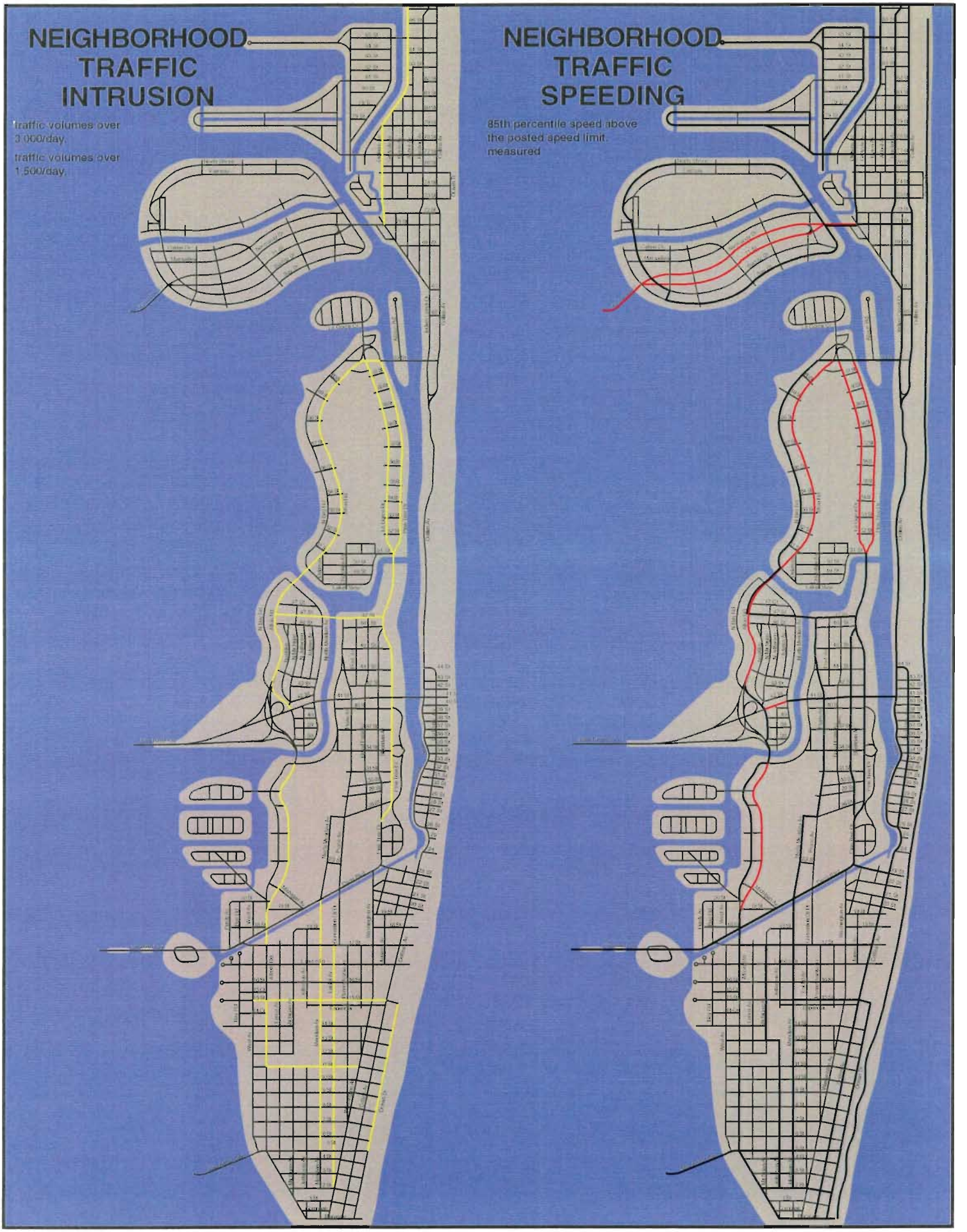
Street	Location	Classification	Peak Hour Volumes		
			Threshold	AM	PM
Ocean Drive	5th St. to 11th St.	Local	150	1,080	1,241
Ocean Drive	11th St. to 15th St.	Local	150	616	868
Euclid Ave.	7th St. to 17th St.	Local	150	272	349
Meridian Avenue	5th St. to 15th St.	Collector	300	318	474
West Avenue	5th St. to 17th St.	Collector	300	1,072	830
Pine Tree Drive	Sheridan Av. to 41st St.	Collector	300	875	913
Pine Tree Drive	41st St. to 51st St.	Collector	300	1,422	1,254
Pine Tree Drive	51st St. to 63rd St.	Collector	300	375	863
LaGorce Drive	51st St. to 63rd St.	Collector	300	960	368
Waterway Drive	77th St. to 82nd St	Collector	300	417	641
11th Street	Alton Rd. to Washington Av.	Collector	300	599	751
15th Street	Alton Rd. to Washington Av.	Collector	300	781	1,041
47th Street	Alton Rd. to Pine Tree Dr.	Local	150	585	414

Speeding in Miami Beach Neighborhoods

Vehicle speeds have a major impact on the livability of streets bordered by residential land uses. The 85th percentile speed is the speed at or below which 85% of measured vehicles are traveling. This value is generally considered the maximum speed at which most motorists feel comfortable driving. If the 85th percentile speed of a roadway greatly exceeds the roadway's speed limit, traffic calming or enforcement measures may be necessary to reduce speed to a more compatible limit for the area.

Spot speed surveys, which are summarized in the following table were conducted at the following eight locations in Miami Beach:

- 71st Street west of Bourdeaux
- Pine Tree Drive north of 54th Street
- La Gorce Drive north of 54th Street
- Alton Road north of 51st Street
- Alton Road south of 27th Street
- Alton Road north of 13th Street
- 41st Street between Alton Road and Meridian Avenue
- 15th Street west of Meridian Avenue



Neighborhood Traffic Intrusion
Figure 27

Miami Beach Municipal Mobility Plan
Existing Conditions Analysis
Speed Survey Results

1) 71st Street west of Bourdeaux

	EB
Average Speed	42.0mph
Median Speed	41.8mph
Mode Speed	42.5mph
85th Percentile Speed	**48.8mph**
% of Vehicles > 40mph	**60.6%**
% of Vehicles > 50mph	10.0%

2) Pine Tree Drive north of 54th Street

	NB
Average Speed	38.4mph
Median Speed	38.1mph
Mode Speed	37.5mph
85th Percentile Speed	**44.7mph**
% of Vehicles > 40mph	**35.9%**
% of Vehicles > 50mph	3.7%

3) LaGorce Drive north of 54th Street

	SB
Average Speed	39.7mph
Median Speed	39.5mph
Mode Speed	37.5mph
85th Percentile Speed	**46.6mph**
% of Vehicles > 40mph	**46.7%**
% of Vehicles > 50mph	5.6%

4) Alton Road north of 51st Street

	NB	SB
Average Speed	42.1mph	41.4mph
Median Speed	41.9mph	41.2mph
Mode Speed	42.5mph	42.5mph
85th Percentile Speed	**48.5mph**	**47.8mph**
% of Vehicles > 40mph	**63.0%**	**57.5%**
% of Vehicles > 50mph	8.6%	6.8%

5) Alton Road south of 27th Street

	NB	SB
Average Speed	41.5mph	39.9mph
Median Speed	41.2mph	39.5mph
Mode Speed	42.5mph	37.5mph
85th Percentile Speed	**48.3mph**	**47.8mph**
% of Vehicles > 40mph	**57.1%**	**46.7%**
% of Vehicles > 50mph	8.5%	5.0%

6) Alton Road north of 13th Street

	NB	SB
Average Speed	35.4mph	36.7mph
Median Speed	34.8mph	36.2mph
Mode Speed	32.5mph	37.5mph
85th Percentile Speed	43.4mph	43.4mph
% of Vehicles > 40mph	24.0%	26.1%
% of Vehicles > 50mph	5.5%	4.1%

7) 41st Street between Alton Road/Meridian Avenue

	EB	WB
Average Speed	32.2mph	32.4mph
Median Speed	29.2mph	30.9mph
Mode Speed	27.5mph	32.5mph
85th Percentile Speed	43.0mph	42.7mph
% of Vehicles > 40mph	17.7%	19.0%
% of Vehicles > 50mph	9.0%	8.1%

8) 15th Street west of Meridian Avenue

	EB	WB
Average Speed	28.9mph	29.5mph
Median Speed	28.5mph	29.0mph
Mode Speed	27.5mph	27.5mph
85th Percentile Speed	34.5mph	35.2mph
% of Vehicles > 35mph	12.3%	15.5%
% of Vehicles > 45mph	1.9%	2.3%

The 85th percentile speed far exceeded the posted speed limit on the majority of the surveyed roadways. In particular, speeding appears to be a major problem along 71st Street, Pine Tree Drive, LaGorce Drive, and along Alton Road in Middle Beach. Although speeding exists along 41st Street, 15th Street, and along Alton Road in South Beach, it is not as widespread at these locations.

Streets shown in red in Figure 27 exhibit 85th Percentile speeds that are high enough to impact the quality-of-life of their residents, in that they exceed the thresholds established in the *Metro Dade Street Closure/ Traffic Flow Modification Study*.

Street Closures for Traffic Control

Although street closures have been used to reduce traffic intrusion in the past, they solve the problem of one street by making that of a neighboring street worse. Although street closures can produce initial benefits to local residents, the long-term benefit is not proven. Street closures may impede emergency vehicle access, produce inequities in property values, and the cumulative impact of street closures is detrimental to the overall street network. It has been said that street closure only brings the enemies closer to home. Rather than focusing on regional traffic, the focus of contention becomes the neighbors on the next block.

One-way streets can provide an alternative to street closures. Although one-way streets may inconvenient access to properties, they can still maintain the traffic function of streets. However, when designing one-way streets care must be taken not to create high-speed "rat runs."

Traffic Calming Alternative to Traffic Control

Traffic calming measures attempt to maintain direct access to abutting land uses while focusing on the actual negative impacts of traffic. The approach is to adapt the volume, speed, and behavior of traffic to the primary functions and characteristics of the street through which it passes, rather than adapt the streets to the ever-increasing demands of vehicular traffic.

The design of streets has historically been influenced by the requirements of traffic engineering, geometry, signage, overrun areas, or other infrastructure space. The control of vehicular speed is the most serious consideration in many cases. Safe speed limits are not adhered to by a large number of drivers and effective enforcement would place too great a demand on already overburdened police resources. There is a clear link between speed and the severity of accidents. In most urban and residential streets, speeds of 30 mph or greater are at odds with the safety of pedestrians and bicyclists sharing the roadway. The chances of a pedestrian sustaining serious or fatal injury following a collision are significantly reduced as speeds are reduced.

Dade County Street Closure/Traffic Flow Modification Policy

Addressing the street closure issue, the Miami-Dade County Public Works Department and the Metropolitan Planning Organization have completed the *Street Closure/Traffic Flow Modification Study*. This study and its policies, which adopted by the Board of County Commissioners, provides a procedural policy and criteria for determining the need and

solution for mitigating neighborhood traffic intrusion impacts. Policies and criteria are based on the specific characteristics of the street and the consensus of the neighborhood and all affected agencies.

Temporary Traffic Control Measures - Test of Effectiveness and Impacts

The Miami-Dade County Public Works Department is the administering department, which reviews applications for temporary measures to test the effectiveness and impacts of traffic flow modifications. When there is a documented request by a neighborhood or City, the following procedures are followed by the applicant for traffic flow modification:

1. Study for the impacted area is performed to determine the need/justification for a traffic flow modification. Justifications according to the standards contained in Chapter 8, *Street Closure / Traffic Flow Modification Study* include:

    - Traffic Volumes Threshold:
      Residential Local Street: 1,500 vehicles/day, 150 vehicles/peak hour
      Residential Collector: 3,000 vehicles/day, 300 vehicles/peak hour
    - Speed - 85th Percentile speed more than 10 mph greater than the posted speed limit
    - Significant Cut-Through Traffic
    - Accident History

    The preliminary traffic evaluation would be performed by DCPW. If the City, homeowner's group, or other applicant is not satisfied with the remedy, they would continue the process with their own study.

2. The study should also show that other streets would not be adversely impacted, or that traffic flow modifications should be performed as a group.

3. Coordination is required with DCPW and other impacted agencies, including as Metro-Dade Fire and EMS.

4. Recommendation and design of traffic flow modification devices and techniques that are consistent with County, State, and City standards, and good engineering judgment.

5. Installation of temporary traffic flow modification devices.

6. Monitoring the performance of traffic calming devices based on the measures of effectiveness (MOEs) listed in Chapter 8 of the *Street Closure/Traffic Flow Modification Study*. The monitoring for traffic calming devices should take place over 6 months to allow time for driver habits to adjust. For temporary street closures the monitoring period is kept to only 3 months because of the greater impacts to the roadway network.

7. If the traffic control devices are effective, a permanent installation may be made. If the traffic control devices were not effective or caused unexpected adverse impacts, then another traffic control device may be tested. If this is the case, then go back to Step 4.

Traffic Calming Devices

From Chapter 7 of the *Street Closure/Traffic Flow Modification Study* several category levels are used to distinguish the least restrictive (passive) to the most restrictive (active) measures of traffic calming. Among each of the categories there could be many design variations that are unique to each device, neighborhood characteristics, site, and particular nature of the traffic impact. The least restrictive measures should be employed first, followed by progressively active traffic calming methods. An incremental approach provides the opportunity to better define problems and causes, and to better evaluate the impacts of more restrictive measures. The categories listed are not recommended as stand alone solutions, rather they are most effective when used in combination.

Level I
Education
Neighborhood Speed Watch Program
Law Enforcement
Border Landscaping Treatment

Level II
Movement Restrictions
One-Way Streets
Multi-Way Stop Signs

Level III
Textured Paving
Gateway Treatments
Raised Islands / Medians
Speed Humps
Raised Crosswalks

Level IV
Two-Lane Slow Point
Single Lane Slow Point
Shared Pedestrian / Vehicle Zone
Chokers
Mini-Traffic Circles
Roundabouts

Level V
Semi-Diverter
Diagonal Diverter
Street Closure

Temporary Traffic Calming Devices

For temporary traffic flow modifications, Levels I through V contain techniques that may be implemented without permanent alteration of the roadway. It can be mentioned that vertical alignment shifts will not be considered at this time by DCPW for traffic calming because of their impact to slowing emergency vehicles, creating a loss of control for some vehicles, and tire noise heard by residents at night. These devices include speed humps, pads, and raised crosswalks.

Generally traffic control devices such as stop signs and horizontal alignment shifts including circles, chokers, and slow points are acceptable. For temporary implementation these could be made by pavement markings and include painted striping, signage, reflectorization, and/or flexible delineators. The City or neighborhood group may opt to add approved safe physical barriers or temporary planters. However, the applicant will be responsible for providing and maintaining these temporary physical barriers.

For each street segment a profile of physical street characteristics, dimensions, pertinent operational characteristics, observed traffic impacts, and community needs and input must be developed to determine appropriate and feasible traffic calming approaches. The overall approach should be to incrementally implement traffic calming measures progressively to more restrictive measures.

Funding

Funding for the study and devices for traffic flow modifications is to be through the applicant, the City, or neighborhood group. DCPW staff has indicated that the following may serve as a guide toward funding temporary traffic flow modification devices.

Component	Funding Source
Preliminary Traffic Evaluation	County
Study and Monitoring	City or Applicant
Devices:	
Traffic Control Signage	County
Pavement Markings	County
Reflectorization	County
Flexible Delineators	County
Temporary Barricades	City / Applicant / County
Planters	City or Applicant
Beautification	City or Applicant
Markings and Barriers Maintenance	County
Planting and Beautification Maintenance	City or Applicant

Measures of Effectiveness

The Miami-Dade County Public Works Department will evaluate the effectiveness of a particular traffic flow modification device or strategy based upon traffic impacts and livability impacts. These MOEs are specifically outlined in Chapter 8 of the *Street Closure/Traffic Flow Modification Study*, and include:

- Traffic Volumes Threshold:
  Residential Local Street: 1,500 vehicles/day, 150 vehicles/peak hour
  Residential Collector: 3,000 vehicles/day, 300 vehicles/peak hour
- Speed - 85th Percentile speed more than 10 mph greater than the posted speed limit
- Significant Cut Through Traffic
- Level of Service - Within Neighborhood
- Level of Service - In Neighborhood Periphery
- Accidents and Safety
- Neighborhood Cohesiveness
- Emergency Service Access – Fire, Medical, Police
- Right-of-Way Requirements
- Environment (noise, air pollution)
- Comfort Level or Livability

BICYCLE AND NON-MOTORIZED VEHICLES

Bicycling provides numerous benefits to the City as a mode of transportation and as a recreational activity. These benefits include:

- potential to reduce traffic congestion
- decreased expenditure on roadway infrastructure maintenance
- reduced demand to increase parking capacity
- improved air quality
- healthier citizens
- a greater variety of recreational activities for visitors

The *South Beach Residents' Perceptions of Parking and Traffic Conditions* found that 2% of South Beach residents use a bicycle to make trips. Although small, this percentage is 500% higher than the national average of 0.4%[1]. If recreational bicycle trips made by visitors were included, this percentage would be higher. Bicycle trips are most frequent in South Beach where compact land use patterns, difficult and expensive parking, and culture prevails that supports bicycle travel as a transportation mode, as well as for recreation.

The goal of this component of the Municipal Mobility Study is to increase the number and share of bicycle trips for all trip purposes. A compact land use pattern, traditional orthogonal roadway grid, high proportion of short trips, high percentage of recreational trips, parking disincentives, and low income and service sector employment demands all help to increase bicycle usage. Bicycle usage can be further increased by providing attractive, safe paths, and by providing amenities at destinations such as bicycle racks and lockers.

Miami-Dade County Bicycle Facilities Plan

Within Dade County there is an existing and planned bicycle network consisting of streets and paths used by cyclists. The governing board of the Metropolitan Planning Organization (MPO) for the Miami Urbanized Area has adopted the *Metro-Dade Bicycle Facilities Plan* as an element of the Metro-Dade transportation plan. The overall purpose *Metro-Dade Bicycle Facilities Plan* is to examine existing roadway conditions relating to bicycle travel and to propose a set of improvements of both on and off-road facilities to incorporate into the Transportation Improvement Plan. A bicycle network is planned for continued expansion as a first step to encourage more bicycle riding as a part of the transportation mix.

The Miami Urbanized Area Metropolitan Planning Organization (MPO) has analyzed the current roadway network to measure how well the existing roadway system serves bicyclists, with consideration of the division of abilities that differentiate experienced adult riders from younger or less accomplished cyclists. A grid system of improvements was designed, comprised of on and off-road facilities, and prioritized into a short-range and long-range program based on the following criteria:

- Connectivity between existing facilities
- High hazard roadways near schools and employment centers

[1] 1990 U.S. Census Journey to Work Survey and the National Personal Transportation Survey (NPTS)

- Opportunities for major links (railroad rights-of-way, canals, etc.)
- Other high hazard roadways that can be improved for bicycle travel in conjunction with the County's *Long Range Transportation Improvement Plan*.

Additionally, the North Beach Corridor plan and the *Dade County Greenways Network* have developed an off-road network of planned recreational bicycle paths along the ocean-side coast in Miami Beach.

The pertinent components of the bicycle facilities planned network are excerpted in the following map, which shows off-road facilities, on-road facilities, bike path projects, bike lane projects, and signed bike routes. As shown in the figure, there are three basic types of facilities that can be planned and implemented for bicycles.

Presently, there are few protected routes that provide for continuous, safe north/south bicycle travel in the City. Furthermore, there are no protected east and west land bicycle routes throughout the City. Additionally, because the Venetian Causeway is closed at the west bridge, there is no safe path between Miami Beach and the mainland of Dade County. Bicyclists can often be seen traveling along the emergency shoulders of the causeways.

Bicyclist Levels of Ability and Trip Purpose

For the purposes of transportation planning, users of bicycle facilities can be separated to levels of bicycling ability. Group A - adult, and Group B and C - basic or occasional adult and child cyclists. What is considered an adequate facility by experienced adult cyclists may not be suitable for children or perceived as safe by the occasional adult recreational cyclists. The user profile groups are defined as the following:

Group A Advanced bicyclists who are experienced riders that can handle most traffic conditions. This group makes up the majority of riders on collector and arterial streets and are best served by direct access destinations via the existing street system. Requirements include sufficient width on the roadway or shoulder so that neither the motorist nor the cyclist would need to change positions when passing.

Group B Basic bicyclists who are occasional adults or teenage riders that are less confident of their abilities to operate in traffic without special provisions for bicycles. This group prefers comfortable direct access to destinations via low volume streets or by designated bicycle facilities. Well-defined separation of bicycles and motor vehicles on arterial and collector streets should also be provided for this group.

Group C Children and preteen riders whose roadway use may be initially monitored by their parents. This group prefers residential streets with low motor vehicle speed limits and traffic volumes. Well-defined separation of bicycles and motor vehicles on arterial and collector streets is required as a minimum. Ideally, separate bike paths should be provided.

Bicycle Suitability Roadway Condition Index (RCI)

The suitability of the available right-of-way for bicycle safety must be considered in addition to the type of rider when determining the type of facility to plan for various segments of roadway. In order to quantify the level of service to cyclists provided by the existing roadway system, the network was analyzed in the Metro-Dade County Bicycle Facilities Plan using a mathematical formulation known as the roadway condition index (RCI). This index considers the following:

- average daily traffic
- number of travel lanes
- posted speed limit
- width of the outside lane
- pavement surface quality
- sight distance
- on-street parking
- existing paved shoulder width
- urban gutter areas
- adjacent land-use

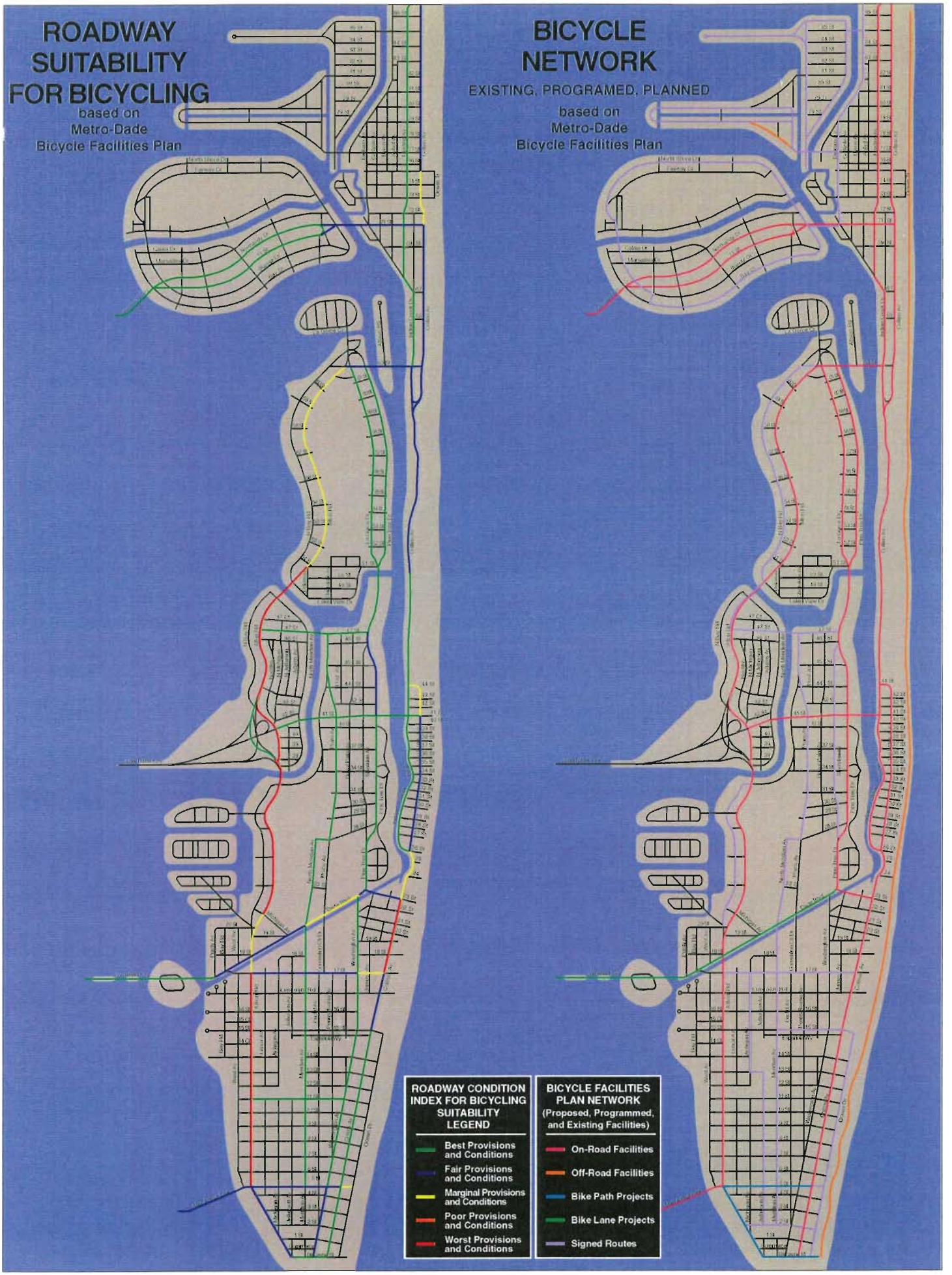
The resulting five RCI adequacy standards are listed below and illustrated for Miami Beach in Figure 28:

Best conditions	Suitable roadway conditions requiring the least amount of interaction with traffic.
Fair conditions	Less suitable roadway conditions recording a low to moderate amount of interaction with traffic.
Marginal conditions	Unsuitable roadway conditions requiring a moderate to high amount of interaction with traffic.
Poor conditions	Inadequate roadway conditions requiring a high to extremely high amount of interaction with traffic.
Worst conditions.	Hazardous roadway conditions requiring an extreme amount of interaction with traffic.

Matching Facilities to Bicyclists' Needs

The RCI and the type of cyclists anticipated to use components of the bicycle network are simultaneously considered to plan the bicycle facilities for Miami Beach.

Generally, Group A bicyclists will be best served by designating all roadways to accommodate shared use by bicycles and motor vehicles. This can be accomplished through:



Bicycle Facilities and Roadway Suitability
Figure 28

- Establishing and enforcing speed limits to help minimize speed differentials between bicycles and motor vehicles, and implementing traffic calming strategies.

- Providing wide outside lanes on collector and arterial streets built with an urban section curb to gutter.

- Providing usable shoulders on highways built with a world section, no curb and gutter. This would include maintaining the surface quality and assuring adequate width for the paved shoulders on the Julia Tuttle and MacArthur Causeways.

Group A Riders are the predominant bicycle user found in South Beach. Generally South Beach riders are commuters or other destination riders. Requiring point to point bicycle accessibility, these riders expect to safely share the streets with automobiles throughout South Beach. As part of the off-road beach greenway projects, a separated used bicycle facility may also be considered for the beachwalk east of Ocean Drive.

The utilitarian needs of the Group A riders can also be accommodated by the following:

- travel reduction programs
- road design regulations
- bike racks and lockers in parking facilities and major trip generators
- shower facilities at work
- increase in parking fees
- residents and visitor marketing campaigns to promote safe bicycle travel

Generally Group B and C bicyclists can be served by the same direct facilities shared by the utilitarian needs of Group A riders. However, they also require a network of local streets and designated bicycle facilities that can be provided by:

- Ensuring that neighborhood streets have low speed limits through effective speed enforcement and by implementing traffic calming strategies.

- Providing a network of designated bicycle facilities such as bicycle lanes, separate bicycle paths, and signed side-street bicycle routes. This network must operate through the key travel corridors typically served by arterial and collector streets.

Group B and C riders are more prevalent in Middle Beach and North Beach, especially within and near residential neighborhoods. These riders, often bicycling for recreation, have less need for point-to-point accessibility. However, these riders desire a greater quality of experience and prefer better separation from large volumes of vehicular traffic.

Bicycle Network Facilities

Figure 28 shows the planned network of bicycle facilities. These include the following:

Off-Road Bicycle Facilities and Greenways

Off-road bicycle facilities and greenways, such as the facility planned along the beach-front and the North Beach project are encompassed in the bicycle network plan. Greenways are natural or landscaped courses for pedestrian or bicycle passage. They also provide open space connectors linking parks, nature reserves, cultural features, or historic sites with each other and with populated areas. They may also be linear parks of protected open space managed for conservation and recreation purposes.

On Road Bicycle Paths

On-road bicycle paths are usually designed for bi-directional travel, and are physically separated from the roadway by open space or barriers. Signage and stripping at intersections is critical. Additional maintenance is required.

On Road Bicycle Lanes

On-road bicycle lanes are designated by stripping to direct bicyclists in the same direction as adjacent motor vehicle traffic. They should use the outside portion of all sides of a roadway, and be a minimum of four feet in width. Pavement markings and signs are recommended.

Wide Curb Lanes

Wide curb lanes are designed to accommodate both bicyclists and motor vehicles in the shared use lane. The lane should be a minimum width of 12 feet. "Bicycles Sharing Roadway" signs are recommended.

Paved Shoulders

Paved shoulders are designed to accommodate bicycle travel in the adjacent paved area outside of the travel lanes. "Bicycles Sharing Roadway" signs are recommended. Although paved shoulders provide a cost-effective means of implementing bicycle facilities on the causeways, safety and bicyclists enjoyment would be greatly enhanced by the implementation of greater separation. In the case of the Julia Tuttle Causeway bike path sections may be most desirable.

South Beach Bicycle and Pedestrian Study

The South Beach Bicycle and Pedestrian Study was performed in 1994 for the South Beach Transportation Management Association (now the Miami Beach TMA) and the Dade County Metropolitan Planning Organization (MPO), to develop recommendations to promote the increased use of bicycles for all trip purposes in South Beach. This report assessed major corridors in South Beach, as well as the roadways that were part of the Miami Beach Bikeways Comprehensive Plan. The report developed specific recommendations for enhancing the safety and convenience of bicycle riding along the corridors studied.

PEDESTRIANS

Walking is the first and last mode of all trips. It is well understood and documented in literature that the success of transit and other alternative modes are dependent on the state of pedestrian facilities and amenities. As a travel mode and as a recreational activity, walking provide numerous benefits including:

- potential to reduce traffic congestion
- decreased expenditure on roadway infrastructure maintenance
- reduced increase in the need for parking capacity
- improved air quality
- healthier citizens
- greater variety of recreational activities for visitors

Furthermore, there is a significant Orthodox Jewish community centered in the Middle Beach area. The observance of Talmudic Law increases the need for safe pedestrian facilities for this segment of the population.

The *South Beach Residents' Perceptions of Parking and Traffic Conditions* found that 32% of South Beach residents walk when making trips for leisure purposes. This represents a very high proportion compared to other cities in Florida. Trips made by walking are most frequent in South Beach with its compact land use pattern, traditional orthogonal grid, and continuous street fronts with multiple points of interest and destinations.

The goal of this component of the Municipal Mobility Plan is to increase the number and share of walking trips for all trip purposes as a means for increasing personal enjoyment, enhancing the urban quality of life, and reducing vehicular trips and their commensurate infrastructure demands.

Pedestrian facilities were generally surveyed throughout the City, but they were surveyed in greater detail within South Beach. Observations will be combined with comments from the community involvement phase to guide the plan further. Pedestrian existing conditions are described for the following five categories:

- Residential Neighborhoods
- Transportation Corridors
- Waterfront Greenways
- Crosswalk Conflict Areas
- Business and Entertainment District – South Beach

Residential Neighborhoods

The streets in the residential neighborhoods of the City generally have sidewalks on both sides. The only notable exception is the segment of Pine Tree Drive from 51st Street to 63rd Street, which has a continuous sidewalk only on the west side. Most pedestrians walk along the sidewalks and congregation from chance meetings often occurs on the sidewalks as well. Roller skating and jogging activities along neighborhood streets tend to utilize the right side of the traffic lanes, instead of sidewalks which have insufficient space or unsuitable conditions for

these activities. Along some neighborhood streets, especially those used as cut-through routes and/or which have inadequate sidewalks, there are potential conflicts and unsafe conditions between vehicles and pedestrian/skating activities. Street segments observed to have potential conflicts between vehicles and pedestrian/skating activities include:

- Bay Road, from 14th Street to 15th Street
- Meridian Avenue from Dade Boulevard to 28th Street
- Michigan Avenue, from 12th Street to 15th Street
- North Bay Road, from Michigan Avenue to Chase Avenue
- North Bay Road, from Alton Road to 4800 Alton Road
- Bay Drive, from Kennedy Causeway to 71st Street

Transportation Corridors

Mixing of pedestrian activities and vehicular traffic are inappropriate for commercial corridors where pedestrian volumes, traffic volumes, and traffic speeds are high. Specifically, where 85th percentile speeds are above 20 mph and traffic volumes are more than 1,500 vehicles per day, separated spaces must be maintained for vehicles and pedestrians. A grade-separated sidewalk must provide a continuous path with crosswalks and access for mobility impaired individuals. Specifically, the following commercial corridors, neighborhood collectors, and arterials were found to have insufficient pedestrian facilities or exhibit conflicts among pedestrian uses occurring in traffic lanes:

- Dade Boulevard, from West Avenue to 23rd Street: sidewalk on northwest side only
- Pine Tree Drive, from 51st Street to 63rd Street: no sidewalk on east side

Waterfront Greenways

Greenways are natural or landscaped courses for pedestrian passage that provide open space connectors linking parks, nature reserves, cultural features, or historic sites with each other and with populated areas. They may also be linear parks of protected open space managed for conservation and recreation purposes. There are three significant pedestrian greenways in Miami Beach. All of the existing pedestrian greenways feature access to inland or coastal waters. The existing and potential pedestrian ways and greenways are illustrated in Figure 29.

Ocean Front Beach Walk

A continuous beachwalk is planned to provide enhanced beach access and a continuous pedestrian way behind the first dune and Coastal Control Line. This passage would provide a continuos path from South Pointe Park north to the North Shore Park, the City limits, and the beach walk trail in Surfside (an unimproved path behind the first dune and Coastal Control Line). The beach walk is presently fragmented, having the following significant segments already in place:

- South Pointe Park, providing pedestrian access along Government Cut
- South Beach access path, an unimproved path behind the first dune and Coastal Control Line from the pier to 5th Street.

Pedestrian Ways & Potential Greenways
Figure 29

- Ocean Drive beach walk from 5th Street to 15th Street
- The Boardwalk, an elevated wood structure from 21st Street to the 47th Street beach access parking lot
- Ocean Terrace beach walk, from 73rd Street to 75th Street
- North Shore Park beach path, an unimproved path behind the first dune and Coastal Control Line from 77th Street to 83rd Street

Indian Creek/Collins Avenue

The Indian Creek / Collins Avenue pedestrian way is planned along the west side of Collins Avenue/Indian Creek Drive from 23rd Street to approximately 6500 Indian Creek Drive at the JCC Boat House. Presently, there is a continuous path from 41st Street to 5900 Collins Avenue, where Collins Avenue bifurcates. This section has adequate width, and provides access to the street, crosswalks, and bus stops on the roadway side of the path. The path also provides protected and comfortable access to the Indian Creek waterfront and marina uses on its west side.

The segment to the south of this section is not continuous. The section along Lake Pancoast from 23rd Street to 26th Street is in poor condition. The sidewalk is overgrown and choked to a narrow path in many places by landscape overgrowth and parking meters. The wooden boardwalk section has dangerously deteriorated with sections that are missing, broken, or rotted. There is no waterfront pedestrian path from 26th Street to 38th Street even though there is a pedestrian bridge crossing Indian Creek just south of 28th Street.

There is not any waterfront pedestrian access from 5900 Collins Avenue to 63rd Street, and pedestrian are not able to cross 63rd Street on the west side of Indian Creek Drive. From 63rd Street to the JCC boathouse a linear park provides access to the street and transit amenities, as well as the waterfront through serpentine paths.

Dade Boulevard, Collins Canal

Fragmented waterfront linear pedestrian access fronts the southeast side of Collins Canal across from Dade Boulevard from Meridian Avenue to Convention Center Drive. It links the Holocaust Memorial with the Botanical Conservatory and the Community Center. Private property and the Convention Center loading operations area prevent this path from being extended. If the northwest side of the canal is used, waterfront access and a continuous greenway could be extended from Biscayne Bay and Sunset Park to Lake Pancoast.

The southeast side of Dade Boulevard does not have a pedestrian facility and pedestrians have been observed walking in the traffic lane, some with groceries from Publix. A planned pedestrian way along Dade Boulevard and Collins Canal must be coordinated with projects to repair the seawall along the canal. It should be assured that the design incorporates the safety of pedestrians walking between a high volume roadway and a canal. Presently, there are areas where erosion has occurred to the extent that some of the roadbed is missing in spots and pavement failure is imminent.

Other Greenway Possibilities

There is a lack of continuous pedestrian access to the Biscayne Bay waterfront. In fact, there are very few public access points besides the following:

- very poorly maintained, unimproved access at 14th Street
- cul-de-sacs at Monad Terrace, 16th Street, Lincoln Terrace, and Lincoln Road.
- Sunset Harbor Park

The access to the Biscayne Bay waterfront via 13th Terrace has been deleted by recent construction.

Other locations for pedestrian greenways could include the Ocean Terrace easement from 26th Street to 28th Street and the besides the golf courses along the east side of Alton Road.

Crosswalk Conflict Areas

A fundamental part of determining multimodal improvements in the City is to balance priorities between pedestrians and vehicles by zones or specific sites through out the City. The methodology used here is to determine sites with a high probability for vehicular/pedestrian conflicts at intersections. Intersections identified as having high probabilities for vehicular/pedestrian conflicts indicate the need for a more detailed conflict analysis. Groupings of intersections with high probabilities indicate zones where pedestrian prioritization, protected crosswalk signal phases, bulbouts and additional center refuge, and additional pedestrian amenities may be considered.

The first step in this process determines intersections of high, medium, or low pedestrian crossing activity. Based on the factor intersection level-of-service method described in the *Highway Capacity Manual*, peak pedestrian crossing volumes are described:

Low Pedestrian Volume	50 pedestrians per hour (all directions)
Medium Pedestrian Volume	200 pedestrians per hour (all directions)
High Pedestrian Volume	400 pedestrians per hour (all directions)

Using these prescriptions as median values, ranges were developed for each category.

Low Pedestrian Volume	0 to 125 pedestrians per hour (all directions)
Medium Pedestrian Volume	125 to 300 pedestrians per hour (all directions)
High Pedestrian Volume	over 300 pedestrians per hour (all directions)

The next step involved identifying the intersections that exhibit high pedestrian activity during peak traffic periods. A vehicle to pedestrian ratio was calculated for each intersection. Where there are low pedestrian volumes, this ratio has little practical significance. Where the volumes are high, a numerically low vehicle to pedestrian ratio value indicates a greater potential for conflict. Ranging from over 1,000 to less than 1.0, the cut off value for intersections with a high potential for conflict was empirically selected as 25. Intersections with a high pedestrian

volume and a vehicle to pedestrian ratio of less than 25.0 are described as intersections with a high potential for pedestrian/vehicular conflict.

Figure 30 and the subsequent table summarize the results of this analysis. The analysis is for typical peak traffic periods when intersection turning movement data was collected. It does not apply to the weekend night conditions in South Beach, which is covered next.

Business and Entertainment District – South Beach

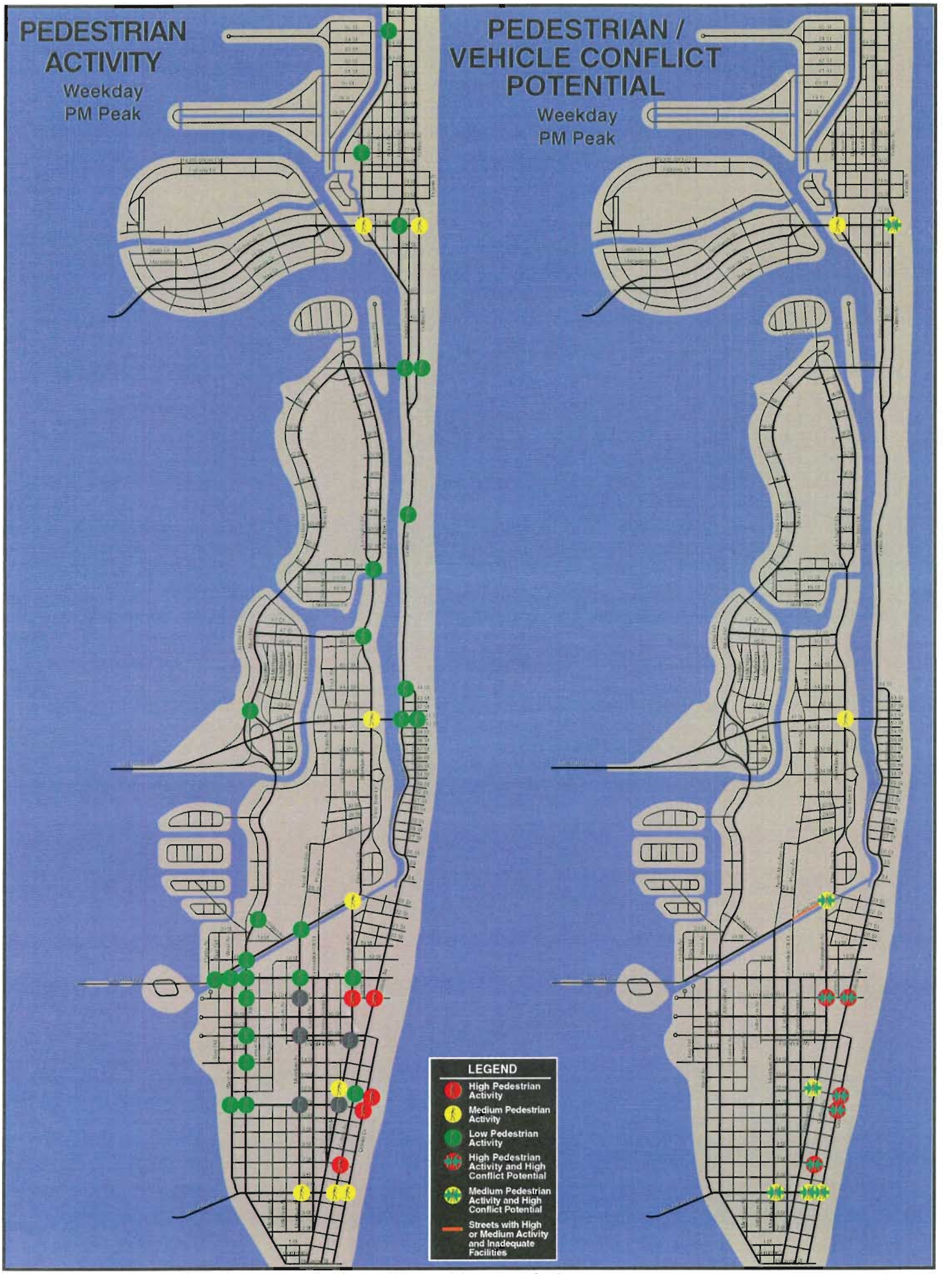
Streets in the commercial districts, especially those in South Beach, are characterized by very high levels of pedestrian activity along with high volumes of frequently congested vehicular traffic. Most streets have grade-separated sidewalks on both sides; however, the widths are frequently too narrow for the high volumes of pedestrian traffic that they carry. The capacity for a multi-directional walkway that accommodates shoppers is approximately 23 pedestrians per foot of effective width per minute. The effective width does not include a lane for window-shopping or a lane for amenities, parking meters, signposts, and bus stops. There are qualitatively observable deficiencies in walk width at many locations in the South Beach area including:

- Ocean Drive, west side from 5th Street to 15th Street
- Collins Avenue, both sides from 7th Street to Espanola Way
- Collins Avenue, both sides from 17th Street to 23rd Street
- Washington Avenue, east side from 6th Street to 10th Street
- Washington Avenue, both sides from south of Espanola Way to 15th Street
- Espanola Way, both sides from Washington Avenue to Drexel Avenue

An evaluation of pedestrian activity was performed for South Beach locations on weekend nights. This evaluation is expressed as Pedestrian Walkway Level of Service for corridor segments. Observations were made in March 1998, augmenting earlier observations made in

September 1996 for the *South Beach Electric Shuttle Study*. Observations were taken on Friday and Saturday nights, between 11:00 p.m. and 1:00 a.m. Areas with a high number of pedestrian conflicts were also noted.

Pedestrian Walkway Level of Service is an observed density approximation of pedestrian loading on an urban street walkway.



Pedestrian Activity and Conflict Potential
Figure 30

Miami Beach Muncipal Mobility Study
Summary of Pedestrian Counts

Location	Time Period	Total Pedestrians	Total Vehicles	Vehicle vs. Pedestrian Ratio	Level of Pedestrian Activity
North Beach					
Collins Avenue/71st Street	PM Peak	227	1,983	8.7	Medium
Abbott Avenue/71st Street	PM Peak	115	2,290	19.9	Low
Indian Creek Dr.-Dickens Ave./71st Street	PM Peak	160	3,211	20.1	Medium
Dickens Avenue/77th Street	PM Peak	44	1,353	30.8	Low
Byron Avenue/85th Street	PM Peak	51	731	14.3	Low
Middle Beach					
Collins Avenue/41st Street	PM Peak	76	1,096	14.4	Low
Collins Avenue/44th Street	PM Peak	54	2,685	49.7	Low
Collins Avenue/5400 Block	Mid-Day	44	1,875	42.6	Low
	PM Peak	43	2,353	54.7	Low
Collins Avenue/63rd Street	PM Peak	22	1,514	68.8	Low
Indian Creek/41st Street	PM Peak	54	2,968	55.0	Low
Indian Creek/63rd Street	PM Peak	15	2,562	170.8	Low
Pine Tree Drive/41st Street	AM Peak	95	2,819	29.7	Low
	Mid-Day	55	2,391	43.5	Low
	PM Peak	137	3,490	25.5	Medium
Pine Tree Drive/47th Street	PM Peak	7	1,301	185.9	Low
Pine Tree Drive/51st Street	PM Peak	5	1,275	255.0	Low
Alton Road/Dade Boulevard	AM Peak	52	2,890	55.6	Low
	PM Peak	37	2,878	77.8	Low
Alton Road/Michigan Avenue	AM Peak	3	2,744	914.7	Low
	Mid-Day	2	2,480	1240.0	Low
	PM Peak	12	3,271	272.6	Low
Alton Road/43rd Street	AM Peak	55	3,927	71.4	Low
	Mid-Day	67	2,479	37.0	Low
	PM Peak	28	3,199	114.3	Low
Dade Boulevard/Washington Avenue	PM Peak	177	2,177	12.3	Medium
Dade Boulevard/Meridian Avenue	AM Peak	2	1,460	730.0	Low
	PM Peak	16	1,896	118.5	Low
Dade Boulevard/Bay Road	PM Peak	44	874	19.9	Low
Dade Boulevard/Purdy Avenue	PM Peak	12	640	53.3	Low
South Beach					
Ocean Drive/5th Street	Mid-Day	151	678	4.5	Medium
Ocean Drive/11th Street	AM Peak	73	246	3.4	Low
	Mid-Day	369	559	1.5	High

Miami Beach Muncipal Mobility Study
Summary of Pedestrian Counts

Location	Time Period	Total Pedestrians	Total Vehicles	Vehicle vs. Pedestrian Ratio	Level of Pedestrian Activity
	PM Peak	525	594	1.1	High
Ocean Drive/12th Street	AM Peak	77	226	2.9	Low
	Mid-Day	301	474	1.6	High
	PM Peak	594	485	0.8	High
Collins Avenue/5th Street	Mid-Day	231	1,498	6.5	Medium
Collins Avenue/7th Street	PM Peak	351	852	2.4	High
Collins Avenue/12th Street	AM Peak	438	452	1.0	High
	Mid-Day	159	614	3.9	Medium
	PM Peak	64	943	14.7	Low
Collins Avenue/Lincoln Road	PM Peak	419	1,229	2.9	High
Washington Avenue/11th Street	AM Peak	126	812	6.4	Medium
	Mid-Day	620	1,267	2.0	High
Washington Avenue/12th Street	AM Peak	275	764	2.8	Medium
	Mid-Day	414	1,347	3.3	High
	PM Peak	257	1,277	5.0	Medium
Washington Avenue/Linclon Road	PM Peak	1,021	1,421	1.4	High
Washington Avenue/17th Street	AM Peak	33	1,079	32.7	Low
	Mid-Day	41	1,565	38.2	Low
	PM Peak	27	1,649	61.1	Low
Meridian Avenue/5th Street	PM Peak	126	2,367	18.8	Medium
Meridian Avenue/17th Street	AM Peak	32	1,518	47.4	Low
	Mid-Day	32	1,882	58.8	Low
	PM Peak	34	1,896	55.8	Low
Alton Road/11th Street	AM Peak	47	2,241	47.7	Low
	PM Peak	25	2,758	110.3	Low
Alton Road/14th Street	PM Peak	124	2,098	16.9	Low
Alton Road/15th Street	AM Peak	36	2,686	74.6	Low
	Mid-Day	51	3,053	59.9	Low
	PM Peak	26	3,097	119.1	Low
Alton Road/Lincoln Road	AM Peak	40	2,461	61.5	Low
	Mid-Day	45	2,910	64.7	Low
	PM Peak	24	3,082	128.4	Low
Alton Road/17th Street	AM Peak	49	3,333	68.0	Low
	Mid-Day	43	4,093	95.2	Low
	PM Peak	123	3,020	24.6	Low
West Avenue/11th Street	PM Peak	122	991	8.1	Low
West Avenue/17th Street	PM Peak	22	1,425	64.8	Low
South Beach (Weekend Pedestrian Counts)					
5th Street/Ocean Drive	Late-Night	418			High

Miami Beach Muncipal Mobility Study
Summary of Pedestrian Counts

Location	Time Period	Total Pedestrians	Total Vehicles	Vehicle vs. Pedestrian Ratio	Level of Pedestrian Activity
5th Street/Collins Avenue	Late-Night	345			High
5th Street/Washington Avenue	Late-Night	925			High
5th Street/Jefferson Avenue	Late-Night	57			Low
5th Street/Michigan Avenue	Late-Night	110			Low
5th Street/Meridian Avenue	Late-Night	127			Medium
5th Street/Alton Road	Late-Night	16			Low

PEDESTRIAN WALKWAY LEVEL OF SERVICE SIGNIFICANCE

LEVEL OF SERVICE	SPACE sq.ft./ped.	AVG. SPEED ft./min.	VOL./CAPY.	COMMENTS
LOS A	over 130 sq.ft.	over 260 ft/min	under 0.08	free walking
LOS B	41 to 130 sq.ft.	250 to 259 ft/min	0.08 to 0.28	no conflicts
LOS C	25 to 40 sq.ft.	240 to 249 ft/min	0.29 to 0.40	minor conflicts
LOS D	16 to 24 sq.ft.	225 to 239 ft/min	0.41 to 0.60	high friction
LOS E	6 to 15 sq.ft.	150 to 224 ft/min	0.61 to 1.00	forward shuffling
LOS F	less than 6 sq.ft.	under 150 ft/min	over 1.00	contact spillover

Although a strong orthogonal street grid provides easy orientation, many visitors are unfamiliar with South Beach and crowding along with traffic congestion can increase their disorientation. Additionally, there is little visual orientation from most parking areas since they do not possess unobstructed sight lines to major destinations. Also, there are not any pedestrian orientation kiosks at the major parking garage pedestrian exits.

Most streets in the commercial districts have sidewalks on both sides. Large volumes of pedestrians walk and congregate along the sidewalks next to these streets. Skating, jogging and running activities tend to utilize the traffic lanes instead of sidewalks. This creates dangerous potential for pedestrian/vehicular conflict between intersections. Furthermore, during nighttime peak pedestrian periods spillover occurs forcing pedestrians into the street. Additionally, crosswalk widths and green time become inadequate for pedestrian platoons during nighttime peak pedestrian periods. Street segments observed to possess potential conflicts include:

- Ocean Drive, west side from 5th Street to 15th Street
- Collins Avenue, both sides from 17th Street to 23rd Street
- Washington Avenue, east side from 6th Street to 10th Street
- Washington Avenue, east side just south of Espanola Way
- Espanola Way, both sides from Washington Avenue to Drexel Avenue

Pedestrian Walkway Level of Service conditions in South Beach estimated to be either LOS E or LOS F during the weekends from 9:00 p.m. to 3:00 a.m. are listed below:

- Ocean Drive, west side from 7th Street to 11th Street
- Washington Avenue, east side from 6th Street to 10th Street
- Washington Avenue, east side just south of Espanola Way
- Washington Avenue, west side from Espanola Way to 15th Street
- Espanola Way, both sides from Washington Avenue to Drexel Avenue

ROLLER-SKATING AND SKATEBOARDS

Roller-skating and skateboarding are typically treated as recreational activities, which are only suitable for the confines of dedicated off-road facilities and parks. Many roller skaters use the sidewalks and streets to travel by this mode for recreational purposes throughout the City. Many young people in the South Beach area also use roller-skating as a mode of travel. Many recreational trips are also often destination trips, as many restaurants and retail establishments demonstrate a permissive attitude toward skaters entering their establishments. Informal on-street interviews conducted during March 1998 revealed that visitors from other areas, who are more accustomed to dedicated facilities for roller skating as a recreational activity, would prefer skate parks or paths also be provided in Miami Beach.

As a travel mode and as a recreational activity, skating provides the same package of benefits as walking including:

- traffic reduction
- decreased roadway and parking expenditure
- improved air quality
- healthier citizens
- a greater variety of recreational activities for visitors

The *South Beach Residents' Perceptions of Parking and Traffic Conditions* found that about 1% of South Beach residents skate when making trips for leisure purposes. Although this not a high percentage, it still represents significant a significant number of trips (approximately half the number of trips made by bicycle). Skating trips are most frequent in South Beach with its compact land use pattern, traditional orthogonal grid, and continuous street fronts with multiple points of interest and destination.

The goal of this component of the Municipal Mobility Plan is to increase the safety of skating through dedicated facilities and to consider ways to legitimize skating as a safe shared use of public right-of-ways. It is important to coordinate with sanctioning bodies, such as International In-line Skating Association (IISA), for assistance in designing safety improvements and programs.

Skater Levels of Ability and Trip Purpose

As with bicyclists, various levels of skater experience and expertise are encountered:

Group A Advanced skill, experienced skaters that can handle most sidewalk and traffic conditions. These skaters can maneuver and stop well. Most can maneuver slowly through crowded sidewalks without apparent risk to themselves or other pedestrians. They can safely cross most streets without needing additional green time, can easily step to and from the sidewalk, and can maneuver and stop on narrow median refuge areas. Typically, they are residents of Miami Beach who skate frequently and make destination trips by roller skating.

Group B Occasional and recreational skaters, who have less skill and require good sidewalk conditions and light pedestrian volumes. These skaters have a limited ability to maneuver and stop in a short distance. Most can maneuver slowly through crowded sidewalks, but may seem off balance and have difficulty with close clearances. They need additional green time to cross streets and will generally use crosswalk ramps or come to a full stop to step on sidewalks. They may be residents of the area or visitors, but their most salient characteristic is infrequent experience and low skill levels. Children may be included in this group.

Group C Very inexperienced skaters or skaters who require dedicated or other off-road facilities. These skaters are beginners with very limited skills, who may be best suited to skate in a skate park facility. Many of the Group C skaters are visitors who will not skate on Miami Beach sidewalks because there are too many pedestrians and too much traffic. Other visitors in this category may rent skates at local shops and use them in the city, especially on Lincoln Road and on the Lummus Park Beach Walk. The shops offer instruction; however, it is not mandatory and unskilled, uninformed, novice skaters may travel on their own. Many children are also part of this group. Group C skaters do not typically make destination trips.

Existing Facilities

There are not any public skating facilities in the parks or at any off-road locations in Miami Beach. Florida Statute prohibits in-line skating, skateboarding and any other roller-skating along travel lanes, except for crossing the street from sidewalk to sidewalk, throughout the State of Florida. This limits all skating to sidewalks, parks and other pedestrian areas.

Where sidewalks are crowded or insufficient in some other way, skaters can be seen skating alongside the travel lanes. Conditions that inhibit the use of sidewalks by skaters include the following:

- Broken sidewalk sections, or sidewalks with gravel or construction spillover
- Sidewalks with frequent and deep horizontal seams, and boardwalks
- Street crossings with high percentages of turning traffic, and/or insufficient protected pedestrian green time
- Narrow sidewalks (4-foot minimum of horizontal clearance.)
- Crowded sidewalks: LOS C or worse (dependent on the level of skill of the skater)
- Sidewalks frequently blocked by parked cars, or vehicles protruding from driveways
- Poor lighting conditions at night

Skateboarding, whether used for destination trips or as recreation, is more competitively cultured. It often involves various jumping tricks onto public amenities. Where there are no skate parks for this activity, skateboarding is often problematic because of continued damage to public property such as fountains, planters, benches and architectural features.

Matching Facilities to Skater Needs

As destination trip makers, Group A skaters will continue to use the public rights-of-way. There is very little information regarding safety requirements or legal limitations. Better information and attention to the conditions listed above that induce roller-skating would serve the needs of Group A skaters.

Group B and Group C skaters require that there be off-road skating facilities and paths. Paths may be shared with pedestrians if there is sufficient width and if the pedestrian density is at LOS A or LOS B. A painted skating lane may be considered. Group B and Group C skaters may share a bike lane if it is along a pedestrian way and bicyclist speeds are low. Group B skaters, who may use the public rights-of-way, would require special conditions such as longer protected green times to cross streets, smooth sidewalks, low pedestrian volumes, good lighting and crosswalk ramps.

Skateboarders require designated skate parks. These facilities are incompatible with roller-skaters' needs. The skateboard facilities should be located in public parks and include a variety of uneven surfaces for stunts. These facilities must be monitored in case of accidents and to assure that safety equipment is used. The implementation of skate parks, along with strict enforcement in other areas, would reduce damage to public property caused by skate board enthusiasts.

TRANSIT SERVICE

The analysis of transit in the City of Miami Beach includes all routes that operate at least in portions of the City or completely within it. Fifteen Metro-Dade Transit Agency (MDTA) bus routes and the Electrowave shuttle presently serve the city. The cumulative impact of the bus service on service area coverage, using a ¼ mile walking distance band from each route, is that virtually the entire City is part of the MDTA service area. The only areas that are outside of the MDTA service area are parts of Biscayne Point and Normandy Shores. Conventional transit service is not provided to Biscayne Point because of a lack of demand, while barricades prevent the extension of transit service to Normandy Shores. All other areas of the City have access to some level of regional transit service.

Frequency and Headway

The MDTA bus routes serving the corridor are listed below along with their target headways. Headway is the scheduled time between arrivals of the same bus route. It is inversely related to service frequency (i.e. a bus with a headway of 30 minutes, has an hourly frequency of 2; a bus with a headway of 15 minutes, has an hourly frequency of 4; a bus with a headway of 10 minutes, has an hourly frequency of 6; etc.). The data provided below is excerpted from the *1997 MDTA Transit Development Program* (TDP).

EXISTING TRANSIT SERVICE

Route Number	Peak Headway (minutes) 1997	Off-Peak Headway (minutes) 1997	Night / Headway (minutes) 1997	Saturday Headway (minutes) 1997	Sunday Headway (minutes) 1997
A	20	20	no service	40	40
B	15	30	no service	40	40
C	20	20	30	20	30
E	60	60	no service	60	60
F/M	60	60	no service	30	30
G (19th St.)	30	30	60	30	60
G (Surfside)	15	30	60	30	60
H	20	20	60	20	30
J	20	30	60	30	60
K (Haulover)	15	20	60	30	30
K (Diplomat)	30	60	60	60	60
L (Northside)	10	12	30	15	20
L (Hialeah Station)	20	24	30	30	40
L (Amtrak Station)	20	24	30	30	40
R	60	60	no service	no service	no service
S	10	10	20	10	12
T	20	30	30	30	30
V	n/a	60	n/a	n/a	n/a
W	24	24	48	24	24
Electrowave	8	8	8	8/12	8

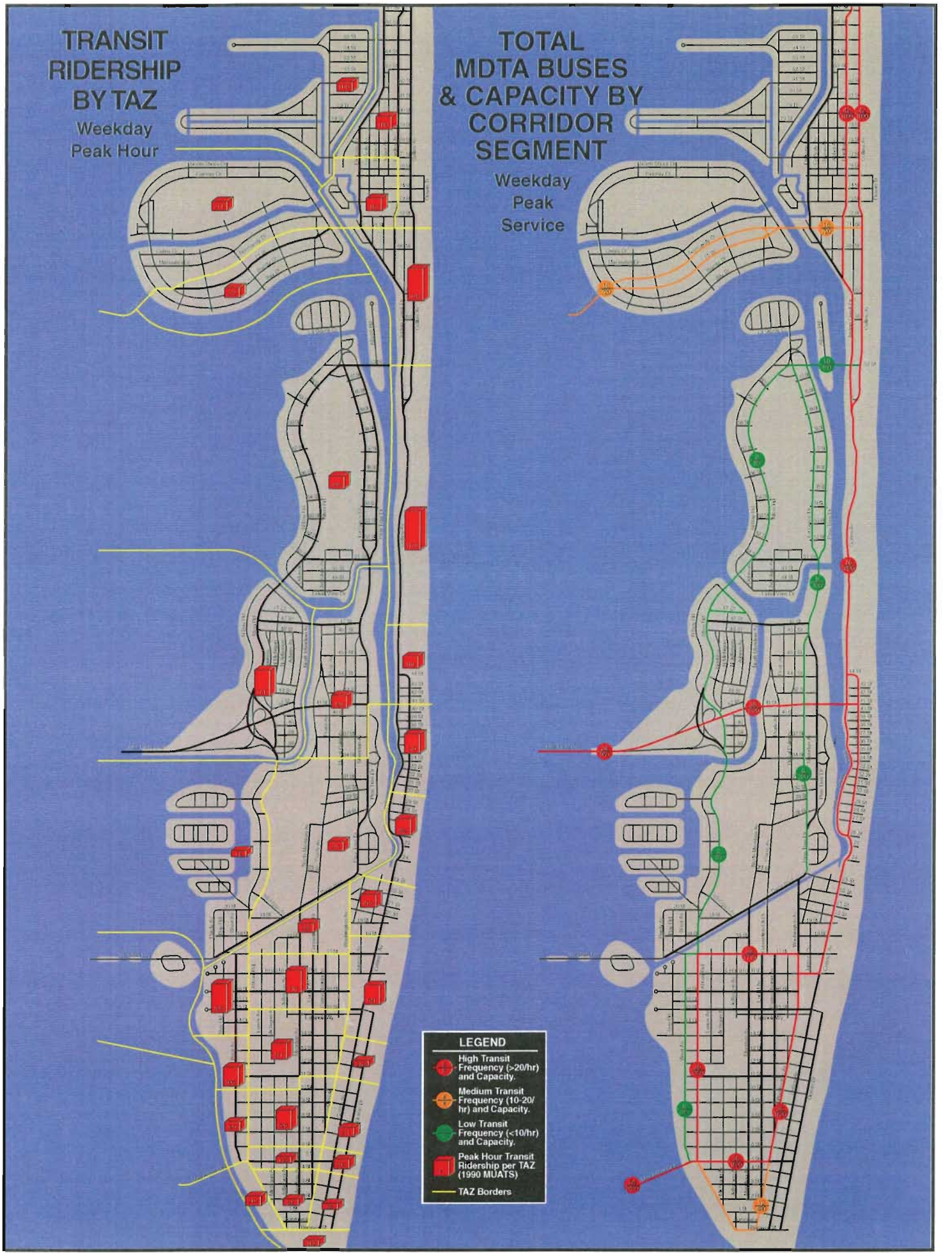
Route and Corridor Capacity

Service frequency or average headway provides a performance measurement that is meaningful to passengers on an individual basis. A meaningful measure of citywide performance is the seated capacity provided by each route per peak or off peak hour. The hourly capacity for each route can be calculated by simply multiplying the number of available seats by the frequency of bus service. This provides a measure of route passenger capacity past a given point. Route capacities are calculated in the table below based upon the frequencies provided in the *1997 MDTA Transit Development Program*. All routes except the J and S utilize 40 seat buses, while the J and S utilize 55-passenger articulated vehicles. The Electrowave utilizes 22 passenger AVS electric shuttles. Crush load, the maximum number of passengers that can be accommodated including standing room is generally considered to be 150% of the seated capacity.

EXISTING TRANSIT SERVICE ROUTE HOURLY CAPACITY IN MIAMI BEACH

Route Number	Peak Capacity 1997	Off-Peak Capacity 1997	Night Capacity 1997	Saturday Capacity 1997	Sunday Capacity 1997
A	120	120	no service	60	60
B	160	80	no service	60	60
C	120	120	80	120	80
E	40	40	no service	40	40
F/M	40	40	no service	80	80
G (19th St.)	80	80	40	80	40
G (Surfside)	160	80	40	80	40
H	120	120	40	120	80
J	120	80	40	80	40
K (Haulover)	160	120	40	80	80
K (Diplomat)	80	40	40	40	40
L (Northside)	330	275	110	220	165
L (Hialeah Station)	165	138	110	110	110
L (Amtrak Station)	165	138	110	110	110
R	40	40	no service	no service	no service
S	330	330	165	330	275
T	120	80	80	80	80
V	n/a	40	n/a	n/a	n/a
W	100	100	50	100	100
Electrowave	165	165	165	165/110	165
System Total	2,205	1,888	1,070	1,615	1,345

Corridor capacity has also been calculated as a measure of determining the level of service perceived by a passenger waiting to travel up or down a particular corridor. In case of Miami Beach, any northbound or southbound bus will suffice, so the corridor capacity is an appropriate measure. Figure 31 illustrates corridor capacity by zone for the City.



Regional Transit Ridership and Capacity
Figure 31

Fare

MDTA patrons pay a regular fare of a $1.25. Additionally, MDTA provides reduced fares of $0.60 to senior/disabled/youth passengers and bus-to-bus transfers cost $0.25. The Electrowave shuttle provides free service in South Beach.

Transit Mode Split

Metrobus and Metrorail capture approximately 4% of the Miami-Dade County total transportation mode split. The system primarily targets the needs of transit dependent riders; however, it is transitioning to capture a greater share of choice riders. A choice rider can be defined as a person that has the option to choose their mode of travel based on personal preference.

The 1995 *South Beach Residents' Perceptions of Parking and Traffic Conditions* shows that 10% of South Beach residents use public transportation to make leisure trips. The City of Miami Beach is particularly well suited to providing enhanced service to attract choice riders, such as visitors to the area, due to the following factors:

- the relatively high density and pedestrian character of the city,
- traffic congestion,
- difficulty and expense associated with parking.

Specifically, the *South Beach Residents' Perceptions of Parking and Traffic Conditions* study made the following findings in regard to the transit attitudes of residents:

- 62% never use transit, while 9% use transit once per week, 7% twice per week, 7% three or four times per week and 4% use transit five or more times per week.
- 51% would be more likely to use transit if parking costs increased. The average respondent spent $33.89 per month on parking.
- 57% would be more likely to use transit if parking availability decreased.
- 69% stated that safety concerns do not effect their use of public transit.
- 62% lack enough information to utilize public transit.
- 76% would use transit more often if it were offered for free or at a greatly reduced charge.
- 40% responded that they are willing to transfer once and 16% are willing to transfer twice, while 28% are not willing to transfer at all.

When asked where is the ideal place to catch a bus in South Beach, the five highest responses of residents were:

1. Alton Road (25.8%)
2. Washington Avenue (19.4%)
3. Collins Avenue (13.4%)
4. Meridian Avenue (5.3%)
5. West Avenue (3.8%)

The *South Beach Visitor and Resident Survey* made the following findings in regards to visitors to Miami Beach:

- 59% of the visitors to Miami Beach arrived to the City by automobile, while 3% arrived by Metrobus, 12% arrived by shuttles and 20% arrived by taxi.
- Most visitors stay on Miami Beach for more than 3 days; however, only 22% use a bus shuttle or taxi during their stay in the City.
- The availability and convenience of parking was a contributing factor in the decision for 59% that utilized automobiles.
- Price was the motivating factor for 50% of those that utilized mass transit.

The were five primary reasons given for not utilizing transit were:

1. Lack of information (23%)
2. Convenience (20%)
3. Cost (19%)
4. Waiting time (14%)
5. Concern for safety (14%)

An increased utilization of transit must be a goal of the Municipal Mobility Plan. Miami Beach faces degrading levels of service for traffic, constrained rights-of-way, expensive land costs, and an increasing concern to preserve the quality of life in the city. Increasing the transit modal split could help accomplish several objectives including:

- Reducing traffic congestion without impacting economic viability.
- Reducing cut through traffic in residential neighborhoods.
- Increasing the available parking in South Beach by providing transit links to spaces beyond a 5-minute walk.
- Reducing the demand for additional parking and, therefore, the costs associated with constructing additional parking, which is approximately $12,000 per structured parking space.
- Reducing parking spillover into residential neighborhoods in South Beach such as Flamingo Park, South Pointe and Lake Pancoast.
- Creating a more pedestrian oriented environment.
- Expanding the transportation choices for residents, commuters, and visitors.
- Providing opportunity to attract more entertainment and retail business without sacrificing the safety or quality-of-life of residents.

Zonal Transit Demand in Miami Beach

A transit demand analysis was performed using a zonal analysis, which aggregates transit trip generation for the zone. This analysis utilized the 1990 Miami Urbanized Area Transportation Study (MUATS) model. The analysis is included in the table on the following page. The weekday peak hour transit demand is listed by Transportation Analysis Zone (TAZ) for all TAZs within the city. The TAZ boundaries are indicated by yellow lines. Figure 31 illustrates the demand graphically with bar charts for each TAZ indicating the relative magnitude of zonal hourly demand.

Bus Patronage in Miami Beach by TAZ
Source: 1990 MUATS Model

	Work Trips				Non-Work Trips				
	Local Bus/	Express Bus			Local Bus/	Express Bus			Grand
TAZ	Walk	Walk	Auto	Total	Walk	Walk	Auto	Total	Total
3	16	1	0	17	97	0	0	97	114
4	20	3	0	23	38	1	0	39	62
5	30	4	0	34	53	1	0	54	88
6	47	3	0	50	172	1	0	173	223
7	67	9	0	76	138	4	0	142	218
8	56	10	0	66	77	1	0	78	144
10	97	10	0	107	223	3	0	226	333
11	277	43	0	320	349	8	0	357	677
12	60	9	0	69	213	4	0	217	286
13	52	7	0	59	166	6	0	172	231
14	172	27	0	199	299	5	0	304	503
15	312	22	0	334	294	3	0	297	631
17	412	26	0	438	514	7	0	521	959
18	174	18	0	192	542	9	0	551	743
19	121	17	0	138	520	6	0	526	664
20	110	17	0	127	303	3	0	306	433
21	59	3	0	62	170	2	0	172	234
22	32	4	0	36	42	1	0	43	79
23	96	8	0	104	129	1	0	130	234
24	164	23	0	187	318	5	0	323	510
25	199	15	0	214	371	5	0	376	590
26	58	10	0	68	350	7	0	357	425
27	153	29	0	182	276	6	0	282	464
28	153	24	0	177	628	14	0	642	819
29	110	8	0	118	228	1	0	229	347
30	375	72	0	447	804	17	0	821	1268
31	435	49	0	484	612	12	0	624	1108
32	108	93	0	201	114	15	0	129	330
34	106	80	0	186	108	14	0	122	308
35	138	65	0	203	275	8	0	283	486
Total	4209	709	-	4,918	8,423	170	-	8,593	13,511

g:\projects\1886\excel\BUSBYTAZ.xls

The overall spatial pattern on Miami Beach demonstrates a strong correlation between zonal transit trips and the density of residential land uses. Accordingly, the MUATS model estimates trips based on an algorithm that is strongly determined by residential units for trip generation and employment for trip attractions.

Comparing transit demand to adjacent corridor capacities, it can be seen that there is surplus transit capacity throughout the city. The specific demand for Electrowave and its capacity are not integrated into this analysis. The Electrowave provides a significantly different transit product and is considered separately since its transit impacts are not clearly established at this time.

Service Performance

There are methods for measuring transit service performance. Boardings per day are one important parameter, as they provide an indication of the demand on transit routes operating at least partially in the City. Although this data is readily available on a monthly basis by transit route, it possesses several shortcomings as an indicator of ridership for Miami Beach only. Boardings per route are estimated by fare box revenues for the entire route. They are not accurate for estimating ridership over a particular route segment or for estimating boardings and departures over a particular route segment. Application of a uniform split between full fares, discount fares, passes, and transfers does not fully account for within proximity to other routes, which increases the potential for transfers. Additionally, there is not any weight given to the land uses or demographics of a particular segment as potential higher or lower generators or attractors of transit trips.

For the reasons stated above, boardings per route were not considered an appropriate measure of transit demand for Miami Beach. Therefore, a demand analysis was performed using a zonal analysis, which aggregates transit demand on a zonal basis. The indicators of system performance examined include utilization and productivity. Utilization is the ratio of ridership to capacity. It is often expressed as a route level performance indicator as passenger-miles/seat-miles. Productivity measures (passenger trips per hour, net cost per passenger) indicate the financial efficiency of the route or system. MDTA utilization by zone was calculated based on the corridor capacity analysis and the ridership estimates and is illustrated in Figure 31.

Electrowave Transit Circulator Service

The Miami Beach Transportation Management Association (MBTMA) in partnership with the City of Miami Beach has developed the South Beach electric shuttle, known as the Electrowave. The current shuttle service area encompasses the area of Miami Beach south of Dade Boulevard including parts of South Beach, the Convention Center Historic District and the South Pointe District. The Electrowave fleet consists of zero emissions 22-foot low floor electrically powered vehicles. Starting in 1999, the vehicle fleet may be increased and the service area expanded to Alton Road, Middle Beach and the newly completed Mount Sinai Intermodal Center.

The mission of the Electric Wave is to:

1. Provide transit services specifically tailored toward the needs of South Beach by interconnecting existing and planned parking facilities, supporting an interceptor park-and-ride program and maximizing the utilization of the City's parking capacity.

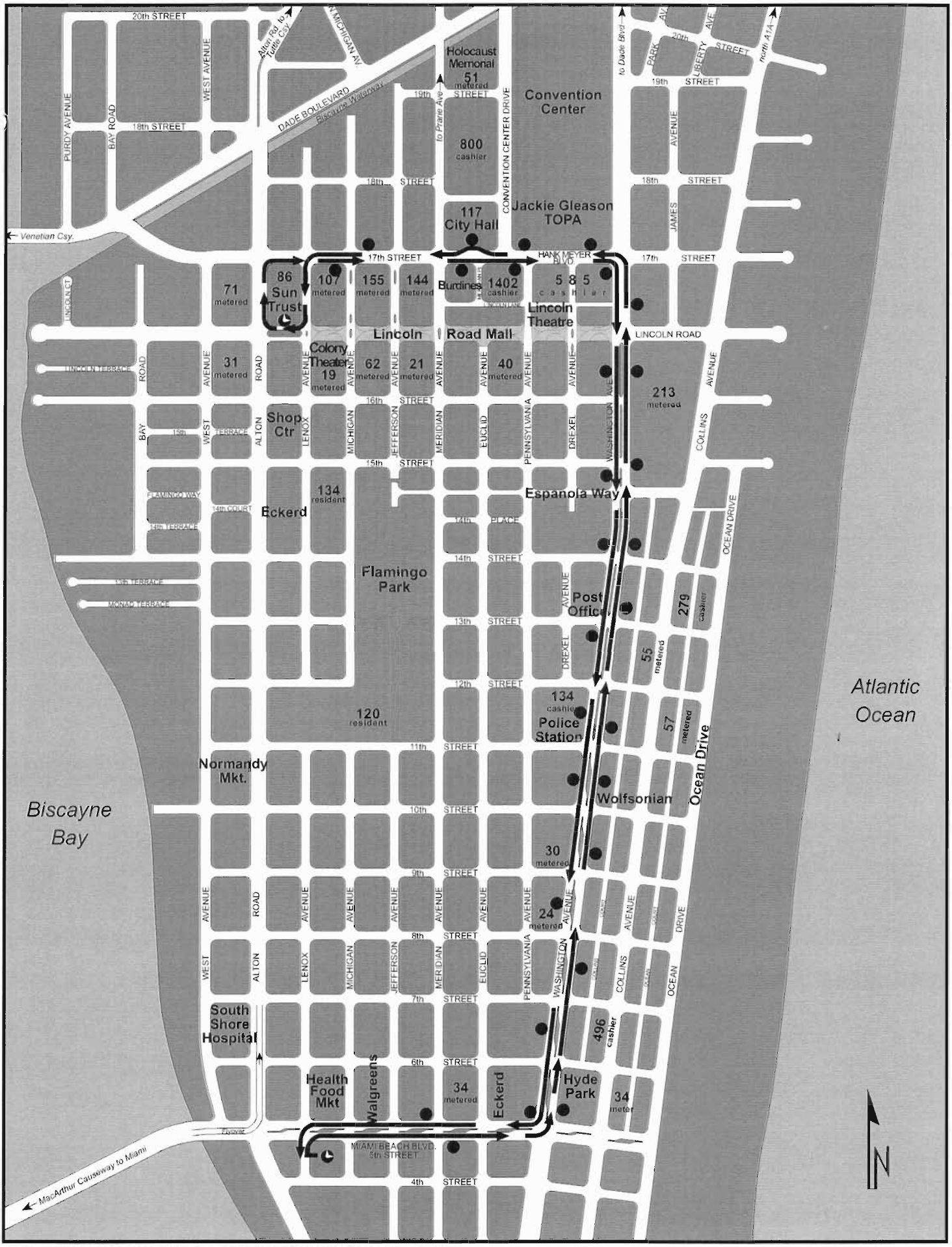
2. Attract new segments of the population to public transit, attract tourist ridership and establish a base for a potential Miami Beach alignment of the East-West Multimodal Corridor.

The electric shuttle performance goals and criteria include:

- Average wait time between 3 and 5 minutes.
- Headway of 8 minutes or less in peak periods (frequency of 7.5 per hour).
- Reliability to insure no more than a 2 minute deviation from expected arrival.
- Service hours from 8:00 AM until midnight on weekdays and until 4:00 AM on Fridays and Saturdays.
- Passenger LOS E or better.
- Access and egress comfort,
- Passenger information including route diagrams at each stop, along with MDTA coordination and extensive publicity.
- Market differentiation to attract choice ridership.
- Passenger cost of zero: no fare.

The Electrowave began operation on January 30, 1998. It has since it has provided service with 8 minute headways along the route illustrated on Figure 32 connecting South Beach destinations with over 5,000 parking spaces, while providing free transit circulation for residents and employees in its service area. The Electrowave has carried approximately 3,500 riders per day since its inception.

Funding for the Electrowave is provided by the City of Miami Beach, FDOT, Clean Cities Coalition, International Council for Local Environmental Intiatives, Florida Power & Light Company, Florida Environmental Protection Agency and the Miami-Dade Metropolitan Planning Organization. The Miami Beach TMA is the contract manager/operator.



Electrowave Electric Shuttle Route
Figure 32

INLAND MARINE AND WATER TAXI

As a barrier island, the City of Miami Beach has an abundance of shoreline. The City has approximately 7.5 miles of oceanfront coastline, approximately 17 miles of shoreline fronting Biscayne Bay (not including the Venetian Islands, Star Island, Hibiscus Island or Palm Island) and approximately 34 inland miles of shoreline along Indian Creek, Collins Canal, Biscayne Waterway, Normandy Waterway, Tatum Waterway, Lake Pancoast, Sunset Lake, Surprise Lake and other canals. This totals approximately 51 miles of coastline along protected waters. Additionally, there are not any points on land further than a 1/2 mile from a body of water or further than about 5,000 feet from inland shoreline. These physical features in combination with the density of development, demographics, cultural features, and high numbers of visitors create excellent prospects for a viable water taxi service.

A private entrepreneur operated a regularly scheduled water taxi service as recently as 1995. The route that the regularly scheduled water taxi used is shown in Figure 33. However, the regularly scheduled service was cancelled and service is now offered only by charter from Bayside in Miami.

The primary reason for the cancellation of service was a lack of patronage. The *South Beach Visitor and Resident Survey* found that a lack of information was the highest ranked reason for not using transit. Factors, which may inhibit the efficient provision of water taxi service, are listed below:

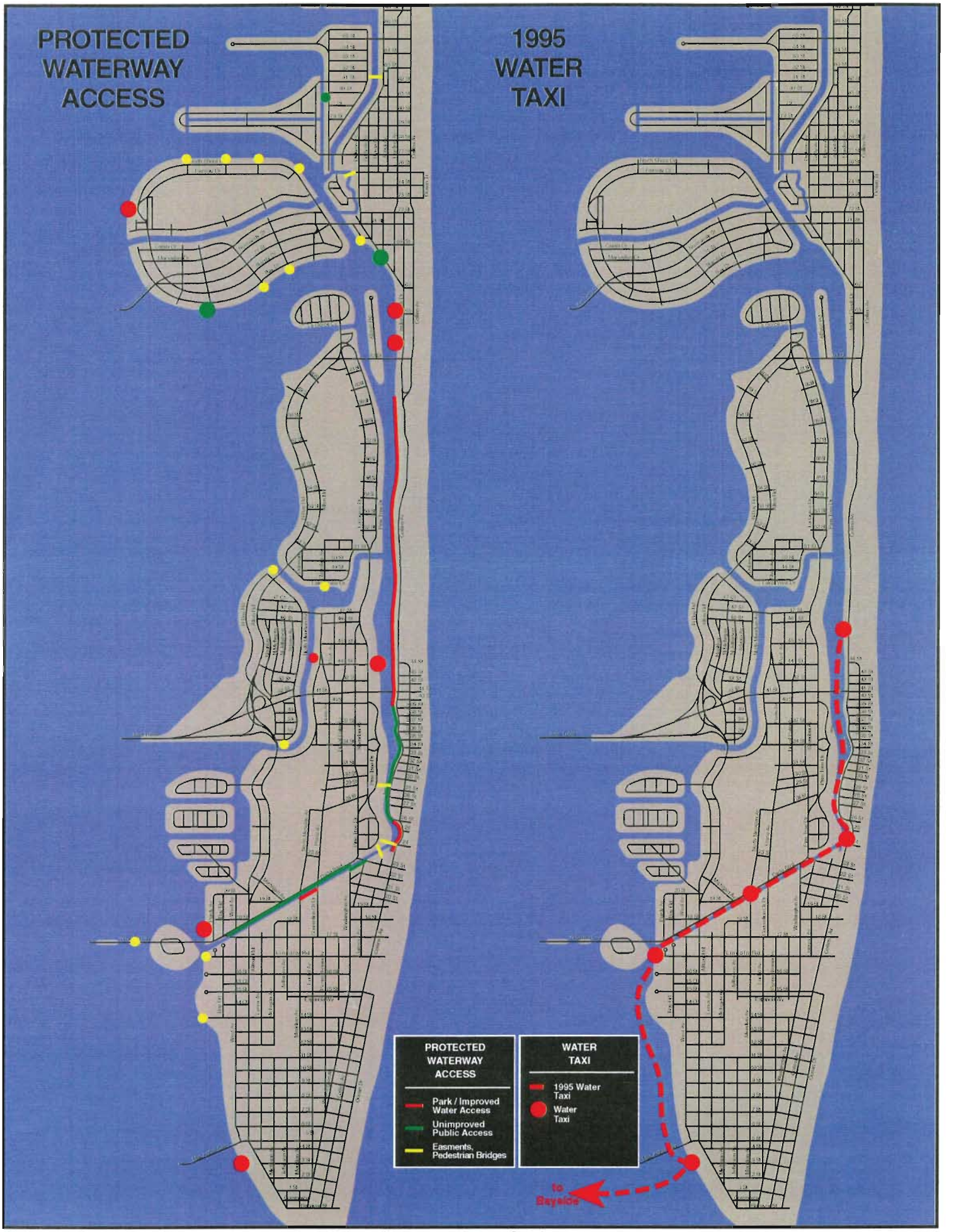
- Schedule information was not widely available.
- Stop locations were not well marked and not all were properly lighted for evening use.
- Not all stop locations provided good pedestrian access.
- Some bridges on Collins Canal provide less than 6 feet of clearance at high tide.
- Personal watercraft often speed through Collins Canal, which is only about 30 feet wide, on weekends creating a potentially hazardous situation.

Figure 33 illustrates shoreline locations that publicly owned or have potential for the development of water taxi stops. The figure shoes three categories of water access:

- Public parks, edges of roadways or other linear spaces providing good public pedestrian access and intermodal opportunities. Some of these locations have bulkheads with pedestrian access, while others provide alternative means of shoreline stabilization. These locations are shown in red.

- Unimproved public access spaces along roadways or on public or city-owned properties. These locations do not provide public access to the shoreline in their present condition and are shown in green.

- Easements, ends of rights-of-way or pedestrian bridges that could provide public access points. The use of these locations as a public landing could be controversial and possibly impact the livability of abutting private property owners. These locations are shown in yellow.



Waterfront Access and 1995 Water Taxi Route
Figure 33

MIAMI BEACH MUNICIPAL MOBILITY PLAN

10 YEAR PLAN
REPORT

MIAMI BEACH MUNICIPAL MOBILITY PLAN
TEN-YEAR PLAN

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MIAMI BEACH MUNICIPAL MOBILITY PLAN
TEN-YEAR PLAN

INTRODUCTION

The Ten-Year Plan is the operational element of the Miami Beach Municipal Mobility Plan. This element addresses all of the pertinent transportation modes, as well as providing summarized findings for policy recommendations and implementation. The extensive public involvement program, the Existing Conditions Report, Future Conditions Report, and the Special Users Report make up the base information from which the recommendation of the Ten-Year Plan are drawn. An interim draft Ten-Year Plan, based entirely on the Existing and Future Conditions reports, had previously been distributed to the City and the project Steering Committee, and formed the basis for the series of public involvement meetings that were held subsequently.

The Ten-Year Plan begins with a summary of the public involvement program and a synopsis of transportation-related issues that emerged from the public meetings. Specific discussion and recommendations are then offered for each transportation mode. The traffic element of the Ten-Year Plan prioritizes recommendations for roadway improvements. The improvements include both operational and capacity changes to the roadway network. Recommendations will include components for the following modes:

1. Traffic Level-of-Service Maintenance to the Year 2010, including traffic bottlenecks at:
    - Indian Creek Drive and the 63rd Street Bridge
    - Alton Road and 43rd Street
    - Indian Creek Drive and 41st Street
    - Alton Road and 17th Street
2. Neighborhood Traffic Management, including:
    - Alton Road
    - Pine Tree Drive
    - La Gorce Drive
    - 41st Street
3. Bicycle and Non-Motorized Vehicles
4. Pedestrians
5. In-Line Skating and Skateboarding
6. Transit
7. Inland Marine and Water Taxi

The Ten-Year Plan also contains management and policy-related recommendations, including the following components:

- Recommendations for the amendment of the City's functional classification system, in keeping with the findings of the Existing Conditions and Future Conditions reports.
- A neighborhood traffic management process which describes ways in which traffic calming techniques can be studied, selected and funded.

- A discussion of planning techniques for dealing with transportation concurrency level of service issues, including urban infill areas and Transportation Concurrency Management Areas (TCMAs).
- Ten-Year Plan funding alternatives.
- Summaries of selected proposals and projects intended to enhance mobility and the quality of life in the City.
- A project comparison system that integrates management and policy concerns.
- Recommended projects for inclusion in the Capital Improvements Plan (CIP).

In most cases, the policy or management planning recommendations will be found with the transportation component to which they are related. For example, the discussion of the neighborhood traffic management process will be found immediately after the specific recommendations for traffic calming.

A Concurrency Management System (CMS) is part of the implementation of the Ten-Year Plan recommendations. The CMS provides an easy-to-use, PC-based tool for City staff to monitor the City's transportation system's compliance with concurrency standards as development permits are requested. A user-friendly graphical interface package will be installed that uses a Geographic Information System (GIS) front-end for the TRANS-CAD network model.

Among the policy recommendations of the Ten-Year Plan is the adoption of the MMP as the implementation of the Transportation Element of the City of Miami Beach Comprehensive Plan. The recommendations of the Ten-Year Plan must also be adopted as the guide for the CMS, which will be the ongoing tool to ensure compliance with transportation concurrency requirements. Also contained in this final report is a menu of possible Federal, State, County, and municipal funding sources, and public/private opportunities.

SUMMARY OF PUBLIC INVOLVEMENT PROGRAM

A vital component of this plan's formulation was its public involvement program. This effort included the following individual venues:

- Presentations to and discussions with the City Commission in workshop sessions.
- Formal and informal discussion with City staff.
- Monthly Steering Committee meetings with representatives of City staff, Dade County Public Works Department, the Metropolitan Planning Organization, Florida Department of Transportation, and Miami-Dade Transit Agency.
- Presentations to and discussions with the Miami Beach Transportation and Parking Committee.
- North Beach public involvement workshop.
- Mid-Beach public involvement workshop.
- South Beach public involvement workshop.
- Citywide public involvement workshop.
- Correspondence from individual concerned residents.

The minutes of the community meetings appear in Appendix A.

The following section is a brief synopsis of the issues brought forth at the four public involvement workshops.

Community-Wide Transportation Issues Summary

Need for vision of what community wants to be and how transportation is related to that vision.

- Unique character of community should be honored and reinforced by transportation decisions.
- Relationships between roadway improvements and desired land uses and development patterns need to be acknowledged and dealt with.
- The development priorities for each area of the city are distinct - one size does not fit all.

Sense of place, aesthetics.

- Gateways needed.
- Community qualities should be celebrated.

Safety

- Vehicular (car vs. car).
- Modal conflicts (cyclists/pedestrians vs. cars), including school crossings.
- Poor signage.

Congestion and its causes

- Over-dependence, over-reliance on cars as a transportation mode.
- Importance of maintenance of roadway capacity and level of service.
- Impacts of congestion: noise, air pollution, adjacent uses.

- City is used as a bypass for through-trips from other communities.
- Commercial vehicle deliveries.
- Poor or non-existent directional signage.
- Growth management: new development.
- Changing demographics (more families with two or more cars).
- Construction activity and accidents.
- Lack of information about delay-causing factors for drivers (construction and accidents).
- Impacts of roadway system on quality of life.
- Noise.
- Pollution.
- Visual impacts.

Emergency access needs for police, fire, EMS

Hurricane evacuation

Transit

- Lack of intermodal connections.
- Lack of integration of modal facilities.
- Lack of passenger amenities (bus stop and onboard conditions).

Need for ongoing economic development and redevelopment

- New development.
- Tourism development/sustainability.
- Blighting influences of roadways.
- Redevelopment needs in selected districts.

Parking demand

- Parking configuration and availability.
- Park and ride development and location.

Needs of special users (skaters, tourists, cyclists)

- Existing facilities (buses & Electrowave) are limited.
- Transit dependency/mobility needs of population.
- Entire City can been viewed as an outdoor recreation area.
- ADA compliance.

Driver/rider/special user experience (frustration, unwillingness to use transit)

Neighborhood Impacts

- Traffic intrusion.
- Speeding in neighborhoods.
- Noise, visual impacts, air pollution.

Community-Specific Issues

As mentioned previously, individual workshops were also held in North Beach, Mid Beach and South Beach with residents of those areas of the City. The minutes of these community meetings appear in Appendix A. Figures 1, 2, and 3 graphically summarize issues discussed in North Beach, Mid Beach, and South Beach, respectively. The following are general summaries of input received at these meetings:

North Beach Issues Summary

Speeding. Speeding in neighborhoods and on collector and arterial streets is seen as a major issue.

Neighborhood traffic intrusion. Cut-through traffic impacting neighborhoods is considered a major problem.

Congestion. Traffic congestion affecting the ability of residents to move around the City is a primary concern. Specific areas mentioned as bottlenecks were 63rd Street at the flyover, and 71st Street.

Transit. Improved bus service with less headway was mentioned as an issue affecting residents. It was felt that the bus system is extensive, but is not geared to the specific needs of transit users. More bus shelters should be provided at regular intervals.

Safety. Concerns for the safety of pedestrians in particular was noted in existing conditions on Collins near North Shore Park, Harding Avenue, and near Biscayne Elementary School.

Growth management. North Beach was felt to have a distinct set of priorities from the rest of the City. Among these priorities is a general feeling that "responsible" development is to be encouraged, as opposed to South Beach were it is perceived that feelings run against development of any kind. New development or redevelopment is worthy of consideration if not at the expense of the quality of life in existing neighborhoods.

Sense of place. There is a need to balance ongoing development with quality of life issues including neighborhood character, and pedestrian-friendly facilities. The Collins Avenue Gateway Entrance and various beautification projects would help reinforce this character.

Alternative modes of travel. A comprehensive network of pedestrian and bike routes, lanes, and paths was recommended to reinforce the residential character of North Beach.

Middle Beach Issues Summary

Growth management. The impact of new development on the quality of life is a major concern. It was expressed that new development is not being balanced against the needs of existing residents and the existing positive qualities of neighborhoods

Congestion. Traffic congestion affecting the ability of residents to move around the City is a primary concern. Specific areas mentioned as bottlenecks were 63rd Street, the Mt. Sinai Hospital vicinity, and the vicinity of the new Publix store.

Speeding. Speeding in neighbohoods and on collector and arterial streets (particularly in the Alton Road corridor) is seen as a major issue. Traffic calming measures were recommended for Alton Road, Pine Tree Drive/La Gorce Drive, and 41st Street.

Neighborhood traffic intrusion. Cut-through traffic impacting neighborhoods is considered a major problem.

Safety. Concerns for the safety of motorists and pedestrians was noted in existing conditions on Dade Boulevard, Bay Road at 17th Street/Dade Boulevard, and Dade Boulevard at Purdy Avenue.

Transit. Extension of the Electowave system to Mid Beach was recommended. Transit amenities (bus shelter design, lighting, sense of security) need to be upgraded.

South Beach Issues Summary

Neighborhood traffic intrusion. Cut-through traffic impacting neighborhoods is considered a major problem, particularly in the neighborhoods between Alton Road and Washington Avenue between 15th Street and 5th Street.

Congestion. Traffic congestion affecting the ability of residents to move around the City is a primary concern. However, many South Beach residents have expressed a tolerance for congestion, especially when it is caused by pedestrians crossing roadways. This recognition of the importance of pedestrians is part of the overall character of South Beach, which was compared with other world class destinations. While new development was seen as a prime cause for congestion, other causes, such as delivery vehicles stopping in the right of ways of streets were also seen as contributing to bottlenecks.

Safety. Concerns for the safety of pedestrians in particular was noted in existing conditions on 13th and 14th Streets and Collins Avenue, and at several intersections with Ocean Drive.

Growth management. Concerns were expressed for mitigation plans for new development which simply result in more cars on the street, rather than alternative measures to facilitate pedestrians and bicycles.

Transit. Support was voiced for transit that is targeted specifically to the needs of the surrounding neighborhoods. The Electrowave shuttle was mentioned as an example of such a successful project.

Alternative modes of travel. A comprehensive network of pedestrian and bike routes, lanes, and paths was recommended to reinforce the residential character of South Beach.

ROADWAY AND INTERSECTION LEVEL OF SERVICE MAINTENANCE

This element of the Ten-Year Plan analyzes the future conditions of roadway link and intersection level-of-service for the horizon year 2010. Based on the findings contained in the Future Conditions Report, the following measures are offered.

Intersection Performance Analysis and Recommendations

Detailed 2010 intersection level of service calculation sheets are included in the appendices, of which a summary is provided in Tables 10, 12 and 14. The majority of the study intersections are expected to present acceptable performance without geometric improvements. The only two exceptions are:

1. Indian Creek Drive at 41st Street - This intersection is expected to perform at LOS E in 2010, even with improvements that are programmed for implementation. The programmed improvements include restriping the center lane of the eastbound approach to a shared left-turn/through lane and adjusting the signal phasing.

2. Alton Road at 17th Street - This intersection is also expected to perform at LOS E in 2010, even with improvements that are programmed for implementation. The programmed improvements at this intersection include:

    - Restriping the eastbound approach to consist of one exclusive left-turn lane, one shared left-turn/through lane and one shared right-turn/through lane

    - Restriping the westbound approach to consist of one exclusive left-tum lane, one shared left-turn/through lane and one exclusive right-turn lane.

Monitoring of these two intersections above is recommended in order to determine the appropriate timing for the implementation of the proposed improvements. Additionally, the intersection of Alton Road at Dade Boulevard is programmed for reconfiguration. A southbound left-turn lane will be added at this intersection. The purpose of this improvement is to relieve the heavy southbound left-turn demand at the Alton Road at 17th Street intersection.

Link Performance Analysis and Recommendations

Tables 11, 13, and 15 summarize the link level-of-service calculations for year 2010. Most links present adequate performance of LOS D or better. However, the following links are projected to perform below LOS D:

- Indian Creek Drive between 63rd Street and 71st Street - This link is projected to operate at LOS F during both the AM and PM peak periods.

- 41st Street (Arthur Godfrey Road) between Alton Road and Collins Avenue - This link is projected to operate at LOS F during both the AM and PM peak periods.

- 63rd Street between LaGorce Drive and Collins Avenue - This link is projected to operate at LOS F during both the AM and PM peak periods.

- Alton Road between 5th Street and Dade Boulevard - This link is projected to operate at LOS F during both the AM and PM peak periods.

- Ocean Drive between 5th Street and 10th Street - This link is projected to operate at LOS F during both the AM and PM peak periods.

- Ocean Drive between 10th Street and 15th Street - This link is projected to operate at LOS E during the PM peak period.

- 15th Street between Washington Avenue and Alton Road - This link is projected to operate at LOS F during the PM peak period.

- 16th Street between Washington Avenue and Alton Road - This link is projected to operate at LOS E during the AM peak period and LOS F during the PM peak period.

Several mitigation alternatives were developed for each of these locations and are included in *the Year 2010 Traffic Conditions* section of this report. In addition, transportation projects are qualitatively evaluated later in this report.

Proposed Changes to Functional Classifications

The existing conditions section of this plan describes the City's system of roadway classification. These roadway classifications, referred to as "functional classifications", define the function and general capacity of each roadway. The classification of a given roadway is important in that it does much to define the policy of the City and other jurisdictions or agencies toward the roadway. It is recommended that the functional classifications for several roadway segments be amended to better reflect their actual function and traffic characteristics. The following table summarizes the recommended amendments to the City's functional classification system and the rationale for each proposed change.

Roadway Segment	Current Functional Classification	Proposed Functional Classification	Reason for Proposed Change
Indian Creek Drive from 67th Street to 71st Street	Collector Street	Arterial Roadway	Existing & projected volume; function
Dade Boulevard from Bay Road to Pine Tree Drive	Collector Street	Arterial Roadway	Existing & projected volumes; function
23rd Street from Dade Boulevard to Collins Avenue	Local Street	Arterial Roadway	Existing & projected volumes; function
17th Street from Alton Road to Dade Boulevard	Collector Street	Arterial Roadway	Existing & projected volumes; function
Washington Avenue from Biscayne Street to 5th Avenue	Local Street	Collector Street	Existing & projected volumes; function
Collins Avenue from 15th Street to 5th Street	Arterial Roadway	Collector Street	Parallel facility; community character
15th Street from Alton Road to Washington Avenue	Collector Street	Local Street	Neighborhood traffic management; community character
16th Street from Alton Road to Collins Avenue	Local Street	Collector Street	Existing & projected volumes; Neighborhood traffic management
West Avenue from 8th Street to 17th Street	Local Street	Collector Street	Existing & projected volumes; function

The segments noted of Indian Creek Drive, Dade Boulevard, 23rd Street, 17th Street, 16th Street and Washington Avenue, have in common a function and volume of traffic which exceed their current classifications as local or collectors streets, and therefore require reclassification as collector or arterial facilities. The segment of Collins Avenue listed is unique in that it is being recommended for a functional classification that is lower than its current status. This is due to the fact that even though Collins is currently classified as an arterial for its entire length, Washington Avenue is effectively the higher capacity roadway south of 15th Street. Collins Avenue's importance in this location is similar to that of Ocean Drive: both are historically significant streets in which a certain amount of congestion is tolerated, and both facilities should remain at an appropriate scale. The reclassification of Collins Avenue is reflective of this special status. Likewise, the segment of 15th Street is recommended for reclassification to a functional status lower than its current classification. The reclassification reflects the residential character of 15th Street.

NEIGHBORHOOD TRAFFIC MANAGEMENT

This element of the Ten-Year Plan analyzed the issues associated with traffic intrusion and the need for traffic management on neighborhood streets in Miami Beach. The findings of the Neighborhood Traffic Management Section, along with recommendations for mitigating cut through traffic and speeding problems follow.

Cut -Through Traffic

Issues

Sixteen roadway segments were identified as having volumes that are above the thresholds for livability adopted by the Dade County Street Closure/Traffic Flow Modification Study. These thresholds are an average based on an extensive literature review; however, they are not directly applicable to every case without further consideration. The County volume thresholds provide reasonable guidance for less densely developed areas. Miami Beach is a densely developed barrier island, with comparatively few alternate paths for north/south travel. This forces substantially high volumes of traffic along comparatively few roads.

East/west streets in South Beach link dense residential development, through a medium density neighborhood, to an active mixed-use area to the east. As such, all of the east/west roads support higher traffic volumes. It is important to examine volumes beyond the thresholds, and recognize that the comparatively high volumes are relative to volumes experienced on adjacent streets. It is more appropriate to focus only on cut through traffic, and identify mitigation only for those streets that have higher volumes of through movements than alternative adjacent streets.

Cut Through Traffic - Recommendation

It is recommended that the City adopt a more refined traffic calming study process, when high traffic volumes are reported to be at issue. This method should consider all of the roadways that can be considered alternate paths, and may require a study to be performed at a neighborhood level. Daily and peak hour volumes would not by themselves be the criteria for determining intrusion. Instead, 24-hour counts would be used to identify peak periods, and at peak periods, through intrusion traffic would be surveyed by license plate studies, or other applicable methods. Determinations for mitigation would be by comparative levels of intrusion among alternate streets.

Speeding

Eight spot speed surveys were performed. Speeding was determined to be a significant problem along the 71st Street/Normandy Drive pair, the Pine Tree Drive/La Gorce Drive pair, and Alton Road, and 41st Street. Specific recommendations follow.

Pine Tree Drive/LaGorce Drive

Issues

The segments of Pine Tree and La Gorce Drive from 51st Street to 63rd Street, are each part of a one-way pair. Each roadway has a typical cross-sectional pavement width of approximately 30 feet on a 75-foot right-of-way, for which there are 2 lanes, each approximately 15 feet. The remainder of the right-of-way is swale area and sidewalks. Some parking occurs in the swales. The segments are each approximately 1.15 miles long, without signals or other traffic controls. Except for a horizontal curve at 52nd Street, each is relatively straight; however, sight lines are shortened by the gentle curve of each road. Each is designated as a City Collector, with consistent adjacent land uses on each of low density, single family residential. The concerns of the Pine Tree/La Gorce homeowners are with speeding, and not volumes.

The speed limit is 30 mph. The 85th percentile speeds surveyed in February 1998 were 44.7 mph, on Pine Tree Drive north of 54th Street, and 46.6 mph, on La Gorce Drive north of 54th Street. These speeds are well in excess of safe speeds for neighborhood travel.

If each of these roadway segments were restricted to one lane instead of two, without interruption from stopped buses, the levels-of-service would be B, except for Pine Tree Drive (LOS C in AM Peak). The volumes are low on both roads, so they are unaffected by the closure of one lane. The signal timing at 63rd Street is the controlling factor to the average speed and delay through these roads.

Alton Road

Issues

The segment of Alton Road from LaGorce Drive at the 63rd Street Bridge south to the 5th Street is part of State Road 907 and is classified as a Minor State Arterial. Residents have expressed concerns over speeding on three segments along this stretch of Alton Road. The speed limit is 30 mph, reduced to ameliorate residents' concerns from the original limit of 40 mph.

The northern segment of Alton Road, which runs from LaGorce Drive to 43rd Street, has a typical cross-sectional pavement width of approximately 60 feet, divided by an 11foot raised planted median, on a 100-foot right-of-way, for which there are 4 travel lanes of 12 feet each, and 2 parking lanes. This segment is approximately 1.9 miles long and includes an intermediate traffic signal at 47th Street. The longest distance between signals is 1.55 miles. . Sight lines are shortened by the curvature of the road. Adjacent land uses include single family residential and Mount Sinai Medical Center. A survey conducted in February 1998 determined the 85th percentile speed is 48.2 mph on this segment.

The middle segment of Alton Road, from Chase Avenue to Michigan Avenue, is approximately 0.85 miles long without any signalized intersections. Sight lines are shortened by the curvature of the road. Adjacent land uses on each side are single family residential and a golf course. The 85th percentile speed on this segment is 48.1 mph.

The south segment of Alton Road, from 15th Street to 11th Street is a 2,045-foot long straight-aligned section. It consists of divided lanes, 2 parking lanes, and left-turn bays. Adjacent land uses are largely commercial. The 85th percentile speed on this segment is 43.4 mph. These speeds are well in excess of safe speeds for the density of pedestrian usage in the segment.

41st Street

Issues

The segment of 41st Street from Alton Road to Collins Avenue is classified as a State Major Arterial. There are a number of traffic signals along this 4-lane segment, which contains loading zones and parking on either side. The segment also contains school zones and pedestrian signals. Additionally, pedestrian bulbouts require turning vehicles to slow significantly at Garden Avenue. Signal density is very high, and there are protected pedestrian crossings. The speed limit along 41st Street is 30 mph.

Speed surveys conducted in February 1998 determined that the 85th percentile speed along 41st Street is 42.9 mph. These speeds are well in excess of safe speeds for the adjacent land uses.

Neighborhood Traffic Management Process

A common theme expressed at the community involvement workshops that were held throughout the City was the need to protect the livability of neighborhoods and their streets. There is strong sentiment that neighborhood streets are increasingly being used as cut through routes at the expense of the residents that live along them. Adverse impacts include increased levels of noise and safety issues associated with vehicles sharing local streets with bicyclists, pedestrians and other users. The MMP will not attempt to recommend specific traffic calming strategies for all neighborhoods identified to be suffering from traffic intrusion or other related problems. Rather, the intent of the plan is to outline a standard approach toward addressing these issues.

The *Metro-Dade Street Closure/Traffic Flow Modification Study* was developed by the County to address issues related to street closures and traffic calming alternatives. It is recommended that traffic calming measures be implemented in an incremental manner beginning with less costly passive measures and graduating to more costly active measures, if the passive measures fail to achieve their objectives. Street closures are viewed as a measure of last resort that should only be considered when all other options have been exhausted.

A comprehensive neighborhood-wide approach toward traffic calming is recommended. If traffic calming strategies are only implemented along one street, the traffic problems often merely shift over to the next street. A variety of devices can be utilized to efficiently manage neighborhood traffic. These devices are usually most effective when several are used together in combination to address a problem.

One common mistake is to invite only residents to participate in the discussions. As mentioned earlier, traffic calming devices installed in one street are likely to impact traffic in several other streets in the neighborhood. These could include businesses located in the area of influence of the traffic calming

device. Whereas the livability of residential streets should be preserved, a balance needs to be reached such that businesses are still able to operate profitably.

Traffic calming devices are presented in the table on the following page in general order from the more passive less costly measures to the more active and costly measures. The table also lists potential funding sources for traffic calming devices. Although the County does not have any funds available for traffic calming devices in this year's fiscal budget, it could be considered a potential source of funding. Another funding option could be the creation of special assessment districts in areas benefiting from traffic calming devices. An additional funding source could be the requirement that development approval be made contingent upon the provision of an effective neighborhood traffic management plan. Finally, County guidelines suggest that the costs be borne by the neighborhood requesting the traffic calming devices. Alternatively, the City could require the petitioners to share the costs of the study and implementation. By limiting its financial support, the City may minimize frivolous requests.

The County's process for responding to citizen requests for traffic calming was largely incorporated into the approach that is recommended for the City, which is presented next. The process the City could utilize to manage neighborhood traffic is as follows:

1. Receive request from neighborhood or group of citizens identifying a specific set of traffic-related issues.
2. Hold a meeting involving all interested parties, including governmental agencies, residents, and business owners, to discuss the range of issues.
3. Conduct a study of existing conditions to determine if perceived conditions warrant traffic calming.
4. All affected parties, including governmental agencies, should participate in the development of a traffic calming conceptual plan.
5. Traffic calming measures should be implemented on a temporary basis and conditions should be monitored to determine if desired objectives are being realized.
6. If temporary traffic calming measures are achieving their objectives, they should be implemented on a permanent basis.
7. If temporary traffic calming measures are not achieving their objectives, a new traffic calming conceptual plan should be developed.

Traffic Calming Techniques

Traffic Calming Technique	Relative Restrictiveness 1 = least restrictive 5 = most restrictive	Relative Cost $ = lowest cost $$$$=highest cost	Potential Funding Sources
Education	1	$	Applicant/City
Neighborhood Speed Watch Program	1	$	Applicant
Law Enforcement	1	$	City
Border Landscaping	1	$$	Applicant/City
Movement Restrictions	2	$	City/County*
One Way Streets	2	$$	City/County*
Multi-Way Stop Signs	2	$	City/County*
Textured Paving	3	$$$	City/County*
Gateway Treatments	3	$$	Applicant/City
Raised Islands/Medians	3	$$$$	City/County*
Speed Humps	3	$$	City
Chicane (horizontal alignment shift)	3	$$$$	City/County*
Bulbouts or Nubs	3	$$$	City/County*
Raised Crosswalks	3	$$	City/County*
Two-Lane Slow Point	4	$$$$	City/County*
Single-Lane Slow Point	4	$$$$	City/County*
Shared Pedestrian/Vehicle Zone Chokers	4	$$$	City/County*
Mini-Traffic Circles	4	$$$	City/County*
Roundabouts	4	$$$$	City/County*
Semi-Diverter	5	$$$	City/County*
Diagonal Diverter	5	$$$$	City/County*
Street Closure	5	$$$	City/County*

*The County has no funds available for traffic calming devices in this year's fiscal budget.

It is extremely important that all potentially affected parties, including governmental agencies, be included in the traffic calming process from the onset. This will help to insure that no important issues or details are overlooked. Additionally, this helps facilitate the development of a traffic calming plan tailored to the desires of the neighborhood it will impact.

BICYCLE AND NON-MOTORIZED VEHICLES

This component of the Municipal Mobility Plan analyzed the issues associated with bicycle travel for recreation and for destination trips in Miami Beach. The goal of this component of the Municipal Mobility Plan is to increase the number and share of bicycle trips for all trip purposes. A compact land use pattern, traditional orthogonal roadway grid, high proportion of short trips, high percentage of recreational trips, parking disincentives, and low income and service sector employment demands all help to increase bicycle usage. Bicycle usage can be further increased by providing attractive, safe paths, and by providing amenities at destinations such as bicycle racks and lockers.

Issues

Bicyclists can be classified among three categories. A) advanced bicyclists, B) basic or occasional bicyclists, and C) beginners or children. Each type of bicyclists has different needs. Advanced bicyclists make a higher proportion of destination trips, frequent existing roadways, and require amenities at their destinations, such as bike racks or lockers. Basic or occasional bicyclists ride more often for recreation, although the utilize some of the same facilities as advanced bicyclists. Many Group B and C cyclists, especially visitors, prefer off-road facilities with a high quality of experience, such as that provided by greenways. Beginner or children riders require the most separation from vehicles. They are most prevalent in the residential areas of the City.

The bicycle network of the City includes a large number of local streets that are suitable for the recreational needs of Group B and C bicyclists. In addition to the network of local streets, Group A and B riders need a network of streets with direct access to destinations. This includes many of the City's arterial and collector roadways. While not all of these roadways have space or other provisions for dedicated facilities, improvements can be made to increase the safety of these facilities for destination trip bicyclist needs.

Recommendations

The City has an extensive network of local streets suitable to the needs of Group B and Group C riders. There is little need to sign these streets as designated routes, since their suitability as low volume streets are all similar. These streets were not evaluated by the RCI method in the *Metro-Dade Bicycle Facilities Plan*. The recommendations focus on providing off-road facilities for high quality leisure trips, as well as providing for the utilitarian needs of destination trip bicyclists.

1. Develop a plan and program to complete a separated off-road path along the beach walk. This is to be coordinated with the beach walk recommendation in the pedestrian element of the Ten-Year Plan.

2. Provide sufficient bicycle rack capacity at all major public access points to the beach. This includes all parking lots along Collins Avenue, as well as Ocean Drive, Ocean Terrace, Lummus Park, and North Shore Park.

3. Provide additional bicycle racks along commercial corridors, and at major destinations inside of City-owned parking lots and garages. The bicycle racks should be near payment booths, or in plain, well-lit view at unstaffed facilities.

PEDESTRIANS

This section of the Municipal Mobility Plan analyzed the issues associated with pedestrian movement and access for recreation and for destination trips in Miami Beach. The goal of this component of the Municipal Mobility Plan is to increase the number and share of walking trips for all trip purposes as a means for increasing personal enjoyment, enhancing the urban quality of life, and reducing vehicular trips and their commensurate infrastructure demands.

Pedestrian facilities were surveyed throughout the City. Issues and recommendations are discussed in five categories.

1. Residential Neighborhoods
2. Transportation Corridors
3. Waterfront Greenways
4. Crosswalk Conflict Areas
5. Business and Entertainment District - South Beach

Residential Neighborhoods

Issues

The streets in the residential neighborhoods in the City generally have sidewalks on both sides. Regardless, roller skating, other skating activities, jogging and running in the neighborhoods were found to occur in the traffic lanes of the following street segments.

- Bay Road, from 14th Street to 15th Street
- Meridian Avenue from Dade Boulevard to 28th Street
- Michigan Avenue, from 12th Street to 15th Street
- North Bay Road, from Michigan Avenue to Chase Avenue
- North Bay Road, from Alton Road to 4800 Alton Road
- Bay Drive, from Kennedy Causeway to 71st Street

Recommendations

On many streets, while the sidewalks are adequate for walking, they are not wide enough, or sufficiently maintained for other various activities. Generally, there is additional space available in the swales to widen the sidewalk. Alternatively, traffic calming measures may be studied. Additional public comment should be obtained from the neighborhoods.

Transportation Corridors

Issues

Mixing of pedestrian activities and vehicular traffic are inappropriate for commercial corridors or collectors, where traffic volumes or speeds are high. The following collectors and arterials were found to have insufficient pedestrian facilities.

- Dade Boulevard, from West Avenue to 23rd Street: Sidewalk on northwest side only
- Pine Tree Drive, from 51st Street to 63rd Street: No sidewalk on east side

Recommendations

1. Provide a sidewalk on the southeast side of Dade Boulevard along the Collins canal. This should be coordinated with any seawall reconstruction and Recommendation 4-4 of the Bicycle Element.

2. Provide a sidewalk along the east side of Pine Tree Drive from 51st Street to 63rd Street. This should be coordinated with recommendations in the Neighborhood Traffic Element, and Recommendation 4-9 of the Bicycle Element.

Waterfront Greenways

Issues

Greenways are natural or landscaped courses for pedestrian passage, providing open space linear areas of protected open space managed for conservation and recreation purposes. There are three significant potential pedestrian greenways in Miami Beach, each of which features access to inland or coastal waters.

1. A continuous ocean front beach walk is planned to provide enhanced shoreline access and a continuous pedestrian way behind the first dune and Coastal Control Line; however, it is fragmented.

2. The Indian Creek/Collins Avenue pedestrian way is along the west side of Collins Avenue, from 23rd Street to approximately 6500 Indian Creek Drive at the JCC Boat House. It is also fragmented.

3. Fragmented waterfront linear pedestrian access fronts the southeast side of Collins Canal across from Dade Boulevard from Meridian Avenue to Convention Center Drive. It links the Holocaust Memorial with the Botanical Conservatory, and the community center.

There is no continuous pedestrian access to Biscayne Bay waterfront and there are few public access points.

Recommendations

1. Plan and program to connect the ocean front beach walk from South Pointe to North Shore Park. Agreements for the use of easements behind private properties need to be developed, especially from the 5400 block of Collins Avenue to 63rd Street. This should be coordinated with Recommendation 1 of the Bicycle Element.

2. Plan and program pedestrian improvements for the west side of Indian Creek Drive, from 26th Street to 39th Street. Program the repair and upgrade of pedestrian infrastructure along the west side of Collins Avenue from 23rd Street to 26th Street. This should be coordinated with any seawall reconstruction.

3. Plan and program pedestrian improvements along the southeast side of Dade Boulevard along the Collins Canal. This should be coordinated with any seawall reconstruction and Recommendation 4-4 of the Bicycle Element.

Crosswalk Conflict Areas

Issues

A fundamental part of determining multimodal improvements in the City is to determine priorities between pedestrians and vehicles by zone, or specific site throughout the City. The methodology used determined the priority of intersections by classifying each as having low, medium, or high pedestrian volumes, and then determining the potential for vehicular/pedestrian conflict at high pedestrian volume intersections. Groupings of intersections with high conflict potential were used to define areas for pedestrian crossing priority zones. The following zones were identified for pedestrian prioritization:

- South Beach - the area defined within boundaries from 5th Street to 23rd Street, and from Washington Avenue to Ocean Drive.
- Along Dade Boulevard from Convention Center Drive to 23rd Street.

Recommendations

1. Increase green time in the direction of high pedestrian flow to assure adequate time for pedestrians to cross, and for vehicles to turn.
2. Assure that all signals have operative pedestrian actuation.
3. Add features to highlight pedestrian crossings to drivers, including zebra stripes or crosswalks with different surfaces, and possibly additional lighting.
4. Assure full compliance with ADA requirements.
5. Where medians exist, provide ADA compliant refuge.
6. Provide protected green time to pedestrian movements at intersections where there is a high percentage of turning vehicles.
7. At intersections where there are high percentages of turning vehicle movements and providing a protected pedestrian green phase is not practical, install protected mid-block pedestrian crossings.

ROLLER-SKATING AND SKATEBOARDS

Issues

In the South Beach area many young people use roller-skating as a mode of travel. Throughout the City, many skaters use the sidewalks and streets to travel by this mode for recreational purposes. Still, even the recreational trips are often destination trips, as many restaurants and retails establishments demonstrate a permissive attitude toward skaters entering the establishments.

Skaters can be classified among three categories, similarly to bicyclists: A) advanced skaters, B) basic or occasional skaters, and C) novice skaters. Each has different needs. Advanced skaters make a higher proportion of destination trips and have the skills necessary to maneuver on busy sidewalks and across intersections. Occasional skaters, skate more often for recreation, prefer lower traffic and pedestrian volumes, require better facilities, and may require more green time to cross intersections. Group C skaters require and desire dedicated off-road facilities. Many visitors are Group C skaters.

The skating network of the City includes only sidewalks, pedestrian malls, parks, and other smooth-surfaced pedestrian paths. There are no dedicated facilities for roller-skating in the City. Skating along travel lanes is illegal in the State of Florida.

Skateboarding, whether used for destination trips, or as recreation is more competitively cultured, often involving various jumping stunts onto and from public amenities. Where there are no skate parks for this activity, skateboarding is often problematic, because of continued damage to public property, such as fountains, planters, benches, and architectural features.

Recommendations

1. Repair broken sidewalk sections, and maintain graveled driveways and construction site to prevent spillover onto sidewalks.
2. Enforce the blockage of sidewalks by parked vehicles or cars protruding from driveways.
3. Assure that sidewalks intended to allow skating provide a continuous, unobstructed, unbroken lane of at least 4 feet in width.
4. To accommodate Group B skaters, provide additional pedestrian green time to street crossings with high percentages of turning traffic and/or insufficient protected pedestrian green time.
5. Provide information regarding safety and legal requirements. Institute a voluntary program with skate shops to distribute information. This is especially important for visitors who are novice or occasional skaters and rent skates. Paths for different skill levels could be designated.
6. Plan and program skating paths coordinated with recommendations in the Bicycle and Pedestrian Elements.
7. Coordinate with sanctioning bodies, such as International In-line Skating Association (IISA) to help design safety improvements and programs.
8. Plan and program skateboarding facilities in community parks. They should include a variety of uneven surfaces for stunts, and must be monitored in case of accidents, and to assure that safety equipment is used. Strict enforcement to prohibit stunts on other public surfaces is necessary.

TRANSIT SERVICE

Issues

The analysis of transit in the City of Miami Beach includes all routes that operate at least in portions of the City or completely within it. Fifteen Metro-Dade Transit Authority (MDTA) bus routes and the Electrowave shuttle presently serve the City. The cumulative impact of the bus service on service area coverage, using a ¼ mile walking distance band from each route, is that virtually the entire City is part of the MDTA service area. The only areas that are outside of the MDTA service area are parts of Biscayne Point, and the northern part of Normandy Shores. Conventional transit service is not provided to Biscayne Point because of a lack of demand, while barricades prevent the extension of service to Normandy Shores. All other areas have access to some level of regional transit service.

Metrobus and Metrorail capture approximately 4% of the total countywide transportation mode split. The system primarily targets the needs of transit dependent riders; however, it is transitioning to capture a greater share of choice riders. A choice rider can be defined as a person that has the option to choose their mode of travel based on personal preference. 10% of South Beach residents use public transportation to make leisure trips. The City of Miami Beach is particularly well suited to providing enhanced service to attract choice riders, such as visitors to the area due to: the density and pedestrian character of the city, traffic congestion, and difficulty and expense associated with parking. Parking is found to be one of the strongest factors for motivating transit use.

Specifically, the *South Beach Residents' Perceptions of Parking and Traffic Conditions Study* made the following finding with regard to transit attitudes of residents. For residents, the primary impediments to using transit are lack of information, fare, the need to transfer, and convenience. For visitors to Miami Beach, the primary impediments to using transit are lack of information, convenience, fare, wait time, and concern of safety.

An increased utilization of transit must be a goal of the Municipal Mobility Plan. Miami Beach faces degrading levels of service for traffic, constrained rights-of-way, expensive land costs, and an increasing concern to preserve the quality of life in the city. Increasing the transit modal split could help accomplish several objectives including:

- Reducing traffic congestion without impacting economic viability.
- Reducing cut through traffic in residential neighborhoods.
- Increasing the available parking in South Beach by providing transit links to spaces beyond a 5-minute walk.
- Reducing the demand for additional parking and, therefore, the costs associated with constructing additional parking, which is approximately $12,000 per structured parking space.
- Reducing parking spillover into residential neighborhoods in South Beach such as Flamingo Park, South Pointe and Lake Pancoast.
- Creating a more pedestrian oriented environment.
- Expanding the transportation choices for residents, commuters, and visitors.
- Providing opportunity to attract more entertainment and retail business without sacrificing the safety or quality-of-life of residents.

The Miami Beach Transportation Management Association (MBTMA) in partnership with the City of Miami Beach has developed the South Beach electric shuttle, known as the Electrowave. The current shuttle service area encompasses the area of Miami Beach south of Dade Boulevard including parts of South Beach, the Convention Center Historic District and the South Pointe District.

The mission of the Electrowave is to:

1. Provide transit services specifically tailored toward the needs of South Beach by interconnecting existing and planned parking facilities, supporting an interceptor park-and-ride program and maximizing the utilization of the City's parking capacity.

2. Attract new segments of the population to public transit, attract tourist ridership and establish a base for a potential Miami Beach alignment of the East-West Multimodal Corridor.

The Electrowave began operation on January 30, 1998 and has carried approximately 3,500 riders per day since its inception.

Recommendations

1. Expand the Electrowave program to increase service density in South Beach, and expand the service area to Middle Beach hotels and 41st Street. Long term consideration should also be given to expanding the system to North Beach.

2. Coordinate Electrowave routes to maximize intermodal transfers with the Mount Sinai Intermodal Center, the 5th Street park and ride, other parking structures, taxi stands, major MDTA transfer points, and planned water taxi stops.

3. Allow MDTA to provide enhanced service on regional routes by transferring resources from circular routes to regional routes, and allowing expanded Electrowave service to provide community circulation.

4. Plan and program an interceptor multimodal park-and-ride facility near the entrance to Miami Beach at the MacArthur Causeway. This is a critical component to reducing weekend and night time congestion caused by visitor circulating in South Beach for parking.

5. Through coordination with the TMA and MDTA, replace MDTA service on streets where 40-foot buses are out of scale with smaller circulator vehicles. Examples of these conditions are on Sheridan Avenue (Route K), Dickens Avenue (Route R), and Hawthorne Avenue (Route R).

INLAND MARINE AND WATER TAXI

Issues

As a barrier island, the City's physical features, combined with the density of development, demographics, cultural features, and high numbers of visitors combine to create excellent prospects for a viable water taxi service. A regularly scheduled water taxi service was operated as recently as 1995. However, regular service has been cancelled and service is now offered only by charter from Bayside in Miami.

Recommendations

1. Develop public marine access, along with seawall repair projects along Collins Canal, Lake Pancoast, and Indian Creek.

2. Develop water taxi landings infrastructure at destinations along Biscayne Bay, Collins Canal, Lake Pancoast, and Indian Creek. Coordinate with greenway and pedestrian recommendations.

3. Enforce no wake and low speed rules on inland canals, especially Collins Canal.

4. Study the provision of water access and temporary water landings for small crafts and personal watercraft at city parks and right-of-ways along waterways.

LEVEL OF SERVICE STANDARDS

Urban Infill Areas

As discussed in the Existing Conditions section of this plan, Miami Beach has adopted LOS D for bi-directional traffic during the PM peak hour as its level of service standard. Because of this standard, corrective measures have been identified for locations where performance is determined or expected to be below LOS D.

However, the State's concurrency legislation is responsive to the special challenges of local governments that fall within designated urban infill areas. The legislation's intent is to promote sustainable communities, reduce urban sprawl, and preserve the State's natural environment. The law allows local governments with infill areas to adopt standard less restrictive measures. As part of the Urban Infill Area, the City of Miami Beach may adopt LOS E for all or a portion of its roadway system, according to the standards adopted by Miami-Dade County. In areas served by transit (within a ¼ mile service band) with headways of 20 minutes or less, the adopted LOS may be set at 150% E. Since the above conditions apply to the entire City, 150% LOS E could be adopted for any roadway segment deemed suitable if the County's standards were applied.

Transportation Concurrency Management Areas (TCMAs)

Another option available to Miami Beach is the creation of one or more Transportation Concurrency Management Areas (TCMAs). As with the less restrictive standard for urban infill areas discussed above, TCMAs are provided by Rule 9J-5 of the Florida Administrative Code to promote urban infill development and urban revitalization while discouraging sprawl and protecting natural resources. TCMAs are intended to allow dense urban areas to experience managed development and still meet concurrency requirements. The Rule states that the purpose of this optional alternative concurrency approach is to promote infill development or redevelopment within selected portions of urban areas in a manner that supports more efficient mobility alternative such as public transit.

The TCMA rule allows local governments to determine transportation concurrency by treating a suitable area as a transportation facility system, rather than the usual segment-by-segment approach. For an urban area in which the roadways serve a similar function in moving traffic, the network of roads can be treated as a facility system with a LOS standard for the entire area for the purposes of issuing development orders and permits. As long as the LOS standard for the overall system is maintained, the local government can continue to issue development permits.

There are several ways in which the City could benefit from the creation of a TCMA. These potential benefits include:

- The encouragement of urban infill development.
- The promotion of transit usage and related land uses.
- The encouragement of redevelopment in areas designated for such activity.
- The reclamation of neighborhoods with potential blighting influences.
- Development of preferred land uses in areas suitable for redevelopment.

- The meeting of concurrency requirements for areas which are near or over-capacity under the current LOS standards.
- The development of certain areas of the City as urban "transit villages", with mixed-use, higher density land uses with carefully integrated multi-modal transit and pedestrian facilities.

The term "transit village" refers not to a regulatory classification, but to a concept used by urban designers and transportation planners. Transit villages are simply neighborhoods based around and integrated with multimodal transportation facilities. Transit villages ideally are oriented not only to the transit facility, but also to the pedestrian. Residential and office intensities tend to be high, especially within walking distance of transit stations, and the land uses themselves are mixed-use, bringing a blend of commercial and housing opportunities to the station vicinity.

There are numerous examples of transit villages in Europe, many of them decades old. These transit villages are collections of commercial, employment center, and residential uses which either have grown up over time around transit stations, or which were master planned by government agencies or developers. A domestic example of a transit village is Sunnyside Village in Clackamas County, Oregon, about ten miles from downtown Portland. A combination of land uses are oriented towards the Tri-Met station, including apartments, townhouses, and single family residential; professional offices; retail; and public services including a library community center, and day care. The intent with such master planned transit villages is to enhance transit by placing vital uses and homes near stations, while at the same time using transportation facilities to create more livable, sustainable neighborhoods.

Three areas of the City appear to be potentially suitable for designation as TCMAs: South Beach, the 41st Street corridor in Middle Beach, and the 71st/Collins vicinity in North Beach. South Beach offers a unique opportunity for implementation of a transit village. The area is densely populated, with a wide variety of urban land uses. Residents and visitors alike place heavy demands for mobility on a well-developed urban roadway grid and transit system. Pedestrians, cyclists, and skaters proliferate in an area that combines outdoor activities with shopping and entertainment. There is a greater tolerance for congestion than in other urban areas, especially when pedestrians cause the congestion. These community characteristics (density, heavy pedestrian usage, mixed-use) are in fact comparable to transit villages in Europe. Creation of a TCMA in South Beach would allow transit and pedestrian-friendly development to occur within the limits of more flexible concurrency requirements. The official designation of South Beach as one or more transit villages would serve the dual objective of enhancing transit use and of gearing transit facilities to serve community quality of life goals.

The 41st Street corridor is an area in transition. The older uses are giving way to development pressures for commercial development. Balanced against this development pressure is the desire of the surrounding neighborhoods for roadway beautification and traffic calming. Designation of the 41st Street corridor as a TCMA would potentially allow traffic calming measures to take place, with a possible reduction in roadway capacity, and yet allow new development and redevelopment to be concurrent. While the Collins Avenue/71st Street area in North Beach has less intensive commercial development than either South Beach or the 41st Street corridor, there are significant for higher density residential development. Long term, these pressures may bring out conditions suitable for the creation of a transit village in North Beach.

Rule 9J-5 establishes criteria for TCMAs. The following table summarizes these criteria and compares them with the special characteristics of South Beach, the 41st Street corridor, and North Beach

Rule 9J-5 Criteria	South Beach	41st Street Corridor	North Beach
TCMA would discourage urban sprawl	X	X	X
TCMA would encourage urban revitalization	X	X	X
TCMA would aid revitalization of designated redevelopment areas	X		
TCMA is a compact geographic area	X	X	X
TCMA expected to protect natural resources	X	X	X
TCMA expected to promote mass transit	X	X	X
TCMA has existing mass transit facilities	X	X	X
TCMA has complete, integrated roadway network	X	X	X
TCMA creation furthers aims of comprehensive plan	X	X	X
TCMA roadways serve related purposes	X	X	X
TCMA has multiple, alternative travel paths/modes	X	X	X
TCMA to be supported by feasible Capital Improvements Plan	X	X	X
Planned improvements will aid mobility in TCMA	X	X	X
TCMA to be governed by a Concurrency Management System	X	X	X

Both South Beach, the 41st Street corridor, and North Beach appear to be suitable for TCMA status, given certain conditions. All three areas can be defined as compact geographic areas with multi-path, integrated roadway systems that serve related purposes. All are areas in which the City desires carefully planned development that enhances, or at the very least, does not degrade the quality of life. All three areas will benefit from the creation of two necessary planning tools, the automated Concurrency Management System, which will provide the statistical basis for establishing an area-wide LOS standard; and a TCMA-specific capital improvements plan, which would gear improvements to the mobility needs of area residents and visitors. Of the three areas, however, South Beach appears to be a better-defined set of neighborhood units, and also has superior mass transit facilities. South Beach has the potential to become a transit village in every sense of the term, while the 41st Street corridor and North Beach are likely to develop many of these transit village characteristics over time.

TEN-YEAR PLAN FINANCING ALTERNATIVES

A partial list of potential financing alternatives for funding the recommendations of the Ten-Year Plan is provided below.

State Intermodal Development Fund

These funds are administered by FDOT on a statewide basis, and are only available through competitive proposals by each FDOT district. Each district is allowed to make on application for these funds during each fiscal year.

100 Percent State Funds

Could be available through the Department of Transportation with a concurrence of the Miami-Dade County Metropolitan Planning Organization. These funds are programmed through the Transportation Improvement Program (TIP) which is a five-year schedule of projects.

State Transportation Disadvantaged Funds

These funds are only available for services to be provided exclusively for the transportation disadvantaged. They can be used for capital expenditures, as well as operating expenses. Funds are allocated to each county and administered by the Community Transportation Coordinator, which is Metro Dade Transit Agency. The funds are limited.

Federal Transit Administration (FTA) Funds

Metro Dade Transit Agency receives annual allocations of capital and operating funds from the FTA. Although not available directly to the City, the funds can be used for transit enhancements, such as intermodal facilities, bus stop amenities and improvements, vehicles, and vehicle equipment.

Intermodal Service Transportation Efficiency Act (ISTEA)
Local Agency Program (LAP) Projects

LAP provides project funding and technical assistance to local governments interested in implementing federal aid transportation projects under the federal Intermodal Surface Transportation Efficiency Act. The assistance is available through the District 6 FDOT office.

Intermodal Surface Transportation Efficiency Act (ISTEA)
Transportation Enhancement Program

The ISTEA Transportation Enhancement Program provides for technical assistance for eligible activities, as specified in the act, including bicycle and pedestrian facilities, renovation of historic transportation facilities, and other transportation enhancement activities. Projects must be related to the transportation system. Some examples are: bicycle and pedestrian facilities, scenic or historic highway programs, landscaping and beautification projects, historic preservation, rehabilitation and operation of historic transportation facilities, preservation of abandoned railroad corridors, removal of outdoor advertising, planning research, and mitigation of water pollution due to highway runoff.

TEA-21 Transportation Funds

The TEA-21 bill provides a continuation of many of the ISTEA policies aimed at promotion of alternative modes of travel. As with ISTEA, funding is potentially available for bicycle and pedestrian facilities, scenic or historic highway programs, landscaping and beautification projects, historic

preservation, rehabilitation and operation of historic transportation facilities, preservation of abandoned railroad corridors, removal of outdoor advertising, planning research, and mitigation of water pollution due to highway runoff. While it is uncertain at this point how the available funds will be allocated in Dade County and its municipalities, such funding is nevertheless potentially available.

Miami Beach Transportation Management Association

The Miami Beach Transportation Management Association provides a conduit for public and private funding for multimodal transportation projects of value to the community. The TMA receives funding assistance through FDOT, although the amount of state funding is reduced each year to increase the share of private local funds.

U.S. Department of Energy/Florida Energy Office

Clean Cities Program

The Clean Cities Program provides funding for equipment and infrastructure to offset the differential to use low emissions and zero emissions vehicles for fleets and transit. Tax benefits and other benefits are available to private fleet operators.

Miami-Dade County Department of Public Works

The Miami-Dade County Department of Public Works provides technical assistance, and limited funding for temporary traffic calming measures that include pavement markings and traffic control signage.

Mitigation Plans for Development Approval

Paying for their share of impacts, development mitigation plans can be coordinated to implement traffic and some alternative mode elements of the Ten-Year Plan.

Miami Beach Parking System

Revenues above operating expenses and the retirement of debts can be used to provide funding for some intermodal and bicycle elements of the Ten-Year Plan.

The Pedestrian and Bicycle Safety Program

This program provides technical systems and training. There is no available funding. The program is designed to improve the environment for safe, comfortable and convenient walk and bicycling trips, and to improve the performance and interaction among motorists, bicyclists, and pedestrians. Florida Department of Transportation safety office staff provide technical assistance and conduct training courses related to pedestrian and bicycle safety for engineering, planning, enforcement, and education professionals, including school crossing guard training. Technical publications are also available.

Florida Greenways and Trails Acquisition Program

The purpose of this program, formerly known as the Florida Rails-to-Trails program, is to provide acquisition funds for the purchase of greenways and trails for recreational and conservation purposes. Assistance is only given for the acquisition of property.

Florida Recreation Development Assistance Program (FRDAP)

FRDAP is a competitive grant program that funds local, outdoor recreation projects through the State Land Acquisition Trust Fund. Matching funds may be required.

National Recreational Trails Funding Program (NRTFP)

NRTFP provides funds for recreational trail development and maintenance. Project proposals may address motorized trails, non-motorized trails, mixed-use projects, and trail user education. Funding is provided through federal transportation funds, with a 50/50 match required.

Office of Greenways and Trails

In the Department of Environmental Protection, office staff manages the calls for the greenway state recreational and conservation area, facilitate the state system of greenways and trails, and administer the greenways and trails acquisition program. The major objective of the program is to facilitate multipurpose tails and greenways throughout the State of Florida. Assistance is offered in the form of resource information regarding recreational trails and greenways.

Florida Inland Navigational District (FIND)

Waterways Assistance Program

Digital assistance is provided to municipalities and county governments within the district boundaries for the development and implementation of water related improvement projects. Financial assistance is made available, usually requiring a 50 percent match.

Special Waterway Projects Program (SWPP)

A great program to transfer motorized trips into waterways. Projects that can be funded include: channel markers, boat ramps, mooring buoys, and boating safety projects. Funding is through the state and no match is required.

Special Benefit Districts

Special Benefits Districts allow local governments to assess property owners within defined districts for improvements that directly benefit the district. Examples from other communities include redevelopment or improvement districts that have financed streetscaping, façade replacement, and infrastructure improvements through such special assessments.

PROJECT COMPARISON SYSTEM

Transportation Project Summaries

In an earlier section, this plan discussed a set of potential projects designed to either improve projected future conditions or correct existing transportation deficiencies. In addition, over the last several years, numerous studies have proposed strategies for dealing with the mobility needs of the community. The general location of these projects is indicated in Figure 4. The projects are summarized in Table 1.

Mobility Project Comparison System

Each project referenced in Table 1, whether the result of the analysis of this plan, or the result of a separate investigation, was proposed in response to issues such as those discussed earlier. Each proposed project has merit in terms of its response to those issues. The City of Miami Beach thus has a wealth of ideas from which to draw in meeting the mobility needs of residents and visitors. This section describes a system for comparing these projects, and other projects that may be proposed in the future. The intent is to provide a methodology for the prioritization of projects for their potential inclusion in a Capital Improvements Plan (CIP).

The project comparison system utilizes criteria that have been derived from input received during the course of this plan's formulation, as described earlier. The criteria were also derived from an analysis of the City's comprehensive plan, in particular the land use and transportation elements. The criteria are intended to reflect a consensus as to what qualities the community values concerning transportation, and transportation's relationship to the quality of life in Miami Beach. As described below, the project comparison criteria fall into four distinct groups: capacity improvement projects, corridor enhancement projects, community sustainability projects, and alternative mode projects. The projects summarized in Table 1 also fall within these four categories.

Capacity Improvement Projects and Criteria

Capacity improvement projects respond to the need to preserve and support the arterial and collector network of the City. Such projects provide for connections to the mainland, traffic traversing the island, and hurricane evacuation. These projects for the most part improve the capacity of intersections and roadway links.

The following capacity improvement criteria reflect an emphasis on roadway level of service, safety, and important regional concerns such as hurricane evacuation.

Satisfies LOS Standard. The project is geared toward improving or maintaining the level of service of a regional roadway or transit facility.

North Beach

Alternative Mode Projects
1. Community Shuttle Expansion
8. North Beach Waterfront Access Improvements
10. North Beach Walk

Corridor Enhancements Projects
3. Harding Ave. Enhancements
6. 71 St./ Normandy Dr. Corridor Enhancements
9. Collins Ave. Improvements/Regulation Program

Capacity Improvement Projects
4. School Circulation Improvements
5. Indian Creek Dr./ 71 St./ Dickens Intersection Capacity Improvements
7. Indian Creek Capacity Improvements

Community Sustainability Projects
2. North Beach Neighborhood Calming / Streetscape Improvements

Middle Beach

Alternative Mode Projects
15. Middle Beach Beachwalk
18. Community Shuttle Expansion
20. Middle Beach Intermodal Facility
25. Indian Creek Multi-Purpose Trail

Corridor Enhancements Projects
12. Collins Ave. Realignment
14. Alton Rd. Enhancements
22. Alton Rd./41St. Intersection Calming
23. 41 St. Steetscape
24. Alton Rd. Enhancements
44. Collins Avenue/Grand Boulevard

Capacity Improvement Projects
11. 63 St./Indion Creek Capacity Improvements
19. 43 St./Alton Rd. Intersection Capacity Improvements
21. Indiancreek Drive 41 St. Intersection Capacity Improvements

Community Sustainability Projects
13. La Gorce/Pine Tree Neighborhood Calming
16. 47 St. Traffic Calming Safety Improvements
17. Neighborhood Calming Project

South Beach

Alternative Mode Projects
39. East-West Transit Corridor
40. South Beach Intermodal Facility
41. South Beach Walk

Corridor Enhancements Projects
26. Dade Blvd./ 23 St. Intersection Reconfiguration
27. Dade Blvd./Median Enhancements Intersection
32. Venetian Causeway Improvements and Enhancements
33. 16 St. Enhancements/Operational Improvements
36. South Beach One-Way Pairs/Pedestrian Conflicts
37. Washington Ave. Enhancements/Angled Parking ConceptsCapacity

Capacity Improvement Projects
29. Alton Rd./Dade Blvd. Intersection Improvements
30. Dade Blvd./17 St./West Ave. Intersection Reconfiguration & Connection
31. 17 St./ Alton Rd. Intersection Improvements
34. Alton Rd. Capacity Improvements
38. 5th St. Alton Rd. Intersection Improvements
43. Ocean Drive Operational Improvements

Community Sustainability Projects
28. Sunset Dr. at 20 St. & Alton Rd. at 20 St. Intersection Reconfiguration / Improvements
35. Historic Neighborhood Calming Program and Intrusion Policy
42. South Point/Streetscape/Pedestrian Access Program

Mobility Plan Projects
Figure 4

Miami Beach Municipal Mobility Plan
Project Bank

Project Number	Project Name	Location	Improvement Type/ Description	Reason for Project
1.	Community Shuttle Expansion	North Beach	Local circulator serving the North Beach community; may be connected to circulators in Middle Beach and South Beach.	Provide an alternative mode of transportation and increase transit usage.
2.	North Beach Neighborhood Calming/Streetscape Improvements	North Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more pedestrian friendly environment and reduce vehicular speeds.
3.	Harding Avenue Enhancements	North Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more balanced environment between vehicles and pedestrians.
4.	School Circulation Improvements	North Beach	Improve circulation plan at Biscayne Elementary School.	Reduce congestion and improve pedestrian safety.
5.	Indian Creek Dr./71st St./Dickens Ave. Intersection Improvements	North Beach	Roadway improvements to the intersection of Indian Creek Drive/71st Street/Dickens Avenue.	Provide additional capacity to improve the level of service and reduce delay.
6.	71st Street/Normandy Drive Corridor Enhancements	North Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more balanced environment between vehicles and pedestrians and reduce vehicular speeds.
7.	Indian Creek Capacity Improvements	North Beach	Roadway improvements to Indian Creek Drive between 63rd Street and 71st Street.	Provide additional capacity to improve the level of service and reduce delay.
8.	North Beach Waterfront Access Improvements	North Beach	Provide improved access to the Indian Creek Waterway north of 63rd Street.	Provide improved water access and possible location for water taxi landing.
9.	Collins Ave. Improvements/Regulation Program	North Beach	Improve pedestrian and vehicular environment and regulation of commercial delivery operations.	Provide a pedestrian friendly environment and regulate commercial delivery operations to preserve capacity.
10.	North Beach Walk	North Beach	Provide a beachfront recreational corridor parallel to Collins Avenue.	Provide enhanced shoreline access and increase pedestrian usage.
11.	63rd Street Dr./Indian Creek Dr. Capacity Improvements	Middle Beach	Roadway improvements to the intersection of 63rd Street/Indian Creek Drive.	Provide additional capacity to improve the level of service and reduce delay.

Miami Beach Municipal Mobility Plan
Project Bank

Project Number	Project Name	Location	Improvement Type/ Description	Reason for Project
12.	Collins Avenue Realignment	Middle Beach	Realign curve on Collins Avenue south of 63rd Street.	Improve safety.
13.	La Gorce/Pine Tree Traffic Calming	Middle Beach	Traffic calming project along La Gorce Drive and Pine Tree Drive.	Provide a more balanced environment between vehicles and pedestrians and reduce vehicular speeds.
14.	Alton Road Enhancements	Middle Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more balanced environment between vehicles and pedestrians and reduce vehicular speeds.
15.	Middle Beach Walk	Middle Beach	Provide a beachfront recreational corridor parallel to Collins Avenue.	Provide enhanced shoreline access and increase pedestrian usage.
16.	47th St. Traffic Calming/Safety Improvements	Middle Beach	Traffic calming project along La Gorce Drive and Pine Tree Drive and improved safety at intersection with 48th Street west of the bridge over the Biscayne Waterway.	Provide a more balanced environment between vehicles and pedestrians, reduce vehicular speeds and improve safety.
17.	Neighborhood Calming Project	Middle Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more pedestrian friendly environment and reduce vehicular speeds.
18.	Community Shuttle Expansion	Middle Beach	Local circulator serving the Middle Beach community; may be connected to circulators in North Beach and South Beach.	Provide an alternative mode of transportation and increase transit usage.
19.	43rd St./Alton Rd. Intersection Capacity Improvements	Middle Beach	Roadway improvements to the intersection of Alton Road and 43rd Street (Mt. Sinai Hospital).	Provide additional capacity to improve the level of service and reduce delay.
20.	Middle Beach Intermodal Facility	Middle Beach	Develop intermodal facility on the grounds of the Mt. Sinai Medical Center to serve as a transfer station and transit loading area.	Provide parking and encourage use of alternative modes of transportation.
21.	Indian Creek Drive/41st Street Intersection Capacity Improvements	Middle Beach	Roadway improvements to the intersection of Indian Creek Drive and 41st Street.	Provide additional capacity to improve the level of service and reduce delay.
22.	Alton Road/41st Street Intersection Calming	Middle Beach	Gateway treatment at intersection of Alton Road and 41st Street.	Reduce speeds of vehicles approaching the intersection from the west (Julia Tuttle Causeway.)

Miami Beach Municipal Mobility Plan
Project Bank

Project Number	Project Name	Location	Improvement Type/ Description	Reason for Project
23.	41st Street Streetscape	Middle Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more pedestrian friendly environment and reduce vehicular speeds.
24.	Alton Road Enhancements	Middle Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more balanced environment between vehicles and pedestrians and reduce vehicular speeds.
25.	Indian Creek Multi-Purpose Trail	Middle Beach	Provide a beachfront recreational corridor parallel to the Indian Creek Waterway and Collins Canal.	Provide enhanced shoreline access and recreational opportunity.
26.	Dade Boulevard/23rd Street Intersection Alignment	South Beach	Replace the existing bridge over Collins Canal and realign the intersection.	Provide alternative corridor in South Beach in addition to Collins Avenue.
27.	Dade Boulevard Intersection Improvement	South Beach	Intersection improvements in conjunction with bridge replacements.	Enhance aesthetics and create a "sense of place" in conjunction with replacement of bridges over the Collins Canal.
28.	Sunset Drive at 20th St. and Alton Road at 20th St. Intersection Reconfiguration/ Improvements	Middle Beach	Roadway improvements/realignment to the intersections of Sunset Drive at 20th Street and Alton Road at 20th Street.	Provide increased capacity at intersection of Alton Road and 20th Street to encourage use of this intersection and discourage neighborhood cut through traffic.
29.	Alton Road/Dade Boulevard Intersection Improvements	South Beach	Roadway improvements to the intersection of Alton Road and Dade Boulevard.	Provide additional capacity to improve the level of service and reduce delay.
30.	Dade Boulevard/17th St./ West Ave. Intersection Reconfiguration & Connection	South Beach	Roadway improvements/bridge replacement to the intersection of Dade Bouevard/17th Street/West Avenue.	Enhance aesthetics at this gateway to the island and provide access to all directions.
31.	17th Street/Alton Road Intersection Improvements	South Beach	Roadway improvements to the intersection of Alton Road and 17th Street.	Provide additional capacity to improve the level of service and reduce delay.
32.	Venetian Causeway Improvements and Enhancements	South Beach	Roadway improvements along with sidewalks and landscaping/beautification.	Enhance aesthetics and provide recreational opportunity along this access to the island.

Miami Beach Municipal Mobility Plan
Project Bank

Project Number	Project Name	Location	Improvement Type/ Description	Reason for Project
33.	16th Street Enhancements/ Operational Improvements	South Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a balanced environment between vehicles and pedestrians, while providing an east-west route in South Beach.
34.	Alton Road Capacity Improvements	South Beach	Roadway improvements to Alton Road between 5th Street and Dade Boulevard.	Provide additional capacity to improve the level of service and reduce delay.
35.	Neighborhood Calming Program	South Beach	Comprehensive traffic calming program of residential neighborhood surrounding Flamingo Park.	Provide a more balanced environment between vehicles and pedestrians and reduce vehicular speeds.
36.	South Beach East/West One-Way Pairs	South Beach	Create series of east/west one-way pairs between Washington Avenue and Ocean Drive in South Beach.	Improve vehicular flow while providing a balanced environment between vehicles and pedestrians.
37.	Washington Avenue Enhancements	South Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, sidewalks and parking.	Provide a pedestrian friendly environment while improving parking and vehicular flow.
38.	5th Street/Alton Road Intersection Improvements	South Beach	Roadway improvements, which could include gateway treatment, to the intersection of Alton Road and 5th Street.	Provide additional capacity to improve the level of service and reduce delay at this entry point to the island.
39.	East-West Transit Corridor	South Beach	Provide a connection to Miami Beach as part of the East-West Transit Corridor	Create a link to the region and provide an alternative mode of transportation to reduce dependency on the automobile.
40.	South Beach Intermodal Facility	South Beach	Develop intermodal facility near entry point to the island to serve as a transfer station and transit loading area.	Provide parking and encourage use of alternative modes of transportation.
41.	South Beach Walk	South Beach	Provide a beachfront recreational corridor.	Provide enhanced shoreline access and increase pedestrian usage.
42.	South Point Streetscape/ Pedestrian Access Program	South Beach	Improve pedestrian and vehicular environment through improved landscape, signage, lighting and sidewalks.	Provide a balanced environment between vehicles and pedestrians.

Miami Beach Municipal Mobility Plan
Project Bank

Project Number	Project Name	Location	Improvement Type/ Description	Reason for Project
43.	Ocean Drive Operational Improvements	South Beach	Improve pedestrian and vehicular environment through regulation of commercial activities.	Provide a pedestrian friendly environment and regulate commercial activity to preserve capacity.
44.	Collins Avenue - Grand Boulevard	Middle Beach	Improve pedestrian and vehicular environment with improved landscape, signage, lighting, and sidewalks.	Provide a more pedestrian friendly environment and create a sense of place.

Improves Safety. The project improves transportation safety through such strategies as separating modes of travel, or correcting existing deficiencies in how the facility operates.

Facilitates Hurricane Evacuation. The project improves regional transportation routes or connections to routes that would facilitate evacuation.

Improves Quality of Driver Experience. The project corrects deficiencies in the transportation facility's functional or operating quality not directly related to safety or capacity.

Corridor Enhancement Projects and Criteria

Corridor enhancement projects respond to the need to mitigate the impacts of roadways on neighborhood, while at the same time providing for an efficient "casual flow" of traffic. Reinforcing the local sense of place may also be an important function of these projects. Corridor enhancement projects may entail traffic calming, beautification, and functional improvements to traffic operations.

Promotes a More Casual Flow of Traffic. The project encourages drivers to move at steady speeds and discourages "jackrabbit" starts and stops.

Improves Facility Function/Operations. The project improves the functional performance of a roadway facility in ways that are not directly related to capacity.

Promotes Unique Character, Sense of Place. The project contributes to the unique qualities that identify a City district or neighborhood. The project creates, reinforces, or encourages the urban fabric of local or neighborhood environments through improvements that are sensitive to the character of the neighborhood or the City as a whole.

Mitigates Roadway Impacts. The project alleviates the impacts associated with vehicular traffic (speeding, visual, noise, air pollution, etc.) through strategies including shielding the facility from view, traffic calming, or encouraging use of alternative modes.

Community Sustainability Projects and Criteria

Community sustainability projects respond to the impacts of the roadway system on neighborhoods. These projects aim to calm or divert traffic out of neighborhoods, or to discourage cut-through traffic through roadway reconfiguration. Modifications to parking patterns and beautification may also be important tools for community sustainability projects.

Discourages Neighborhood Traffic Intrusion. The project discourages cut-through traffic affecting local residential streets by making cut-through routes less desirable to motorists, or improving collector or arterial routes in way that make these non-neighborhood facilities more attractive to motorists.

Promotes Positive Economic Development. The project encourages or enables economic development activities that are consistent with the City's Comprehensive Plan. Such activities are related to community sustainability in that they have low environmental impact.

Promotes Favorable Development Pattern. The project promotes or facilitates the preferred development patterns and typologies consistent with the City's Comprehensive Plan. Examples may include such urbanistic patterns as neighborhood units, compact development, and mixed-use development which are supportive of transit and other alternate modes of travel.

Supports Neighborhood Identity. The project is supportive of a neighborhood's sense of place through aesthetic improvements and physical reinforcement of the neighborhood unit.

Alternative Mode Projects and Criteria

Alternative mode projects involve strategies for facilitating mobility for all modes of travel within the Miami Beach community. Alternative mode projects focus on opportunities for enhancing the ability of residents and visitors to travel within the City itself. However, it is important that alternative mode projects connect with regional transportation facilities and also reinforce community sustainability projects. Projects in this category would include expansion of the Electrowave system, and the East-West Multimodal Corridor's proposed connection to Miami Beach.

The following citywide mobility project criteria reflect an emphasis on a given project's ability to enhance the free movement of vehicles and people, and the special needs of the transit-dependent and persons with disabilities.

Promotes Use of Alternate Modes. The project encourages the use of transit, walking, bicycles or skating through the improvement or creation of facilities related to these modes of travel.

Improves ADA Mobility. The project facilitates the free movement of persons with disabilities through the creation or improvement of ADA-friendly facilities, including transit, sidewalks, and pathways suitable for ADA access.

Improves Transit-Dependent Mobility. The project improves the mobility of segments of the population who rely on transit as their primary transportation mode through such strategies as the improvement or expansion of existing routes or facilities.

Promotes Transit-Related Development. The project encourages such transit-enhancing developments as transit-oriented developments (TODs), and transit villages.

Project Comparison Matrix

The following project comparison matrix shown should be used to assist in the prioritization of the projects described in Table 1. This comparison system is intended to provide a method for the qualitative comparison and selection of projects based on the criteria. In addition, the rationale for a given project can be described through the comparison matrix The scoring system is as follows:

- A project that fully meets or has a favorable relationship to a given criterion is given two points.

- A project that partially meets or has a moderately favorable relationship to a given criterion is given one point.

- A project that does not meet or has an unfavorable or "not applicable" relationship to a given criterion is given zero points, represented by the symbol.

In addition, each project can be given a weighted score. The weighted score provides a double score for a project based on the criteria for the category into which the project falls. For instance, a local traffic calming project may score high in the criteria for its own category, community sustainability, but may score low in the other three categories. The weighting factor is intended to counter a very low score for a project that may have considerable merit in its own right (and within its own project category) to prevent such a project from falling out of the selection process.

Insert Project Comparison Matrix (from executive summary booklet)

Project Comparison Matrix

Criteria	Project									
Capacity Improvement Project Criteria	1	2	3	4	5	6	7	8	9	10
Satisfies LOS Standard										
Improves Safety										
Facilitates Hurricane Evacuation										
Improves Quality of Driver Experience										
Corridor Enhancement Project Criteria										
Promotes a More Casual Flow of Traffic										
Improves Facility Function/Operations										
Promotes Unique Character, Sense of Place										
Mitigates Roadway Impacts										
Community Sustainability Project Criteria										
Discourages Neighborhood Traffic Intrusion										
Promotes Positive Economic Development										
Promotes Favorable Development Pattern										
Supports Neighborhood Identity										
Alternative Mode Project Criteria										
Promotes Use of Alternate Modes										
Improves ADA Mobility										
Improves Transit-Dependent Mobility										
Promotes Transit-Related Development										

APPENDIX A

COMMUNITY INVOLVEMENT WORKSHOP – NORTH BEACH

Input received at the

MIAMI BEACH MUNICIPAL MOBILITY PLAN

COMMUNITY INVOLVEMENT WORKSHOP - NORTH BEACH

Biscayne Elementary School Cafeteria

Tuesday, April 28, 1998, from 6:00 to 9:00 p.m.

In attendance were Commissioner Jose Smith, four members of the City Staff (Joseph Johnson, Amelia Johnson, Michael Alvarez, and Willian Cary), three members of the Carr Smith Corradino consulting team (Brian Mirson, Bruce Chatterton, and Greg Kyle), and 23 residents of which only 18 signed the register, herein attached.

Brian Mirson, President of Carr Smith Corradino, spoke briefly about the Municipal Mobility Plan goals and objectives, and asked that the residents express their concerns and wishes regarding traffic and mobility issues in North Beach. Mr. Mirson acted as a moderator. The comments, observations and suggestions received from those in attendance, follow:

◊ In order to encourage more Miami-bound vehicular traffic to use the Kennedy Causeway (instead of driving down Miami Beach and take the Julia Tuttle Causeway), the City Commission should initiate discussions with and encourage the City of Miami/Miami-Dade County to address the blighted, unsafe, and unsightly conditions on the 79th-82nd Streets couplet, in an effort to improve the overall area. (Michael Thompson, 2140 Calais Drive)

◊ Mr. Thompson also brought to the meeting a mock-up of a conceptual project he devised for the 63rd Street Flyover area. His concept includes two new flyovers for northbound and eastbound movements. This was viewed by those in attendance but no group discussion was held.

◊ When the 63rd Street bridge opens it causes traffic backs-ups. When it gets stuck, causes extensive gridlock. Something creative needs to be done to alleviate mobility problems in the area. (Jo Asmudsson, 4580 N. Jefferson)

◊ This is not a recent problem. The 63rd Street-area was designed to facilitate vehicular movements north and south, and traditionally has been a busy area.

Even several years ago it tended to become clogged during peak season.

◊ Whatever project is finally decided for the 63rd Street flyover area should be a balanced project which is devised to meet the overall City needs and desires. (Brian Mirson, CSC)

◊ Similar congestion or gridlock occurs when either one of the 79th Street bridges are opened or stuck.

◊ 71st Street also has a serious speeding problem. Approximately 75% of the traffic using the westbound street travel well beyond the posted 35 mph speed limit. Speed enforcement should be more prevalent and visible. (Michael Thompson)

◊ The City should notify the public in advance (through newspaper and radio) when streets are going to be under construction, or accidents/incidents happen, to allow the residents to choose a different route and avoid unpredictable, time-consuming, and annoying traffic tie-ups.

◊ On peak hours, 71st Street tends to be clogged by either construction trucks or delivery trucks. Particularly during roadway improvement projects, better ways of managing traffic movements should be employed, and deliveries should be done only during off-hours. In addition, 71st Street is hazardous for pedestrian crossings. (Michael Brazlevsky, 620 75th Street)

Community-wide meetings such as this are rare. So, I encourage all of you to bring your ideas also to the North Beach Development Corporation (NBDC), which meets once a month at the Rowing Center on Indian Creek Drive at 65th Street.

◊ Provide proper signage and channeling of traffic at intersections, such as on eastbound 71st Street at Dickens Avenue, to prevent vehicles from stacking-up on the left turn lanes when they meant to go straight ahead. This impedes others from making the desired left turn movement. Left turn pockets are also needed at a few intersections with 73rd Street. (Michael Belcher, 830 Raymond Street)

- ◊ Hurricane/emergency evacuation needs should be of primary concern when any proposed roadway modification projects are being considered and evaluated.

- ◊ The on-going North Shore Project on Collins Avenue, from 63rd to 72nd Streets, has built bump-outs on the previous third lane and squeezed the north-bound traffic into two (2) lanes only. Traffic back-ups are already occurring when buses stop on one of the through lanes, particularly during peak hours. When further development is in place, severe congestion may occur. This roadway segment should be reverted back to the original lane configuration.

- ◊ Due to the bump-outs on Collins Avenue at 71st Street, the turning radius for the articulated buses is now narrower and more intrusive.

- ◊ This section of Collins Avenue is only 26 feet in width (10 feet less than the segments immediately north and south) and the so-called 'third lane' was very narrow and well below the 11-foot FDOT standard for travel lanes, anyway. The installation of knuckles, wider sidewalks, and streetscaping enhancements was a decision made by the North Beach community and endorsed by the City and FDOT. Besides, it would cost an additional $3 million to undo what has just been completed. (Donald Shockey, NBDC)

- ◊ A trade-off is obviously involved in this 3 or 2 laning issue: 3 lanes encourage development, while 2 lanes encourage balance and control. (Brian Mirson, CSC)

- ◊ Reverting back to 3 lanes would encourage development but would also make it easier for the residents and others alike moving through the corridor. (Carter McDowell, Attorney)

- ◊ Priorities are different in North Beach where responsible development is encouraged. (Kent Harrison Robbins)

- ◊ We need to reach for a balance in North Beach instead of allowing South Beach priorities to be applied here.

- ◊ Miami Beach should develop to fit the infrastructure, not the other way around. Clear and contrasting examples are the development practices in Coral Gables and in Kendall. (Brian Mirson)

- ◊ Proposed projects such as the Gateway Entrance for the northern section of Collins Avenue, which promote responsible development, are needed and should be implemented. (Victor Diaz, 5300 N. Bay Road)

- ◊ The proposed 2-waying of the northern section of Collins Avenue called for by the Gateway concept is too expensive at $12 million, approximately. (Kent Harrison Robbins)

- ◊ Harding Avenue could also be a nicer neighborhood if it were not for the 3 lanes which make it a through street. Why not change it to 2 lanes, instead?

- ◊ 77th Street should also be treated as an entryway.

- ◊ The school drop-off area being proposed for 77th Street will create more problems than resolve them. (Michael Rotbart, 1675 Cleveland Road).

- ◊ Vehicular/pedestrian conflicts are all too common on both Collins and Harding Avenues, from 71st to 88th Streets.

- ◊ Pedestrians are always encountering problems when trying to cross from North Shore Park or the band shell to parking lots on the opposite side of Collins Avenue. (Victor Diaz)

- ◊ Miami Beach functions as an outdoor recreation area. Therefore, the entire City should be enhanced for the convenience and safety of pedestrians and bicyclists. The scenic value of Indian Creek should be analyzed to favor and increase pedestrian and bicycle activities.

- ◊ A comprehensive network of bike routes, lanes, and paths should be devised to emphasize the residential character of North Beach.

- ◊ Controlled-growth should go hand-in-hand with the establishment and/or encouragement of public transit options, pedestrian, and bicycle initiatives within North Beach and citywide.

- ◊ A large parking garage/bus terminal should be built at the surface lot on Collins Avenue and 73rd Street. Combined with service by express buses to and from downtown and other areas of Miami, the garage would serve the needs of park-and-riders, local and otherwise, and serve as weekend parking for South Beach.

- ◊ No intermodal facility should be built that would turn North Beach into a mere depository for South Beach-bound customers and visitors.

- ◊ Concern was expressed regarding the speed of most express buses. North Beach, which supplies the labor force for other parts of Miami Beach, should be served by an extension of the *ELECTROWAVE* Service, instead.

- ◊ MDTA buses leaving Miami Beach serve mostly downtown Miami and Hialeah. Additional service is needed from the Miami Beach to the northeast area of Miami-Dade County.

- ◊ The City should work with the County to improve the consistency and reliability of service within the existing MDTA bus system, which is extensive but does not work properly. The City should provide more bus shelters and benches at regular intervals for the convenience of the transit riders. These two initiatives, combined with other incentives, may persuade others to become transit riders.

- ◊ Our strategy for the MMP should be BALANCED. A balance could be achieved by enhancing/creating public transit options, maintaining/enhancing the quality of life and safety of the residential neighborhoods, while preserving our ability to create new opportunities and handle demographic changes. This should be our strategy and goal. (Brian Mirson)

The Workshop ended at 8:30 p.m.

(mmpmnuts) aj

Input received at the

MIAMI BEACH MUNICIPAL MOBILITY PLAN

COMMUNITY INVOLVEMENT WORKSHOP - MIDDLE BEACH

The Tavern Room - Colonial Bank Building, 6th Floor

Monday, May 4, 1998, from 6:30 to 9:30 p.m.

In attendance were five members of the City Staff (Joseph Johnson, Amelia Johnson, Michael Alvarez, Gary Kokorian, and Lynn Bernstein), three members of the Carr Smith Corradino consulting team (Brian Mirson, Bruce Chatterton, Greg Kyle, and T. Imada). Thirty eight (38) residents signed the register, herein attached.

Elayne Weisburd, Co-Chairpersons of the City's Transportation and Parking Committee and Middle Beach resident, introduced the City Staff and Consultants developing the Municipal Mobility Plan (MMP) for the City and thanked Middle Beach residents and business professionals for their attendance.

Marty Hyman, member of the Transportation and Parking Committee and Middle Beach resident, explained that this preliminary MMP is merely a compilation of data, at this point, and that the TPC, the City and its consultants were holding this meeting to receive community input toward the development of the City's first transportation and mobility plan.

Brian Mirson, President of Carr Smith Corradino (CSC), stated he is an urban engineer who is interested in suggesting ways to achieve a balance between traffic and community living issues. Level of service (LOS) is all relative to what the Miami Beach wants to achieve. In searching for a balance there may be winners and losers, but, ultimately, only balanced solutions will come to benefit the Miami Beach community as a whole. Mr. Mirson acted as a moderator.

The comments, observations and suggestions received from those in attendance, follow:

Jim Schlobohm, 5433 Alton Road:

- ◊ He is glad to see CSC connected with the MMP. He has been doing research at FIU about traffic calming projects and has learned that CSC is also the consultant for a similar and worthwhile project in West Palm Beach.
- ◊ At the northern portion of Alton Road, 85% of traffic moves at 48 mph.
- ◊ At the lower portion of Alton Road, the medium traffic speed is 46.8 mph.
- ◊ Ten miles over the 35 mph speed limit is already too much.
- ◊ Police cannot be there all the time.
- ◊ FDOT is not of much help. Their phylosophy is if you build a road, traffic will come.
- ◊ Miami Beach is being used as traffic bypass for commuters from the northern

beach communities.

- ◊ Out-of-town commuters don't stop to spend money in Miami Beach.
- ◊ City is maintaining the roads at Miami Beach taxpayer's expense.
- ◊ Reroute the through traffic and keep only who works or lives here.
- ◊ FDOT's solution is signalization. Most residents don't want traffic signals by their homes.
- ◊ FDOT refuses to give us stop signs because the east-west roads crossing Alton do not meet the State's warrants for stop sign installation.
- ◊ House next to mine has already lost five vehicles parked at or by shoulders.
- ◊ Smooth, homogeneous roadway surfaces encourage speeding.
- ◊ Traffic tables, bump outs with trees at intersections are effective measures to slow down traffic, reduce the street width for pedestrian crossings, increase safety for children using the crossings (level higher than the street itself), protect parked cars, don't hinder emergency evacuation needs, and no traffic lights to fall down during wind storms.
- ◊ Redistribute traffic: Alton Road carries 42,000 vehicles-a-day, while Collins Avenue carries only 28,000. Collins south of 63rd Street is wider than Alton.
- ◊ Reroute all commercial vehicles to commercial roads. Encourage trucks take Collins Avenue and 41st Street.
- ◊ One way 41st Street (3 lanes plus a commuter lane) according to the peek traffic flow direction.
- ◊ There have been six (6) fatalities on Alton Road in the last 10 years.
- ◊ FDOT is taking way too long to develop a traffic mitigation plan for the road.
- ◊ He closed by asking that FDOT and City work for the Middle Beach residents, start thinking out of the box - "work for, not against the taxpayer interests."

Lynn Bernstein, representing the Middle Beach Partnership:

- ◊ Complimented Jim Schlobohm for his interest, research and presentation.
- ◊ However, on behalf of 41st Street, she was very much opposed to his one-way plan for the street. It would be very unfriendly to commerce/business.

Joy Malakoff, Colonial Bank:

- ◊ We already have a plan for 41st Street which includes traffic calming by installing landscaped medians and pedestrian crosswalks.

Henry B. Kay, Council of Condos-Collins Avenue:

- ◊ The right to 'equitable estoppel' should also apply to residents and property owners. I see speed on Collins Avenue. Very seldom the highrise district residents come to these meetings to complain.
- ◊ We are concerned about deterioration of our quality of life. The face of MB has changed. Winter traffic is no longer that different from the year-round traffic. Now, there are families with 2 or 3 cars in the highrise district, which has become an entity of its own.

- ◊ Unfortunately, I do have concerns but no solutions to offer, but am also happy that the City hired CSC to find the solutions.

Marty Hyman, 5601 Collins Avenue:

- ◊ I also live in Miami Beach for the last 18 years.
- ◊ Traffic on Collins is too fast. I myself drive at 50-55 mph when others are blowing by me. Particularly during the late-night hours, when we are home sleeping or watching TV, tire screaching and speeding seem to increase.
- ◊ Jim Thompson, at the North Beach workshop, has suggested a solution for the 63rd Street Flyover which will encourage more traffic to use Collins Avenue.

Larry Epstein, 1413 Sunset Harbour Drive #409:

- ◊ Representing himself and his wife, he's not concerned about speed because traffic on 20th Street will go nowhere. Sunset Harbour condos and townhomes are not the problem, Publix is the problem. Why was a 47,500 sq.ft. supermarket allowed to be constructed in that area? How did it happen?
- ◊ 20th Street was narrowed by the inclusion of a median and the area was landscaped for the residential construction.
- ◊ Traffic going west on 20th Street will make a left turn into Publix garage and exit right onto Bay Road to 20th Street, where it will cross the incoming traffic. This may create a traffic jam on 20th Street. A reasonable solution would be to allow the exiting traffic to go south on Bay Road, instead. One-waying Bay Road southward might be the right solution.
- ◊ The wall to wall traffic may hamper the old-established family business in the area, such as Marks Cleaners and the Funeral Home.
- ◊ The Publix people told me I live in a light industrial area. I disagree with them, this is a residential area because that's where I live.

Jeffrey Saragosey, 1674 Bay Road:

- ◊ I live on Bay Road and my concern is public safety and quality of life. There's already a lot of traffic coming from the park and boat ramp on Purdy Avenue. The Dade Boulevard, Bay Road and 17th Street intersection is already an unsafe area. Drivers are confused about what road to take, make prohibited left turns on Bay Road, make U turns by the unleveled intersection with no visibility to incoming cars, or inadvertently take the wrong side of the road at the 17th Street/Dade Boulevard forking intersection.
- ◊ The situation is made more dangerous by the lack of a 4-way stop sign on Dade Blvd. at Purdy Avenue, and speeding east-west by cars using the Venetian Causeway.
- ◊ Adding to the problem will be the Publix traffic: 2700 cars per hour, or a projected 10000 cars a-day. Public safety is not being addressed here.

Tamara Sheffman, 4600 Royal Palm Avenue:

◊ The City should consider allowing cars traveling south on Alton Road to make an eastbound left turn onto Dade Boulevard. I'm sure this would reduce the number of similar turns onto 17th Street, thereby reducing congestion at this intersection.

Bill Ingraham, 2125 Lake Avenue, President of Sunset Islands II and III Assoc.:

◊ I've lived here for 27 years. Our two islands have only one exit via Sunset Bridge IV onto 20th Street and Bay Road. We shouldn't have permitted the construction of either Sunset Harbour or Publix. We want things the way they were 27 years ago. The City and developers have not spent one single dollar toward meeting concurrency in and around the 'light industrial' area, which is still opened to new development opportunities. Just imagine what will happen in the future! And, by the way, where is the plan to route us into North Bay Road?

Richard Rosichan, 2060 Alton Road, Provisional Pres. of Lower Alton Road Assoc.

◊ For us on lower Alton Road it is a safety issue. People have to use our road, there is no option.

◊ County law requires that 2/3 of the residents of a street sign a petition in order to make it valid. We opposed the closing of North Bay Road, and only two of our residents refused to sign our petition. The petition in favor of the closure that was prepared by North Bay Road residents failed to get the required number of signatures, but still were granted a temporary barricade and closure. I understand CSC is reconsidering its prior conclusions.

Brian Mirson, President, Carr Smith Corradino:

At that time we didn't know what we were doing.

Richard Rosichan:

◊ Residents of Sunset Islands III and IV cannot get directly to their islands. Traffic on North Bay Road is absurdly light. I take walks through the area and did counts of my own onc: from 7:30-8:30 in the morning there were only 112 cars going on 3 directions, and trucks entering N. Bay Road were only the ones serving the road itself.

◊ There is no need to close North Bay Road. If you were to come out from the new Publix, logically you'll take Alton Road which posts higher speed limit, no stop signs, no encumbrances. The situation being created by a small group of people in N. Bay Road is affecting the entire area. Why not one-way west both N. Bay Road and Purdy Avenue?

Mark Friedman, 1201 20th Street (Mark's Quality Cleaners):

◊ Mr. Bernstein of Car Doctor and I respect Mr. Rosichan's proposal to one-

way N. Bay Road and Purdy Avenue. We object to the closure of N. Bay Road which we see as a great inconvenience and disservice to the area.

Minette Benson, 5660 Collins Avenue:

- ◊ Adding to the mess being created by Publix and Sunset Harbour developments, are the proposed 20 Venetian Way and The Lofts projects. Come to the City Commission meeting of May 6th and say NO to these projects. The City adopted LOS D, may turn into F or G in this area.

William E. Davis, 2330 Prairie Avenue:

- ◊ Everything affects everything else. Putting more traffic onto Dade Boulevard will also emphasize the problems already faced by Prairie and Meridian Avenue residents: school crossing problems, very difficult to cross Dade Blvd. or the respective intersections during peek traffic hours, no school crossing or crossing lights do not work, angled streets, level difference, dangerous inntersections for pedestrians and bicyclists.
- ◊ Now there is even a proposed hotel project on Dade Boulevard.

Bea Kalstein:

- ◊ It is unfortunate that people don't think ahead when development is being considered. New traffic to be generated on Dade Boulevard from the proposed hotel and Cultural Center will certainly add to the problems being experienced by the residents of the Dade Boulevard neighborhood. There are two north and south arterial streets in Miami Beach and they should carry most of the traffic.

Drew Batavia, 2845 Prairie Avenue:

- ◊ I live on Prairie with my wife and two children. If traffic is slowed down on Alton and more traffic is created on Dade Boulevard, what will it do to Prairie Avenue? Pedestrian crossing signals at the intersections with Dade do not work. Is the Municipal Mobility Plan also taking into account of ADA requirements for accessibility?

Brian Mirson: ADA compliance is very much a part of the MMP.

Jo Asmundson, Miami Beach Taxpayer Association:

- ◊ I used to live on Alton Road just short of the 63rd Street Flyover, and, since then, a bottleneck was caused mainly by the bridge. The City is like a sausage and gets stuck there. I try to avoid these busy streets. We have only two through roads in Miami Beach and 18 people have been hurt by speeding vehicles on these roads.
- ◊ Now I live close to the new Publix area. The MMP shows a projected LOS E for the area. When were these traffic counts done?

Brian Mirson: The counts were done on different days, were adjusted for seasonal variations and projected for 10 years, based on development approvals.

Jim Schlobohm:

◊ Just about every road in Miami Beach is a collector road. The same kind of traffic calming on Alton Road should also be used on other roads. I've recently worked a lot with the Pine Tree/LaGorce Homeowners Association. We identified our common needs and goals and work together in reaching mutually acceptable solutions for our respective streets.

◊ The previous City Commissions had been very developer-friendly and the citizenry was quiet about it. Thinks are changing now.

◊ The Alton/Pine Tree/LaGorce neighborhoods combined represent 20% of the taxable value of the City. If we don't fight each other and work together instead, we can get things done, we can win. The City will do what we want as long as it makes sense.

Brian Mirson's conclusion:

Thank you for your input. Your concerns and suggestions will be carefully considered. For the MMP under development, we will strive to find the right BALANCE for the recommended solutions. It will be a plan that is deserving of approval and funding. In a few weeks, we will meet again at a Citywide MMP Workshop, yet to be scheduled.

The workshop ended at 8:45 p.m.

(mmp.mb) aj

Input received at the

MIAMI BEACH MUNICIPAL MOBILITY PLAN

COMMUNITY INVOLVEMENT WORKSHOP - SOUTH BEACH

Police Station Conference Room, Washington Avenue

Wednesday, May 13, 1998, from 6:30 to 9:30 p.m.

In attendance were Commissioner Nancy Liebman, four members of the City Staff (Joseph Johnson, Amelia Johnson, Michael Alvarez, and William Cary), three members of the Carr Smith Corradino consulting team (Brian Mirson and Greg Kyle). Thirty two (32) residents signed the register, herein attached.

Neil Fritz, Co-Chairman of the City's Transportation and Parking Committee (TPC) and South Beach resident, introduced the City Staff and Consultants developing the Municipal Mobility Plan (MMP) for the City and thanked South Beach residents and business professionals for their attendance. Mr. Fritz explained that there were no plans in place, at this point, and that the TPC, the City and its consultants were holding this meeting to receive community input toward the development of the City's first transportation and mobility plan.

Brian Mirson, President of Carr Smith Corradino (CSC), stated he is an urban engineer who is interested in suggesting ways to achieve a balance between traffic and community living issues, and in helping create a 'vision' whereby economic development can be achieved without adding vehicles to the roadways. Level of service (LOS) is all relative to what Miami Beach wants to achieve as a City and community. In searching for a balanced plan there may be winners and losers, but, ultimately, only balanced solutions will come to benefit the Miami Beach community as a whole. Mr. Mirson acted as a moderator.

Although repeatedly requested, several of those speaking failed to identify themselves by name. The comments, observations and suggestions received at the meeting were as follows:

◊ 14th Street is a problem, it needs pedestrian crosswalks with pedestrian signals that use the internationally recognized sign for man walking. The pedestrian traffic flow is so intense It becomes almost impossible for vehicles to make either a left or right turn onto Ocean Drive, in the night hours. May be if traffic lights were appropriately timed, there would be less vehicular congestion and pedestrian movements would also be facilitated.

Brian Mirson, CSC:

◊ The length of lanes control capacity, not the traffic lights. But, be it on 14th Street or any other road, a balance needs to be reached between vehicles, bicycles and pedestrians using the road. This joint use creates a natural friction which may only be minimized by balancing the friction itself. The

increasing change in demography is accentuating the friction. Traffic calming on 14th Street is not the solution because it would only push traffic onto the adjacent roads.

Felix Boyle, 1801 Collins Avenue:

◊ The blocks in Miami Beach are too long, which concentrate more people at fewer intersecting points.

Jo Asmudsson, 4580 N. Jefferson:

◊ Do your traffic projection figures include the future loads?

Brian Mirson, CSC:

◊ Yes, the future loads are included but have been calculated based on general assumptions provided by the Miami-Dade County Model. For instance, the year 2010 increase is 25% over their 10-year data. We have to use the County Model as a base case and follow their rules until our own data produced for the Municipal Mobility Plan (MMP) and Concurrency Management System (CMS) is submitted to the County so that they can - for the first time with our input - polish their Model for Miami Beach calculations.

Jim Schlobohm, 5433 Alton Road:

◊ Alton Road traffic has increased 90% over a 19-year period. Can't you use past history as a method to project future increases?

Brian Mirson, CSC:

◊ The County Model uses past, present, and projected data to reach the future-load figures. I have personally spent many years helping the County polish its Model for other municipalities within Miami-Dade County.

Brad Crassner, North Bay Road Association:

◊ There are two new highrises at Sunset Harbour, a new Publix under construction and other development proposals for the immediate area. I want to make sure that the MMP will take these problems under consideration

Jo Asmudsson, 4580 N. Jefferson:

◊ Are all the new development projects in the vicinity of Alton Road, from 5th to 20th Street, included in your future-load projections?

Brian Mirson, CSC:

◊ If any development project has not been included, it will have to provide for mitigation measures.

Don Worth, 1390 Ocean Drive:

- ◊ First of all, I would like to compliment Amelia Johnson and Joseph Johnson for spearheading the development of the MMP, but I also want to express my concern regarding mitigation measures. We already have too many car in South Beach. Any mitigation plan that will permit the addition of more automobiles is unwelcome.
- ◊ SoBe like Disneyland has a lot of pedestrian traffic, so my concern is for pedestrians, bicyclists and rollerbladers, and not for automobiles. Traffic lights should be shorter for vehicles and longer for pedestrians.
- ◊ Ocean Drive is a dynamite street. We should restrict vehicles, eliminate a lane of parking, and widen the sidewalks
- ◊ Mitigation plans should be approved by the Planning Board so that citizens could give input. No further capacity should be added due to these plans.

Brian Mirson, CSC:

- ◊ Adding capacity does not solve our problem.

Leonard Berger, 1612 Jefferson #404:

- ◊ His proposal is to make a couplet of Ocean Drive (⇨N) and Collins Avenue (⇨S), from 5th to 15th Streets, and one-way the crossing streets.
- ◊ Install progressive traffic lights on even number streets on Ocean Drive and odd-numbered streets on Collins Avenue.
- ◊ Be careful with improvements that attract traffic. Precious little can be done on Alton Road and Collins Avenue which are under State jurisdiction. Other roads are under County jurisdiction. A lot of automobile traffic comes from the northern communities. When it becomes uncomfortable driving on one road, they find an alternative way to go down residential Miami Beach areas.

Brian Mirson, CSC:

- ◊ A lot can be accomplished with the State and County when we learn to 'speak their language,' particularly since the Federal government itself has been changing its 'capacity' orientation (moving vehicles) toward moving people, instead.
- ◊ We need to create a vision of what we want for Miami Beach. We need to give it a lot of thought prior to implementing any one-way street. Sometimes it is the right answer when the impetus is to create a new image for the street; sometimes it is not because makes it lose the main street feel.
- ◊ The challenge in Miami Beach is to improve traffic flow and yet maintain lower speed. When the City has a vision and a plan that are workable, the State or the County can be convinced to go our way.

Non-named person:

- ◊ Several years ago, State Senator Jack Gordon proposed turning State roads to city jurisdiction. If the City had not rejected his proposal then, we wouldn't have to deal with FDOT imposing their rules on us now.

Jeffrey Donnelly, 915 Jefferson Avenue:

- ◊ It is easy to propose and implement one-way streets. What is difficult is to implement other solutions when the one-waying has not produced the expected results.

Neil Fritz, 1300 Collins Avenue:

- ◊ He hates the FDOT one-way plan for the crossing streets to Collins Avenue, from 5th to 15th Streets. We don't want their plan because it doesn't work for anyone. We need local solutions that address our local needs. He is willing to consider one-way street proposals which meet a local objective(s), but not when its impetus is to improve capacity on a State roadway.
- ◊ Pedestrians are king in the Art Deco Historic District and should be given preference over vehicular movement. At 13th Street and Collins Avenue, pedestrians have a difficult time crossing the streets. The traffic signals there do not work for anyone, be it pedestrian or vehicles.
- ◊ We also need to find solutions for certain absurd concurrency requirements which further restrict our ability to create a more pedestrian-oriented SoBe.
- ◊ The David Plummer traffic study for the Loews Hotel project and area show no impact for pedestrians on Collins Avenue, and we all know this is not what will happen.
- ◊ The seasonal peak issue on South Beach is as dramatic as ever but, unfortunately, it does not reflect on vehicular traffic flow. How do we get more information about the seasonal pedestrian flow vs. the vehicular flow, and, if we find that something is wrong, how do we correct this miscalculation problem in the MMP? How will this be monitored?

Brian Mirson, CSC:

- ◊ The MMP will be updated every two years, as well as the computer model to reflect the changes occurred.

David Kelsey, South Beach Hotel & Restaurant Association:

- ◊ I'm concerned about all the new hotels on Collins Avenue. We have gridlock now. When everything is opening and functioning, with garages across the street, how do you propose to handle the constant pedestrian crossing, valet operations vs. the need to move vehicles on Collins Avenue north and south?

Brian Mirson, CSC:

◊ We are very much aware of these challenges, but, at this point in the MMP development, we are not yet prepared to give an opinion on this.

Morris Sunshine, 465 Ocean Drive:

◊ I am aware that the CMS under development is using data provided by developer-commissioned traffic studies. It concerns me that you may being fed biased and wrong data.

Brian Mirson, CSC:

◊ We are not allowing the hired engineers/technical people to dictate our plans. We choose our own standards to develop our plans, we set the rules and establish the thresholds for the traffic studies to be prepared by consultants for each and all developer proposal. If mitigation plans are involved, we set the rules, develop a basic plan, identify the improvements to be done, establish the dollar cost, and the levels of financial involvement by each party. All controls stay with the City.

Bea Kalstein:

◊ With all upcoming development, how can you possibly project the problems they will create?

Brian Mirson, CSC:

◊ We cannot project the problems, but we can set the rules to be met.

A no-named lady read an unsigned letter submitted by a SoBe resident:

◊ Delivery vehicles stop on prohibited areas of 14th Street, between Collins and Washington.

◊ Restrict all deliveries to off-peak hours, excluding postal and parcel deliveries. Have this enforced by Police Officers. Violations should be treated as moving violations.

◊ Ocean Drive and Collins Avenue should be made one way couplet.

Jeff Donnelly, 915 Jefferson Avenue:

◊ South Beach streets are dangerous for drivers and pedestrians alike. It is his belief that all SoBe streets presently not showing (in the MMP) as being adversely impacted by traffic, should be shown otherwise.

◊ He conducts walking tours of the Art Deco District on weekends. It is no longer possible to safely lead a tour group across the streets to Ocean Drive.

◊ The posted 30 mph restriction on 10th Street is too fast. The street has shade trees and the sight distance for traffic circulation is poor.

◊ Streets sorrounding certain neighborhood areas of SoBe should also be considered for conflicting one-waying to force non-neighborhood traffic to go

around and away from the area.

◊ The idling of buses on residential streets should be prohibited.

Comm. Nancy Liebman:

◊ In the early years, when I conducted these walking tours of the Art Deco District, the problem I encountered was not too much traffic but the fact that South Beach was not a safe community, particularly for pedestrians.

Ken Kopstein, 3624 Collins Avenue:

◊ Interested in seeing that the MMP includes bicycle and pedestrian ways running north-south which are also interconnected east-west from the beach to the bay. A bicycle/pedestrian corridor should also be planned for the beach itself. He also wrote a letter to the Mayor detailing his suggestions.

◊ We need to work with the County and other agencies to improve and/or establish a truly efficient and effective public transit service to and within Miami Beach.

Betty Gutierrez, 344 Meridian Avenue:

◊ All interior streets in South Beach should be treated as traffic-impacted streets, based on the number of traffic accidents which occur every day.

◊ Better and readily available public transit is what we need. Look at the success of the ELECTROWAVE! It has well served the needs of South Beach and has become so successful that most of the time we cannot even enter it. South Beach, as well as North Beach, need more public transit service availability.

Brian Mirson, CSC:

◊ Miami Beach has the ideal situation for the establishment of a successful and effective transit service. Besides, good transit service does add a lot to the fabric of any community.

Non-named person:

◊ I'm so worried about the movie theater being built on Lincoln Road at Alton Road. How can the City allow so much development in an area already riddled with traffic problems?

Brian Mirson, CSC:

◊ The question is how much can we stuff in the same box? It's ironic, I know, but other cities wish they had the opportunities that Miami Beach presently has. It brings to mind what Yogi Berra used to say about Yankee Stadium: "Nobody goes there because it is too crowded."

◊ The right balance is what we need to reach. (mmpsobe) aj