City of Hallandale Beach

2030 Transportation Master Plan

Prepared for:

City of Hallandale Beach
400 S. Federal Highway
Hallandale Beach, FL 33009

Prepared by:

HDR Engineering, Inc.

Final Report
May 2009

Project Team

HDR

CAMBRIDGE SYSTEMATICS

CITY OF HALLANDALE BEACH
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1.0 Introduction

The City of Hallandale Beach (the City) has experienced a significant increase in traffic congestion over recent years from a combination of population growth from both regional and new developments within the City and adjacent communities. In July 2006 the planning process began for the transportation master plan which would identify recommended transportation improvements that would address the City's concerns regarding existing and future traffic conditions to prepare for the impacts of new developments through year 2030.

1.1 Project Background

The City of Hallandale Beach is a community with a population of approximately 37,000 year-round residents, located in Broward County between the major cities of Ft. Lauderdale and Miami. The City's limits encompass the study area, which is bordered by Pembroke Road to the north; the Broward County/Miami-Dade County line to the south; I-95 to the west; and the Atlantic Ocean to the east. The City is adjacent to the neighboring communities of Aventura, Golden Beach, Hollywood, and Pembroke Park.

The City of Hallandale Beach incorporates a variety of land uses, however is predominantly single-family residential. There is significant growth planned in high rise condominium development/redevelopment concentrated in the east portion of the City, along S.R. A1A. Shopping centers and financial/business institutions are concentrated along Hallandale Beach Boulevard, east of US 1. The City is unique in Broward County in that it contains both Gulfstream Park and the Hollywood Greyhound Track, which are two major regional destinations, with regulated gambling, that attracts visitors year-round and as a result to have significant impacts on the existing roadway network when fully developed.

Traffic congestion in the City of Hallandale Beach is severe and steadily increasing, which has become a great concern to the City's elected officials, business leaders, and residents. Development of the mixed use Village at Gulfstream Park is expected to add over 10,000 trips per day by 2014. In addition, numerous smaller developments within the City will add an additional 50,000 trips per day over the same period. The purpose of this Transportation Master Plan is to quantify the impact of these developments on the City, and develop alternatives for improvements that will ensure future mobility within the City. Figure 1-1 identifies the study area for the plan.

2030 Transportation Master Plan

Legend

- Major Arterials
- Roadway Network
- County Boundary
- Study Area

N

0 0.05 0.1 0.2 0.3 0.4 0.5 Miles

Study Area

Figure 1-1

HDR

1.2 Study Purpose

The study purpose is to conduct an area-wide transportation study which results in a citywide Transportation Master Plan (TMP). The TMP includes the development of a traffic impact fee model to determine project impacts and the associated costs of accommodating traffic from the development activity in the City. The Broward County Metropolitan Planning Organization (MPO) regional travel demand model will be used to evaluate the impact of development activity to the City's existing roadway and transit network. This 2030 Transportation Master Plan shall recommend short-term (2008-2013), mid-term (2014-2019) and long-term (2020-2030) multi-modal transportation improvements.

The Transportation Master Plan includes the following primary components:

- Summary and Analysis of Existing Data/Conditions
- Development of 2030 Baseline Conditions
- Identified Potential 2030 Transportation Improvements
- Develop Traffic Impact Fee Model
- Final Evaluation of Potential Transportation Projects
- Recommended Transportation Improvements
- Provide Implementation Strategies and Next Steps

The goals of this study are to:

- Quantify the transportation impact and needs of future development and redevelopment activity in the City for Year 2015 and 2030
- Identify and prioritize appropriate facility improvements and mitigation strategies to ensure adequate mobility in the future
- Determine the costs of recommended transportation improvements and identify the appropriate share from new developments/redevelopments

1.3 Guiding Principles and Strategies

The Transportation Master Plan explores the issue of traffic congestion throughout the City's roadway network, but does not rely solely on addressing these issues with only roadway transportation improvement solutions. The plan identifies alternative recommended projects to improving the traffic congestion through transportation system management and multi-modal solutions.

The City of Hallandale Beach 2030 Transportation Master Plan's identified projects, alternatives and recommendations developed and analyzed for

implementation in a manner that is consistent with the City's 1990 Comprehensive Plan and 2005 Update priorities and standards, as well as with regional adopted plans and initiatives.

2.0 Existing Conditions

The City of Hallandale Beach 2030 TMP process includes the initial data collection of existing conditions of the City's transportation system, including roadway transit, bicycle and pedestrian network and facilities. Previous transportation studies were reviewed to reduce duplication of efforts regarding analysis of transportation issues and impacts in the City and are summarized in Appendix A. Detailed background information of existing data is included in Appendix C, D and E.

2.1 Transportation System Inventory

Highway

The City of Hallandale Beach is made up of a grid street network consisting of major arterials, minor collectors and local neighborhood streets. The City's roadway network provides access to almost any point and destination within the City as well as outside of the study area for recreation, shopping, and business trips. However, only a few roadways provide complete connections through the study area; there are a number of barriers such as I-95 and the FEC rail corridor. This has the effect of concentrating traffic on the few arterials that pass through the City, leading to significant traffic congestion. An inventory of the City's principal arterials, county and city collector roadways was completed to determine the existing roadway system and its characteristics in order to identify needs for potential improvements in the transportation system (refer to Table 2-2)

2.2 Traffic Data Collection

Existing traffic count data was collected for the City between Wednesday, October 18, 2006 and Thursday, October 26, 2006, with supplemental count collection taking place between Tuesday, May 22, 2007 and Tuesday, June 5, 2007, which included the following:

- 24-hour bi-directional traffic counts on 10 roadway segments:
  - Hallandale Beach Boulevard west of NW/SW 8th Avenue
  - Hallandale Beach Boulevard west of Dixie Highway
  - Hallandale Beach Boulevard west of US 1
  - Hallandale Beach Boulevard east of US 1
  - Hallandale Beach Boulevard east of NE/SE 14th Avenue

- Pembroke Road west of Dixie Highway
- US 1 south of Pembroke Road
- US 1 north of Hallandale Beach Boulevard
- US 1 south of Hallandale Beach Boulevard
- US 1 south of NE 9th Street

- A.M. and P.M. peak hour turning movement counts at 10 signalized intersections, as follows. These locations were identified as major intersections where turning movement counts were needed to evaluate the existing performance of the system:
  - Pembroke Road @ I-95 Northbound On-Ramp
  - Pembroke Road @ I-95 Northbound Off-Ramp
  - Pembroke Road @ NW 8th Street
  - Dixie Highway @ SE 11th Street
  - SE 1st Avenue @ SE 11th Street
  - US 1 @ NE 3rd Street
  - Dixie Highway @ NE/NW 3rd Street
  - SE 1st Avenue @ NE/NW 3rd Street
  - Hallandale Beach Boulevard @ SW/NW 4th Avenue
  - Hallandale Beach Boulevard @ SW/NW 6th Avenue

Count sheets for the roadway segments and turning movement locations are included in Appendix C of this report.

Additional supplemental traffic count data was collected from the Florida Department of Transportation (FDOT), Broward County and various studies submitted to the City of Hallandale Beach for Transportation Concurrency.

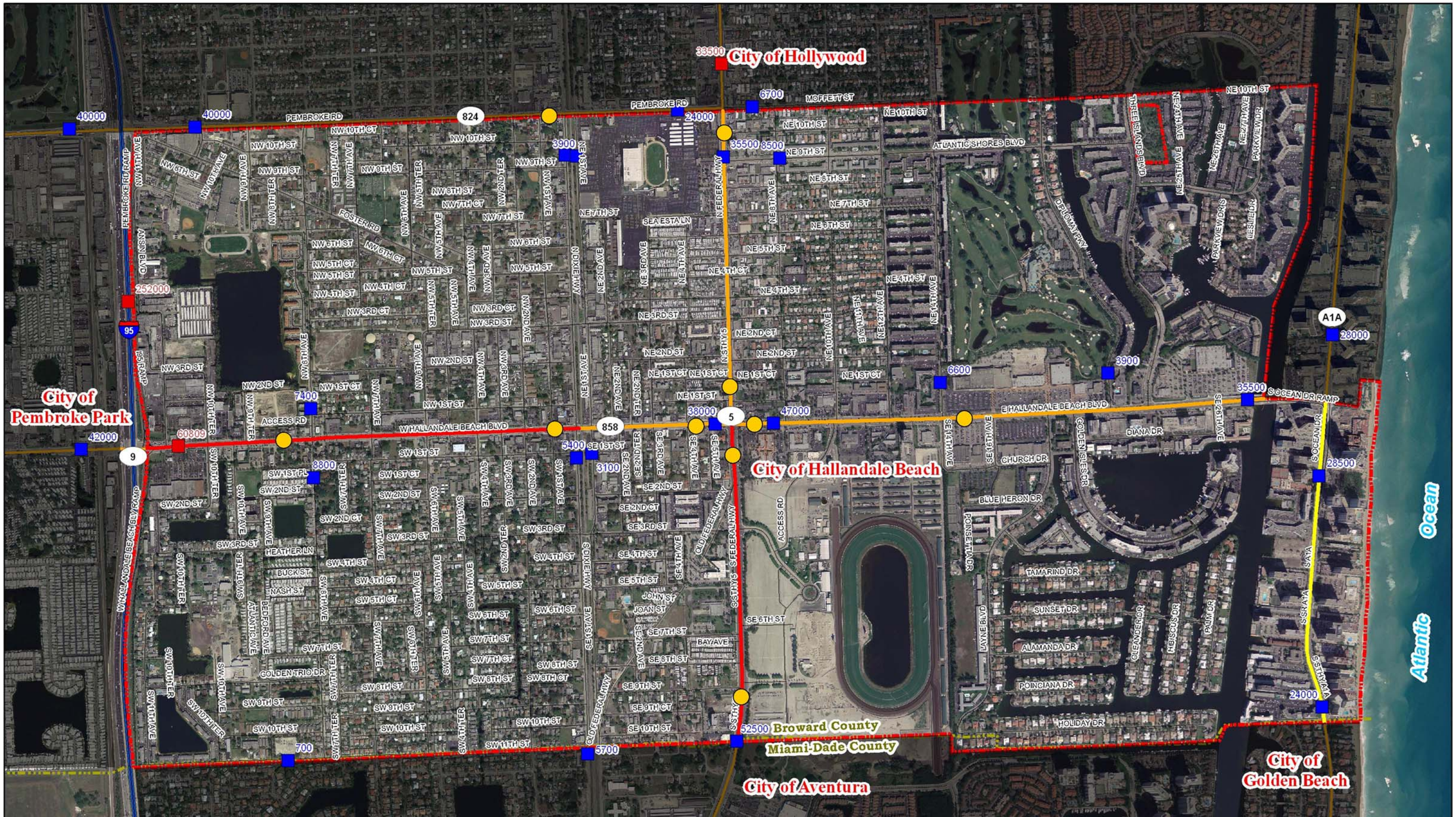
24-hour bi-directional traffic count data collected from all sources have been adjusted to reflect annual average daily traffic (AADT) for a common base year of 2006. The AADT counts provided by FDOT and Broward County average the on-peak season counts and the traditionally higher counts obtained during the peak traffic season into the annual average. AADT counts are calculated using the total volume of traffic on the highway segments for the entire year, divided

by the number of days in the year. Figure 2-1 shows traffic count locations within the study area.

Figure 2-2 displays a complete inventory of signalized intersections within the study area.

Table 2-1: Existing Roadway System Inventory

Roadway	Segment	Roadway Classification	# of Lanes	Direction of Travel	Median (type)	Posted Speed Limit	Sidewalks	Drainage	On-Street Parking	Bike Lanes	Bus Coverage
Hallandale Beach Blvd.	I-95 to US 1	State Principal Arterial	6	Bi-Directional East-West	Raised Landscaped	40 mph	5 ft.	Curb and Gutter	None	Dixie Hwy to US 1 umarked lanes	Yes
	US 1 to SR A1A	State Principal Arterial	6	Bi-Directional East-West	Raised Landscaped	35 mph	5 ft.	Curb and Gutter	None	marked lanes	Yes
US 1 (Federal Hwy.)	Miami-Dade/Broward County Line to Hallandale Beach Blvd.	State Principal Arterial	6	Bi-Directional North-South	Raised Landscaped	45 mph	5 ft.	Curb and Gutter	None	marked lanes	Yes
	Hallandale Beach Blvd. to Pembroke Rd.	State Principal Arterial	4	Bi-Directional North-South	Raised Landscaped	35 mph	5 ft.	Curb and Gutter	None	marked lanes	Yes
SR A1A	Miami-Dade/Broward County Line to Hallandale Beach Blvd.	State Principal Arterial	6	Bi-Directional North-South	Raised Landscaped	30 mph	5 ft.	Curb and Gutter	None	Westside south of Hallandale Beach Blvd.	Yes
Pembroke Rd.	I-95 to US 1/Federal Hwy.	State Principal Arterial	4	Bi Directional East West	Painted	35 mph	5 ft.	Curb and Gutter	None	None	Yes
Dixie Highway	Miami-Dade/Broward County Line to Pembroke Rd.	County Collector	4	One-way Southbound	N/A	35 mph	interrupted	Swales	None	None	Yes
NE/SE 1st Ave.	Miami-Dade/Broward County Line to Pembroke Rd.	City Collector	2	One-way Northbound	N/A	30 mph	interrupted	Swales	None	None	Some
NE 14th Ave.	Hallandale Beach Blvd. to NE 10th St.	City Collector	2	Bi Directional North-South	undivided	25 mph	5 ft.	Swales on westside	Diagonal on eastside	None	Yes
Diplomat Pkwy	Hallandale Beach Blvd. to NE 10th St.	City Collector	2	Bi Directional North-South	undivided	25 mph	5 ft.	Swales	None	None	No
Moffet St. (NE 10th St.)	US 1/Federal Hwy to NE 14th Ave.	City Collector	2	Bi Directional East-West	undivided	25 mph	interrupted	Swales	None	None	Yes
Atlantic Shores Blvd. (NE 9th St.)	US 1/Federal Hwy to Diplomat Pkwy.	City Collector	2	Bi Directional East-West	undivided	25 mph	5 ft.	Swales	Diagonal on both sides between NE 12th and NE 14th Sts.	None	Yes
NW/SW 8th Ave.	County Line Rd. to Pembroke Rd.	City Collector	2	Bi Directional North-South	undivided	25 mph	interrupted	Swales	None	None	Yes



Legend

- Major Arterials
- Roadway Network
- County Boundary
- Study Area
- 25,000 - 30,000
- 30,001 - 50,000
- 50,001 - 70,000
- Portable Traffic Monitoring Sites & Counts
- Telemetered Traffic Monitoring Sites & Counts
- 2030 TMP Count Locations

Source: FDOT

N

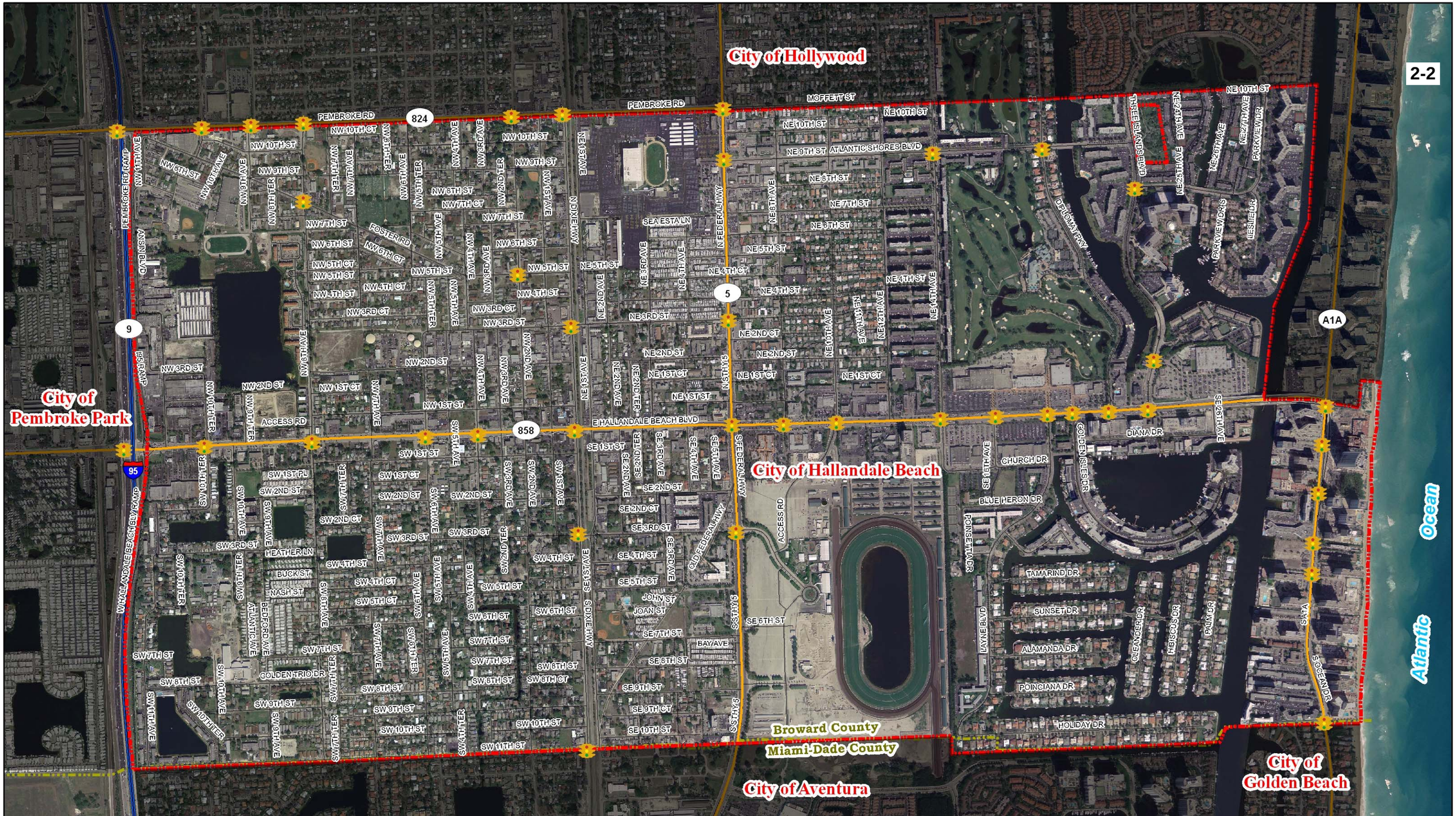
0 0.05 0.1 0.2 0.3 0.4 0.5 Miles

2030 Transportation Master Plan

Existing Annual Average Daily Traffic Counts (2005)

Figure 2-1

HDR



Legend

- Major Arterials
- Roadway Network
- County Boundary
- Study Area
- Signalized Intersection

N

0 0.05 0.1 0.2 0.3 0.4 0.5
Miles

2030 Transportation Master Plan

Signalized Intersection Inventory

Figure 2-3

HDR

2.3 Transit, Bicycle and Pedestrian Facilities

Transit

SFRTA Tri-Rail Commuter Train

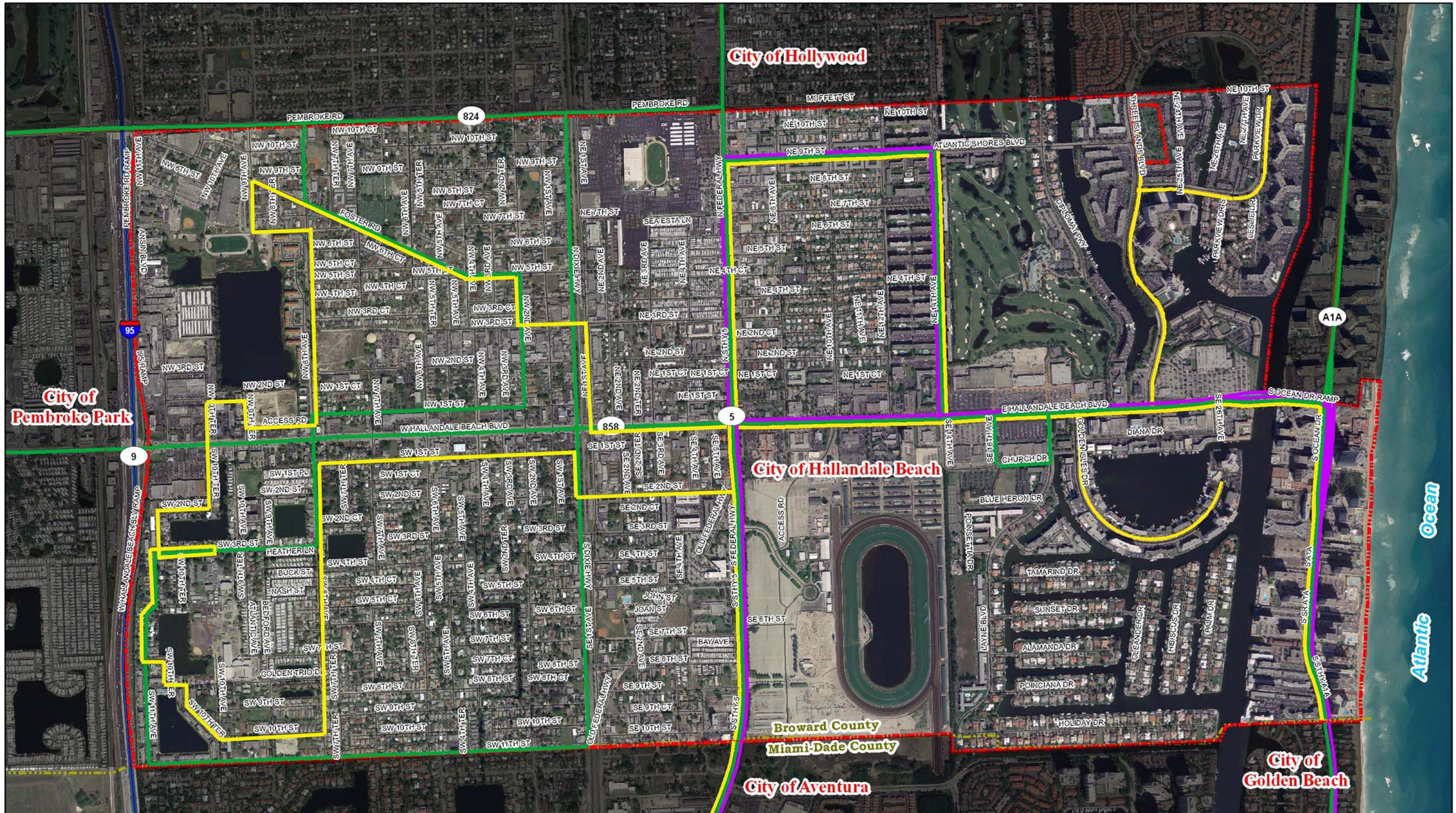
The City of Hallandale Beach is served by three transit service providers; Broward County Transit (BCT), Miami-Dade Transit (MDT) and the City of Hallandale Beach Minibus, each serving the City's transit users, as shown in Figure 2-3 (specific Bus Route information shown in Appendix E). BCT and MDT bus routes offer connections and access to adjacent communities, regional destinations, and other transit modes (e.g. South Florida Regional Transportation Authority/Tri-Rail). The City's Minibus service currently operates three routes that provide stops at local destinations within the City, as shown in Table 2-2.

Some of the bus stops along US 1 (Federal Highway) and Hallandale Beach Boulevard provide bus stop bays for buses to pull over outside of the travel lanes, in order to pick-up and drop-off riders. The majority of the system provides appropriate signage to identify bus stops and routes.

Table 2-2: Existing Transit System

Transit Provider	Bus Route	Termini	Headways	
			Weekday	Weekend
Broward County Transit	Route 1	Aventura Mall – Broward Central Terminal	15-20 minutes	30 minutes
	Route 4	Aventura Mall – Airport Tri-Rail Station	30 minutes	40-45 minutes
	Route 5	Hallandale Beach Blvd & N.E. 14 Ave – Century Village	10 minutes	60 minutes
	Route 6	Countyline Rd. & Dixie Hwy. – Broward Central Terminal	30 minutes	60 minutes
	Route 28	Memorial Hospital Miramar – Hallandale Blvd. & Three Islands Blvd.	30 minutes	30-45 minutes
Miami-Dade Transit	Route 3	Three Islands Blvd.– Miami Downtown Bus Terminal	20 minutes	15-25 minutes
	Route K	Diplomat Mall – Omni Bus Terminal	30-60 minutes	50-60 minutes
	Route V	Diplomat Mall – Golden Glades Park & Ride	60 minutes	N/A
City of Hallandale Beach Minibus	Route 1	Publix/Bank – NE 14th Avenue/Atlantic Shores Blvd.	40 minutes	40 minutes*
	Route 2	Publix/Bank – Aventura Hospital	60 minutes	60 minutes*
	Route 3	City Hall/Post Office/Library – S.W. 10th Ter. & SW 10th Ave.	40 minutes	40 minutes*

*** Saturday service only**



2030 Transportation Master Plan

Legend

- Study Area
- County Boundary
- Major Arterials
- Roadway Network
- Broward County Transit
- Miami-Dade Transit
- Hallandale Beach Minibus

N

0 0.05 0.1 0.2 0.3 0.4 0.5 Miles

Existing Transit System

Figure 2-3

HDR

Bicycle & Pedestrian Facilities

Bicycle lanes have recently been implemented along portions of the major arterials of Hallandale Beach Bouleveard, US 1 (Federal Highway), and SR A1A (Ocean Drive). Most of the major arterial and connector streets have sidewalks adjacent to the roadways with crosswalks at signalized intersections. Some provide a grass swale between sidewalk and roadway, mostly in residential areas, while the commercial areas provide sidewalks immediately adjacent to the roadway at the back of curb.

Recent streetscape improvements along Hallandale Beach Boulevard at SE/NE 14th Avenue.

There are still areas in the City where bicycle and pedestrian facilities lack the necessary connectivity to define a network. The City would need to close the gaps in its bicycle and pedestrian network to provide safe and convenient access to neighborhood services and attractions for local residents and visitors.

No available sidewalks for pedestrians along the south side of SE 3rd Street.

The City has committed to requiring a five foot sidewalk along any street right-of-way as part of any new development through the City of Hallandale Beach's adopted Design Guidelines Manual.

2.4 Level of Service Conditions

Existing traffic conditions in the City of Hallandale Beach, particularly during peak season, are highly congested with queues developing along the entire length of Hallandale Beach Boulevard during several time periods including midday, evening peaks and on weekends. The situation is compounded by events held at Gulfstream Park. Hallandale Beach police officers manually control the traffic signals adjacent to Gulfstream Park, during peak season (January – April), between the hours of 11 a.m. and 2 p.m., and from 4 p.m. to 7

p.m., at the I-95 and Hallandale Beach Boulevard interchange, as well as at intersections along Hallandale Beach Boulevard and US 1.

Roadway Segment Levels of Service

The following table shows levels of service on the arterial and collector roadways in the City of Hallandale. Roadways are divided into segments for the purposes of capacity analysis. 2006 traffic volumes are shown, together with an indication of links operating below capacity (E+) and those operating over-capacity indicated as F1, F2 or F3 depending on the V/C ratio (see table).

Table 2-3: Roadway Segments and 2006 Volumes

Road Name	From	To	Class	No. of Lns	2006 AADT	Level of Service*	
						Daily	Peak Hr
E-W							
Pembroke Rd	I-95	S 28th AVE	State Principle Arterial	4	40,000	F3	F3
	S 28th AVE	W 8th AVE	State Principle Arterial	4	*36,000*	F3	F3
	W 8th AVE	Dixie Hwy	State Principle Arterial	4	*32,000*	F3	F3
	Dixie Hwy	E 1st AVE	State Principle Arterial	4	*28,000*	F3	F3
	E 1st AVE	US-1	State Principle Arterial	4	24,000	F3	F3
NE 10th ST	US-1	S 14th AVE	City Collector	2	6,700	E+	E+
Hallandale Beach Blvd	I-95	W 8th AVe	State Principle Arterial	6	60,800	F2	F1
	W 8th AVe	Dixie Hwy	State Principle Arterial	6	*53,200*	F2	F1
	Dixie Hwy	E 1st AVE	State Principle Arterial	6	*45,600*	F2	F1
	E 1st AVE	US-1	State Principle Arterial	6	38,000	F2	F1
	US-1	S 14th AVE	State Principle Arterial	6	47,000	F1	F3
	S 14th AVE	Diplomat Pwky	State Principle Arterial	6	*41,250*	F1	F3
	Diplomat Pwky	SR A1A	State Principle Arterial	6	35,500	E+	E+
N-S							
Dixie Hwy	Pembroke Rd	Hallandale Beach Blvd	County Collector	4 (SB only)	6,000	E+	E+
	Hallandale Beach Blvd	Countyline Rd	County Collector	4 (SB only)	5,400	E+	E+
E 1st AVE	Pembroke Rd	Hallandale Beach Blvd	City Collector	2 (NB only)	3,900	E+	E+
	Hallandale Beach Blvd	Countyline Rd	City Collector	2 (NB only)	3,100	E+	E+
US-1	Pembroke Rd	NE 9th ST (Atlantic Shore)	State Principle Arterial	4	35,500	F1	F2
	NE 9th ST (Atlantic Shore)	Hallandale Beach Blvd	State Principle Arterial	4	*44,000*	F1	F2
	Hallandale Beach Blvd	Countyline Rd	State Principle Arterial	6	52,500	E+	F1
SR A1A	Pembroke Rd	Hallandale Beach Blvd	State Principle Arterial	6	28,000	E+	E+
	Hallandale Beach Blvd	Countyline Rd	State Principle Arterial	6	28,500	E+	E+

E+	V/C <= 1.0	* From Broward MPO map series
F1	1.00<=V/C<=1.10	*AADTs in Italics indicate interpolated volumes.*
F2	1.11<=V/C<=1.25	Where link volumes are unavailable, LOS has been computed from adjacent links.
F3	1.26<=V/C<=1.5	V/C = Volume/ Capacity

As can be seen in the Table 2-3, several roadway segments are operating over capacity today, including six of the seven segments along Hallandale Beach Boulevard.

Intersection Levels of Service

The level of service of 25 study area intersections was calculated for 2006 peak hour conditions based on traffic counts obtained from Broward County, the

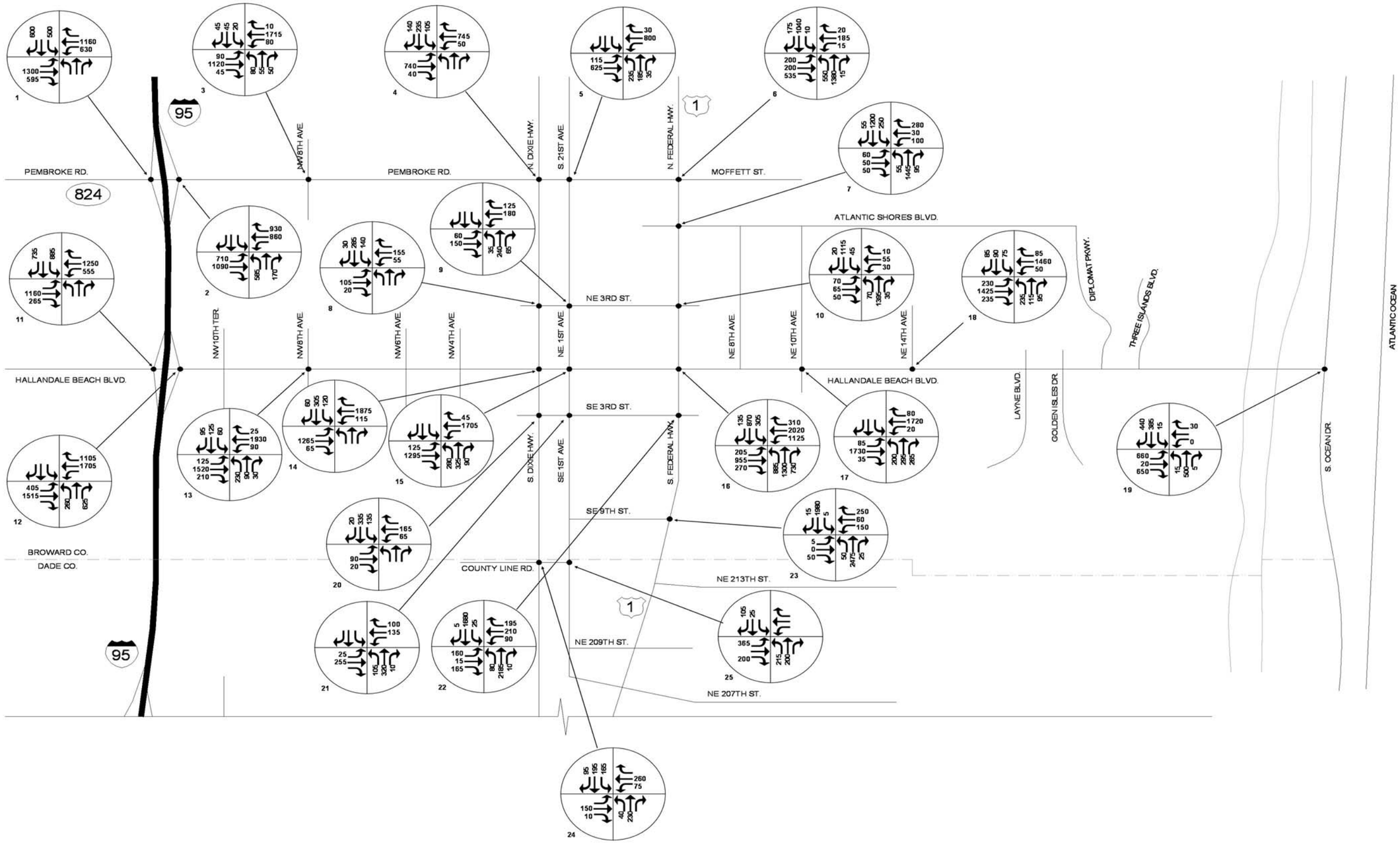
Gulfstream Park traffic study, and additional locations counted for this analysis. Those additional locations included:

- Pembroke Rd. @ I-95 Ramps
- Pembroke Rd. @ NW 8th Street
- US 1 @ NE 3rd Street
- Dixie Highway @ NE/NW 3rd Street
- Hallandale Beach Boulevard @ SW/NW 4th Avenue
- Hallandale Beach Boulevard @ SW/NW 6th Avenue
- Dixie Highway @ SE 11th Street

US 1 (Federal Hwy.) looking north at Hallandale Beach Blvd.

A summary of 2006 P.M. peak hour traffic turning movement volumes is shown in Figure 2-4; the 2006 P.M. peak hour intersection delay and LOS is show in Figure 2-5.

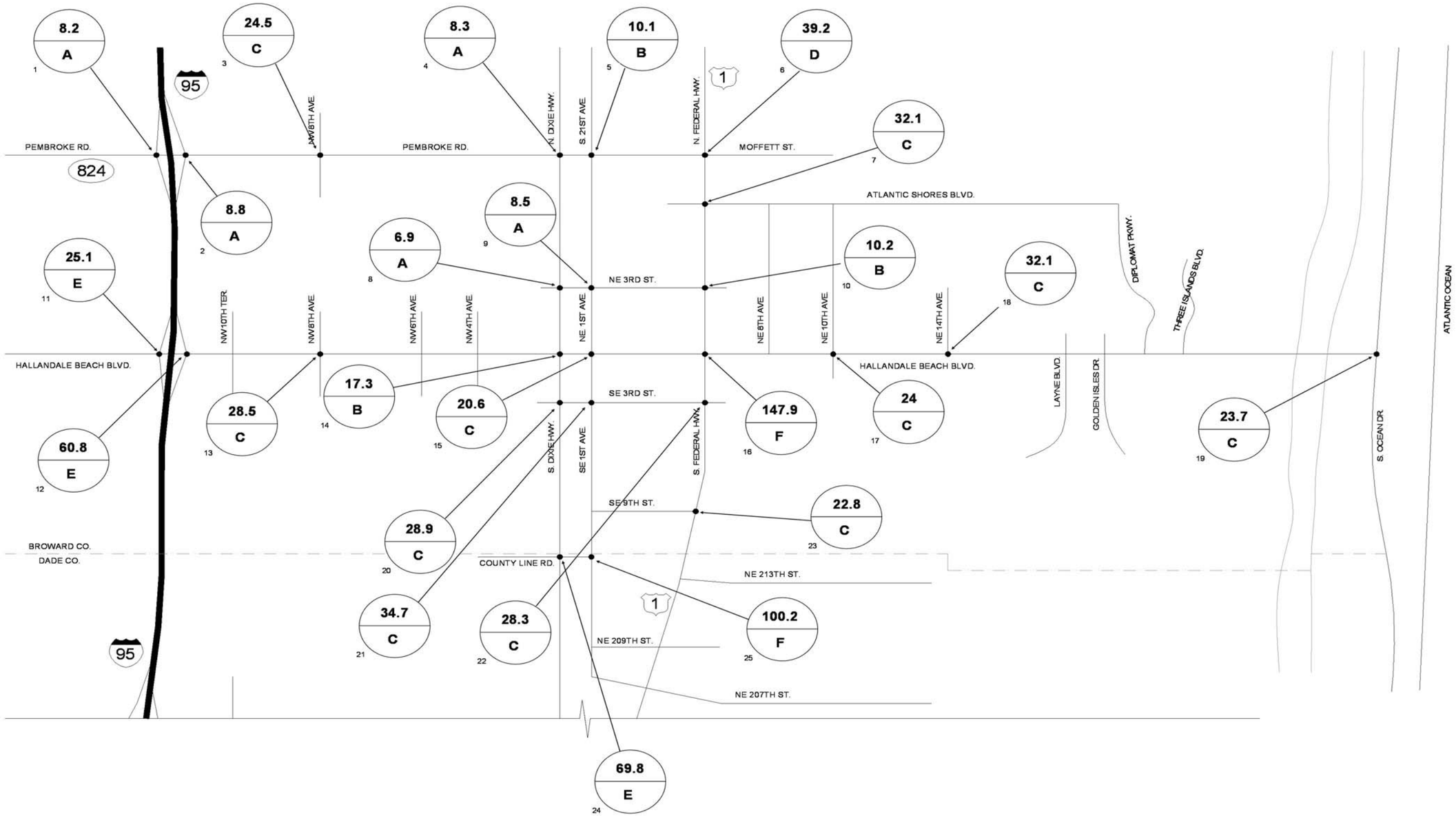
A summary of the overall intersection P.M. peak hour level of service results for 2006 conditions is shown in Table 2-4.



2030 Transportation Master Plan

2006 P.M. Peak Hour Turning Movement Volumes

Figure 2-4



2030 Transportation Master Plan

2006 P.M. Peak Hour Intersection Delay and Level of Service

Figure 2-5

Table 2-4: 2006 Intersection P.M. Peak Hour Levels of Service

Intersec-tion	Location	2006 Existing	
		Delay (s)	PM Peak Hour LOS
1	Pembroke Rd @ I-95 SB Ramp	14.7	B
2	Pembroke Rd @ I-95 NB Ramp	24.3	C
3	Pembroke Rd @ NW 8th Ave	15.9	B
4	Pembroke Rd @ N. Dixie Hwy	8.3	A
5	Pembroke Rd @ E 1st Ave	10.1	B
6	Pembroke Rd @ US 1	38.6	D
7	Atlantic Shore Blvd @ US 1	31.2	C
8	NE 3rd St @ N. Dixie Hwy	8.9	A
9	NE 3rd St @ E 1st Ave	8.5	A
10	NE 3rd St @ US 1	9.8	A
11	Hallandale Beach Blvd @ I-95 SB Ramp	59.7	E
12	Hallandale Beach Blvd @ I-95 NB Ramp	112	F
13	Hallandale Beach Blvd @ NW 8th Ave	28.1	C
14	Hallandale Beach Blvd @ N. Dixie Hwy	63.8	E
15	Hallandale Beach Blvd @ E 1st Ave	79.4	E
16	Hallandale Beach Blvd @ US 1	147.9	F
17	Hallandale Beach Blvd @ NE 10th Ave	23	C
18	Hallandale Beach Blvd @ NE 14th Ave	31.2	C
19	Hallandale Beach Blvd @ A1A	20.4	C
20	SE 3rd St @ N. Dixie Hwy	27.1	C
21	SE 3rd St @ E 1st Ave	34.3	C
22	SE 3rd St @ US 1	27.8	C
23	SE 9th St @ US 1	22.2	C
24	County-line Rd @ N. Dixie Hwy	13.8	B
25	County-line Rd @ E 1st Ave	9.6	A

Currently, two intersections operate at LOS F during the PM peak hour – Hallandale Beach Boulevard at I-95 northbound ramp and at Federal Highway. Three additional Hallandale Beach Boulevard intersections operate at LOS E during this period - at I-95 SB Ramp, N. Dixie Highway, and E. 1st Avenue. These intersections are considered deficient according to the City's adopted level of service standard of D for peak hour conditions.

2.5 Future Traffic Growth Estimates

Traffic growth in Hallandale Beach from now through 2030 will consist primarily of three components, as follows:

- Background Traffic Growth – resulting from adjacent city growth and increases in travel in the South Florida region;
- Local Residential Developments – as estimated by the City's "Estimated Additional Water Demand for Future Development" Spreadsheet (dated 10/29/06); and

- Major Destination Locations
  - Village at Gulfstream Park – anticipated to be complete by 2014.
  - Mardi Gras
  - Diplomat Country Club

Background Traffic Growth

Background traffic growth was assumed at 1.9% per year through 2014 by the original Gulfstream traffic study. Given the longer timeframe of this analysis (Year 2030), and the comprehensive accounting of planned developments provided by the city, a lower growth rate of 1% annually was assumed for the period 2014 through 2030 for this analysis.

Citywide Developments

The City provided detailed data on planned developments within their jurisdiction as of September 2006. This data was first compiled as part of water and sewer planning initiatives. A summary of the anticipated developments, separated by land use type and shown together with their trip generating characteristics is shown in Table 2-5 below. The entire list of anticipated developments is provided in Appendix B.

Table 2-5: Citywide Development Plans (2006)

Location	Number of developments	Res. Units	Commercial Sq. Ft.	Peak Hour Trips Generated (approx)
Hallandale Beach	32	3,200	1,730,000	12,600

This information shows the very significant increase in the number of proposed developments that were identified by the City in early 2006. While the recent residential market slowdown may mean that only a portion of these are built over the next ten years, it is clear that the impacts to the road network will likely be far higher than reported in the local area traffic study completed by each of the developments. These impacts have been explicitly included in the development of future traffic volumes for this study.

Major Destination Developments

The Village at Gulfstream Park development was recently approved by the City of Hallandale Beach, on November 15, 2006. The revised development program is shown in Table 2-6 below, based on a decrease in square footage for

commercial and office uses and fewer cinema seats. The first phase will include 375,000 square feet of retail, and is expected to be completed in Fall 2008.

Table 2-6: Gulfstream Development Plans

Year of Completion	Commercial/ Retail	Office	Residential/ Condos	Hotel	Cinema
Units	(sq ft)	(sq ft)	(dwelling units)	(rooms)	(seats)
Phase 1	375,000	0	420	0	0
Phase 2 (2014)	375,000	140,000	1,080	500	2,500
Total (2014)	750,000	140,000	1,500	500	2,500

Table 2-7 shows the anticipated daily and P.M. peak hour trip generation impacts from these three components of growth. By the City's estimates, the majority of this growth (86%) will take place by 2015, followed by slower growth to 2030.

Table 2-7: Anticipated New Trips 2030

Land Use	Daily	PM Peak Hour
Village at Gulfstream Park	24,800	1,850
City Infill Development	102,500	9,650
Total	127,300	11,500

2.6 Planned and Programmed Improvements

A short list of improvements (highways, transit, bicycle and pedestrian facilities) were identified in the study area. Programmed improvements are identified as projects that are funded for construction in the five-year FDOT Work Program or the Broward County MPO's five-year Transportation Improvement Program (TIP), which includes federal, state and locally funded transportation projects for all modes of transportation.

A review of the Broward County MPO TIP for FY 2006/07-2010/11 indicates no roadway improvements within the study area that would result in increased capacity.

Transit improvements are programmed for the study area, however. They include planned headway improvements for the following Broward County Transit routes:

- Route 1 – 15 to 10 minutes

- Route 5 – 30 to 20 minutes
- Route 28 – 60 to 30 minutes

The development proposed in the Gulfstream DRI include the following improvements:

- Roadway Facility Improvements
  - a new signal at US 1/SE 9th Street Intersection,
  - signal improvements at US 1/SE 3rd Street Intersection,
  - elimination of left-turn movement on Hallandale Beach Blvd at Dixie Hwy and NE 1st Avenue,
  - upgrades to SE 3rd St between Dixie Highway and US-1 (to collector street standards),
  - provision of right-turn deceleration lanes at the project driveways along US-1, and
  - re-striping of US-1 and Atlantic Shores Blvd.
- ITS Improvements
  - cameras for traffic detection and monitoring,
  - signal timing and coordination along all major arterials, and
  - variable message signage (for inbound traffic), along Hallandale Beach Boulevard.
- Transportation Demand Management Strategies
  - provision of a transit "superstop" along US-1 in front of Gulfstream Park, and
  - contributions to enhance the level of transit service through shorter headways for buses serving the area.

The Broward County Long Range Transportation Plan (LRTP) for 2030 indicates no roadway capacity improvements within the study area over the next 23 years. This is largely a result of the physical constraints within the study area, where most arterial and collector roadways have already been widened as far as possible within the existing right-of-way. Any further improvements would require the demolition of many of the land uses immediately adjacent to these roadways that generate today's traffic demand, and as such are not feasible.

3.0 Year 2030 Baseline Traffic Conditions

3.1 2030 Baseline Model Development

The growth and development assumptions described in Section 2.5 were used to develop a picture of traffic operating conditions within the City of Hallandale Beach in 2030 under a "no-build" scenario. This approach assumes that improvements in the study area are limited to those that are currently included in Broward County's five-year Transportation Improvement Program (TIP), the Transit Development Plan (TDP), and those included in Broward County's 2030 Long Range Transportation Plan (LRTP).

3.2 Land Use/Socioeconomic Data

The City's existing land use and socioeconomic data was collected to determine travel patterns as it relates those who live and work with the study area, factoring in dwelling units, population and employment. The travel demand forecasts for the model developed for Transportation Master Plan used land use data incorporating traffic analysis zones (TAZs). The data for each TAZ is broken into household and employment categories. The model was developed using the Broward County model as a basis for a valid for the regional level of representation.

3.3 Transit Operating Conditions (TLOS)

Transit

The level of service for Broward County Transit bus routes are a reflection of the congestion on the roadway network in the City. Based on a survey that was conducted in 2004 for Broward County Transit, 24 out of 40 bus routes contained segments with ridership greater than or equal to the number of seats available. Of those 24 congested routes, four of those congested routes serve the study area. Those congested routes are listed in Table 3-1, along with their current headways

Table 3-1: Congested Transit Routes

Bus Route	Termini	Headways	
		Weekday	Weekend
Route 1	Aventura Mall – Broward Central Terminal	15-20 minutes	30 minutes
Route 4	Aventura Mall – Airport Tri-Rail Station	30 minutes	40-45 minutes
Route 5	Hallandale Beach Blvd & & N.E. 14 Ave – Century Village	10 minutes	60 minutes
Route 28	Memorial Hospital Miramar – Hallandale Blvd. & Three Islands Blvd.	30 minutes	30-45 minutes

Route 28, west of SE/NE 1st Avenue, is the only bus route segment over capacity within the City of Hallandale Beach.

3.4 2030 Roadway Level of Service Analysis

Roadway Segment Levels of Service

Traffic volumes used to estimate roadway segment levels of service were obtained from the Broward County 2030 travel demand model developed as part of the 2030 LRTP update. The City's socioeconomic data was adjusted to account for the higher level of growth anticipated by the City of Hallandale Beach. This level of development exceeds the growth assumed in the Broward County model by approximately ten percent between 2005 and 2030.

Results of the 2030 LOS analysis on roadway links in the City are shown, with corresponding levels of service and the over-capacity links indicated.

Table 3-2: 2030 No-Build Segment Levels of Service

Road Name	From	To	AADT		Growth 2006-2030		Level of Service*
			2006	2030	Volume	%	
E-W							
Pembroke Rd	I-95	S 28th AVE	40,000	49,600	9,600	24	F3
	S 28th AVE	W 8th AVE	*36,000*	*44,640*	*8,640*	*24*	F3
	W 8th AVE	Dixie Hwy	*32,000*	*39,680*	*7,680*	*24*	F3
	Dixie Hwy	E 1st AVE	*28,000*	*34,720*	*6,720*	*24*	F3
	E 1st AVE	US-1	24,000	*29,760*	*5,760*	*24*	F3
NE 10th ST	US-1	S 14th AVE	6,700	9,400	2,700	40	E+
Hallandale Beach Blvd	I-95	W 8th AVe	60,800	69,200	8,400	14	F3
	W 8th AVe	Dixie Hwy	*53,200*	*64,650*	*5,760*	*11*	F3
	Dixie Hwy	E 1st AVE	*45,600*	*60,100*	*5,760*	*13*	F3
	E 1st AVE	US-1	38,000	*55,550*	*5,760*	*15*	F3
	US-1	S 14th AVE	47,000	51,000	4,000	9	F1
	S 14th AVE	Diplomat Pwky	*41,250*	*44,450*	*3,200*	*8*	F1
	Diplomat Pwky	SR A1A	35,500	37,900	2,400	7	E+
N-S							
Dixie Hwy	Pembroke Rd	Hallandale Beach Blvd	6,000	17,700	11,700	195	E+
	Hallandale Beach Blvd	Countyline Rd	5,400	25,100	19,700	365	E+
E 1st AVE	Pembroke Rd	Hallandale Beach Blvd	3,900	*11,505*	*7,605*	*195*	E+
	Hallandale Beach Blvd	Countyline Rd	3,100	*14,409*	*11,309*	*365*	E+
US-1	Pembroke Rd	NE 9th ST (Atlantic Shore)	35,500	*41,974*	*6,474*	*18*	F2
	NE 9th ST (Atlantic Shore)	Hallandale Beach Blvd	*44,000*	45,800	*5,600*	*76*	F2
	Hallandale Beach Blvd	Countyline Rd	52,500	69,500	17,000	32	F1
SR A1A	Pembroke Rd	Hallandale Beach Blvd	28,000	46,700	18,700	67	E+
	Hallandale Beach Blvd	Countyline Rd	28,500	47,900	19,400	68	E+

E+	V/C <= 1.0
F1	1.00<=V/C<=1.10
F2	1.11<=V/C<=1.25
F3	1.26<=V/C<=1.5

* From Broward MPO map series

AADTs in Italics indicate interpolated volumes.

Where link volumes are unavailable, LOS has been computed from adjacent links.

V/C =Volume/Capacity

As can be seen in the table above, two additional roadway segments are anticipated to operate under LOS conditions in 2030 with only programmed and planned improvements. Six of seven segments along Hallandale Beach Boulevard will operate under over-capacity conditions in the future.

Intersection Levels of Service

To obtain year 2030 P.M. peak hour turning movement traffic volumes for the 25 study area intersections, a traffic assignment model was developed. This model distributed trips from Gulfstream Park as well as the numerous smaller planned residential and commercial developments within the City onto the major roadways. Volume development sheets for each intersection are provided in Appendix E. The resulting P.M. peak hour turning movement volumes are shown in Figure 3-1.

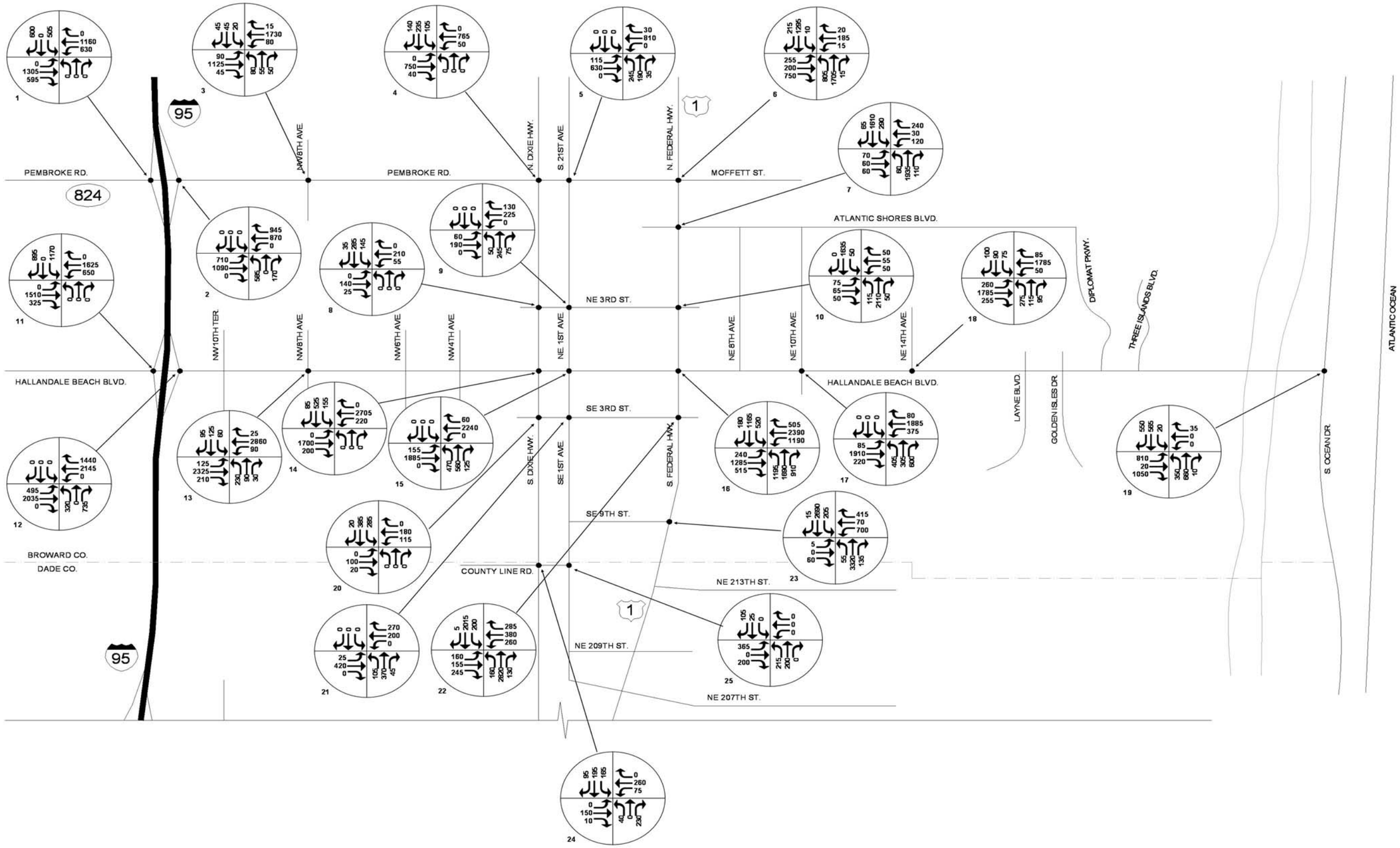
A future year LOS analysis was conducted for the "no-build" condition. The results are shown in Figure 3-2.

A summary of P.M. peak hour intersection LOS results for 2030 is shown in Table 3-3 below, with the 2006 results shown for comparative purposes.

Table 3-3: 2030 P.M. Peak Hour Intersection Level of Service (LOS)

Intersec-tion	Location	2006 Existing		2030 No Build	
		Delay (s)	PM Peak Hour LOS	Delay	PM Peak Hour LOS
1	Pembroke Rd @ I-95 SB Ramp	14.7	B	13.9	B
2	Pembroke Rd @ I-95 NB Ramp	24.3	C	23.3	C
3	Pembroke Rd @ NW 8th Ave	15.9	B	15.8	B
4	Pembroke Rd @ N. Dixie Hwy	8.3	A	8.5	A
5	Pembroke Rd @ E 1st Ave	10.1	B	10.3	B
6	Pembroke Rd @ US 1	38.6	D	59.7	E
7	Atlantic Shore Blvd @ US 1	31.2	C	34.8	C
8	NE 3rd St @ N. Dixie Hwy	8.9	A	7.3	A
9	NE 3rd St @ E 1st Ave	8.5	A	8.8	A
10	NE 3rd St @ US 1	9.8	A	20.1	C
11	Hallandale Beach Blvd @ I-95 SB Ramp	59.7	E	59.7	E
12	Hallandale Beach Blvd @ I-95 NB Ramp	112	F	112	F
13	Hallandale Beach Blvd @ NW 8th Ave	28.1	C	59.2	E
14	Hallandale Beach Blvd @ N. Dixie Hwy	63.8	E	138.3	F
15	Hallandale Beach Blvd @ E 1st Ave	79.4	E		
16	Hallandale Beach Blvd @ US 1	147.9	F	255.7	F
17	Hallandale Beach Blvd @ NE 10th Ave	23	C	31.2	C
18	Hallandale Beach Blvd @ NE 14th Ave	31.2	C	33.9	C
19	Hallandale Beach Blvd @ A1A	20.4	C	52.5	D
20	SE 3rd St @ N. Dixie Hwy	27.1	C	29.6	C
21	SE 3rd St @ E 1st Ave	34.3	C	30.8	C
22	SE 3rd St @ US 1	27.8	C	64.7	E
23	SE 9th St @ US 1	22.2	C	75.9	E
24	County-line Rd @ N. Dixie Hwy	13.8	B	13.3	B
25	County-line Rd @ E 1st Ave	9.6	A	9.5	A

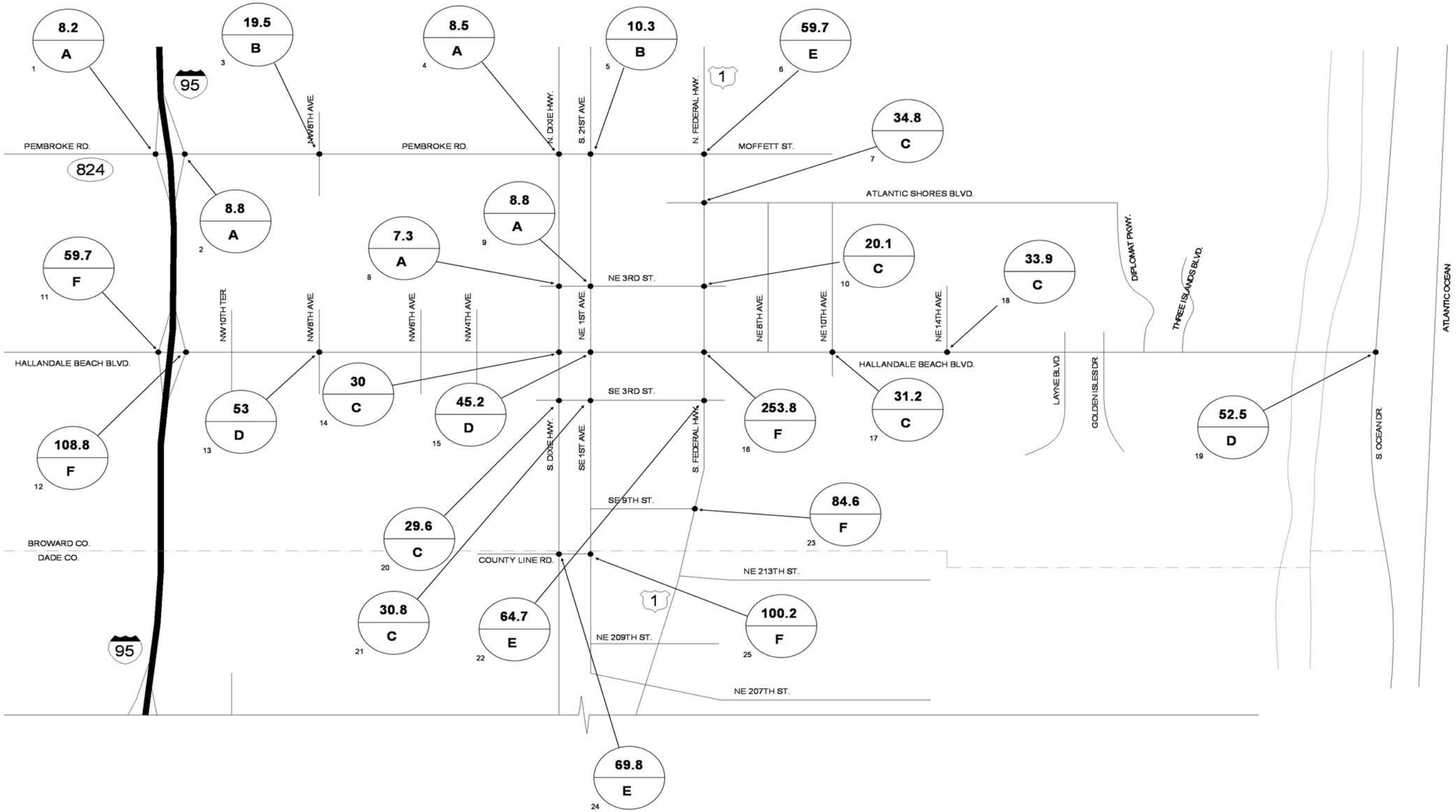
As indicated in the table, the number of intersections operating at LOS F increases from 2 to 3, while the number of operating at LOS E or F intersections increases from 5 to 9. This provides a clear indication of the increasing congestion that can be anticipated in Hallandale Beach by 2030.



2030 Transportation Master Plan

P.M. Peak Hour
Turning Movement Volumes
2030 No-Build

Figure 3-1



2030 Transportation Master Plan

P.M. Peak Hour Intersection Delay and Level of Service 2030 No-Build

Figure 3-2

4.0 Year 2030 Transportation Improvement Alternatives

A list of potential roadway, transportation systems management (TSM), advanced traffic management system (ATMS), transit and bicycle/pedestrian improvements were identified factoring in recommendations from other transportation plans and studies, on the local and regional level. The projected 2030 Baseline Conditions were also factored into project selection. Comprehensive field reviews and a collaborative two-day workshop with key City staff were used to develop a list of transportation improvement alternatives to be tested and evaluated using a peak hour traffic analysis model built in the Synchro software platform. The following list of transportation improvement alternatives would eventually be grouped into investment alternative packages, based on the projected costs to implement the improvements.

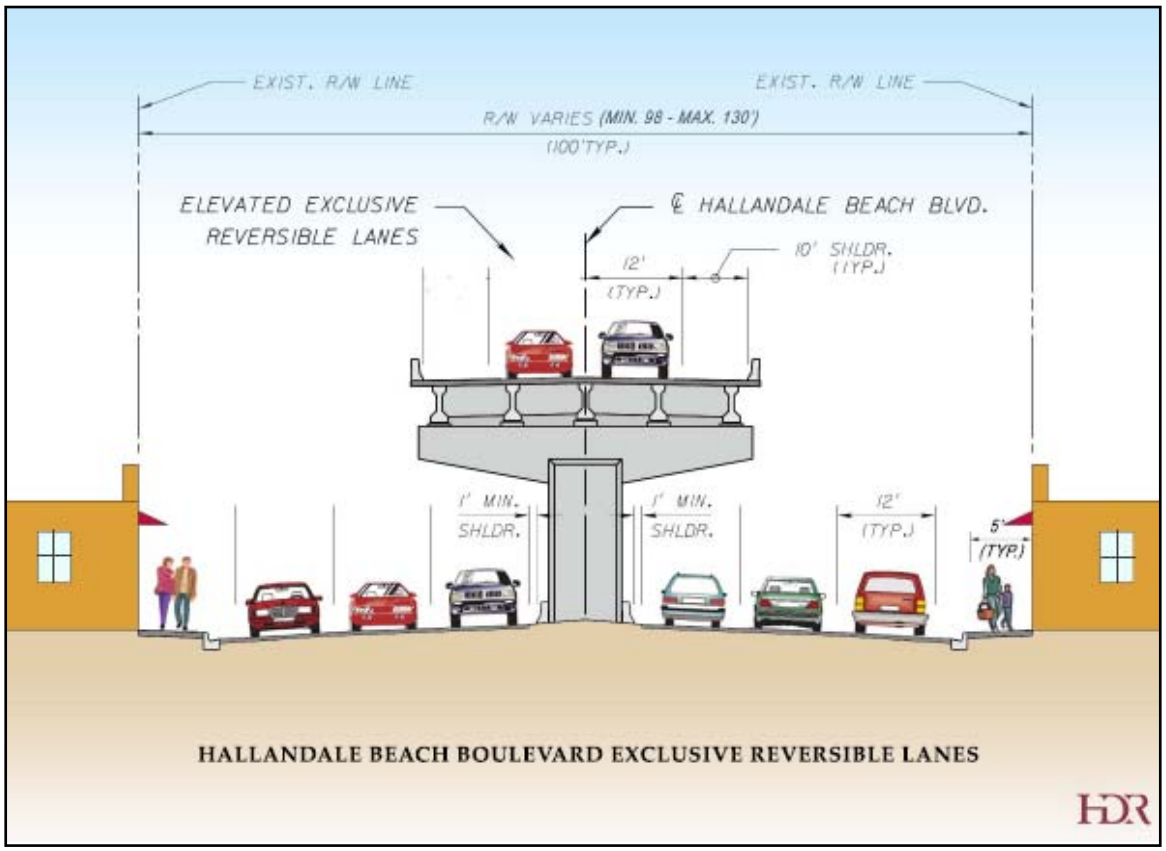
4.1 Major Capital Roadway Improvements (A)

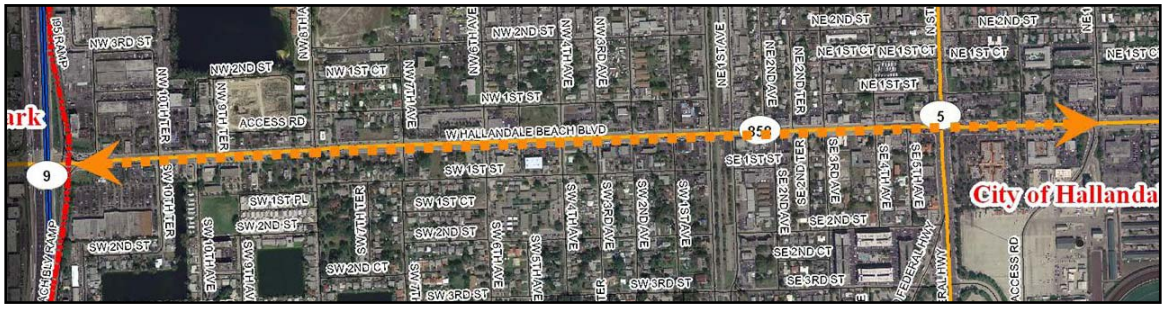
A1) ***Hallandale Beach Boulevard Exclusive Reversible Lanes***

Lee Roy Selmon Crosstown Expressway Tampa FL

This alternative consists of constructing an elevated, two-lane reversible section within the existing median of Hallandale Beach Boulevard to allow through traffic to avoid delays at the major intersections at US 1 (Federal Highway) and Dixie Highway. The Hallandale Beach Boulevard elevated exclusive reversible lanes would provide express peak hour access for traffic to and from I-95 and the US 1 area, and alleviate some of the congestion at the major intersections along Hallandale Beach Boulevard. An example of an elevated exclusive lane system is located in Tampa, FL (shown above) and a typical section for this alternative is shown in Figure 4-1.

Figure 4-1: Hallandale Beach Boulevard Exclusive Reversible Lanes Typical Section





Limits of Hallandale Beach Boulevard Exlusive Reversible Lanes – East of I-95 to NE/SE 10th Avenue

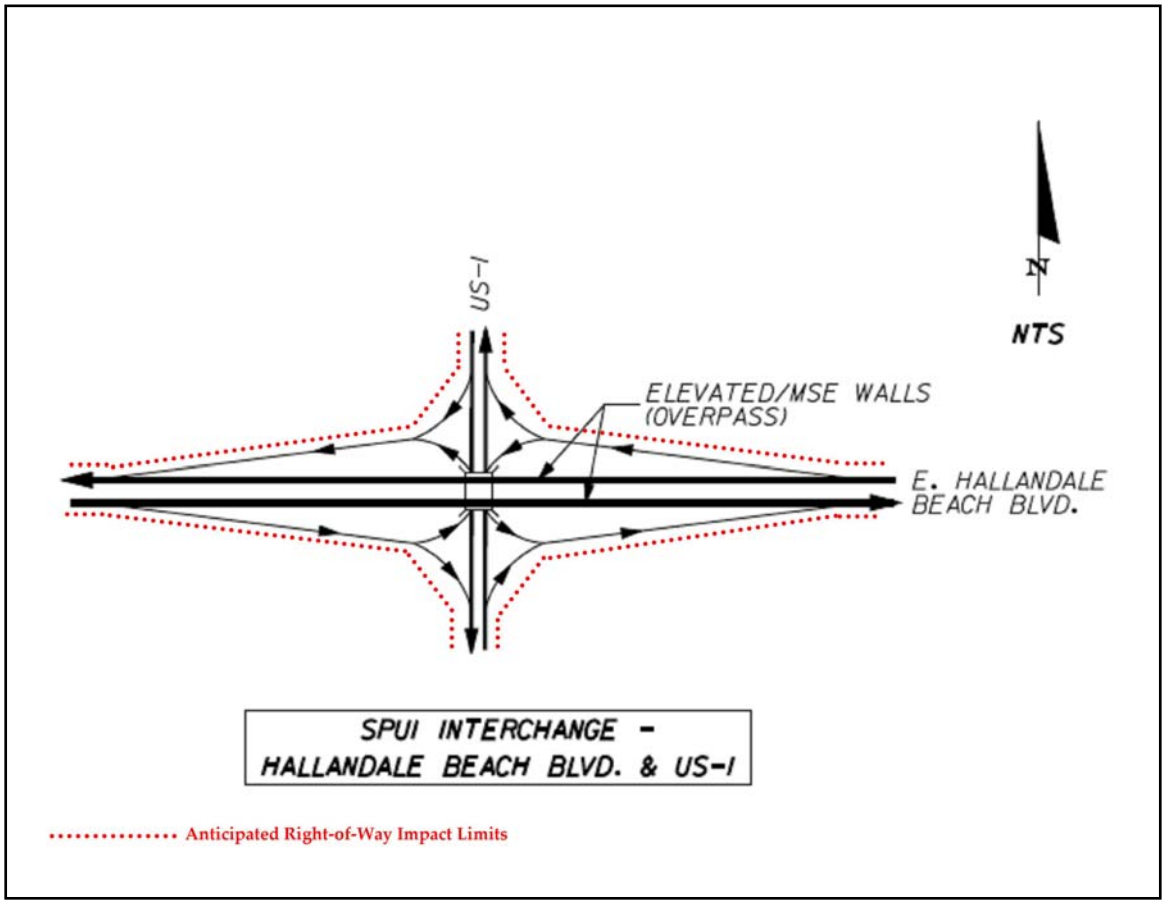
A2) ***Grade Separation: Hallandale Beach Boulevard. @ US 1***

An interstate SPUI interchange Located near Madison, MS

This improvement proposes the construction of a grade separated interchange at the Hallandale Beach Boulevard/US 1 intersection. The goal is for the east-west traffic of Hallandale Beach Boulevard to maintain at least four lanes of through movements, while providing turning movement access to and from US 1. One interchange configuration option is a Single-Point Urban Interchange (SPUI) with Hallandale Beach Boulevard traveling over US 1. The use of a SPUI provides a more compact urban interchange, which typically requires less right-of-way acquisition than traditional interchanges. In addition to removing the east-west through traffic from the single traffic signal, the left turn movements would provide additional capacity, with more concurrent left turns.

Limits of Grade Separation: Hallandale Beach Boulevard @ US 1 – NE/SE 3rd Avenue to NE/SE 8th Avenue

Figure 4-2: Grade Separation: US 1 @ Hallandale Beach Boulevard. SPUI Interchange Option



A3) ***Grade Separation: Hallandale Beach Boulevard @ Dixie Highway***

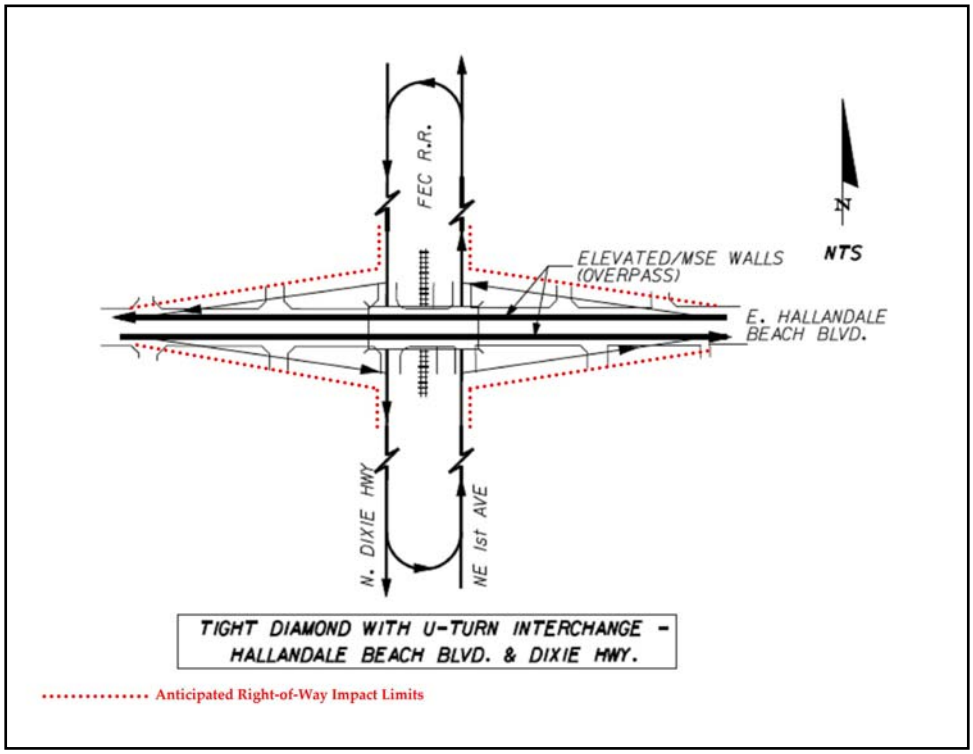
This improvement proposes the construction of a grade separated interchange at Hallandale Beach Boulevard and Dixie Highway/E. 1st Avenue. The goal is to maintain four lanes of east-west through movements on Hallandale Beach Boulevard, while providing turning movements for access to and from the one-way pair of Dixie Highway/E. 1st Avenue. Hallandale Beach Boulevard would need to be raised to provide at least 24 feet of clearance over the FEC Railroad. An option for this interchange configuration would be a tight-diamond, incorporating the Dixie

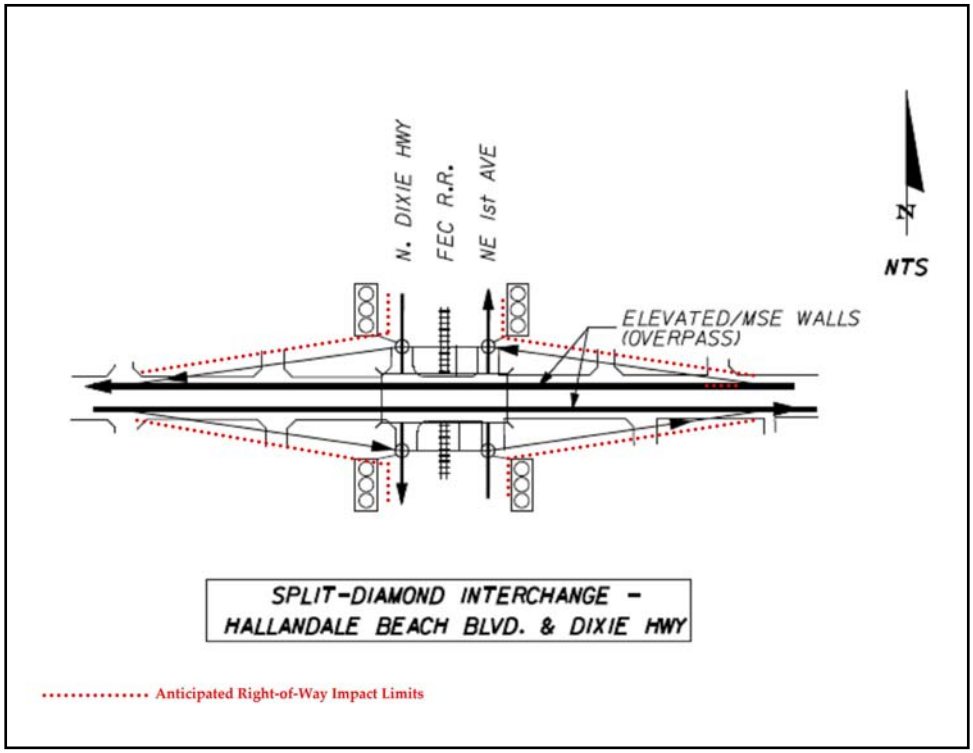
Tight-diamond interchange

Highway U-turn concept. It would separate the turning movements at-grade, at Dixie Highway and E. 1st Avenue. Traffic entering or exiting Hallandale Beach Boulevard ramps would have to make right turns; left turns would be prohibited. The left turn movements would be managed by providing U-turns at the intersections of SE and NE 3rd Streets. It would also eliminate having to construct additional crossings at the FEC railroad which may not be possible. The U-turns would be accommodated by expanding the crossings at SE and NE 3rd Streets. The other option would be to provide traffic signals at the on and off ramps of Hallandale Beach Boulevard to manage turning movements. Refer to Figure 4-3.

Limits of Grade Separation: Hallandale Beach Boulevard @ Dixie Highway–NW/SW 3rd Avenue to NE/SE 3rd Avenue

Figure 4-3: Grade Separation: Dixie Highway @ Hallandale Beach Boulevard Interchange Options



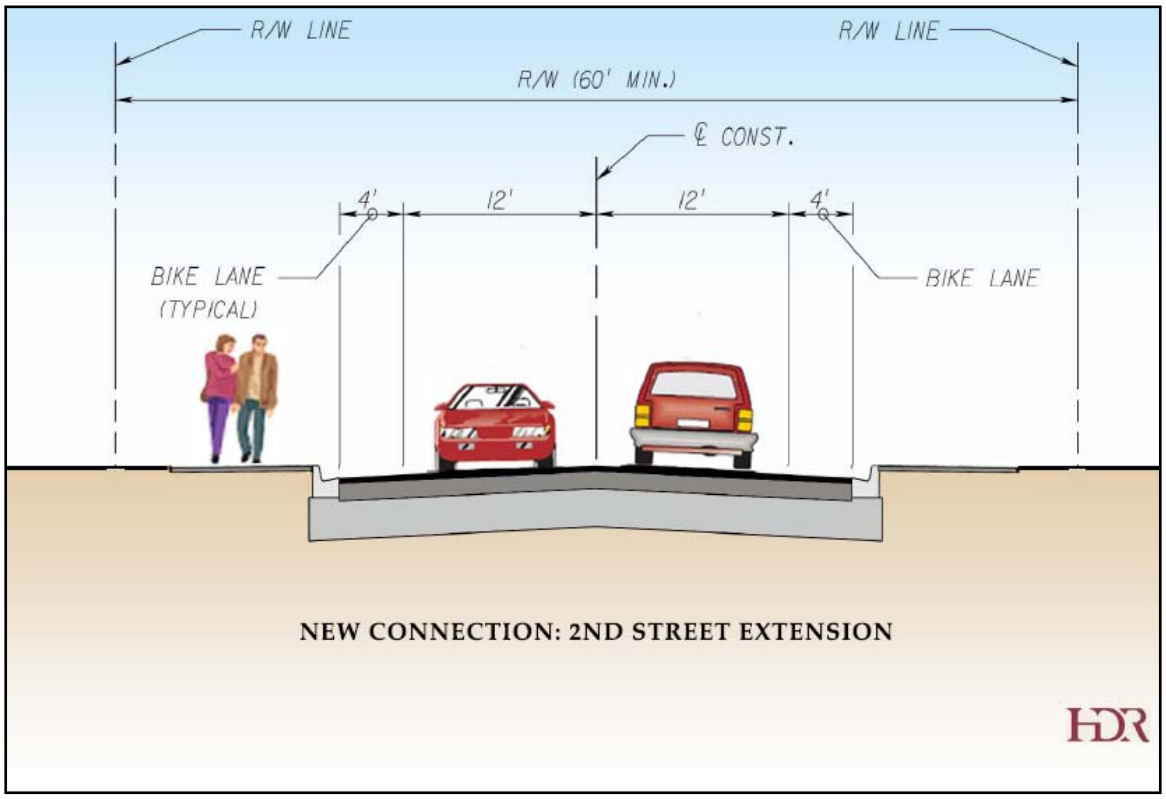


A4) ***New Connection: SE 2nd Street Extension***

A new two-lane, two-way roadway would be constructed along the north side of Gulfstream Park, south of Hallandale Beach Boulevard, to provide access east to SE 14th Avenue and Layne Boulevard, plus a connection to Hibiscus Road and US 1. It would offer another option for traffic entering or leaving Gulfstream Park and would also provide rear access to the businesses that front Hallandale Beach Boulevard. This in turn would decrease the entering and exiting traffic from those businesses along Hallandale Beach Boulevard, between US 1 and SE/NE 14th Avenue, which would help to reduce congestion and improve LOS.

Limits of New Connection: SE 2nd Street Extension-
US 1 to SE 14th Avenue

Figure 4-4: New Connection: SE 2nd Street Extension Typical Section



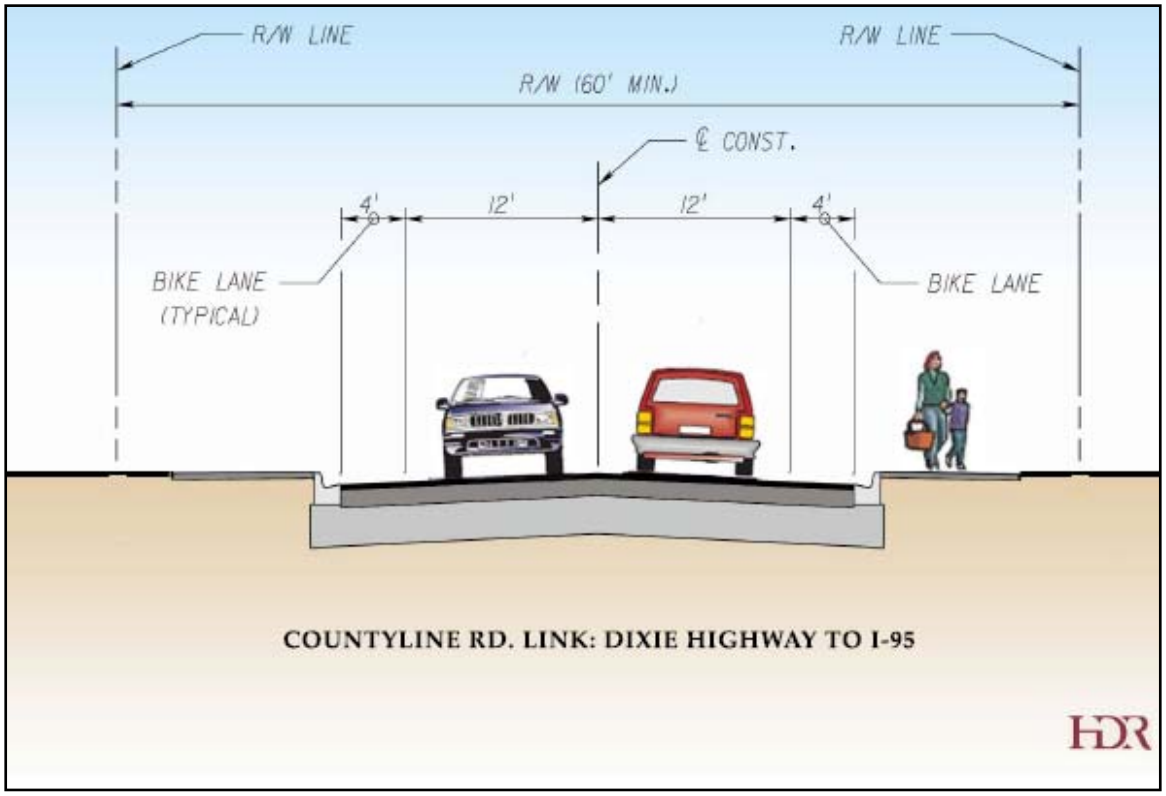
A5) ***Countyline Road.Link: Dixie Highway to I-95***

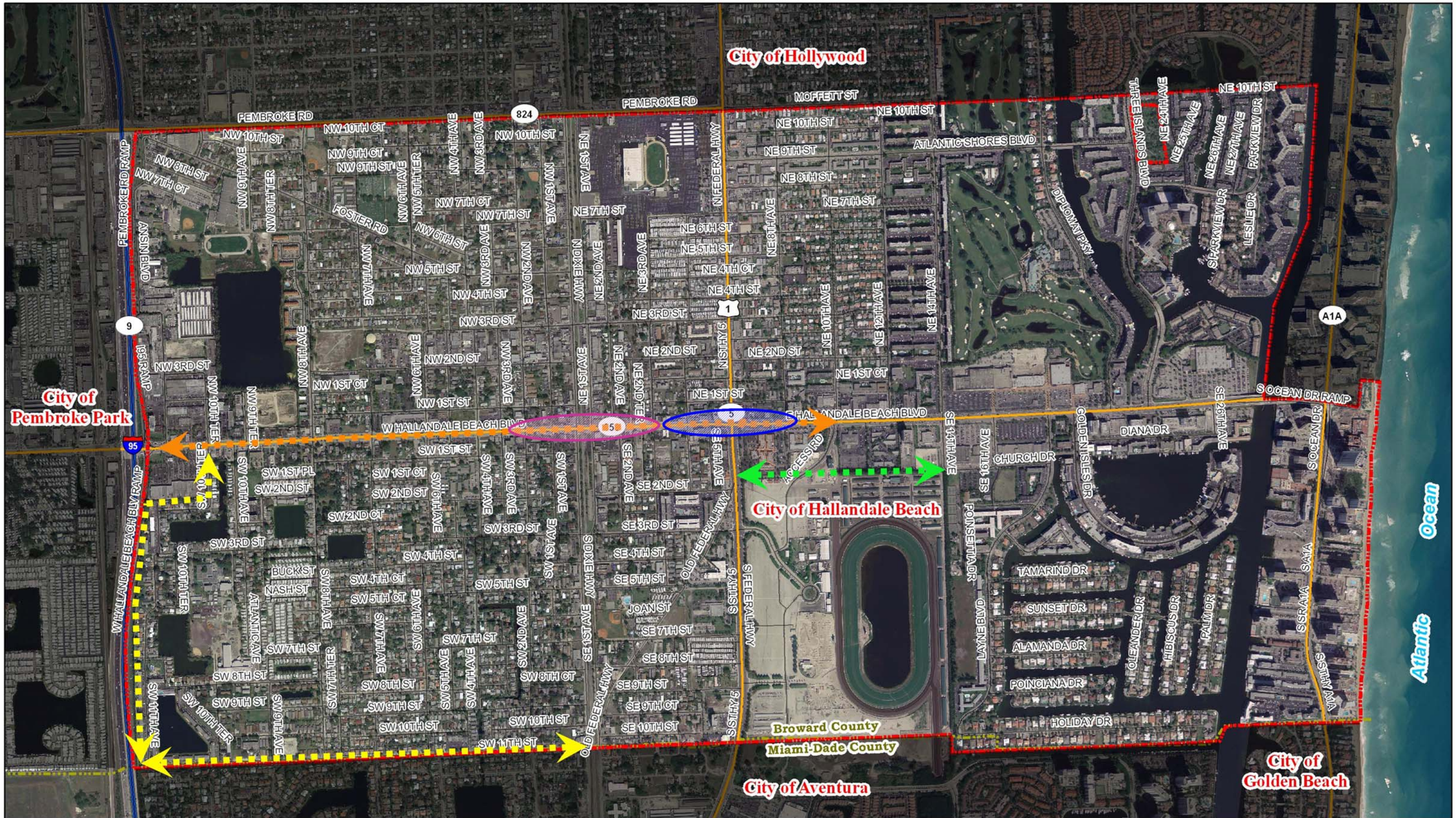
Improvements would include the reconstruction of the existing Countyline Road. and SW 11th Avenue from Dixie Highway to Hallandale Beach Boulevard, with a new two-lane, two-way roadway to provide access to and from the I-95 interchange. The roadway would be another alternative for visitors leaving Gulfstream Park during major events to access I-95 and relieve congestion for eastbound and westbound Hallandale Beach Boulevard, and the roadway would tie into the existing signalized intersection of Hallandale Beach Boulevard and SE/NE 10th Terrace. Improvements would include constructing new curb and gutter, as well as sidewalks. The Countyline Road section would be constructed within the existing right-of-way, but would require removing existing wall. The SW 11th Avenue section of the project would require extensive right-of-way to construct due to the future roadway widening along I-95 as part of the HOT Lanes "95 Express" project, as well as the presence of the existing Limited Access (L/A) right-of way line along the east side of I-

95. The north-south portion of this new connection would have to be constructed east of the existing noise wall.

Limits of Countyline Road.Link: Dixie Highway to I-95-
Dixie Highway to Hallandale Beach Boulevard

Figure 4-5: Countyline Rd. Link: Dixie Hwy. to I-95 Typical Section





2030 Transportation Master Plan

Legend

- County Boundary
- Study Area
- A1) HBB Elevated Lanes
- A2) HBB @ US 1 Grade Sep.
- A3) HBB @ Dixie Hwy. Grade Sep.
- A4) NE 2nd Street Ext.
- A5) Countyline Rd. Link

N

0 0.05 0.1 0.2 0.3 0.4 0.5 Miles

Roadway Alternatives

Figure 4-6

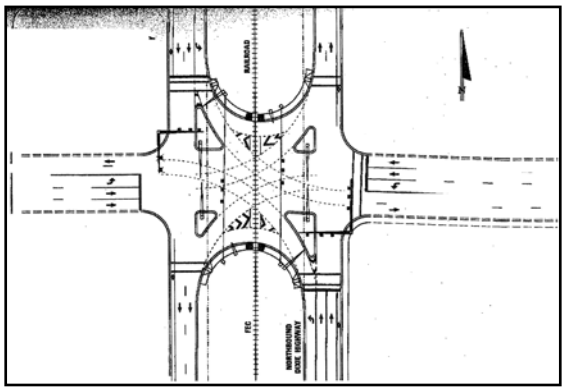
HDR

4.2 TSM Improvements (B)

Transportation Systems Management (TSM) is an approach to reduce traffic congestion and increase efficiency on roadways as an alternative to major capital improvements, while minimizing impacts to adjacent communities. The goal is also to improve the safety of pedestrians and bicyclists, who access the same roadways as motorized vehicles. Potential TSM improvements will include new traffic signals, changes in traffic signal timing, configuration or progression, addition turn lanes, lane re-striping, changes in on-street parking, and other changes in traffic control systems. A list of TSM improvements for Hallandale Beach include:

B1) ***Single Point Intersection at Hallandale Beach Blvd. @ Dixie Hwy.***

An improvement to the Hallandale Beach Boulevard and Dixie Highway intersection involves reconstructing the existing intersection from two to one point for signal phasing. The existing signal involves various turning movements managed on a four-phased cycle. Further complexity of the intersection is also caused by the Florida East Coast (FEC) railroad crossing between the north-south movements of Dixie Highway and E. 1st Avenue. The concept is to make the intersection more efficient by creating a single point, at-grade intersection using the SPUI concept, that came out of the Dixie Highway Corridor Planning and Design Report out of the Gulfstream Park DRI. This concept would allow the northbound and southbound movements to operate concurrently rather than separately as they do today, which causes significant east-west delay.



Sketch of Single Point interchange at Hallandale Beach Blvd. & Dixie Hwy from Gulfstream DRI

B2) ***SE 3rd Street Alternate Corridor Bypass: SE 1st Avenue to US 1***

Improvements along this SE 3rd Street corridor and at the intersections of US 1, Dixie Highway with SE 1st Avenue, including: milling and resurfacing the roadway, adding curb and gutter, and restriping lanes and crosswalks. The improvements would not require any additional right-of-

way to be acquired. This improvement would provide traffic coming to and from Gulfstream Park to use SE 3rd Street with an east-west alternate route, instead of Hallandale Beach Boulevard.

B3) ***New Traffic Signal/Railroad Crossing Improvement: SE 9th Street @ US 1***

SE 3rd St.@ Dixie Hwy./SE 1st Ave. Intersection with FEC Railroad Crossing

The City has committed to providing a traffic signal at this intersection, which would be another access point to Gulfstream Park. Improvements also include relocating the existing FEC railroad crossing at Countyline Road, with a new crossing at SE 9th Street. This improvement would also involve providing new traffic signals at SE 9th Street and Dixie Highway/E. 1st Avenue.

B4) ***Managed Lanes on NE 10th Avenue: Hallandale Beach Boulevard to Atlantic Shores Boulevard***

VMS signage

This improvement incorporates taking the exising two-lane, northbound NE 10th Avenue and providing managed reversible traffic direction for peak travel to and from Gulfstream Park during major events at Gulfstream Park. The reversible lanes would be managed using Vehicle Message Signs (VMS), "Do Not Enter" signs for opposing direction at the access points at Hallandale Beach Boulevard and Atlantic Shores Boulevard, and "no left or right turn" signs at each intersection. The goal is to allow the greatest capacity of traffic to access Gulfstream Park, while relieving stress on Hallandale Beach Boulevard to I-95. NE 10th Avenue would give traffic the option to access I-95 via Pembroke Road.

B5) ***Dixie Highway/E. 1st Avenue. Corridor Improvements***

This alternative includes providing corridor improvements along Dixie Highway and E. 1st Avenue to promote more traffic on these underutilzed roadways. Improvements would include constructing curb and gutter along the corridor with the study area, re-striping of travel lanes and turning lanes. In addition, wayfinding signage could be used to direct visitors along these roadway to destinations such as Gulfstream Park.

B6) ***Removal or Reconfiguring Diagonal Parking on Atlantic Shores Blvd. and NE 14th St.***

Atlantic Shores Blvd. looking east.

Atlantic Shores Boulevard and NE 14th Avenue currently have existing diagonal parking adjacent to low rise condominium buildings. This parking takes away from the available right-of-way to provide an extra lane for traffic or turning movements. The improvements would include re-striping to provide parallel parking and the removal of existing stop signs to encourage thru movements along Atlantic Shores Boulevard. This would remove some of the parking capacity along those streets, but improve traffic flow throughout the street network.

4.3 ATMS (ITS) Improvements (C)

The Southeast Florida Regional Intelligent Transportation Systems (ITS) Architecture is a roadmap for transportation systems integration in southeast Florida over the next 20 years. It was developed through a cooperative effort by the region's transportation agencies and other stakeholders impacted by the transportation system.

The Regional ITS Architecture represents a shared vision of how each agencies' systems will work together in the future, sharing information and resources to provide a safer, more efficient, and more effective transportation system for travelers. The Broward County Advanced Transportation Management System (ATMS) was developed under the umbrella of this regional ITS framework. Any traffic-related ITS architecture developed for the City of Hallandale Beach should be compatible with the Broward County ATMS architecture in order to ensure traceability back to the Regional ITS Architecture. ITS projects deploying a

systems engineering approach and traceable capabilities to the Regional ITS Architecture are eligible for federal and state funds.

Several locations within the City of Hallandale Beach are slated for future ITS improvements as part of Broward County's Phase 4 ITS deployment. These locations are listed in Tables 4-1 and 4-2.

Table 4-1: Deployment Phase 4 Closed Circuit Television Camera (CCTV) Locations

LOCATION	MOUNTING STRUCTURE
Hallandale Beach Boulevard & I-95 (East Side)	Existing Pole
Pembroke Road & I-95 (East Side)	Existing Pole
US-1 & Hallandale Beach Boulevard	Existing Pole
Dixie Highway & S 10th Street	Existing Pole
A1A & Holiday Drive	Existing Pole
A1A & Hallandale Beach Boulevard	Existing Pole
US 1 & NE 4th Court	Existing Pole
US 1 & SE 10th Street	Existing Pole
US 1 & SE 3rd Street	Existing Pole

Table 4-2: Deployment Phase 4 Dynamic Messaging Signs (DMS) Locations

LOCATION	TRAFFIC FLOW	LETTER SIZE (INCH)	STRUCTURE TYPE
US-1 & NW 2nd Street	SB	8	Two-Post
US-1 North of SE 2nd Street	NB	8	Two-Post

The City of Hallandale Beach is within Broward County's Service Area 12, representing a future fiber optic communications subsystem. The County is divided into several service areas comprising its overall Traffic Management System. All ITS devices and traffic signals within the City of Hallandale Beach would be tied to a communications distribution layer physically located in the Office of Environmental Services, Hallandale Beach Water Distribution Facility.

Potential ATMS projects within the City of Hallandale Beach should be planned within the framework of Broward County's ATMS Master Plan.

C1) ***Locally Controlled Traffic Center***

Establish a locally controlled traffic center. This option would raise a number of institutional issues that would need to be addressed early. In addition, the City would incur recurring expenses to operate and maintain the traffic system and center. A City traffic control center with established primary and secondary control criteria between the City and Broward County is an option to reflect the spirit of regional integration as emphasized in the Southeast Florida Regional ITS Architecture.

Example of a traffic control center

C2) ***Fiber Optic or Wireless Interconnect Signalization on US 1 and Hallandale Beach Blvd.***

Provide communications link between the traffic signals along both US 1 and Hallandale Beach Boulevard, in two stages:

a. Facilitate quick stage deployment with wireless Ethernet connectivity between the signals. Also, establish wireless Ethernet link between the on-street signal devices and a computerized control center at the City of Hallandale Beach office complex.
b. Construct long term Ethernet communications deployment with fiber optic cable between the traffic signals. Tie into Broward County's existing 48-fiber cable along I-95 at the I-95/Hallandale Beach Boulevard interchange.

This alternative would be further enhanced if the City procured software that is traffic adaptive and compatible with the Broward County signal

Fiber Optic Cable

system. Traffic adaptive signal control will automatically adjust signal timings to maximize traffic flow when nonrecurring traffic patterns prevail such as events at Gulfstream Park.

C3) ***Emergency Vehicle Pre-Emption System***

Retrofit existing traffic signals with an emergency preemption system. The first phase should include both US 1 and Hallandale Beach Boulevard. The system should mirror the GPS-based preemption system identified in Broward County's ATMS Master Plan. It should be noted that while the preemption system will allow emergency vehicles to move quicker and safer through traffic, it disrupts coordinated traffic flow. Traffic signals usually return to the coordinated state after a few (two to three) cycles, depending on the level of congestion.

Traffic signal with vehicle pre-emption receiver

C4) ***Video Detection System***

Deploy video-based traffic detection. Apart from being non-intrusive to the roadway pavement when compared to inductive loop construction, video-based detection can also provide monitoring of each approach to a signalized intersection. With established communication link to a traffic center, frames or streaming videos of an intersection can be viewed on a monitor or video wall. Video detection systems are used to improve traffic operations on major streets and intersections by viewing individual lanes to determine when backups occur at intersections.

Traffic signal with video detection camera

Deploy closed circuit television cameras (CCTVs) at the following intersections:

- US 1 @ Hallandale Beach Boulevard

- US 1 @ NE 4th Court
- US 1 @ SE 3rd Street
- Hallandale Beach Boulevard @ I-95 (East)
- A1A @ Hallandale Beach Boulevard

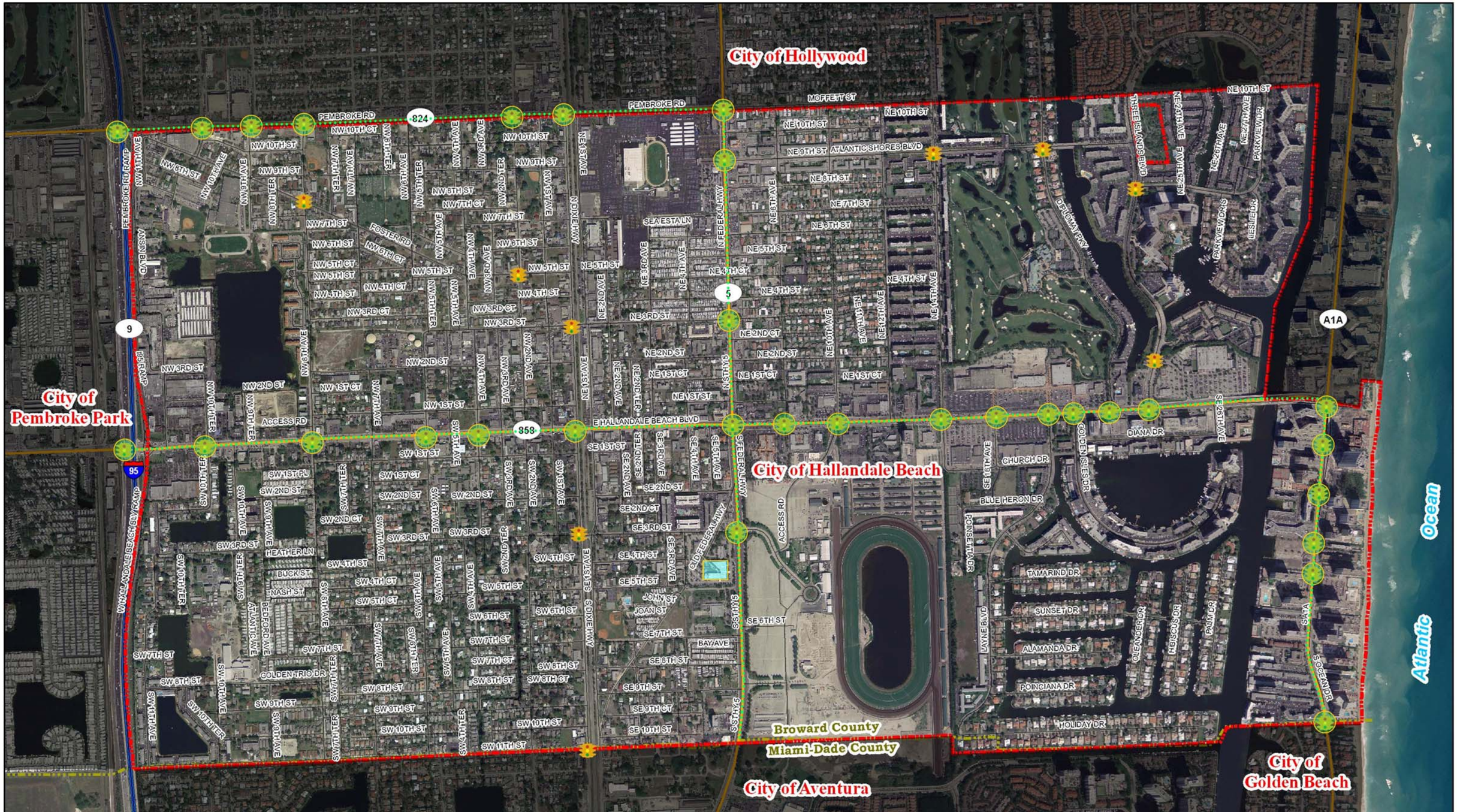
The CCTV deployment would provide monitoring of Hallandale Beach Boulevard and US 1. Maximum benefits would be realized with faster response to nonrecurring traffic incidents when video streams are shared between the Hallandale Beach Police Department, Broward County and the Emergency Operations Center. In addition, reported incidents would be easily verified and the appropriate response would be efficiently executed.

4.4 Transit Improvements (D)

D1) *New FEC Commuter Rail Service with Dedicated Shuttle to Gulfstream*

SFRTA Tri-Rail commuter train

There is currently a study involving the establishment of a potential commuter line along the existing FEC railroad. As part of the study, a transit stop has been identified just south of the Hallandale Beach Boulevard intersection is being considered. With the creation of this new transit service, the City and or Gulfstream Park could provide for a dedicated shuttle for visitors going to and from this proposed station. The headways could be 5-10 minutes due to its close proximity to Gulfstream Park. The shuttle bus could use SE 3rd Street as a route to access Gulfstream Park and avoid Hallandale Beach Boulevard.



Legend

- Major Arterials
- Roadway Network
- County Boundary
- Study Area
- Signalized Intersection
- C1) Local Traffic Center
- C2)Signal Interconnect
- C3) Emergency Pre-Emption
- C4) Video Detection

N

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Miles

2030 Transportation Master Plan

ITS Plan

Figure 4-7

HDR

D2) ***Connector Shuttles from SFRTA Tri-Rail and Future Park and Ride Facilities.***

Shuttle services would be implemented by the City and/or the major developers of Mardi Gras and Gulfstream Park to provide transit service directly to those major destinations. The shuttle would run every 15-20 minutes to and from the Tri-Rail Hollywood Boulevard Station, for those traveling using Tri-Rail. During peak hour events, headways could decrease to every 5-10 minutes. A park and ride facility could be constructed on the western portion of the study area, to provide a place to park and us the shuttle bus for those that travel by automobile. This transit improvement would decrease the traffic entering the City to access Gulfstream Park and Mardi Gras venues.

Shuttle bus picking up passengers at park n' ride lot.

D3) ***Transit Super Stops on US 1 at Pembroke Rd (Mardi Gras) and at Gulfstream Park***

The transit "super stops" is an idea expanding the Breeze initiative by Broward County Transit. Super stops are often bigger bus stops with more amenities to serve and accommodate an increased numbers of buses and passengers. This improvement would include constructing a buss stop or station to provide a greater concentration of riders accessing buses along US 1. The Super Stop would be adjacent to the Mardi Gras development, which would expect a greater number of riders needing access to transit.

D4) ***Dedicated Bus Stop Bays on Major Arterial Routes***

The City of Hallandale Beach currently has bus stop bays along E. Hallandale Beach Boulevard as part of the recent streetscape improvements. The bus stop bays provide buses an exclusive area to pick up and drop off riders outside of the travel lanes. Dedicated bus stop bays should be implemented along all of the major arterials to help

improve thru traffic movements throughout the transportation system. Recommended locations would include major destinations, commercial areas, and public facilities prioritized by potential boarding and alighting activity, as well as availability of right-of-way to construct bus stop bays.

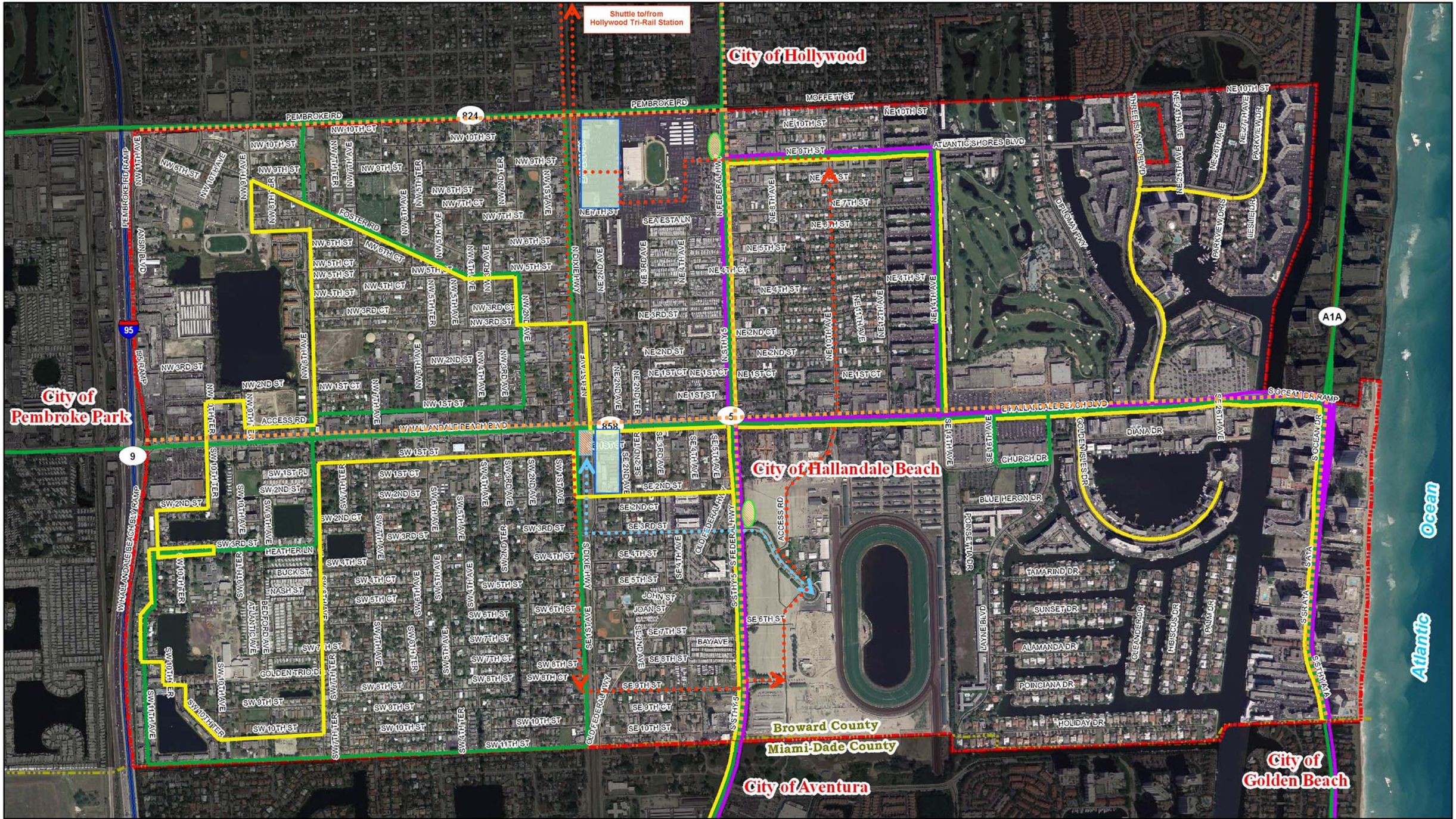
D5) ***Land Use/TOD Regulations for Future Development***

Regulations for Transit Oriented Development adjacent to future commuter rail stops along the proposed FEC transit corridor. This mixed use development would be centered on Dixie Highway, with a prime location being at the western portion of Mardi Gras. The City could support an initiative for future development to encourage shorter trips by its residents and travel that involves transit.

TOD development along streetcar route

4.5: Bicycle/Pedestrian Improvements (E)

Bicycle and pedestrian facilities are an essential component of any transportation system. After all, every trip begins and ends a pedestrian. As roadway traffic continues to increase, there needs to be policies and funds in place to provide those traveling by bike or foot, the necessary facilities to safely travel and encourage the use of these modes. These facilities should be required as part of the initial planning, design and construction of all roadway facilities. The City's Comprehensive Plan and land development regulations should incorporate policies that support the construction of "complete streets" – streets that safely and efficiently accommodate thee needs of all roadway users. Improvements take into account other regional plans including the Broward County's Greenways System and 2015 Significant Bikeways plans. The following are policies for the City to incorporate in all future roadway projects:



Legend

- Study Area
- County Boundary
- Major Arterials
- Roadway Network
- D1) FEC w/ Shuttle
- D2) Shuttle from Tri-Rail
- D3) Transit Super Stops
- D4) Bus Stop Bays
- D5) Land Use/TOD

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2030 Transportation Master Plan

Transit Plan

Figure 4-8

HDR

E1) ***Bike Lanes and Sidewalks included with Future Roadway Improvements on all Arterials and Collectors***

This includes implementing provisions and policies for future construction and resurfacing projects on all arterials and collector roadways within the City to include adequate facilities for bicyclists and pedestrians. The bicycle facilities should incorporate signed and marked bicycle lanes that are a minimum of 4 feet in width (not including the gutter pan width). Where possible, roadways lanes should be narrowed to provide space for signed and marked bicycle lanes. The Florida Department of Transportation (FDOT) allows roadway lanes to be narrowed to 11 feet in most cases. Wide outside lanes or narrow undesignated bicycle lanes can also be provided, if there is insufficient space for a full width bicycle lane; however the narrower undesignated facilities should only be considered on low speed facilities with low truck volumes. On Broward County collector roadways with lower posted speeds, (less than 35 mph) and a 5% or less truck volume, undesignated bike lanes should not be less than 3 feet, with lane widths of 14 feet, not including the gutter width. The appropriate facility for pedestrians is sidewalks having a minimum width of 5 feet if separated from the roadway by a landscape buffer, or 6 feet if sidewalk is placed at the back of curb sidewalks get back from the roadway are preferred, with a minimum desirable buffer distance of 6 feet.

Bike lane along SR A1A

E2) ***Implementation of Crossing Countdown Signal Heads at all Traffic Signals with more than 2 Lanes***

Countdown pedestrian signal heads should be implemented to improve safety for pedestrians crossing at intersections of roadways with more than 2 lanes, at a minimum. Pedestrian countdown signals provide a clear indication of the amount of time left to complete the crossing. Even at

signals without countdown timers, all signalized intersections require well maintained, highly visible pedestrian signal heads. When pedestrian signal heads are omitted, pedestrians may not know when they are permitted to cross.

Crossing countdown signal head

E3) ***Bike Parking at Public Buildings and Major Destinations***

Bike racks would be installed at all major sites within the City. Bicyclists need places to safely park and lock bikes as part of their trip to a destination including City-owned buildings, shopping centers, libraries, schools, parks, etc. Many people will not ride a bicycle without secure bicycle parking at the destination.

E4) ***Installation of Adequate Lighting along Bike/Ped Routes***

Adequate lighting is very important in increasing visibility for bicyclists and pedestrians, particularly along roadways with commercial uses and/or transit routes. Pedestrian-scale lighting also provides a measure of safety and security.

Lighting along bicycle and pedestrian path

E5) ***Implementation of City-Wide Bike and Pedestrian Signage***

The City could implement sufficient signage city-wide for way finding and increase safety for bicyclists and pedestrians. Signage improves safety by identifying exclusive right-of-way for bicyclists and pedestrians to prevent less accidents, due to improper usage of roadways for walking and biking. Identification of dedicated crossings a traffic intersections also promotes safety. Signage would be used to identify for example, crosswalks, dedicated bike lanes and paths, and traffic signals.

E6) ***Implementation of Bike Detectors at all Minor Street Intersections***

Bike detectors should be implemented on the minor street of all signalized intersections by installing detector loop sensors in the pavement and placing the bike detector marking over the loop detector. The sensors detect the presence of a bicyclist approaching the intersection and the markings show the bicyclist the proper location to wait to ensure the signal is actuated.

Bike detector loop sensor

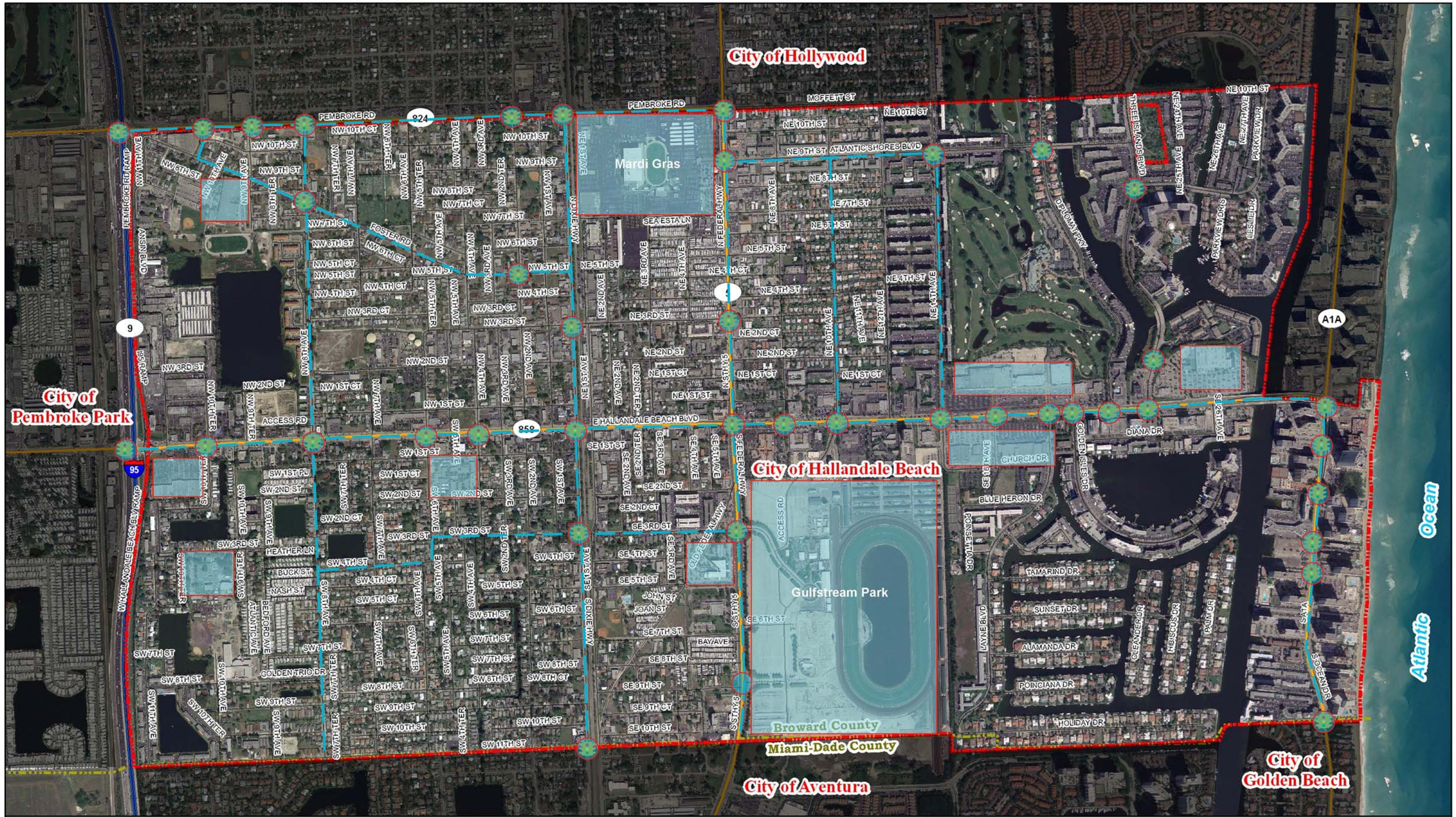
4.6 Alternate Circulation Routes (F)

F1) ***Low Assignment of Traffic Off of Major Arterial Routes***

Includes inbound and outbound VMS informational signs identifying alternate roads, congested route traffic to provide direction to employees, suppliers and regular visitors to use alternate routes

F2) ***Medium Reassignment of Traffic Off of Major Arterial Routes***

Includes VMS signs "directing" traffic to use alternate routes; local street improvements and traffic calming treatments; information posted on brochures, websites, tickets and receipts, bulletin boards and information channels.



Legend

- Major Arterials
- Roadway Network
- County Boundary
- Study Area
- Signalized Intersection
- E1) Bike Lanes/Trails
- E4) Bike/Ped Lighting
- E6) Bike/Ped Signage
- E2) Crossing Countdown
- E6) Bike Detectors
- E3) Bike Parking

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Miles

2030 Transportation Master Plan

Bicycle/Pedestrian Plan

Figure 4-9

HDR

Table 4-3: Alternate Route Evaluation

Roadway		Concerns	Potential Mitigation
EAST-WEST STREETS			
Pembroke Road	✓	City of Hollywood	-
Foster Road		Hallandale High School, stop signs, not best entry to city	-
Atlantic Shores (NE 9 St)		Stop Signs	Roundabout at NE 10 Ave
NE 3 Street		Community street	Traffic Calming
Church Drive – Layne Blvd		Access from GP	Connect behind stables
Hibiscus (SE 2 St)		Not currently connected	Will be connected
SE 3 Street	✓	Speed cushions, community street,	-
SE 9 Street		Trailer park, narrow, no s/w	Street upgrade planned
NORTH-SOUTH STREETS	×		
NW 10 Ave		Congestion at signal (school traffic)	-
NW 8 Ave	✓	No NB LT signal phase	Add LT signal phase
NW 6 Ave		Community Street	Street upgrade, Signage
NW 4 Ave		Community Street	Street upgrade, Signage
SW 2 Ave/NE 26 Ave	✓	-	Signage
W Dixie Hwy	✓	-	Signage
NE 8 Ave		Not currently connected	Will be connected
NE 10 Ave		Community Street	Traffic Calming

4.7 Regional Coordination (G)

G1) *Establishment of a Transportation Management Association (TMA)*

TMA's are typically public and/or private, non-profit organizations that coordinate and/or provide transportation services to a particular geographic area. A TMA would provide multimodal transportation by encouraging less single occupancy trips and more transit, van or carpooling, bicycle and pedestrian trips. Partnerships often include local and regional governments, business and community groups. The City of Hallandale Beach should form the TMA with neighboring communities of Aventura, Hollywood and Pembroke Park, as partnering agencies.

5.0 Transportation Improvement Scenarios

To address the congested and traffic conditions anticipated in 2030, a number of alternative strategies were developed with the input of the City, the study advisory committee, and the study team consultants. These alternatives were developed by packing various transportation improvements listed in Chapter 4.0 into investment scenarios; low, medium and high, based on relative costs to evaluate the impacts these improvements would have on future traffic conditions.

5.1 Alternative Scenarios

Individual projects were assigned to an investment alternative according to their general cost category – either high, medium or low. In general, it can be expected that the impact of an improvement is associated with its cost – i.e. high cost improvements tend to have the highest impact on mitigating future traffic problems. The table below shows the groupings of projects to the alternate investment scenarios. They are further described and analyzed in the following sections.

For some categories, improvements were included in more than one scenario, or in all scenarios, for example transit and bicycle/pedestrian improvements. This is because of their low relative cost and perceived importance toward developing a multi-modal transportation system in Hallandale Beach, providing safe and reasonable travel alternatives to residents and visitors.

Table 5-1 identifies which transportation improvements were evaluated within each investment alternative.

Table 5-1: Alternative Investment Scenarios

Improvement Project		Investment Alternative		
ID	**Name**	**High**	**Medium**	**Low**
A1	Exclusive Lanes on HBB	✓		
A2	Fly-Over US1 @ HBB		✓	
A3	Fly-Over Dixie Hwy @ HBB		✓	
A4	Church Rd extension to Gulfstream			✓
A5	Countyline Rd Extension thru I-95			✓
B1	Single Point intersection: HBB @ Dixie Hwy	✓		
B2	SE 3 St Improvements	✓		
B3	New Signal: NW 9 St @ US1; RR Xing Improvement	✓	✓	✓
B4	Managed Lanes on NE 10 Ave	✓	✓	
B5	Two-Way Operation of Dixie Hwy / E 1 Ave			✓
B6	Remove Diag Parking on Atlantic Shores Blvd			✓
C1	Locally Controlled Traffic Center		✓	
C2	Signal Interconnect: US 1 & HBB	✓	✓	
C3	Emergency Vehicle Pre-Emption System	✓	✓	
C4	Video Detection System			✓
D1	New FEC Commuter Rail w/ Shuttle	✓		
D2	New Tri-Rail Station S of Hollywood Blvd w/ Shuttle	✓	✓	
D3	Transit Super Stops: US1 @ Pembroke Rd & Gulfstream	✓	✓	✓
D4	Bus Stop Bays on Major Arterial Routes			✓
D5	Land Use/TOD Regulations for Future Development			✓
E1	Bike Lanes & Sidewalks	✓	✓	✓
E2	Countdown Signals @ All Intersection w/ 2+ Lanes	✓	✓	✓
E3	Bike Parking: Public Buildings, Major Destinations	✓	✓	✓
E4	Lighting along Bike/Ped Routes	✓	✓	✓
E5	City-Wide Bike and Pedestrian Signage	✓	✓	✓
E6	Bike Detectors at All Minor Intersections	✓	✓	✓
F1	Low Reassignment of Traffic to Local Streets	✓	✓	
F2	Medium Reassignment of Traffic to Local Streets			✓

High Investment Alternative

The initial or "high investment" alternative was developed essentially without regard to cost, in an attempt to identify the "ideal" transportation infrastructure improvements that would mitigate the development pressures to the greatest possible extent.

A summary of the improvements considered is provided below.

- Major Capital Roadway Improvements
  - A1) Hallandale Beach Boulevard Exclusive Reversible Lanes
- TSM Improvements
  - B1) Single Point Intersection at Hallandale Beach Blvd. @ Dixie Hwy.
  - B2) SE 3rd St. Corridor Improvements: SE 6th Avenue to US 1
  - B3) New Traffic Signal/Railroad Crossing Improvement: SE 9th St. @ US 1
  - B4) Managed Lanes on NE 10th Avenue
- ATMS (ITS) Improvements
  - C2) Fiber Optic or Wireless Interconnect Signalization on US 1 and Hallandale Beach Blvd.
  - C3) Emergency Vehicle Pre-Emption System
- Transit Improvements
  - D1) New FEC Commuter Rail Service with Dedicated Shuttle to Gulfstream Park
  - D2) New SFRTA Tri-Rail Station South of Hollywood Boulevard with Connector Shuttle
  - D3) Transit Super Stops on US 1 at Pembroke Rd (Mardi Gras) and at Gulfstream Park
- Bicycle/Pedestrian Improvements
  - E1) Bike Lanes and Sidewalks included with Future Roadway Improvements on all Arterials and Collectors
  - E2) Implementation of Crossing Countdown Signal Heads at all Traffic Signals with 2 or More Lanes
  - E3) Bike Parking at Public Buildings and Major Destinations
  - E4) Installation of Adequate Lighting along Bike/Ped Routes
  - E5) Implementation of City-Wide Bike and Pedestrian Signage

- E6) Implementation of Bike Detectors at all Minor Street Intersections

- Alternate Circulation Routes

  - F1) Low Assignment of Traffic Off of Major Arterial Routes

The traffic assignment model was used to reflect the anticipated impacts of these improvements on each of the 25 study area intersections. For example, the impact of the exclusive lanes on Hallandale Beach Boulevard was to remove up to 1,350 through-trips from the westbound lanes of the Boulevard (peak hour, peak direction). The impact of the pedestrian, bicycle and transit improvements was to reduce overall intersection volumes by as much as 6 percent in 2030.

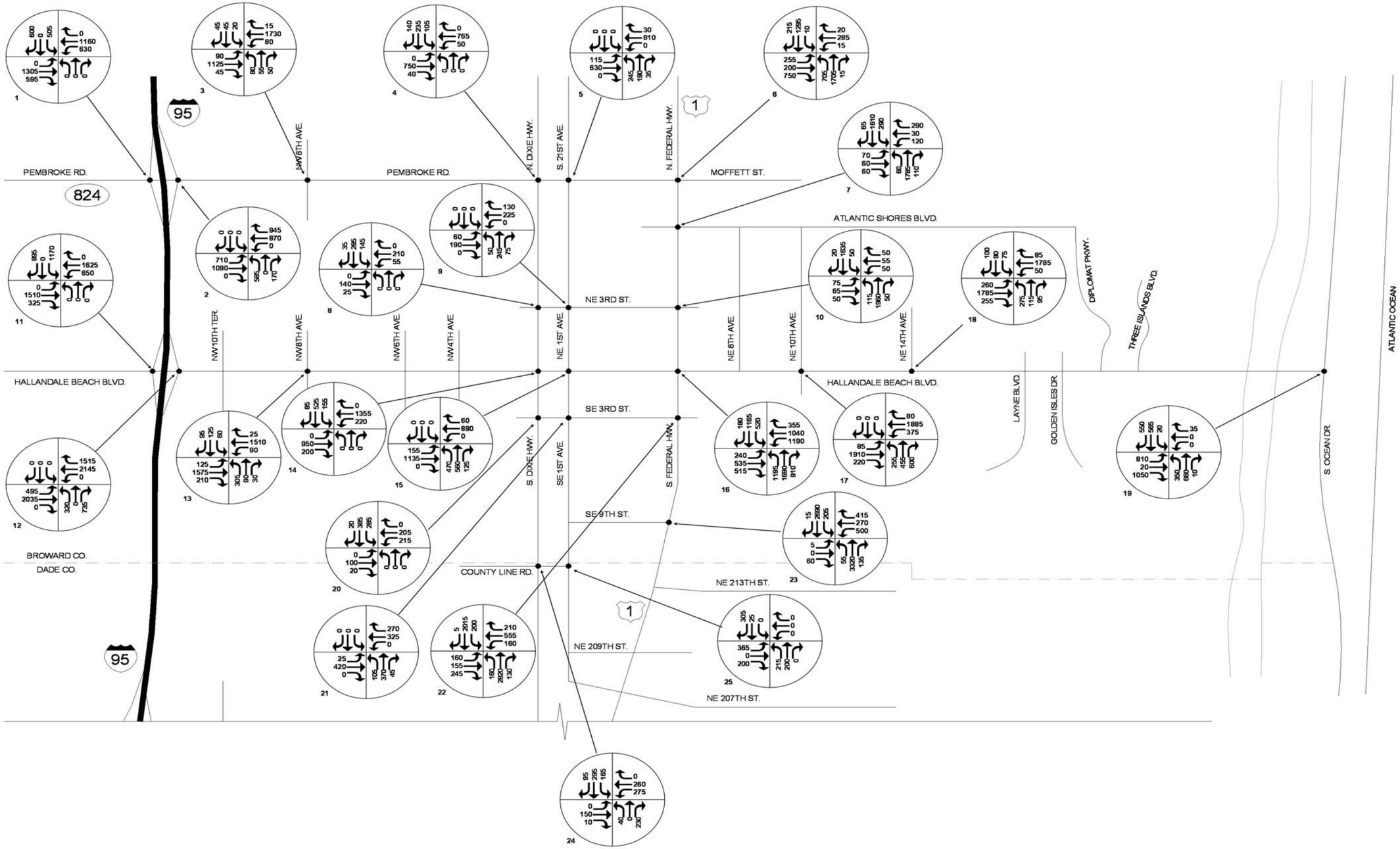
The results of the traffic re-assignment and the resulting levels of service for the high investment alternative are shown in Figure 5-1 and 5-2.

A summary of intersection LOS results for 2030 is shown in 5-2 below, with 2006 results shown for comparative purposes.

Table 5-2: LOS Results – High Investment Alternative

Intersec-tion	Location	2006 existing		2030 high	
		Delay (s)	LOS	Delay	LOS
1	Pembroke Rd @ I-95 SB Ramp	14.7	B	13.9	B
2	Pembroke Rd @ I-95 NB Ramp	24.3	C	23.3	C
3	Pembroke Rd @ NW 8th Ave	15.9	B	15	B
4	Pembroke Rd @ N. Dixie Hwy	8.3	A	8.5	A
5	Pembroke Rd @ E 1st Ave	10.1	B	10.3	B
6	Pembroke Rd @ US 1	38.6	D	63.8	E
7	Atlantic Shore Blvd @ US 1	31.2	C	35.5	D
8	NE 3rd St @ N. Dixie Hwy	8.9	A	7.3	A
9	NE 3rd St @ E 1st Ave	8.5	A	8.8	A
10	NE 3rd St @ US 1	9.8	A	14.2	B
11	Hallandale Beach Blvd @ I-95 SB Ramp	59.7	E	67.2	E
12	Hallandale Beach Blvd @ I-95 NB Ramp	112	F	123.2	F
13	Hallandale Beach Blvd @ NW 8th Ave	28.1	C	38.1	D
14	Hallandale Beach Blvd @ N. Dixie Hwy	63.8	E	62.1	E
15	Hallandale Beach Blvd @ E 1st Ave	79.4	E		
16	Hallandale Beach Blvd @ US 1	147.9	F	62.3	E
17	Hallandale Beach Blvd @ NE 10th Ave	23	C	33.8	C
18	Hallandale Beach Blvd @ NE 14th Ave	31.2	C	33.8	C
19	Hallandale Beach Blvd @ A1A	20.4	C	52.5	D
20	SE 3rd St @ N. Dixie Hwy	27.1	C	28.6	C
21	SE 3rd St @ E 1st Ave	34.3	C	38.8	D
22	SE 3rd St @ US 1	27.8	C	75.8	E
23	SE 9th St @ US 1	22.2	C	48.7	D
24	County-line Rd @ N. Dixie Hwy	13.8	B	20.4	C
25	County-line Rd @ E 1st Ave	9.6	A	8.7	A

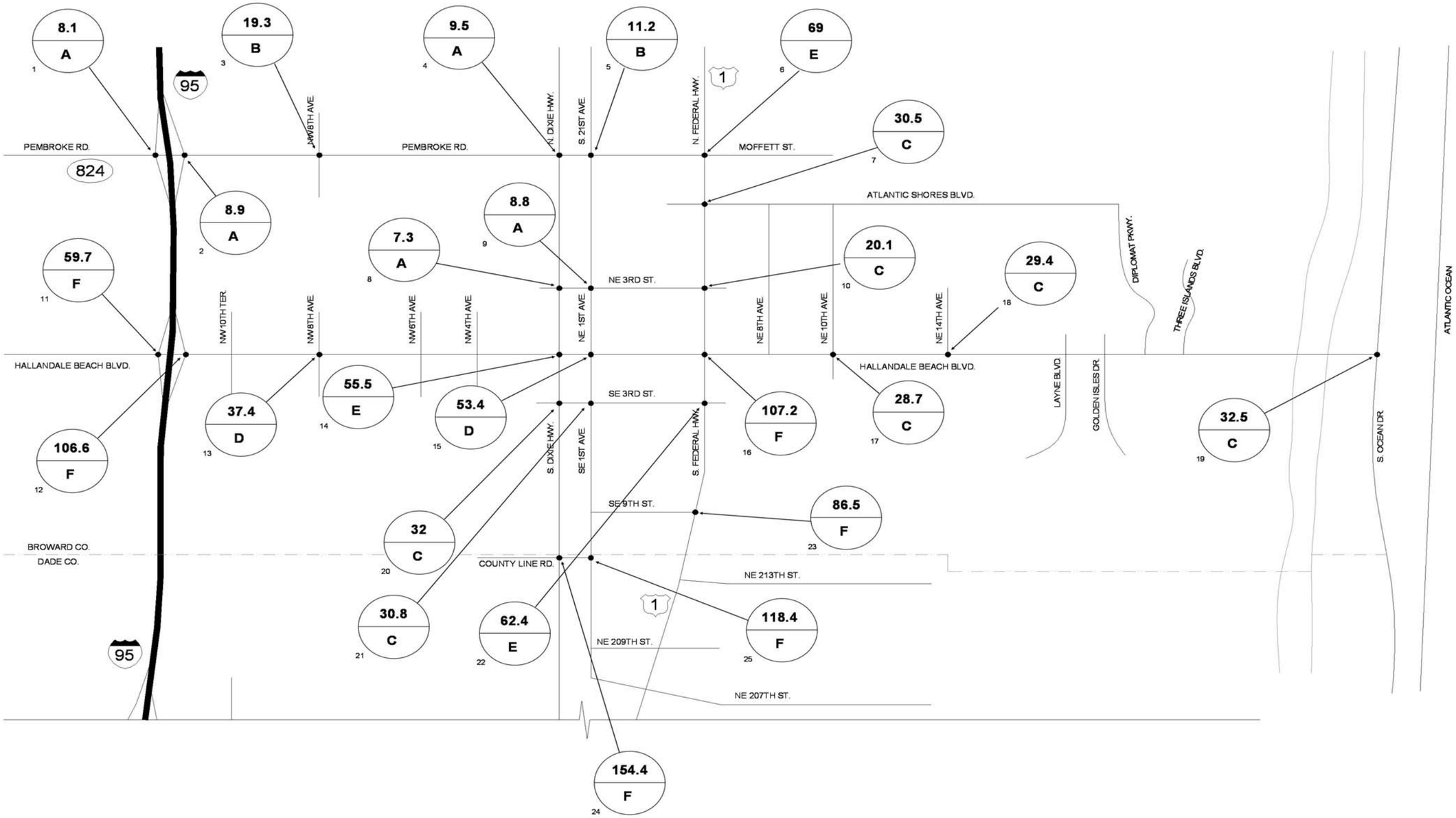
As indicated in the table, the number of F intersections decreases from 2 to 1, while the number of LOS E and F intersections increases from 5 to 6. The sheer growth in traffic over the next 25 or so years makes it infeasible to address all locations to provide better conditions than those today, but generally, LOS E is still considered an acceptable level of service, especially when residents are provided with more alternatives for mobility, including significantly improved pedestrian, bicycle and transit facilities.



2030 Transportation Master Plan

P.M. Peak Hour Turning Movement Volumes 2030 High Investment Alternative

Figure 5-1



2030 Transportation Master Plan

P.M. Peak Hour Intersection Delay and Level of Service 2030 High Investment Alternative

Figure 5-2

While this alternative package provides the best mitigation solutions, it comes with the highest costs and will therefore take the longest amount of time and resources to implement.

Medium Investment Alternative

The second or "medium investment" alternative was developed to address congested areas and remove bottlenecks in the transportation system. This solution would be more affordable than the high investment alternative, but would still involve very significant improvement costs.

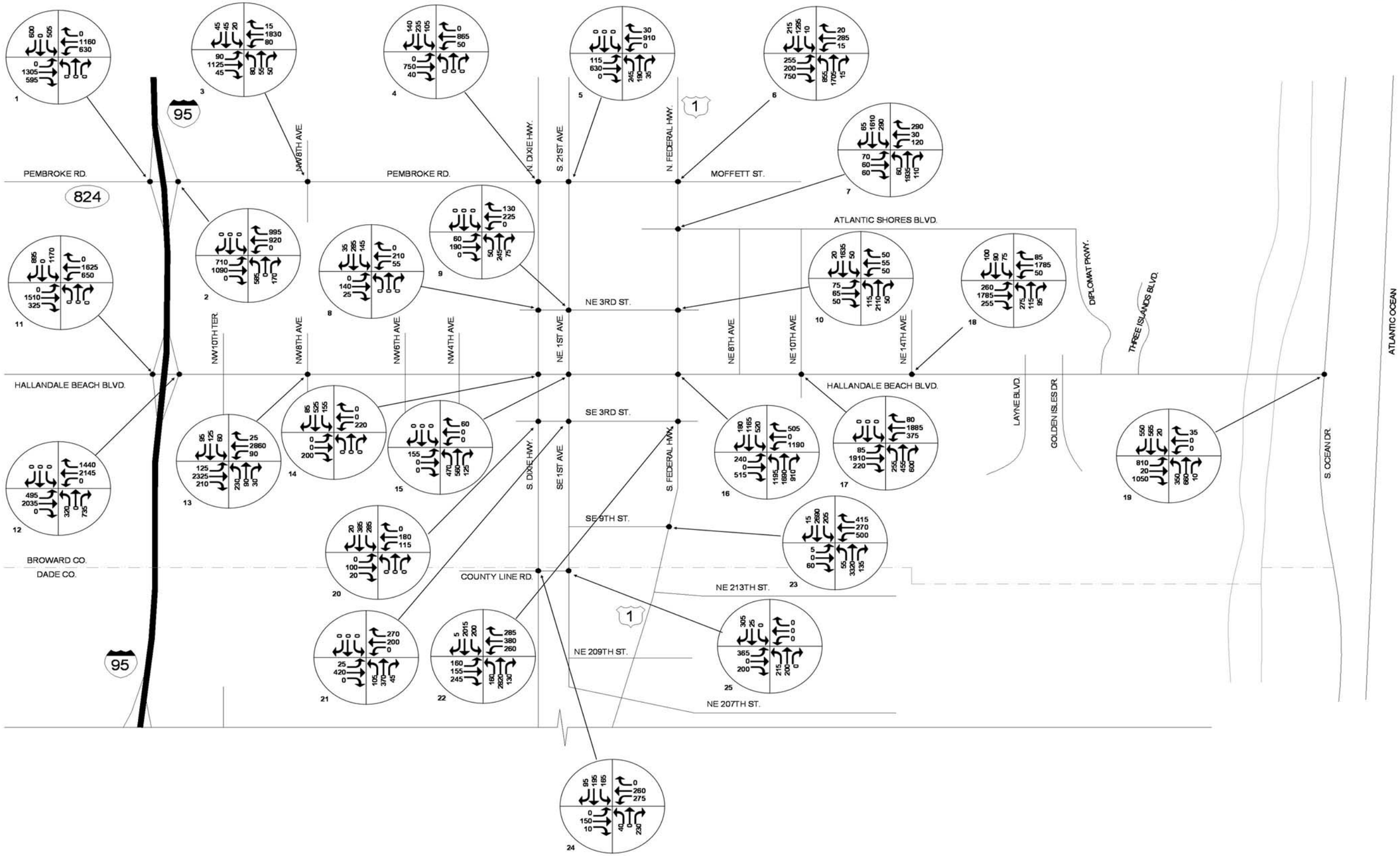
A summary of the improvements considered is provided below:

- Major Capital Roadway Improvements (A)
  - A2) Grade Separation: Hallandale Beach Blvd. @ US 1
  - A3) Grade Separation: Hallandale Beach Blvd @ Dixie Hwy.
- TSM Improvements (B)
  - B3) New Traffic Signal/Railroad Crossing Improvement: SE 9th St. @ US 1
  - B4) Managed Lanes on NE 10th Avenue
- ATMS (ITS) Improvements (C)
  - C2) Fiber Optic or Wireless Interconnect Signalization on US 1 and Hallandale Beach Blvd.
  - C3) Emergency Vehicle Pre-Emption System
  - C4) Video Detection System
- Transit Improvements (D)
  - D2) Connector Shuttle from SFRTA Tri-Rail Station and Future Park and Ride Facilities
  - D3) Transit Super Stops on US 1 at Pembroke Rd (Mardi Gras) and at Gulfstream Park
  - D4) Dedicated Bus Stop Bays on Major Arterial Routes
  - D5) Land Use/TOD Regulations for Future Development

- Bicycle/Pedestrian Improvements (E)
    - E1) Bike Lanes and Sidewalks included with Future Roadway Improvements on all Arterials and Collectors
    - E2) Implementation of Crossing Countdown Signal Heads at all Traffic Signals with 2 or More Lanes
    - E3) Bike Parking at Public Buildings and Major Destinations
    - E4) Installation of Adequate Lighting along Bike/Ped Routes
    - E5) Implementation of City-Wide Bike and Pedestrian Signage
    - E6) Implementation of Bike Detectors at all Minor Street Intersections
- Alternate Circulation Routes (F)
    - F1) Low Assignment of Traffic Off of Major Arterial Routes

The traffic assignment model was used to reflect the anticipated impacts of these improvements on each of the 25 study area intersections. For example, the impact of the flyover intersections on Hallandale Beach Boulevard at US 1 and Dixie Highway was to remove all through-trips from both directions of the Boulevard as they would be accommodated on the flyover lanes. The impact of the ITS and ATMS improvements was to improve arrival type from good to excellent, providing improved coordination of signal operations along Hallandale Beach Boulevard.

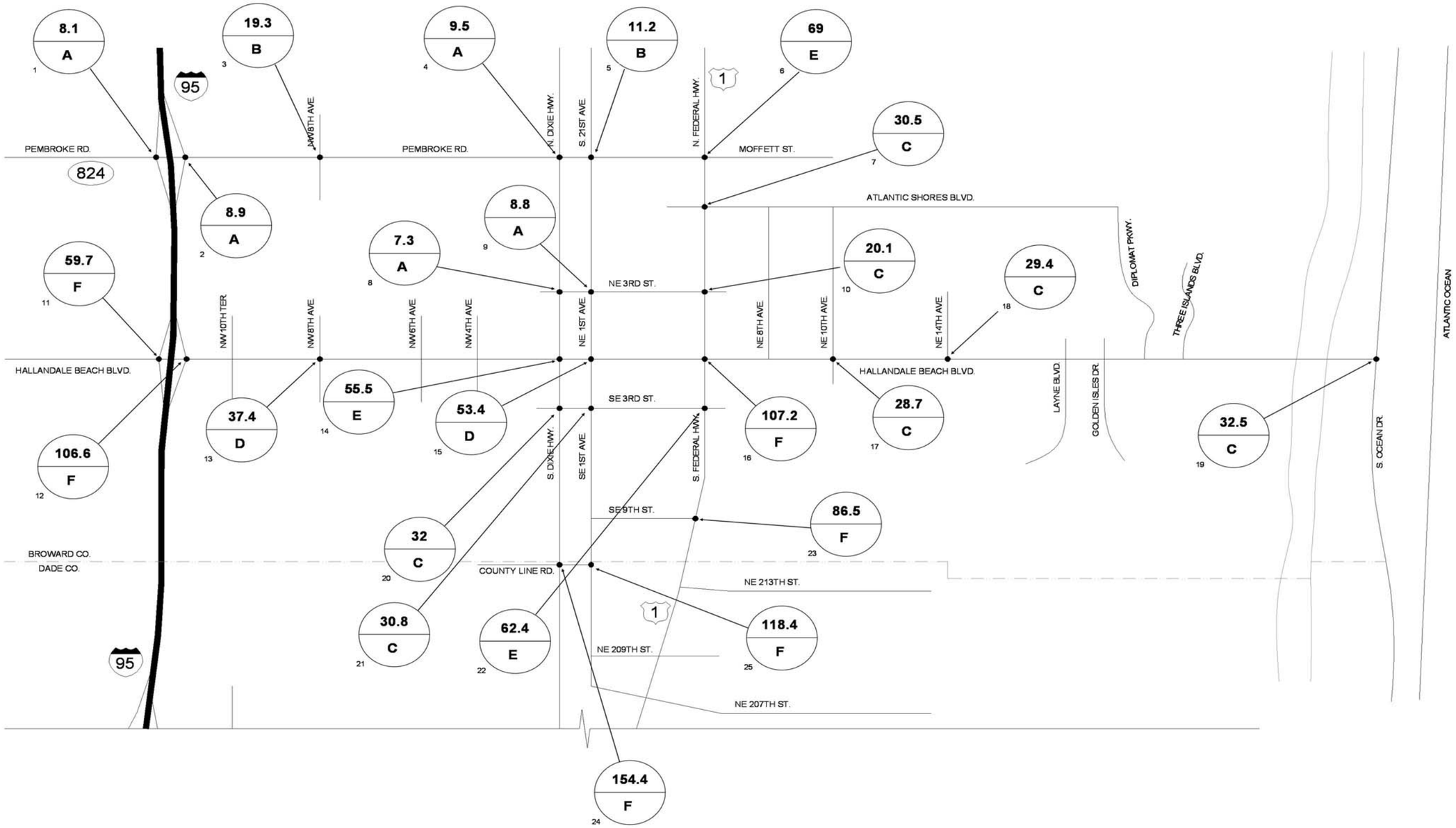
The results of the traffic re-assignment and the resulting levels of service analysis for the medium investment alternative are shown in Figures 5-3 and 5-4.



2030 Transportation Master Plan

P.M. Peak Hour Turning Movement Volumes 2030 Medium Investment Alternative

Figure 5-3



2030 Transportation Master Plan

P.M. Peak Hour Intersection Delay and Level of Service 2030 Medium Investment Alternative

Figure 5-4

A summary of intersection LOS results for 2030 is shown in Table 5-3 below, with 2006 results shown for comparative purposes.

Table 5-3: LOS Results – Medium Investment Alternative

Intersec-tion	Location	2006 existing		2030 medium	
		Delay (s)	LOS	Delay	LOS
1	Pembroke Rd @ I-95 SB Ramp	14.7	B	13.8	B
2	Pembroke Rd @ I-95 NB Ramp	24.3	C	23.1	C
3	Pembroke Rd @ NW 8th Ave	15.9	B	13	B
4	Pembroke Rd @ N. Dixie Hwy	8.3	A	9.5	A
5	Pembroke Rd @ E 1st Ave	10.1	B	11.2	B
6	Pembroke Rd @ US 1	38.6	D	72.3	E
7	Atlantic Shore Blvd @ US 1	31.2	C	26.8	C
8	NE 3rd St @ N. Dixie Hwy	8.9	A	7.3	A
9	NE 3rd St @ E 1st Ave	8.5	A	8.8	A
10	NE 3rd St @ US 1	9.8	A	19.3	B
11	Hallandale Beach Blvd @ I-95 SB Ramp	59.7	E	59.7	E
12	Hallandale Beach Blvd @ I-95 NB Ramp	112	F	106.7	F
13	Hallandale Beach Blvd @ NW 8th Ave	28.1	C	35.7	D
14	Hallandale Beach Blvd @ N. Dixie Hwy	63.8	E	23.2	C
15	Hallandale Beach Blvd @ E 1st Ave	79.4	E		
16	Hallandale Beach Blvd @ US 1	147.9	F	107.3	F
17	Hallandale Beach Blvd @ NE 10th Ave	23	C	27.6	C
18	Hallandale Beach Blvd @ NE 14th Ave	31.2	C	28.3	C
19	Hallandale Beach Blvd @ A1A	20.4	C	30.6	C
20	SE 3rd St @ N. Dixie Hwy	27.1	C	29.6	C
21	SE 3rd St @ E 1st Ave	34.3	C	30.8	C
22	SE 3rd St @ US 1	27.8	C	61.8	E
23	SE 9th St @ US 1	22.2	C	69.2	E
24	County-line Rd @ N. Dixie Hwy	13.8	B	19.9	B
25	County-line Rd @ E 1st Ave	9.6	A	8.7	A

As indicated in the table, the number of F intersections remains unchanged from 2, while the number of LOS E and F intersections increases from 5 to 6. This is a slightly less mitigating solution than the high investment alternative, but still achieves acceptable levels of service. The impact to the community of two overpasses will still be significant, but lower than the impact of exclusive lanes – especially if those were elevated lanes. The costs would also be lower than for the high investment alternative.

Low Investment Alternative

The third or "low investment" alternative was developed to achieve the most affordable and easily implemented improvements that can be expected to have an immediate impact on traffic mobility in Hallandale Beach. While described as low investment, this is a comparative term – in fact the alternative includes several projects and programs with significant costs.

A summary of the improvements considered is provided below:

- Major Capital Roadway Improvements (A)
  - A4) New connection: 2nd Street Extension
  - A5) Countyline Rd.Link: Dixie Hwy. to I-95
- TSM Improvements (B)
  - B3) New Traffic Signal/Railroad Crossing Improvement: SE 9th St. @ US 1
  - B5) Dixie Hwy/E. 1st Ave. Conversion to Two-Way Operation
  - B6) Removal or Reconfiguring Diagonal Parking on Atlantic Shores Blvd. and NE 14th St.
- ATMS (ITS) Improvements (C)
  - C4) Video Detection System
- Transit Improvements (D)
  - D3) Transit Super Stops on US 1 at Pembroke Rd (Mardi Gras) and at Gulfstream Park
  - D4) Dedicated Bus Stop Bays on Major Arterial Routes
  - D5) Land Use/TOD Regulations for Future Development
- Bicycle/Pedestrian Improvements (E)
  - E1) Bike Lanes and Sidewalks included with Future Roadway Improvements on all Arterials and Collectors
  - E2) Implementation of Crossing Countdown Signal Heads at all Traffic Signals with 2 or More Lanes
  - E3) Bike Parking at Public Buildings and Major Destinations
  - E4) Installation of Adequate Lighting along Bike/Ped Routes
  - E5) Implementation of City-Wide Bike and Pedestrian Signage
  - E6) Implementation of Bike Detectors at all Minor Street Intersections

- Alternate Circulation Routes (F)
  - F2) Medium Reassignment of Traffic Off of Major Arterial Routes

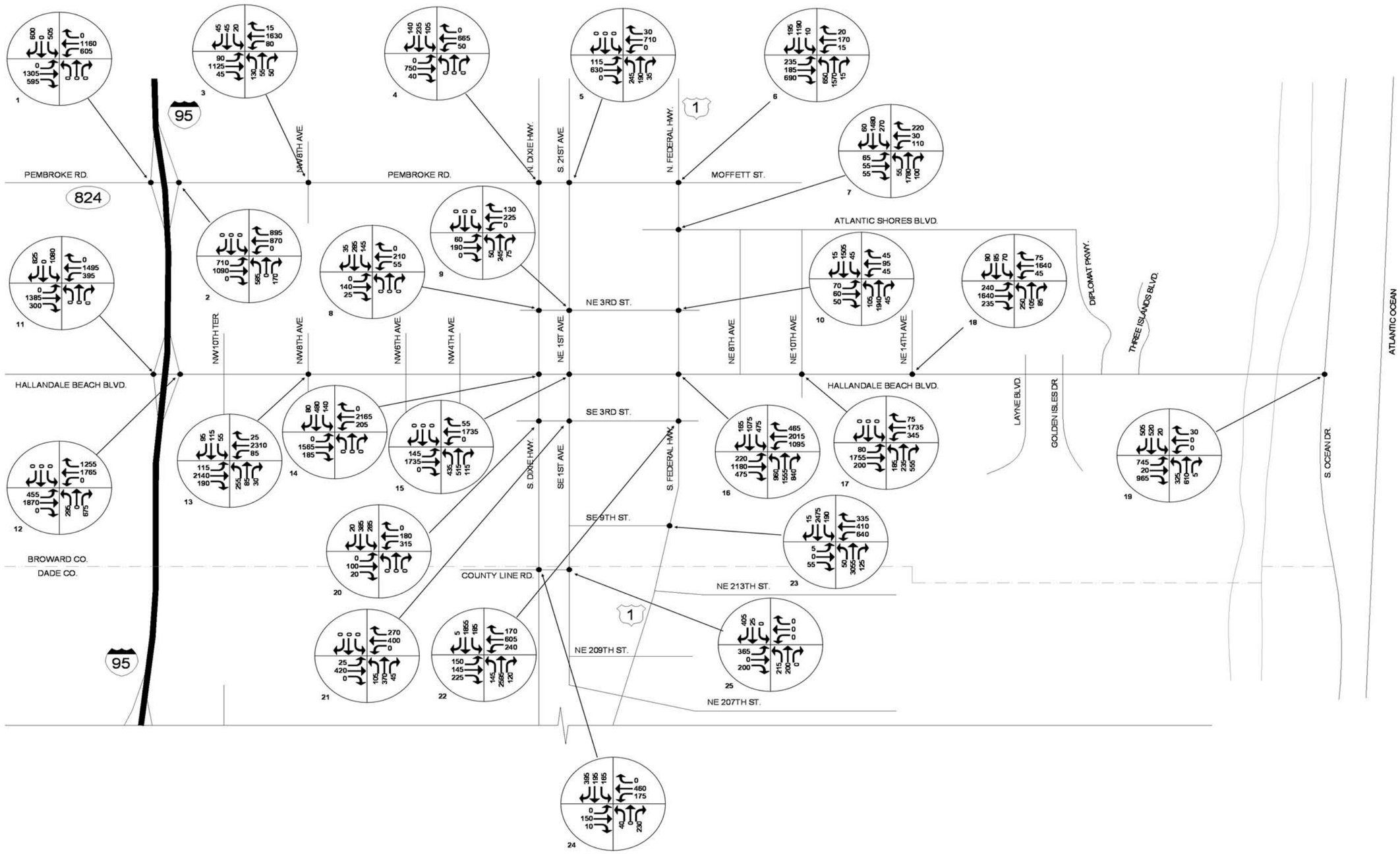
The traffic assignment model was used to reflect the anticipated impacts of these improvements on each of the 25 study area intersections. For example, the impact of the flyover intersections on Hallandale Beach Boulevard at US 1 and Dixie Highway was to remove all through-trips from both directions of the Boulevard as they would be accommodated on the flyover lanes. The impact of the ITS and ATMS improvements was to improve arrival type from good to excellent, providing improved coordination of signal operations along Hallandale Beach Boulevard.

The results of the traffic re-assignment and the resulting levels of service analysis for the low investment alternative are shown in Figure 5-5 and in Figure 5-6.

A summary of intersection LOS results for 2030 is shown in Table 5-4 below, with 2006 results shown for comparative purposes.

Table 5-4: LOS Results – Low Investment Alternative

Intersec-tion	Location	2006 existing		2030 low	
		Delay (s)	LOS	Delay	LOS
1	Pembroke Rd @ I-95 SB Ramp	14.7	B	13.8	B
2	Pembroke Rd @ I-95 NB Ramp	24.3	C	24.5	C
3	Pembroke Rd @ NW 8th Ave	15.9	B	20.2	C
4	Pembroke Rd @ N. Dixie Hwy	8.3	A	8.2	A
5	Pembroke Rd @ E 1st Ave	10.1	B	9.1	A
6	Pembroke Rd @ US 1	38.6	D	45.6	D
7	Atlantic Shore Blvd @ US 1	31.2	C	32.9	C
8	NE 3rd St @ N. Dixie Hwy	8.9	A	7.2	A
9	NE 3rd St @ E 1st Ave	8.5	A	8.8	A
10	NE 3rd St @ US 1	9.8	A	16.1	B
11	Hallandale Beach Blvd @ I-95 SB Ramp	59.7	E	61.7	E
12	Hallandale Beach Blvd @ I-95 NB Ramp	112	F	98.3	F
13	Hallandale Beach Blvd @ NW 8th Ave	28.1	C	36.7	D
14	Hallandale Beach Blvd @ N. Dixie Hwy	63.8	E	84.5	E
15	Hallandale Beach Blvd @ E 1st Ave	79.4	E		
16	Hallandale Beach Blvd @ US 1	147.9	F	188	F
17	Hallandale Beach Blvd @ NE 10th Ave	23	C	24.4	C
18	Hallandale Beach Blvd @ NE 14th Ave	31.2	C	33.4	C
19	Hallandale Beach Blvd @ A1A	20.4	C	45.9	D
20	SE 3rd St @ N. Dixie Hwy	27.1	C	32	C
21	SE 3rd St @ E 1st Ave	34.3	C	53.9	D
22	SE 3rd St @ US 1	27.8	C	69.5	E
23	SE 9th St @ US 1	22.2	C	86.4	F
24	County-line Rd @ N. Dixie Hwy	13.8	B	10.8	B
25	County-line Rd @ E 1st Ave	9.6	A	9.5	A

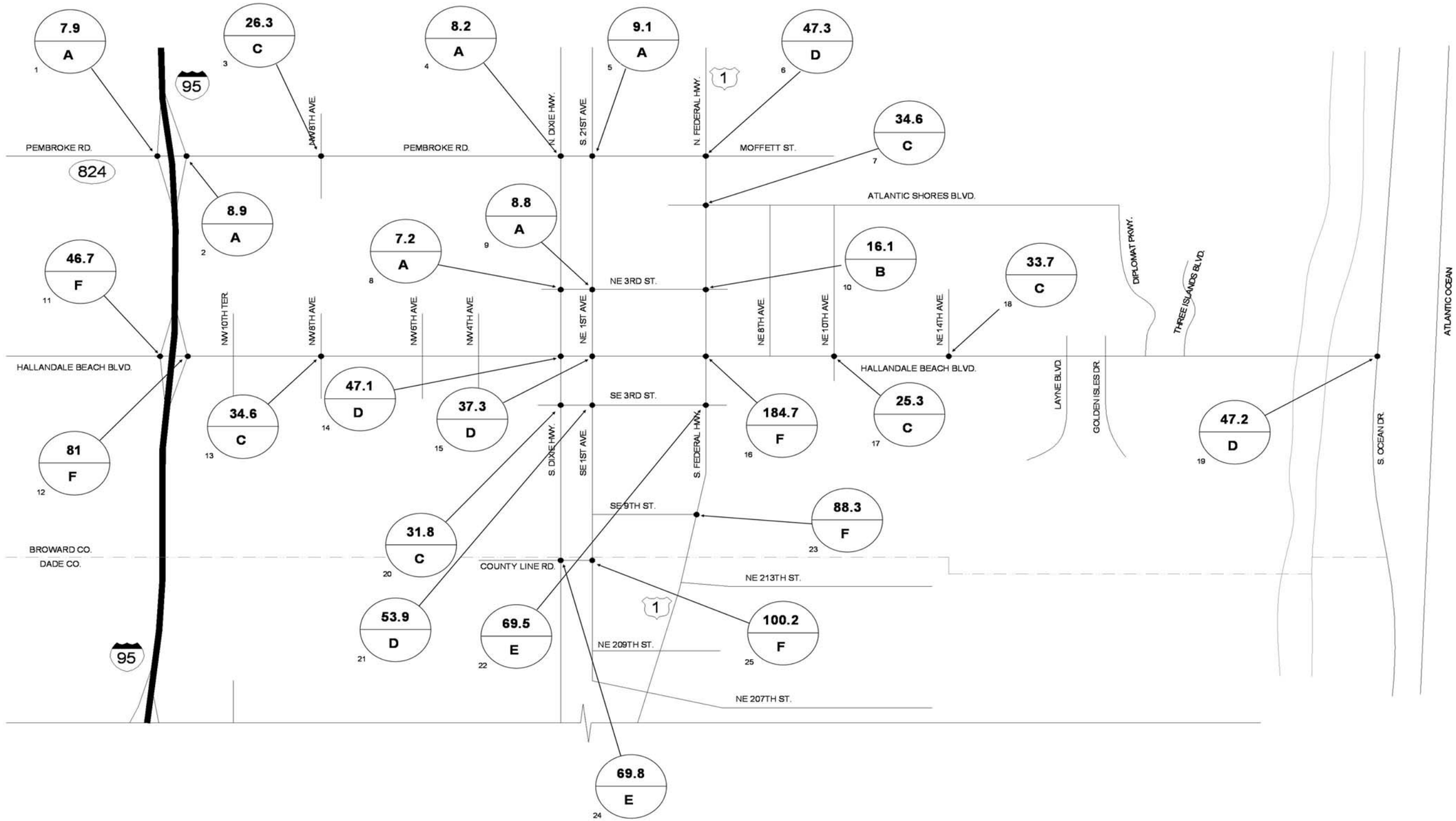


2030 Transportation Master Plan

P.M. Peak Hour Turning Movement Volumes 2030 Low Investment Alternative

Figure 5-5

HDR



2030 Transportation Master Plan

P.M. Peak Hour Intersection Delay and Level of Service 2030 Low Investment Alternative

Figure 5-6

As indicated in the table, the number of F intersections increases nominally from 2 to 3, while the number of LOS E and F intersections increases from 5 to 6.
This alternative achieves a future condition that is almost as acceptable as either the high or medium investment alternative, with far lower capital costs, and far less impacts to the natural and built environment.

5.2 Alternative Findings

A summary of traffic analysis results from the three alternatives is shown in Table 5-5, and indicates a brief summary of the number of LOS E and E/F intersections for the three alternatives.

Table 5-5: LOS Results Summary for Investment Alternatives

Level of Service	Existing 2006	High Investment	Medium Investment	Low Investment
F Intersections	2	1	2	3
E+F Intersections	5	6	6	6

The results indicate that implementing the high investment alternative will reduce the failing intersections to one. Under medium investment, this number will remain at 2 (as it is today) while the low investment alternative will mean there is one more failing intersection (three) by 2030. However, when considering intersections operating at LOS E or F, there is relatively little to be gained from the higher levels of investment – especially considering the level of monetary investment required. The lower levels of investment also come with smaller impacts to the built environment, and rely on a more community-based approach to future mobility – including transit, walking and biking.

5.3 Project Selection Criteria

The above section provides the results of traffic analyses conducted for three alternative scenarios for future transportation improvements. Each alternative contains several individual projects which may be selected individually for implementation in the future development of the city, rather than as a "package". To identify which projects are most appropriate for implementation, a set of evaluation criteria was developed. These criteria are shown below.

Criteria for selection of a transportation improvement project:

- Consistent with Hallandale Beach Comprehensive Plan Policies,
- Consistent with study goals and objectives,

- Achieves a reasonable improvement in traffic operations within the City,
- Supports future multi-modal transportation alternatives,
- Minimizes impact on the natural and built environment, and
- Is financially feasible.

Table 5-6: LOS Results – All Investment Alternatives

Intersec-tion	Location	2006 Existing		2030 No-Build		2030 Low		2030 Medium		2030 High	
		Delay (s)	PM Peak Hour LOS	Delay (s)	PM Peak Hour LOS	Delay (s)	PM Peak Hour LOS	Delay (s)	PM Peak Hour LOS	Delay (s)	PM Peak Hour LOS
1	Pembroke Rd @ I-95 SB Ramp	14.7	B	13.9	B	13.8	B	13.8	B	13.9	B
2	Pembroke Rd @ I-95 NB Ramp	24.3	C	23.3	C	24.5	C	23.1	C	23.3	C
3	Pembroke Rd @ NW 8th Ave	15.9	B	15.8	B	20.2	C	13	B	15	B
4	Pembroke Rd @ N. Dixie Hwy	8.3	A	8.5	A	8.2	A	9.5	A	8.5	A
5	Pembroke Rd @ E 1st Ave	10.1	B	10.3	B	9.1	A	11.2	B	10.3	B
6	Pembroke Rd @ US 1	38.6	D	59.7	E	45.6	D	72.3	E	63.8	E
7	Atlantic Shore Blvd @ US 1	31.2	C	34.8	C	32.9	C	26.8	C	35.5	D
8	NE 3rd St @ N. Dixie Hwy	8.9	A	7.3	A	7.2	A	7.3	A	7.3	A
9	NE 3rd St @ E 1st Ave	8.5	A	8.8	A	8.8	A	8.8	A	8.8	A
10	NE 3rd St @ US 1	9.8	A	20.1	C	16.1	B	19.3	B	14.2	B
11	Hallandale Beach Blvd @ I-95 SB Ramp	59.7	E	59.7	E	61.7	E	59.7	E	67.2	E
12	Hallandale Beach Blvd @ I-95 NB Ramp	112	F	112	F	98.3	F	106.7	F	123.2	F
13	Hallandale Beach Blvd @ NW 8th Ave	28.1	C	59.2	E	36.7	D	35.7	D	38.1	D
14	Hallandale Beach Blvd @ N. Dixie Hwy	63.8	E	138.3	F	84.5	E	23.2	C	62.1	E
15	Hallandale Beach Blvd @ E 1st Ave	79.4	E								
16	Hallandale Beach Blvd @ US 1	147.9	F	255.7	F	188	F	107.3	F	62.3	E
17	Hallandale Beach Blvd @ NE 10th Ave	23	C	31.2	C	24.4	C	27.6	C	33.8	C
18	Hallandale Beach Blvd @ NE 14th Ave	31.2	C	33.9	C	33.4	C	28.3	C	33.8	C
19	Hallandale Beach Blvd @ A1A	20.4	C	52.5	D	45.9	D	30.6	C	52.5	D
20	SE 3rd St @ N. Dixie Hwy	27.1	C	29.6	C	32	C	29.6	C	28.6	C
21	SE 3rd St @ E 1st Ave	34.3	C	30.8	C	53.9	D	30.8	C	38.8	D
22	SE 3rd St @ US 1	27.8	C	64.7	E	69.5	E	61.8	E	75.8	E
23	SE 9th St @ US 1	22.2	C	75.9	E	86.4	F	69.2	E	48.7	D
24	County-line Rd @ N. Dixie Hwy	13.8	B	13.3	B	10.8	B	19.9	B	20.4	C
25	County-line Rd @ E 1st Ave	9.6	A	9.5	A	9.5	A	8.7	A	8.7	A

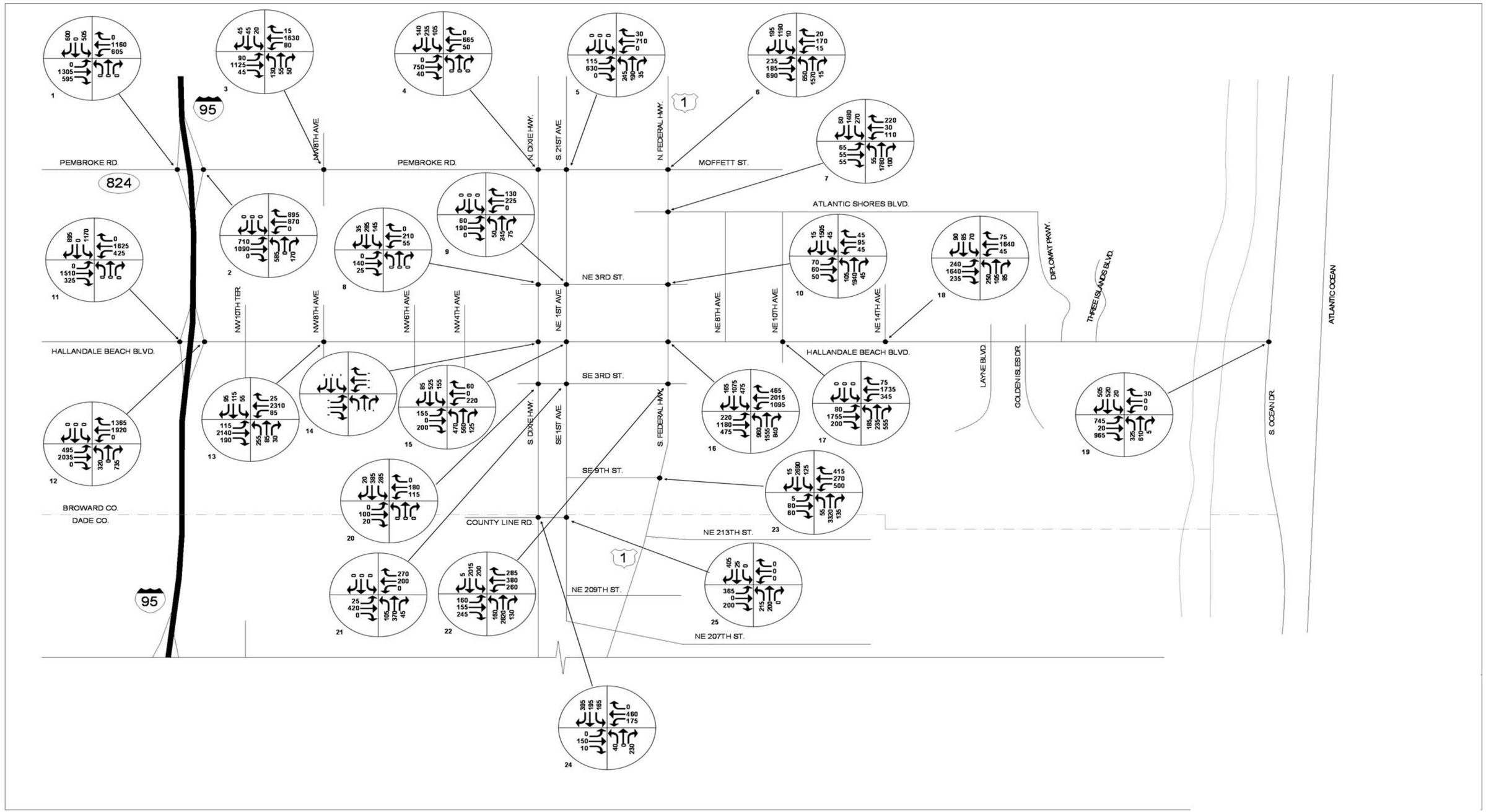
6.0 Recommended Transportation Improvements

Based on the criteria identified in section 5.3 and discussion of the Master Plan improvements with City staff, a list of recommended improvements was created and input into the traffic model, for analysis purposes. The model was run and the summary of anticipated intersection level of service (LOS) results for 2030 (compared with 2006 existing conditions) is shown in the table below.

Table 6-1: LOS – Based on 2030 Transportation Master Plan alternatives

Intersec-tion	Location	2006 existing		2030 Master Plan	
		Delay (s)	LOS	Delay	LOS
1	Pembroke Rd @ I-95 SB Ramp	14.7	B	13.8	B
2	Pembroke Rd @ I-95 NB Ramp	24.3	C	24.5	C
3	Pembroke Rd @ NW 8th Ave	15.9	B	20.2	C
4	Pembroke Rd @ N. Dixie Hwy	8.3	A	8.2	A
5	Pembroke Rd @ E 1st Ave	10.1	B	9.1	A
6	Pembroke Rd @ US 1	38.6	D	45.6	D
7	Atlantic Shore Blvd @ US 1	31.2	C	32.9	C
8	NE 3rd St @ N. Dixie Hwy	8.9	A	7.2	A
9	NE 3rd St @ E 1st Ave	8.5	A	8.8	A
10	NE 3rd St @ US 1	9.8	A	16.1	B
11	Hallandale Beach Blvd @ I-95 SB Ramp	59.7	E	61.7	E
12	Hallandale Beach Blvd @ I-95 NB Ramp	112	F	98.3	F
13	Hallandale Beach Blvd @ NW 8th Ave	28.1	C	36.7	D
14	Hallandale Beach Blvd @ N. Dixie Hwy	63.8	E	23.2	C
15	Hallandale Beach Blvd @ E 1st Ave	79.4	E		
16	Hallandale Beach Blvd @ US 1	147.9	F	188	F
17	Hallandale Beach Blvd @ NE 10th Ave	23	C	24.4	C
18	Hallandale Beach Blvd @ NE 14th Ave	31.2	C	33.4	C
19	Hallandale Beach Blvd @ A1A	20.4	C	45.9	D
20	SE 3rd St @ N. Dixie Hwy	27.1	C	29.6	C
21	SE 3rd St @ E 1st Ave	34.3	C	30.8	C
22	SE 3rd St @ US 1	27.8	C	61.8	E
23	SE 9th St @ US 1	22.2	C	69.2	E
24	County-line Rd @ N. Dixie Hwy	13.8	B	10.8	B
25	County-line Rd @ E 1st Ave	9.6	A	9.5	A

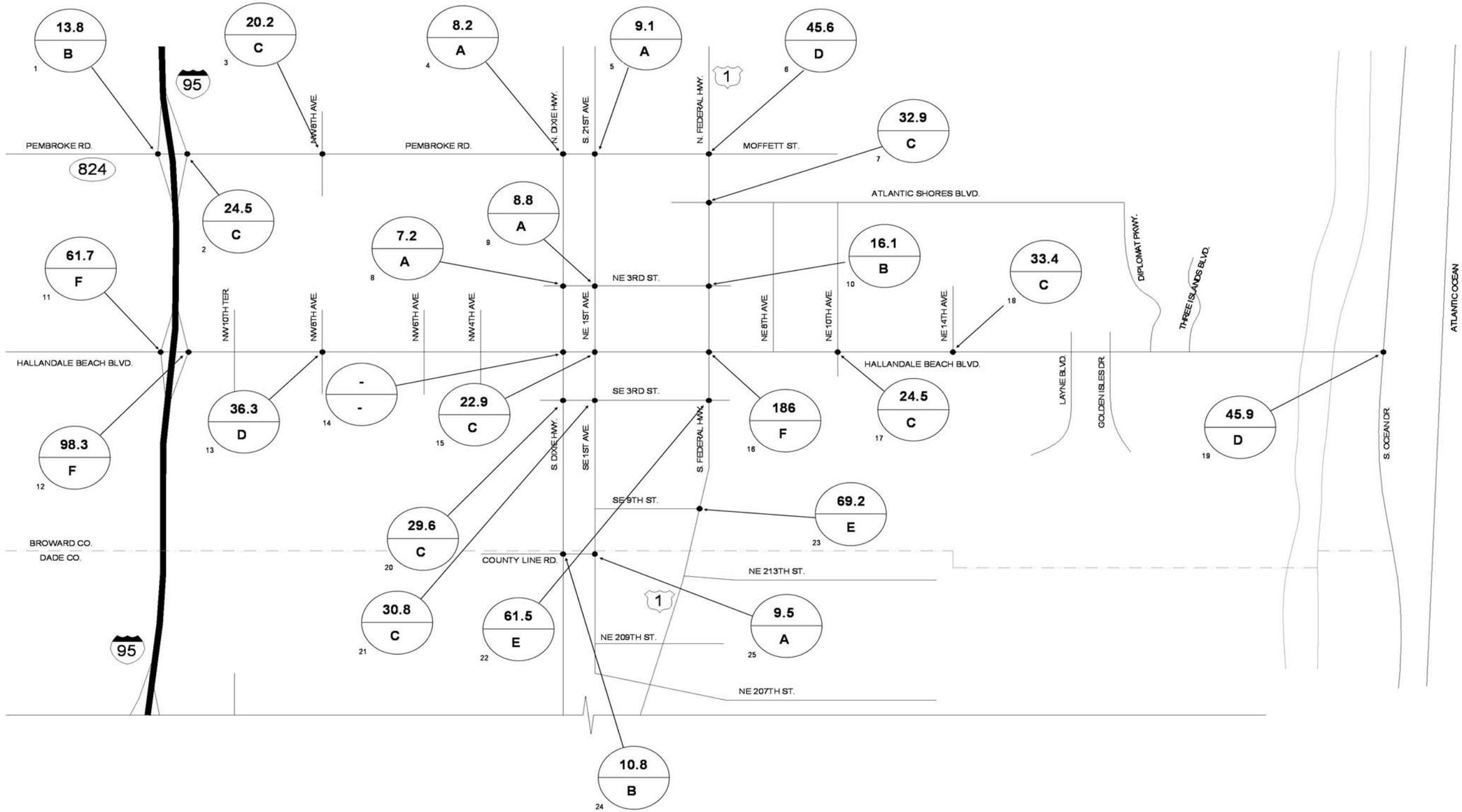
As indicated in the table, the number of intersections operating at LOS F will remain unchanged, as will the number operating at LOS E although the locations of these intersections will change. The Countyline Road project will impact intersections along SE 3rd Street and SE 9th Street as new traffic is assigned there, while conditions along Hallandale Beach Boulevard will see significant improvement.



2030 Transportation Master Plan

P.M. Peak Hour Turning Movements 2030 Transportation Master Plan

Figure 6-1



2030 Transportation Master Plan

Intersection Delay and Level of Service 2030 Transportation Master Plan

Figure 6-2

6.1 Transit and Multimodal Improvements

The City of Hallandale Beach recognizes the importance of maintaining the quality of life for its residents and visitors. Transportation improvements for all modes are important to encourage sustainable growth. The City should explore ways to meet travel demand growth beyondthe identified roadway improvements and traffic management. Transit and multimodal improvements are some examples of the types of solutions that can be used to address traffic concerns on local and regional transportation systems. Improving transit services could encourage meeting the City's land use goals and reduce the higher costs in highway investments to maintain today's roadway level-of-service.

The City of Hallandale Beach 2030 Transportation Master Plan recommends transit service improvements that encourage local transit circulation, as well as connections to adjacent communities. Recommendations for transit and other multimodal improvements, including bicycle and pedestrian improvements, are based on an expansion of existing services and infrastructure. The lower multimodal investments may encourage more residents and visitors to consider alternate modes of transportation. The plan does not recommend building newer, higher cost transit investments, with many current transit services available to the City and the FEC Commuter Rail still in the planning stages for potential long-term implementation. Below are a list of transit technologies identified, but not recommended as improvements for the City to lead, to meet the needs and priorities of the City. The list includes a description and photo of each technology, average speed, and capacity per vehicle.

Transit Technologies

- Heavy Rail - Heavy rail transit systems consist of electric powered vehicles with steel wheels. Heavy rail normally operates in trains of two or more cars on a fully grade-separated right-of-way. Examples of cities with heavy rail systems are Chicago (CTA), New York (MTA) and Miami (MDT).

Heavy Rail ***(Chicago, IL)***

Typical Operating Speed: 50-80 MPH
Typical Passenger Capacity: 45-70

- Commuter Rail - Commuter rail uses an electric or diesel propelled vehicle. Commuter rail typically provides passenger train service that operates between a central business district and adjacent suburban areas. Examples of locations with commuter rail are San Francisco/San Jose (Caltrans), Dallas/Ft. Worth(TRE) and South Florida (SFTRA Tri-Rail).

Commuter Rail *(South Florida)*

Typical Operating Speed: 30-60 MPH
Typical Passenger Capacity: 145-180

- Light Rail Transit (LRT) - LRT is a transit mode that is flexible with construction and operations using an overhead power supply. LRT systems can operate in mixed-use traffic, in a dedicated lane of travel or along grade-separated structure. Examples of LRT systems are Dallas (DART), Houston (Metro) and Salt Lake City (UTA).

Light Rail Transit *(Houston, TX)*

Typical Operating Speed: 20-60 MPH
Typical Passenger Capacity: 150-220

- Monorail – Monorails use an exclusive right-of-away, often elevated and located in it own right-of-way. The monorail system design incorporates a single beam that is narrower than the vehicle. Examples of cities with monorails are Seattle and Las Vegas.

Monorail *(LasVegas, NV)*

Typical Operating Speed: 20-60 MPH
Typical Passenger Capacity: 100-150

- Modern Streetcar – Streetcars run in streets with traffic along a fixed rail guideway. Streetcars provide local transit service and function similar to local bus service. Portland is a city that has an integrated streetcar system.

  Typical Operating Speed: 8-12 MPH
  Typical Passenger Capacity: 90-120

Modern Streetcar ***(Portland, OR)***

- Bus Rapid Transit (BRT) - BRT is a transit mode utilizing buses to perform more frequent services on existing roadways, High Occupancy Vehicle (HOV) lanes or dedicated rights-of-way. BRT systems typically have fewer bus stops spaced further apart with buses designed to accommodate a larger load of passengers. Examples of cities with BRT systems are Boston and Miami.

  Typical Operating Speed: 8-12 MPH
  Typical Passenger Capacity: 110-120

Bus Rapid Transit ***(Bogotá, Colombia)***

- Express Bus - Express bus service run faster than normal bus lines. These buses usually run between major destinations and business districts of cities, in street traffic. Most major transit systems with bus service incorporate express bus service.

  Typical Operating Speed: 15-19 MPH
  Typical Passenger Capacity: 60-80

Express Bus ***(Washington D.C)***

These transit technologies often require higher investments and significant ridership demand to justify the projects. The expansion of the transit plan for Hallandale Beach is recommended to start with the establishment of a Transportation Management Association (TMA) that includes neighboring communities. The TMA will provide a means to foster alternative Transportation Methods within the City and Neighboring communities and could lead to a small regional transit system in the future if demand calls for it. The following sections identify transit and other multimodal improvements that will collectively help alleviate traffic congestion and encourage sustainable development through the expansion of current transit services and infrastructure. By establishing a TMA, the TMA can continue to update the transit plan and would continue to refine transit service within the area as the communities continue to grow and demand changes. At some time in the future the TMA would identify transit initiatives that would serve local and regional needs and further investigate transit technologies that may benefit Hallandale Beach and the region as a whole in the future.

6.2 Summary of Master Plan Alternative Recommendations

The following table summarizes the recommended disposition of the alternatives identified in the previous sections, related to the overall Transportation Master Plan.

Table 6-2: Summary of Recommendations

ID	Alternative	Include in TMP	Comments
A1	Exclusive Lanes on HBB	**No**	No appreciable improvement in 2030 LOS with this improvement, so alternative not recommended.
A2	Fly-Over US1 @ HBB	**No**	No appreciable improvement in 2030 LOS with this improvement, so alternative not recommended.
A3	Fly-Over Dixie Hwy @ HBB	**Yes**	
A4	Church Rd extension to Gulfstream	**Yes**	
A5	Countyline Rd Extension thru I-95	**Yes**	
B1	Single Point intersection: HBB @ Dixie Hwy	**Yes**	
B2	SE 3 St Improvements	**Yes**	
B3	New Signal: SE 9 St @ US1; SE 9 St improvements	**Yes**	
B4	Managed Lanes on NE 10 Ave	**No**	Not recommended by City Staff as they were

			considering converting NE 10th Avenue from a one-way roadway to two-way operation
B5	Improvements of Dixie Hwy / E 1 Ave as alternate corridors	**Yes**	
B6	Remove Diag. Parking on Atlantic Shores Blvd	**No**	Not recommended at the request of the City Staff, due to need to maintain parking for adjacent residential communities with otherwise limited parking
C1	Locally Controlled Traffic Center	**Yes**	
C2	Signal Interconnect: US 1 & HBB	**Yes**	
C3	Emergency Vehicle Pre-Emption System	**Yes**	
C4	Video Detection System	**Yes**	
D1	New FEC Commuter Rail w/ Shuttle	**Yes**	
D2	New Tri-Rail Station S of Hollywood Blvd w/ Shuttle	**Yes**	
D3	Transit Super Stops: US1 @ Pembroke Rd & Gulfstream	**Yes**	
D4	Bus Stop Bays on Major Arterial Routes	**Yes**	
D5	Land Use/TOD Regulations for Future Development	**Yes**	
E1	Bike Lanes & Sidewalks	**Yes**	
E2	Countdown Signals @ All Intersection w/ 2+ Lanes	**Yes**	
E3	Bike Parking: Public Buildings, Major Destinations	**Yes**	
E4	Lighting along Bike/Ped Routes	**Yes**	
E5	City-Wide Bike and Pedestrian Signage	**Yes**	
E6	Bike Detectors at All Minor Intersections	**Yes**	
F1	Low Reassignment of Traffic to Local Streets	**Yes**	
F2	Medium Reassignment of Traffic to Local Streets	**Yes**	
G1	Establishment of a Transportation Management Association	**Yes**	

6.3 Prioritizing Recommended Improvements

The plan is intended to provide action-oriented steps from the preliminary planning stage to construction through a timeline of recommendations. The Master Plan recommends a short, medium and long-term approach to implement transportation improvements in the City of Hallandale Beach.

Short-term refers to the timeframe between 2008 and 2013. Improvements that have already been identified or planned to begin have been included within this initial state of the plan. For some of the major capital roadway improvements, initiating a feasibility study has been identified as the first step to determine and document a project's viability by analyzing the engineering, environmental and financial feasibility. Most ATMS (ITS) and bicycle/pedestrian improvements and policies would be implemented during this time period.

Mid-term improvements include beginning and completing projects during the years between 2014 and 2019. Improvements that began during the short-term would be completed during this period. The Grade Separation: Hallandale Beach Blvd. @ Dixie Hwy., if determined viable through a feasibility study would go through the next phase of a Project Development and Environmental Study (PD&E) study to ensure that all characteristics of the improvements including engineering, natural environment and socio-economic are considered prior to selecting a preferred improvement alternative. A PD&E Study is a pre-requisite to obtaining State or Federal funding for a Major Capital Project on a State Road. During this mid-term time frame the City could begin implementing the alternate circulation routes to relieve congestion during major events at Gulfstream and Mardi Gras. The fiber optic signal interconnect system should be completed to replace the temporary wireless interconnect interconnect system during this Phase as well.

Long-term improvements factor in "full" build out in the City through 2030. The long-term improvements include construction of the higher cost major capital roadway improvements. Prioritizing projects in the long-term period allow the City to plan and pursue the necessary funding for higher investment recommendations. The following sections list the specific improvements and phases as a recommended guide to prioritize and plan to implement improvements.

6.4 Short-Term Improvements (2008-2013)

- <u>Major Capital Roadway Improvements (A)</u>
  - A3) **<u>Begin & Complete</u>** Feasibility Study of Grade Separation: Hallandale Beach Blvd. @Dixie Hwy.

- A4) **Begin & Complete** New connection: SE 2nd Street Extension
- A5) **Begin & Complete** Feasibility Study of Countyline Rd.Link: Dixie Hwy. to I-95

- TSM Improvements (B)
  - B1) **Begin & Complete** Single-Point Intersection at Hallandale Beach Blvd. @ Dixie Hwy.
  - B2) **Begin** SE 3rd Street Alternate Corridor Bypass: SE 1st Avenue to US 1
  - B3) **Begin** SE 9th St. Corridor Improvements

- ATMS (ITS) Improvements (C)
  - C2) **Begin & Complete** Wireless Interconnect Signalization
  - C3) **Begin & Complete** Emergency Vehicle Pre-Emption System
  - C4) **Begin & Complete** Video Detection System

- Transit Improvements (D)
  - D2) **Begin** Connector Shuttles from SFTRA Tri-Rail and Future Park & Ride Lots
  - D3) **Begin** Transit Super Stops on US 1 at Pembroke Rd. (Mardi Gras) & Gulfstream Park
  - D5) **Begin & Complete** Land Use/TOD Regulations for Future Development

- Bicycle/Pedestrian Improvements (E)
  - E1) **Implement** Bike Lanes and Sidewalks included with Future Roadway Improvements on all Arterials and Collectors
  - E2) **Implement** Crossing Countdown Signal Heads at all Traffic Signals with 2 or More Lanes
  - E3) **Implement** Bike Parking at Public Buildings and Major Destinations
  - E4) **Install** Adequate Lighting along Bike/Ped Routes
  - E5) **Implement** City-Wide Bike and Pedestrian Signage

- Regional Coordination (G)

- G1) **Establish** Transportation Management Association (TMA)

6.5 Mid-Term Improvements (2014-2019)

- Major Capital Roadway Improvements (A)
  - A3) **Begin & Complete** Project Development and Environment (PD&E) Study of Grade Separation: Hallandale Beach Blvd. @Dixie Hwy.
- TSM Improvements (B)
  - B2) **Complete** SE 3rd Street Alternate Corridor Bypass: SE 1st Avenue to US 1
  - B3) **Complete** SE 9th St. Corridor Improvements
  - B4) **Begin** Dixie Hwy/E. 1st Ave. Corridor Improvements
- ATMS (ITS) Improvements (C)
  - C2) **Begin** Fiber Optic Interconnect Signalization
- Transit Improvements (D)
  - D2) **Complete** Connector Shuttles from SFTRA Tri-Rail and Future Park & Ride Lots
  - D3) **Complete** Transit Super Stops on US 1 at Pembroke Rd. (Mardi Gras) & Gulfstream Park
  - D4) **Begin & Complete** Dedicated Bus Stop Bays on Major Arterial Routes
  - D5) **Begin** Land Use/TOD Regulations for Future Development
- Alternate Circulation Routes (F)
  - F1) **Begin** Reassignment of Traffic Off of Major Arterials during Major Events at Gulfstream Park and Mardi Gras
- Regional Coordination (G)
  - G1) **Expand** Transportation Management Association (TMA) to include Neighboring Communities

    Develop Multi-Agency Transit System (Bus/Trolley)

6.6 Long-Term Improvements (2020-2030)

- Major Capital Roadway Improvements (A)
  - A3) **Construct** Grade Separation: Hallandale Beach Blvd. @Dixie Hwy.
  - A5)* **Begin & Complete** Project Development and Environment (PD&E) Study of Countyline Rd.Link: Dixie Hwy. to I-95
- TSM Improvements (B)
  - B4) **Complete** Dixie Hwy/E. 1st Ave. Corridor Improvements
- ATMS (ITS) Improvements (C)
  - C4) **Construct** Locally Controlled Traffic Center
- Transit Improvements (D)
  - D1) **Begin & Complete** New FEC Commuter Rail Service with Dedicated Shuttle to Gulfstream
- Bicycle/Pedestrian Improvements (E)
  - E5) **Implement** City-Wide Bike and Pedestrian Signage
  - E6) **Implement** Bike Detectors at all Minor Street Intersections
- Alternate Circulation Routes (F)
  - F1) **Complete** Reassignment of Traffic Off of Major Arterials during Major Events at Gulfstream Park and Mardi Gras
- Regional Coordination (G)
  - G1) **Maintain** Transportation Management Association (TMA)

**Countyline Rd.Link: Dixie Hwy. to I-95*

Under the current policy and design standards of FDOT and FHWA, a new interchange to I-95 at Countyline Road would not meet existing interchange spacing standards. The plan recommends that the City pursue PD&E, preliminary engineering, and construction phases of the project only after obtaining approval by these authorities that a new interchange would be permitted at County Line Road.

The following table provides a summary of the estimated costs per implementation phase for the recommended improvements as provided in Sections 6.3 through 6.5.

Table 6-3: Summary of Estimated Costs per recommended alternative

ID	Improvement Description	Cost

Short Term Improvements		
A4	New Connection: SE 2nd Street Extension	$2,060,000
B1	Single Point Intersection at Hallandale Beach Blvd. @ Dixie Hwy.	Included in Gulfstream DRI Costs
C3	Emergency Vehicle Pre-Emption System	$475,000
D3	Transit Super Stops on US 1 at Pembroke Rd. (Mardi Gras) and Gulfstream Park	Include in Development Costs
D5	Land Use/TOD Regulations for Future Development	No Cost
E1	Bike Lanes and Sidewalks included with Future Roadway Improvements on all Arterials and Collectors	Include in Future Project Costs
E2	Implementation of Crossing Countdown Signal Heads at all Traffic Signals with more than 2 Lanes	$55,000
E3	Bike Parking at Public Buildings and Major Destinations	$55,000
E4	Installation of Adequate Lighting along Bike/Ped Routes	$2,703,750
G1	Establishment of a Transportation Management Association (TMA)	$285,000
	TOTAL SHORT TERM COSTS	$5,348,750
Mid-Term Improvements		
B2	SE 3rd Street Alternate Corridor Bypass: SE 1st Avenue to US 1	$475,000
B3	SE 9th Street Corridor Improvements	$2,700,000
C2	Fiber Optic or Wireless Interconnect Signalization	$2,410,000
D2	Connector Shuttles from SFRTA Tri-Rail and Future Park and Ride Lots	$890,000
D3	Transit Super Stops on US 1 at Pembroke Rd. (Mardi Gras) and Gulfstream Park	Include in Development Costs
D4	Dedicated Bus Stop Bays on Major Arterial Routes	$410,000
D5	Land Use/TOD Regulations for Future Development	No Cost
	TOTAL MID TERM COSTS	$6,885,000
Long-Term Improvements		
A3	Grade Separation: Hallandale Beach Blvd @ Dixie Hwy	$33,700,000
A5	County Line Rd. Link: Dixie Hwy to I-95	$26,700,000
B4	Emergency Vehicle Pre-Emption System	$4,325,000
C4	Video Detection System	$1,370,000
D1	New FEC Commuter Rail Service with Dedicated Shuttle to Gulfstream	Roll shuttle into existing shuttle service
E5	Implementation of Citywide Bike and Pedestrian Signage	$55,000
E6	Implementation of Bike Detectors at all Minor Street Intersections	$210,000
F1	Reassignment of Traffic Off of Major Arterials during Major Events at Gulfstream Park and Mardi Gras	$247,500
G1	Establishment of a Transportation Management Association (TMA)	$285,000
	TOTAL LONG TERM COSTS	$66,892,500
Total Estimated Program Costs		
	TOTAL ESTIMATED MASTER PLAN COSTS	$79,126,250

NOTE: ALL COSTS ARE IN 2009 DOLLARS.

7.0 Potential Project Implementation Strategies

At the request of the City of Hallandale Beach, the Consultant team conducted an analysis of the potential allocation of the recommended Improvement costs to new developments in the City. This cost allocation would help fund congestion mitigation projects within the City over the planning horizon to 2030.

Traffic and transportation impact fees are used by several municipalities within the State of Florida including Orlando, Tampa, Kissimmee and others to generate funds needed to provide transportation facilities to serve new development.

Broward County until recently collected traffic or transit impact fees, depending on the location of development within the urbanized area. In 2004, the County transitioned to a transit-oriented concurrency fee system, replacing the impact fees in most areas. All revenues from these fees are dedicated to transit capital and operations costs identified in the transit development plan (TDP).

> *Prior to application for a building permit with any local government within Broward County, an applicant must obtain a Transportation Concurrency Satisfaction Certificate from Broward County. No municipal government can accept a building permit application, or issue a building permit, unless the corresponding Transportation Concurrency Satisfaction Certificate is presented. Enforcement of the proposed concurrency system is connected to the County's environmental review approval of construction plans.* [1]

Broward County's long range transportation plan (LRTP) for 2030 identified no new roadway projects within Hallandale Beach, although several transit system improvements, included in the LRTP as well as the five-year TDP, will have a positive impact on the city.

Within the structure of the LRTP, TDP and the transit concurrency fee system, the City of Hallandale Beach has an opportunity to collect funds from developers to contribute to the costs of providing transportation facilities to maintain an acceptable level of service within the transportation system.

The factors that a city has to consider when considering such an approach include:

- Level of service to be provided

[1] Broward County Transit Oriented Concurrency, Development Management Division.

- Improvements required to maintain level of service
- Methodology for assigning costs of new facilities
- Exemptions, offsets and credits
- Percent cost recovery

Comparison of Transportation Impact Fees

Table 7-1 indicates the traffic impact fee costs for various Florida municipalities as well as the national average for single family homes.

Table 7-1: Comparison of Transportation Impact Fees in Florida

Location	Single Family Residential Unit	Retail (1,000 sf)
Broward County	$1,364	$8,157
Tampa	$868	$3,557
Orlando	$5,374	$31,642
Kissimmee	$1,993	$31,841
St. Cloud	$8,373	$17,758
National Average	$1,700[3]	N/A

7.1 Allocation of Development Impacts to Transportation Network

The most equitable way to assess the transportation impact cost of any new development is to determine the improvements required to maintain an acceptable level of service on the system, and then to allocate the proportionate cost to the development based on the amount of the added capacity that the new development will consume. This is shown in the following equation:

$$\text{Transportation impact cost} = \frac{\text{Capacity consumed by development}}{\text{Capacity provided by improvement projects}} \times \text{Cost of improvement projects} \times \text{Recovery ratio}$$

Project Costs

Costs of recommended projects are shown below. Table 7-2 summarizes the cost for each recommended project included in the 2030 Master Plan for Hallandale Beach.

[3] Duncan Associates, 2007

Table 7-2: Improvement Project Costs

ID	Improvement Description	Cost
	Major Capital Roadway Improvements (A)	
A3	Grade Separation: Hallandale Beach Blvd @ Dixie Hwy.	$33,700,000
A4	New Connection: SE 2nd Street Extension	$2,060,000
A5	County Line Rd. Link: Dixie Hwy to I-95	$26,700,000
	TSM Improvements (B)	
B1	Single Point Intersection at Hallandale Beach Blvd. @ Dixie Hwy.	Included in Gulfstream DRI Costs
B2	SE 3rd Street Alternate Corridor Bypass: SE 1st Avenue to US 1	$475,000
B3	SE 9th Street Corridor Improvements	$2,700,000
B5	Dixie Highway/E. 1st Avenue Corridor Improvements	$4,325,000
	ATMS(ITS) Improvements (C)	
C1	Locally Controlled Traffic Center	$4,325,000
C2	Fiber Optic or Wireless Interconnect Signalization	$360,000 for Wireless, $2,050,000 for Fiber-optic
C3	Emergency Vehicle Pre-Emption System	$475,000
C4	Video Detection System	$1,370,000
	Transit Improvements (D)	
D1	New FEC Commuter Rail Service with Dedicated Shuttle to Gulfstream	Roll shuttle into existing shuttle service
D2	Connector Shuttles from SFRTA Tri-Rail and Future Park and Ride Lots	$85,000 per year of operation
D3	Transit Super Stops on US 1 at Pembroke Rd. (Mardi Gras) and Gulfstream Park	Include in Development Costs
D4	Dedicated Bus Stop Bays on Major Arterial Routes	$55,000 per stop
D5	Land Use/TOD Regulations for Future Development	No Cost
	Bicycle/Pedestrian Improvements (E)	
E1	Bike Lanes and Sidewalks included with Future Roadway Improvements on all Arterials and Collectors	Include in Future Project Costs
E2	Implementation of Crossing Countdown Signal Heads at all Traffic Signals with more than 2 Lanes	$55,000
E3	Bike Parking at Public Buildings and Major Destinations	$55,000
E4	Installation of Adequate Lighting along Bike/Ped Routes	$540,000 per mile – 2 lane Road $1,080,000 per mile – 4 lane Road
E5	Implementation of Citywide Bike and Pedestrian Signage	$55,000
E6	Implementation of Bike Detectors at all Minor Street Intersections	$210,000
	Alternate Circulation Routes (F)	
F1	Reassignment of Traffic Off of Major Arterials during Major Events at Gulfstream Park and Mardi Gras	$20,000 per year
	Regional Coordination (G)	
G1	Establishment of a Transportation Management Association (TMA)	$30,000 per year

Note that cost estimate of several projects was provided by unit, i.e., cost/yr, cost/mile, cost/stop. Total cost of such projects was estimated by multiplying unit cost by number of units. Total cost of all recommended cost is approximately $81,500,000, of which, $80,200,000 is for projects related with major roadway capacity improvement, and $1,300,000 is for public transit related

improvement projects. Total cost for each improvement project is provided in Table 7.3.

Transportation System Capacity Improvement

The transportation system capacity added by each project was estimated in equivalent vehicle lane miles for major capital roadway improvements, TSM improvements, ITS improvements, bicycle/pedestrian facility improvements, and alternative circulation route improvements. The roadway capacity estimated at 10,363[4]×0.095[5] = 984 vehicles per hour per lane is consistent with several other studies conducted in the State of Florida.

For several of the improvements included in the Master Plan, simple capacity lane mile calculations were not possible based on accepted national standards, and estimates were made.

Capacity provided by transit improvements was estimated as passenger trips based on an average automobile occupancy of 1.2 persons. Additional daily transit capacities were estimated and converted peak hour transit trip by assuming 15% of daily transit trips occurs within one hour during peak periods. An APTA survey in 2004 indicated that national-wide average bus trip distance is 3.7 miles. Peak hour bus trips were multiplied by the average trip distance to obtain equivalent roadway capacity provided by transit related projects. Table 7.3 summarizes equivalent roadway capacity provided by improvement projects.

[4] City of Kissimmee Transportation Impact Fee Update Study Final Report, February, 2006, TOA.

[5] K factor = 0.095 assumed per FDOT LOS tables.

Table 7-3: Improvement Project Cost and Capacity

Category	Project ID	Length (miles)	Lanes Added	Lane Miles	Lane Miles Capacity	Total Cost
Major Capital Roadway Improvements	A3	0.50	2	1.00	984	$33,700,000
	A4	0.30	2	0.60	590	$206,000
	A5	0.50	2	1.00	984	$26,700,000
TSM Improvements	B1	0.10	2	0.20	197	$0
	B2	0.35	1	0.35	344	$475,000
	B3	0.10	2	0.20	197	$2,700,000
	B5	-	-	-	197	$4,325,000
ATMS (ITS) Improvements	C1	0.25	2	0.50	492	$4,325,000
	C2	0.25	2	0.50	492	$2,410,000
	C3	-	-	-	197	$475,000
	C4	-	-	-	344	$1,370,000
Transit Improvements	D1	Daily Trips Added	400	-	185	$0
	D2		-	-	191	$890,000
	D3		340	-	157	$0
	D4		80	-	37	$410,000
	D5		-	-	-	$0
Bicycle/Ped Improvements	E1	0.20	2	0.40	394	$0
	E2	-	-	-	100	$55,000
	E3	-	-	-	100	$55,000
	E4	-	-	-	283	$2,703,750
	E5	-	-	-	100	$55,000
	E6	-	-	-	200	$210,000
Alternate Circulation Routes	F1	0.30	2	0.60	590	$247,500
Regional Coordination	G1	0.35	1	1.0	344	$285,000

Note:
1. Assume that 15% of daily transit trips occurs in one hour of daily peak periods.
2. Average transit trip length is 3.7 miles. Source: APTA, 2004.

Capacity Consumption

Capacity consumed by a development, in vehicle-lane-mile, is calculated as:

$$\text{Capacity consumed} = \sum_i (\text{Total number of units}_i \times \text{Trip rate}_i \times \text{Trip length}_i)$$

Where **i** is an index number of land use type of a development. The capacity consumption indicates how much capacity provided from improvement projects is consumed by the traffic from the individual development.

To estimate the capacity consumed by each development, Table 7.4 was developed using ITE Trip Generation handbook and the Broward County Trip Generation Table.

Table 7-4: Peak Hour Trip Generation Table for the City of Hallandale Beach

LUC	Land Use	Unit	Trip Rate	TLF	Trip Length (mi)
Residential	Single Family (Detached)	du	1.01	0.88	1.06
	Townhouse	du	0.54	0.88	1.06
	Garden Apartment	du	0.61	0.88	1.06
	Mobile Home	du	0.59	0.88	1.06
	High-Rise	du	0.36	0.88	1.06
	Retirement Community	du	0.20	0.88	1.06
	Hotel	du	0.62	0.88	1.06
	ALF	du	0.26	0.88	1.06
Commercial/Retail	Restaurant	1,000 sf	9.59	0.65	0.78
	Fast Food Restaurant	1,000 sf	19.57 (43% passby)	0.65	0.78
	Convenience Store	1,000 sf	20.03 (60% passby)	0.65	0.78
	Service Station w/ Conv. Store (fuel pos)	fuel pos	9.83 (26.5% passby)	0.65	0.78
	Drug Store	1,000 sf	8.62	0.65	0.78
	Day Care	1,000 sf	13.18	0.65	0.78
	Auto Dealership	1,000 sf	2.64	0.65	0.78
	Health / Fitness Club	1,000 sf	4.73	0.65	0.78
	Nursery / Garden Center	1,000 sf	5.17	0.65	0.78
	Auto Care Center	1,000 sf	3.38	0.65	0.78
	Commercial	1,000 sf	3.75	0.65	0.78
	Commercial Recreation (acre)	acre	7.85	0.65	0.78
Office, Institutional and Recreational	Office	1,000 sf	1.49	0.77	0.92
	Hospital	1,000 sf	0.71(FA) +233.89	0.77	0.92
	Bank	1,000 sf	38.70	0.65	0.78
	Church (weekday)	1,000 sf	0.66	0.65	0.78
	Community Facility	1,000 sf	1.64	0.59	0.71
	Library	1,000 sf	7.09	0.59	0.71
	Nursing Home (bed)	bed	0.22	0.77	0.92
	Elementary School (School)	school	85.00	0.59	0.71
	Secondary School	1,000 sf	1.03	0.59	0.71
	Passive Park (acre)	acre	1.31	0.77	0.92
	Active Park (acre)	acre	3.34	0.77	0.92
	Marina (boat berth)	boat berth	0.19	0.59	0.71
	Golf Course (acre)	acre	0.30	0.59	0.71
Industrial	General Industrial	1,000 sf	0.77	1.00	1.20
	General Industrial (acre)	acre	8.33	1.00	1.20
	mini-warehouse	1,000 sf	0.26	1.00	1.20
	Flex Industrial	1,000 sf	3.76	1.00	1.20

Note:

1. Trip rate is recommended peak hour trip rate
2. TLF: Trip length factor
3. Assume average trip length is 8 miles, within Hallandale Beach, assume 1.2 mi trip length.

Trip length for each land use type is calculated by applying a trip length factor to the average trip length. The average trip length for Broward County is assumed to be 17.86 minutes[6]. Based on this travel time, a total trip length of about eight

[6] SE Florida Regional Travel Characteristics Study, October 2000, Corradino Group.

miles was determined. However, it is believed that only a small part of such eight-mile trips are on Hallandale Beach Blvd. Table 7.4 assumes that average trip length of trips generated in the City of Hallandale Beach during PM peak hours is 1.2 miles. The trip length factor further adjusts trip lengths for trips of different land use.

Transportation Cost of Development

The equivalent roadway capacity provided by the recommended 2030 Master Plan for Hallandale Beach is:

7,700 peak hour vehicle-lane-miles of capacity

This equates to a cost per new peak hour trip of

$10,584 per trip-mile

Each new development within the City of Hallandale Beach is assumed to consume this new capacity based on the trip generation and trip length rates contained in Table 7.4. For example, a single new home would generate 1.01 (pk hour trip generation) x 1.06 (trip length) = 1.07 peak hour trip miles, equating to a basic $11,325 contribution to the new transportation capacity included in the 2030 Transportation Master Plan. Further adjustment is made depending on the location of development (see Trip Cost Allocation Model).

Recovery Ratio

Communities typically set a recovery ratio to adjust this charge to what is considered acceptable to the development community. Given the very high costs to add relatively meager capacity in a built-out community like Hallandale Beach, it is likely that the recover ratio may fluctuate depending on development type with the final ratio being established by the City Commission,

Trip Cost Allocation Model

A trip cost allocation model was developed for the City of Hallandale Beach, using Microsoft Excel software. This model allows the user to modify project costs, capacity assumptions, and the recovery ratio, to finally calculate a cost allocation for any new proposed development within the city. This model has been provided to the City as a portion of the final deliverable, for the City's future use in calculating trip-Costs for new developments.

7.2 Local, State, and Federal Participation in the Transportation Master Plan

The City will play a major role in the implementation of all aspects of the Master Plan despite the fact that many of the projects may occur on County or State roadways. The process for project prioritization and implementation must consider the funding sources to be used and the agencies responsible for their construction, maintenance and operations. All non-Strategic Intermodal System (SIS) projects that require state or federal funding must be adopted into the Broward County MPO long range transportation plan (LRTP). The City should coordinate the recommendations of the TMP with the Broward MPO and participate in the MPO LRTP development process (currently underway for the 2035 update) to ensure that appropriate data, assumptions, costs and prioritization criteria applied in the regional plan represents and reflects the City's Transportation Master Plan. The MPO, FDOT, County and other municipalities all participate in the LRTP development. The City of Hallandale Beach has an alternate voting member position for District 4 of the MPO Transportation Technical Committee (TCC). Active participation at the TCC and careful review of the LRTP process is crucial toward getting needed TMP projects selected and prioritized in the MPO LRTP.

Projects developed and prioritized for the MPO LRTP must also meet the criteria of being *Cost Feasible* in order to become part of the Cost Feasible portion of the LRTP. Federal requirements prevent projects which are not cost feasible or that cannot be completed with "reasonably" available revenue sources from being included in the local county LRTP. The use of local funds (including developer contributions such as right-of-way or concurrency impacts) to match state or federal dollars for project development, design or construction can help advance projects into the prioritized MPO cost feasible project list.

Improvements to city maintained facilities should be prioritized and included with the capital improvements work program (CIP). The sources of revenue to implement these projects may also influence the priority of how the projects are completed.

Note that implementation of large capital projects (either in the Planning/PD&E Phase, Design Phase, or Construction Phase), on state roadways using State or Federal Funding, requires municipalities to be certified with the Florida Department of Transportation (FDOT) through their Local Agency Program (LAP). Otherwise, the MPO would prioritize the work to be performed by the FDOT.

7.3 Funding Opportunities

Besides opportunities for State and Federal funding through the conventional County MPO LRTP, locally funded projects within the City of Hallandale Beach can use a variety of sources. Some of these alternative new funding sources may require City ordinance resolution or citizen referendum to establish public support. The following provides a summary of the typical funding mechanisms used for municipal transportation financing throughout Florida:

Local Option Gas Tax

Transportation Impact Fees

DRI Transportation Mitigation (including negotiated developer contributions)

Community Redevelopment Area

Tax Increment Finance

Benefit Assessment Area

Development Proportionate Share (SB 360 requirement)

Transportation Concurrency Backlog Authority

8.0 Next Steps

The implementation of the City of Hallandale Beach 2030 Transportation Master Plan will require close coordination among the City departments with key decisions made by the City Commission and City Manager. This section identifies the next step actions in preparation for planning and implementing the Master Plan's transportation improvements.

8.1 Implementation Policies and Strategies

Adopt Transportation Master Plan

The City of Hallandale Beach 2030 TMP will need to go before the City Commission for approval and adoption. The adoption of the TMP will lead to future actions by the City Commission including ordinance updates, resolutions and budget decisions to prepare for transportation improvements. The TMP will serve as guide for the City to plan and implement transportation improvements and policies through Year 2030.

Adopt Project Implementation Strategy

The City Commission will need to adopt a project implementation strategy as a tool to assess costs to new developments. The strategy will serve as an integral part of a program to fund the recommended transportation improvements identified through Year 2030.

Training and Implementation of Cost Allocation Model

A trip cost allocation model was developed for the City of Hallandale Beach, using Microsoft Excel software. The City will receive initial direction on how to input project costs, capacity assumptions and recovery ratio. The City will need to identify and assess what parameters to adjust the model to meet the specific needs of the City. The City will need to continue to provide training to other appropriate staff on the methodology to calculate a cost allocation for any proposed development within the city.

Partnering with Neighboring Communities

In the City of Hallandale Beach, planning and implementation of transportation improvements may affect the surrounding communities of Aventura, Hollywood and Pembroke Park. It is important that the City, neighboring communities, business and community organizations build partnerships to establish a Transportation Management Association (TMA) to prepare for transportation

improvement initiatives that will have a regional impact. The TMA should be organized to coordinate regional activities, such as vanpools, transit service (such as trolley's), and parking management initiatives that will encourage the removal of traffic from the roadway network.

Coordination with FDOT and Broward County

The City will need to coordinate with the Florida Department of Transportation (FDOT) District 4 and Broward County Traffic Engineering Department before pursuing identified transportation improvements on state and county roadways.

Monitoring and Evaluation of Transportation Master Plan

The intent of the Master Plan is to serve as a living document, in which once incorporated into the City's Comprehensive Plan, will serve as a framework for transportation decisions for the City of Hallandale Beach in the future.

The initial recommended actions identified in the plan will serve as a valuable planning guide for the City in the short-term. The Master Plan should be reviewed by the City on a regular basis, when engaging in transportation improvements and new development activity. This is necessary to ensure consistency with goals and priorities of the plan and to include any identified improvements from the Master Plan into the developments, as they occur. With changes to transportation, traffic, land use and other conditions over time, the plan should be reassessed every five years to determine if the TMP requires an update.

It is recommended that the City's Comprehensive Plan and Transportation Master Plan be assessed together on an annual basis to ensure concurrency between the transportation and land use plans. The City also needs to monitor and assess if the pace of development coincides with the pace of transportation investments. Monitoring the activity between land use development and transportation improvements will better ensure that the decision making process is properly coordinated.

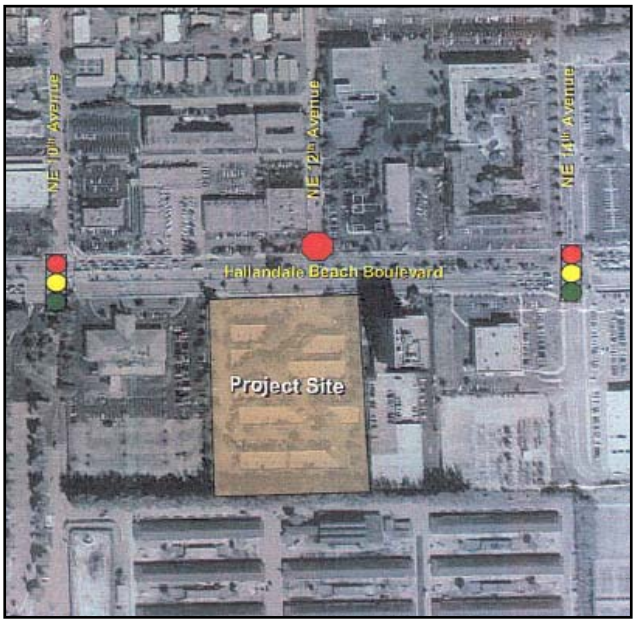
APPENDIX A

Summary of Previous Studies

Summary of Previous Studies

A review of previous transportation studies was completed to identify issues and findings relevant to the Transportation Master Plan. The data and recommendations from these studies were analyzed to reduce duplication of efforts regarding analysis of transportations issues and impacts in the City. The proposed and planned developments were identified in the plan and inputted in the traffic model collectively as a whole to determine the impacts to the City's roadway system. While the individual developments may significantly impact the level of service of the roadway system, the plan incorporates a "full" build out scenario. Figure x displays the study limits of the traffic studies that were reviewed and summarized, with the identified locations of the associated proposed developments.

Oasis
Supplemental Traffic Analysis
(Traf Tech Engineering, Inc., July 2006)



Traf Tech Engineering, Inc performed a supplemental traffic analysis for the Oasis mixed-use development (Hallandale Beach Blvd & NE 12th Avenue) in response to comments provided by the City of Hallandale Beach regarding the March 2006 Oasis traffic study. The project study area includes the major arterials within the City of Hallandale Beach limits (Hallandale Beach Boulevard, Dixie Highway, U.S. 1/Federal Highway, and S.R. A1A). The study analyzed existing conditions and future conditions with and without the proposed Oasis mixed-use development based on Broward County's TRIPS model. The additional traffic impacts of approved projects as well as planned projects located in the City, were included in this evaluation. The study also addressed mass transit and pedestrian modes of traffic.

The results of the study concluded that the Oasis mixed-use development project will not significantly impact any roadway segment in the study area.

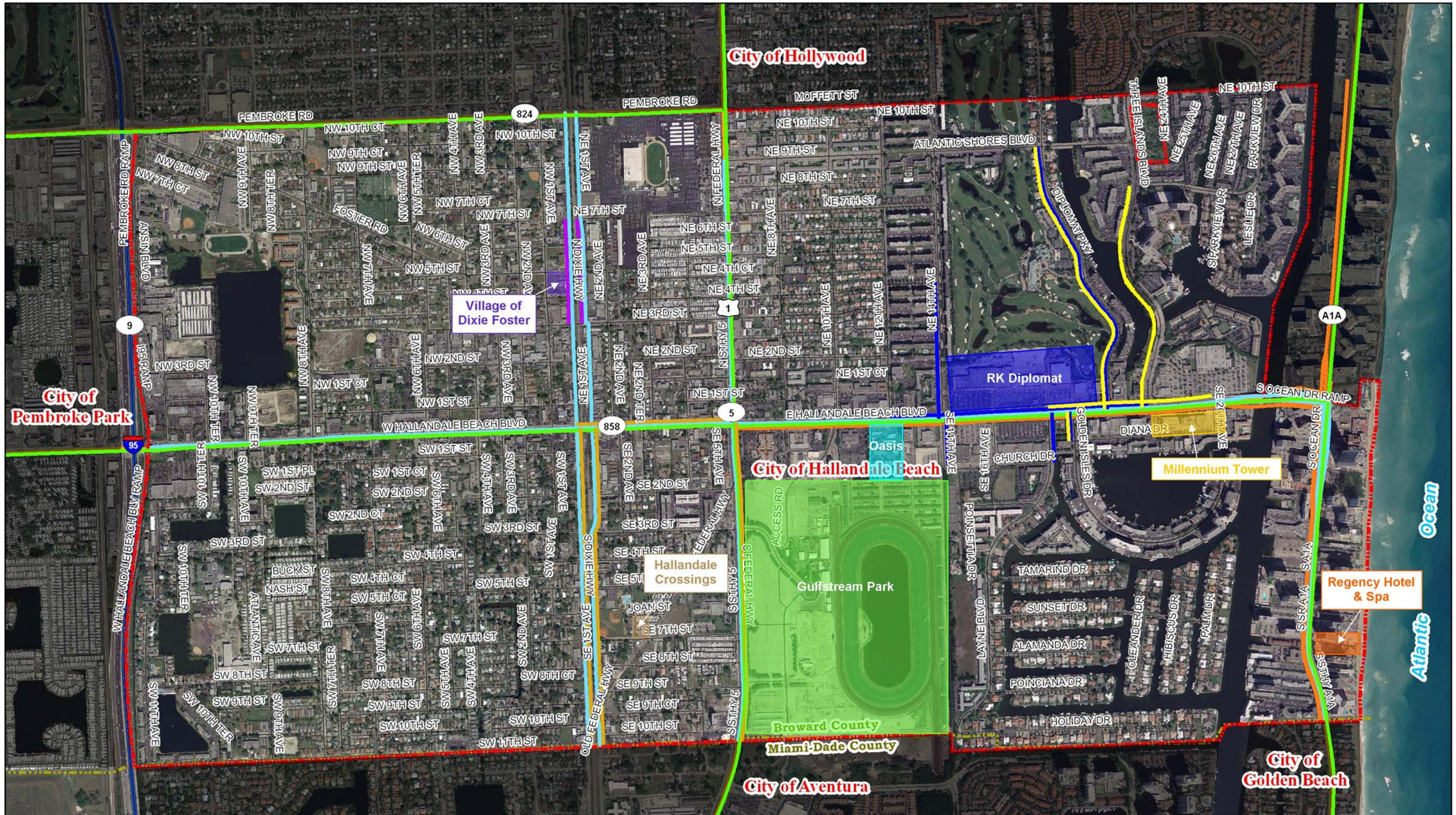
There were not any roadway segments in the study area where the projected traffic equaled or exceeded five percent of the roadways' service volume based on acceptable Level of Service (LOS) standards. The project will not cause any roadway segment to operate at a deficient level of service. The transit service in the study area will see an increase of the minimum standard 30-minute headway from 80% to 100% of routes based on improvements planned in Broward County's Transportation Improvement Program.

Village at Gulfstream Park,
Development of Regional Impact (DRI) Assessment
(Kimley Horn & Associates, June 2006)

A traffic impact analysis was developed to evaluate the regional impacts of the Village at Gulfstream Park DRI. The development includes an approximately 60.8 acres of new mixed use retail, commercial recreation, office, hotel and residential development on the existing surface parking lot at Gulfstream Park. The study area is bounded on the north by Stirling Road, on east by S.R. A1A, on the south by S.R. 826 and on the west by S.R. 7/U.S. 441. P.M. peak hour traffic on segments of U.S. 1 and Hallandale Beach Boulevard adjacent to the project site were analyzed during racing season as the baseline condition. Impacts on transit service were also analyzed due to the site location in a Transit-Oriented Concurrency District

The majority of roadways were discovered to operate at or above the adopted level of service standards except for the following segments:

- Hallandale Beach Boulevard between SW 48th Avenue and SR AIA (Ocean Drive)
- Pembroke Road between I-95 and Dixie Highway
- U.S. 1 between Ives Dairy Road and Pembroke Road



2030 Transportation Master Plan

Legend

- Major Arterials
- Roadway Network
- County Boundary
- Study Area
- Gulfstream Park DRI
- Oasis
- Regency Hotel & Spa
- Village of Dixie Foster
- Hallandale Crossings
- Millennium Tower
- RK Diplomat

N

0 0.05 0.1 0.2 0.3 0.4 0.5 Miles

Summary of Previous Transportation Studies

Figure A

HDR

The Institute of Transportation Engineers (ITE) Trip Generation, 7th Edition was used to determine the total PM peak hour trips for approved land uses.

Millennium Tower-Hallandale,
Traffic Impact Study
(Tinter Associates, Inc., December 2005)

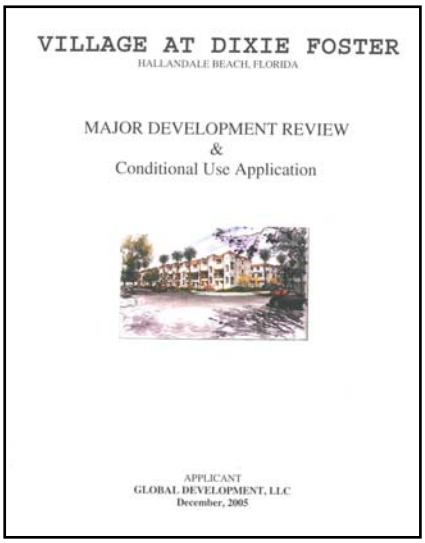
The Millennium Hallandale, LLC is proposing the redevelopment of a property located along the south side of Hallandale Beach Boulevard between Three Islands Boulevard and S.E. 26th Avenue for a 179 residential unit condominium development with office and retail use. The Traffic Impact Study was prepared in accordance with a methodology statement dated September 26th, 2005. Tinter Associates, Inc. assessed existing traffic conditions, projected trip generation characteristics with the proposed development, and analyzed operating conditions of adjacent roadways and intersections.

Tinter Associates, Inc. analysis of the traffic impacts of the proposed development concluded that the area roadways and intersections would be minimally impacted. The Millennium Tower-Hallandale development is expected to increase traffic volumes by 99 vehicles per day, four vehicles during the A.M. Peak Hour and 15 vehicles during the P.M. Peak Hour. A signalized intersection capacity analysis was preformed along Hallandale Beach Boulevard at Golden Isles Drive, Diplomat Parkway, and Three Islands Boulevard with results showing the project is expected to have minimal impact on intersection levels of service under existing phasing and timing plans. Broward County Transit Routes 4 and 28 provide adequate mass transit options for future residents and patrons.

Village at Dixie Foster
Traffic Impact Statement
(Tinter Associates, December 2005)

Tinter Associates, Inc. developed a Traffic Impact Statement to address potential traffic impacts from the proposed residential/commercial development known as the Village of Dixie Foster, which is located in the southwest quadrant of Dixie Highway and NW 5th Street. The project

proposes 17 townhouse dwelling units and 312 square feet of retail. ITE Trip Generation Manual was used for potential trip generation activity for the proposed development based on the number of dwelling units.


VILLAGE AT DIXIE FOSTER
HALLANDALE BEACH, FLORIDA

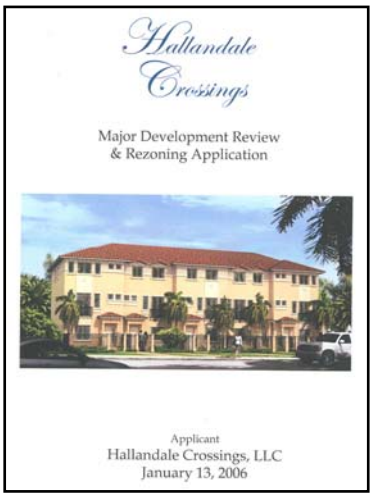
MAJOR DEVELOPMENT REVIEW
&
Conditional Use Application

APPLICANT
GLOBAL DEVELOPMENT, LLC
December, 2005

The analysis concluded that the estimated 14 additional PM peak hour trips for the proposed development would not significantly impact the adjacent roadway system. Broward County Transit Bus Route 6 provides an existing alternative mode of transportation along the Dixie Highway corridor on 30-minute headways. The Broward County TRIPS model was used to examine PM peak hour activity along Dixie Highway at NW 5th Street. There was ample capacity available if the trips for the Village of Dixie Foster were assigned to the segment.

Hallandale Crossings
Traffic Impact Statement
(Tinter Associates, Inc., October, 2005)

Tinter Associates, Inc. developed a Traffic Impact Statement to address potential traffic impacts of the proposed Hallandale Crossings residential development. The project is located on the west side of SE 2nd Avenue between SE 7th and SE 8th Streets and proposes a 29 unit, townhouse development. Tinter Associates, Inc. analyzed the traffic as well as mass transit opportunities. They looked at potential trip generation activity for the proposed development using the ITE Trip Generation Manual, based on the number of dwelling units.


Hallandale Crossings

Major Development Review
& Rezoning Application

Applicant
Hallandale Crossings, LLC
January 13, 2006

The results showed that the proposed project would not have significant impacts on the adjacent roadway system, generating a total of 19 new AM peak hour trips and 22 new PM peak hour trips. The impact on the surrounding roadway network would be less than the current occupied dwelling on the proposed site for Hallandale Crossings. The Broward

County TRIPS model was used to examine PM peak hour activity along Dixie Highway, Hallandale Beach Boulevard and U.S. 1/Federal Highway adjacent to the project. Based on the model capacities of the three arterials, all trips from Hallandale Crossings development would fall within the carrying capacities. Mass transit is currently available as an alternative mode of transportation with four Broward County Transit routes currently in service.

Regency Hotel & Spa
Traffic Impact Study
(Hughes Hughes, Inc, August 2002)

The Regency Hotel & Spa is proposing a 130-unit hotel/condominium on the east side of S.R. A1A between Hallandale Beach Boulevard and the Broward/Miami-Dade County line and will replace the existing 70-unit hotel, Regency Beach Club. The completion of the project is anticipated for 2005.

Hughes Hughes, Inc. evaluated the impacts of traffic on the area roadways of Hallandale Beach Boulevard (between U.S.1 and S.R. A1A) and S.R. A1A (north and south of Hallandale Beach Boulevard). AADT information was obtained from 2001 FDOT Traffic Information data and was converted to peak hour volumes. 1999 Broward County's TRIPS model was used for Traffic Analysis Zones (TAZ's) adjacent to the project.

The analysis concluded that the proposed development would not significantly impact existing levels of service on the adjacent roadway network. A portion of Hallandale Beach Boulevard between the Intracoastal Waterway and S.R. A1A was expected to improve substantially as a result of the ongoing widening project. The proposed development will create 536 new daily trips with 47 more AM Peak-Hour trips and 39 PM Peak-Hour trips.

RK Diplomat Shopping Center
Traffic Impact Study
(Tinter Associates, Inc., June 2002)

Tinter Associates, Inc. analyzed the traffic impacts of the redevelopment of the existing Diplomat Mall on the adjacent roadway system. The project involves reducing retail space by approximately 100,000 square feet and replacing it with 600 high-rise apartment dwelling units. Diplomat Mall is located on the north side of Hallandale Beach Boulevard between NE 14th Avenue and Diplomat Parkway. Additional analysis was completed at the intersection of Hallandale Beach Boulevard and Layne Boulevard. Traffic volumes were studied at the intersections of Hallandale Beach Boulevard at NE 14th Avenue, Golden Isles Dr., and Diplomat Parkway. The scenarios examined were seasonal conditions without the project and total condition with the redevelopment.

The results showed that the Diplomat Mall redevelopment is not expected to significantly increase traffic at the project site and on adjacent roadways. It was determined that existing roadway volumes would not increase greater than 5%. The focus of the analysis was on the AM Peak Hour traffic with an increase of 98 more trips as a result of redevelopment. The daily and PM peak hour showed a decrease in trips. The assessment of the intersection of Hallandale Beach Boulevard and Layne Boulevard showed no significant impact to traffic volumes but a change in roadway geometrics and modifications to the existing traffic signal configuration would be necessary to provide signal displays for the southbound traffic.

APPENDIX B

List of New Developments

Proposed and Planned New Developments List

(source: Copy of Timing of Development Hallandale_DMS.xls; update 10/29/06)

Name of Development	Address	Use Type	Units	Space (Ft.2)
201 Golden Isles (Golden Isles Yacht Club)	201 Golden Isles	Residential Condominium	44	0
4th Court Townhomes	211 NE 4 Court	Townhomes	7	0
Aquamarina - 601 Old Federal Highway	601 Old Federal Hwy	Residential Condominium	147	0
Atrium Shopping Center (20 Stories, office/mixed use)	1025 E Hallandale Beach Blvd	Residential Condominium/Retail	100	95,000
Balogh Property (10 stories, mixed)	1101 E Hallandale Beach Blvd	Restaurant/Retail	0	58,000
Barnett's Hardware	100 E Hallandale Beach Blvd	Office	0	40,000
Beach Club - 1850 South Ocean Drive (1)	1850 S Ocean DR	Residential/Commercial Retail	1,249	40,000
Bella Villagio	201 SE 3 Ave	Residential Condominium	24	0
Big Irv's (30 stories, mixed)	821 N. Federal Hwy	Residential Condominium/Office/Retail	250	300,000
Church Of Christ	301 N Dixie Hwy	Church	339	Stats
Curci Village II	330 SW 2 Ave	Residential Condominium	17	0
Desjardin Bank	1001 E Hallandale Beach Blvd	Office	0	40,000
Diplomat - 1725 E. Hallandale Beach	1725 E Hallandale Beach Blvd	Residential Condominium/Commercial	400	323,860
Dixie/Foster	15 Foster Road	Residential Condominium	17	0
Elementary School	1000 SW 8 ST	School	1,500	Students
European Club / Wachovia	2101 E Hallandale Beach BLVD	Residential Condominium/Commercia/Hotel	268	300,000
Flannigan's (30 stories)	4 North Federal Highway	Residential Condominum/Office/Retail/Hotel	250	190,000
Friendly Inn (R.Shan) (Hallandale Crossings)	700 Old Federal HWY	Residential Condominium	30	0
Gulfstream Promenade - 600 E. Hallandale Beach Blvd.	600 E Hallandale Beach BLVD	Commercial/Office/Retail	0	200,000
Hallandale Commons - 22 S.W. 11th Street	22 SW 11 ST	Commercial/Office Space	0	10,000
Hallandale Kingdom Hall of Jehovah's Witnesses	1000 SW 2 ST	Church/Residential Condominium	228	Seats
Hallandale Oaks Townhomes	212 NE 3 ST	Residential Condominium	12	0

Name of Development	Address	Use Type	Units	Space (Ft.2)
Hallandale Retail Center	704 W Hallandale Beach BLVD	Commercial/Office	0	10,000
Hallandale Village_A	224 SE 2 AVE	Residential Condominium	14	0
Hallandale Village_B	212 SE 2 ST	Townhomes	14	0
Harbor Cove - 100 N.W. 9th Terrace	100 NW 9 TERR	Residential Condominium	212	0
Highland Trailer Park	116 NW 3 Avenue	Townhomes	37	0
Hollywood_Dog_Track_A1	831 N Federal HWY	Residential/Retail	375	375,000
Hollywood_Dog_Track_A2	831 N Federal HWY	Residential/Retail	375	375,000
Home Federal Bank	900 N Federal HWY	Commercial Office Space / Bank	0	24,634
Ken Israel -a	2100 E Hallandale Beach BLVD	Residential Condominum/Office/Retail/Hotel	180	150,000
Ken Israel-b	1250 E Hallandale Beach BLVD	Office/Retail	0	70,000
Manero's (Mixed Use 30 to 47 stories)	2600 E Hallandale Beach BLVD	Residential Condominium/Hotel/Retail	611	30,000
Marbay Motel (30 stories)	2110 E Hallandale Beach BLVD	Residential Condominium/Office/Retail	250	300,000
Millennium Hallandale	2500 E Hallandale Beach BLVD	Residential Condominium	179	33,919
MiniMac Site	1011 West Hallandale Beach Blvd	Office	0	33,000
Montessori School	800 S Dixie HWY	School	111	Students
Motel Fredola	900 S Federal Hwy	Office	0	150,000
Nana's Daycare (30 stories)	1010 S Federal HWY	Office	0	300,000
Nursing Home	2400 E Hallandale Beach BLVD	Nursing Home/Office	100	70,000
Oasis - Hallandale Professional Center	1100 East Hallandale Beach Blvd	Residential/Office/Retail	250	190,000
Ocean Marine -1945 South Ocean Drive (4)	1944 S Ocean DR	Residential Condominium/Retail	492	31,500
Ocean Reef/ Walmart	2150 E Hallandale Beach BLVD	Residential Condominium	800	200,000
Old City Hall	308 S Dixie HWY	Office	0	70,000
Palmetto/Paddock Trailer Park (Park Central)	301 N Federal Hwy	Residential Condominium	373	20,000
Parkview Motel	806 S Federal HWY	Hotel	0	95,000
Philpart Block	501 NW 1 Ave	Residential/Commercial	60	300,000

Name of Development	Address	Use Type	Units	Space (Ft.2)
Regency Spa (South Ocean Drive)	2000 S Ocean DR	Residential Condominium	130	0
Reimer	301 E Hallandale Beach Blvd	Office	0	40,000
Royal Palm Trailer Park	714 S Federal Hwy	Residential Condominium/Retail	200	200,000
S. Reimer (6 storieS, mixed)	400 E Hallandale Beach BLVD	Residential Condominium/Office/Retail	75	100,000
SAGE (30 stories)	730 East Hallandale Beach Blvd	Residential Condominum/Office/Retail	250	190,000
Seabreeze Townhouses	800 NE 6 ST	Residential Condominium	8	0
Second Ave. Homes	330 SW 2 AVE	Residential Condominium	15	0
Seville Park (30 stories)	437 N Federal HWY	Residential Condominium/Office/Retail	250	300,000
Smith Barney	980 E Hallandale Beach BLVD	Office	0	200,000
Surgical Outpatient/Pain Consultants	306 E Hallandale Beach Blvd	Medical	12	6,400
The Village at Gulfstream Park, Part 1 (letter dated 8/26/05 and Sept. 2006 newspaper article, The Digest)	901 S Federal HWY	Residential Condominium/Retail/Office/Hotel	750	378,500
The Village at Gulfstream Park, Part 2 (letter dated 8/26/05 and Sept. 2006 newspaper article, The Digest)	901 S Federal HWY	Residential Condominium/Retail/Office/Hotel	1,250	515,000
Townhomes	777 SW 7 Avenue	Townhomes	3	0
Upper Deck (30 stories)	980 East Hallandale Beach Blvd	Residential Condominum/Office/Retail	250	190,000
Vacant_090506	918 S Federal HWY	Office	0	100,000
Vacant_RussBiss	625 W Hallandale Beach BLVD	Retail	0	30,000
Vacant-A	502 NW 1 AVE	Townhomes	17	0
Vacant-B	400 W Hallandale Beach BLVD	Retail/Office	0	40,000
Vacant-C	600 FOSTER RD	Residential Condominium	12	0
Vacant-D	812 S Federal HWY	Office	0	200,000
Vacant-E	310 Ansin BLVD	Manufacturing	0	700
Vacant-F	980 S Federal HWY	Office	0	200,000
Wachovia Bank	1000 E Hallandale Beach BLVD	Residential Condominium/Office/Retail	250	190,000

APPENDIX C

Existing Network

APPENDIX D

Traffic Data

APPENDIX E

Transit Data

APPENDIX F

Traffic Model