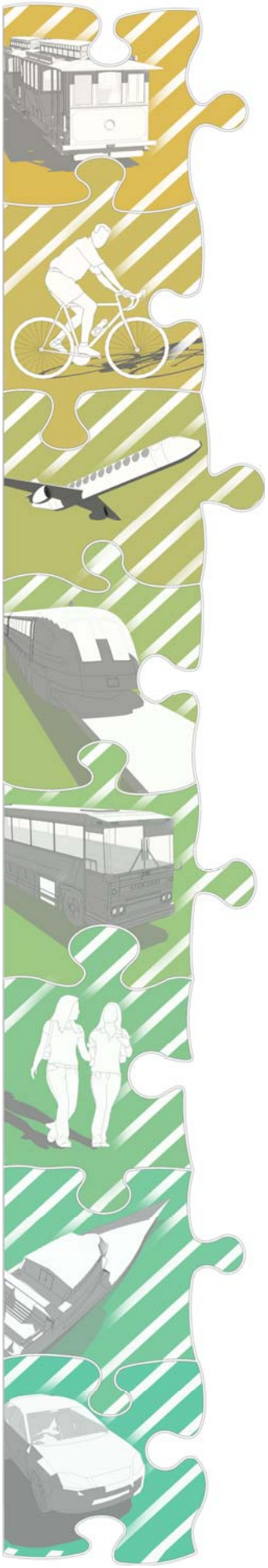

Broward MPO

2035 Long Range Transportation Plan

Technical Report #3
Data Compilation and Review

Created by:

JACOBS™

December 2008

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDIX

1.0 INTRODUCTION

The purpose of this report is to compile and review all relevant data for the Broward MPO 2035 Long Range Transportation Plan. This data will help identify and assess the needs of the County's transportation components. Key elements of the data compilation and review include highway and transit networks, bikeways, pedestrian, greenways, waterborne transportation, intelligent transportation systems (ITS) and freight. Plans reviewed in this document are germane at the local, state, and federal level.

Geographic Information Systems (GIS) was utilized to compile, evaluate and represent the data. The use of GIS enables a maximum of efficiency and accuracy in data assembly and storage, particularly for the analysis of a system as extensive as Broward County.

A great deal of the information compiled was used to prepare the travel demand model for use in forecasting automobile and transit travel in 2035. This model relies on socioeconomic data (population and employment) for the base year (2005), as well as forecasts for the 2035 horizon year, which were obtained from Broward County's Planning Services Division. In addition, special generator data (e.g. airport), external trip forecasts, and school enrollment data are used by the model in the forecasting of future travel. These components are addressed in greater detail in Technical Memo 4, Model Application Methodology.

2.0 FORECASTING MODELS

Introduction

The purpose of this document is to summarize and review the base year (2005) and 2035 land use data assembled for the travel demand model for Broward County. It also summarizes the existing highway and the transit supplies within the County. The land use forecasts for 2035 were obtained from the County's Urban Planning and Redevelopment Division and assembled in the format required by the travel demand model by the FDOT District IV and their consultants. These assembled dataset for the model were used in this report for tabulation and visual graphics purposes.

Understanding the population and the employment changes is one of the most important elements in planning for the future. These socio-economic data are directly related to the demands for which the transportation system should be planned to improve the mobility of the people. The travel demand model uses the land use data to estimate the travel patterns and flows within the region. Being a key input to the model, it is necessary to perform a careful review of the dataset to make sure that the forecasted land use data follows the expected changes. A comparison was made between the 2005 and 2035 socioeconomic variables used in the regional LRTP model.

2.1 SOCIOECONOMIC DATA DEVELOPMENT

The socioeconomic data is originally developed in the ZDATA1, 2, 3 and 4 formats; however, the Southeast Florida Regional planning Model (SERPM) model uses a different format. Therefore, the socio-economic data in ZDATA 1 and 2 formats which is provided by the Broward MPO is converted to the format required by the SERPM model. The model requires ZDATA 1 and 2 data in a DBF file format (in this case, "S65TAZs_yy.DBF") which also includes data from the Miami Dade and Palm Beach County MPO's. The data in ZDATA 3 and 4 are maintained in the ASCII format similar to the previous versions of the LRTP travel demand models. The model requires ZDATA 3 and 4 to be maintained separately for the three MPO's.

Although the development of ZDATA1 and ZDATA2 files occurred separately, there are similarities in the processes. Both assign countywide totals to the 921 Traffic Analysis Zones (TAZ) primarily in accordance with existing inventory and available capacity. The two are further connected (as will be explained in the ZDATA2 documentation) with "Retail" and "Service" employment totals being dependent on the final population and household totals. Apart from these, the two datasets display quite different countywide origins; in both the base upon which the 2035 forecasts are built and the method used to generate the forecast.

ZDATA1 has the solid foundation of the 2000 Census of Population and Housing and its attendant characteristics data, distributed to the 921 TAZs. When an existing forecasting process which incorporates demographic relationships and predictable change is superimposed onto the Census data, a 2035 forecast is generated.

ZDATA2 has a variety of potential data sets from which to choose, though none exhibit all the desirable traits found in the Census of Population and Housing. The final employment forecast is the result of the interaction of multiple data sources along with a reliance on judgment.

2.1.1 ZDATA1

Countywide Forecast

This is the first attempt to forecast to the year 2035; 2030 having been the prior limit. Since the current national economic condition had not been anticipated within the 2030 forecasts, an updated modeling effort (rather than an extrapolation of the old model) became necessary.

As previously mentioned, the basis for the ZDATA1 (population and household characteristics) is the 2000 Census of Population and Housing. The Broward County Population Forecast Model, used to prepare population forecasts, is a modified cohort-survival model. The Model accounts for those forces causing the population to change, specifically: births, deaths, in-migration, and out-migration.

Births and deaths are generally a direct reflection of the demographic characteristics of the population. Starting with the 2000 population, the population is aged each year through 2035 with age-, race-, and gender-specific mortality rates applied. Similarly, births are estimated by applying age- and race-specific birth rates to the resident population. As the composition of the population changes over the forecasts period, this causes the number of births and deaths to change proportionately.

In- and out-migration are not nearly as stable. The current pause in Broward County's growth is a result of reversing the pattern of more people moving into Broward than moving out (a pattern that has existed since the County was created). While in-migration traditionally exceeded out-migration, the magnitude of the difference varied greatly over the years. To smooth the instability associated with the migration numbers, a regression equation was created that estimated the number of in-migrants based on the previous year's population. Age, race and gender were assigned to the population based on the existing distribution of the population, modified

by generally acknowledged characteristics of the population predisposed to migrate (tending to increase the concentration of the in-migrants in the 21 to 40 age groups). After the characteristics are assigned, half the identical birth and mortality rates referred to above are applied to account for their net natural change (because migrants arrive any time during the year). Out-migration is estimated, again with a regression equation, as an increasing portion of the in-migration. Over time, the number of in-migrants and out-migrants trend closer together. The characteristics of the out-migrating population are assigned primarily on the age, race and gender propensity to migrate.

Normally, estimating and forecasting the migration would be allowed to occur without intervention. The current economic downturn, however, reduced the number of migrants to Broward so dramatically that both the short-term and long-term population forecasts would overstate the population if left to calculate without adjustments. To reflect the downturn, in-migration was gradually reduced for each year 2005 through 2009 and gradually increased for years 2010 through 2015. During that same period, out-migration was increased slightly. By 2015 migration equations are returned to normal.

Household forecasts, calculated from the countywide forecasts, provide the link to the 921 TAZ distribution of the forecasted population. The number of households necessary to accommodate the population is determined by applying headship rates (calculated from the 2000 Census) to the forecasted population according to age and race. Households then are distributed according to size, from one-person to seven plus-persons, also by applying distribution rates displayed in the 2000 Census according to age and race. The total number of units for years 2001 through 2007 is compiled from 2000 Census and building permit data. For years beyond 2007, the total number of households is divided by an overall occupancy rate (one minus the vacancy rate) to arrive at the expected number of housing units. At the completion of this process, an annual estimate (or forecast for years beyond 2007) of units and households by size for years 2001 through 2035 can be derived.

TAZ-Level Forecast

Each TAZ displays unique housing and household characteristics. The number of units, vacancy rate, household size distribution, and capacity (a maximum for each TAZ is calculated using the existing inventory, vacant land, the Broward County Land Use Plan, and available redevelopment plans) to absorb additional units vary with each TAZ and change each year. When combined with the countywide forecast of households by size, the next year's number of units and population by TAZ can be determined.

Units are distributed to TAZs as one- to seven plus-persons per household and vacant by first modifying the existing distribution in proportion to the countywide distribution change. For example, if one-person households are expected to decrease by one percent countywide, that decrease is applied to all TAZ-level one-person households. Individual household sizes are then summed over all 921 TAZs. The difference between that sum and the expected total for each household size (calculated from the Household Forecasts) is assigned to TAZs in relation to their compatibility with each household size (*e.g.* six-person households will not be assigned to a TAZ containing one-, two-, or three-person households) and the TAZ's capacity to absorb additional units.

The current model repeats this process 15 times, once for each year 2001 through 2010; followed by forecasts for 2015, 2020, 2025, 2030, and 2035. By the year 2030, the capacity to assign additional units is depleted. All vacant residential lands have been used as have been the existing redevelopment plans. Consequently, 2035 differs from the 2030 distribution only as changes in household characteristics. TAZ-level distributions for both 2030 and 2035 are less than the expected numbers from the countywide forecast.

Lifestyle Model Characteristics

The "Lifestyle" ZDATA1 format includes data on households, population in the households, workers in the households, and automobiles available to the households; but, requires separate estimates for households

with children and households without children. Since the TAZ-level population forecast distribution does not make such a distinction, an additional methodology is necessary to translate the 2035 population and housing results into a useable ZDATA1 format.

The relationship between the household characteristics in the "Lifestyle" format and the household forecasts are identified through the 2000 Census. One- and two-person households were compared (as a percentage) to the percent of households without children for each TAZ. This relationship is held constant and is applied to the 2035 TAZ household distribution.

Once the households with and without children are determined, their separate averages of population, workers, and available autos are calculated for each TAZ and applied to generate the 2035 ZDATA1 dataset.

2.1.2 ZDATA2

Countywide Forecast

Preparation of employment forecasts for the ZDATA2 dataset presents a challenge in that there are no generally-accepted employment forecasts extending beyond the year 2015. To compound the challenge, there is no Census-like base-year data serving as a foundation nor are there established relationships between the various components of the economy to foster development of a reliable forecast.

As a result, the 2030 ZDATA2 file was selected as the base for 2035. This has a couple of advantages. First, it was previously used as part of the 2030 Long Range Transportation Planning process. Second, because it is assigned to TAZs, it serves as the link from the countywide forecasts to TAZ-assigned forecasts.

To forecast the 2035 "Service" and "Retail" employment sectors, a ratio was calculated that compares the combined sum of the number of persons and the number of households to the number of employees in each sector. That ratio was applied to the 2035 sum of population and households to generate total employment for each of the "Service" and "Retail" sectors. "Other" employment (which includes manufacturing, construction, agriculture and some government services) was calculated for 2035 by applying the year 2030 ratio of "Other" employment to the combined 2030 "Retail" and "Service" employment to their 2035 total.

In each of these forecasts there is the assumption that the relationships identified through the use of the ratios, will remain constant. While this is not necessarily accurate, the direction and magnitude of the changes are not known.

TAZ-Level Forecast

The 2005 ZDATA2 serves as the basis for assigning employment by sector. Potential additional employment for each TAZ is calculated according to its inventory of non-residential vacant land by sector. The vacant land is distributed among the three sectors and multiplied by an average number of employees, per sector, per vacant acre. The total for each is added to the 2005 data and summed across all 921 TAZs to provide a County total potential employment by sector. Each TAZ is assigned employment by sector according to its percentage of the County potential multiplied by the countywide total calculated in the Countywide forecast.

The final result reflects each TAZ's 2005 employment distribution, its vacant land use by plan designation, and the overall change in employment by sector. Since Broward County is largely "built-out", wholesale modifications to land use (affecting the employment distribution) are not currently envisioned.

2.2 SOCIOECONOMIC DATA RESULTS

Population Data (ZDATA1)

Table 1 summarizes the population, the household, the auto ownership and the worker data provided in the model for the entire county. This data is assembled by each TAZ and reported in the ZDATA1 file. The model requires these data categorized by households without children (less than 18 years) and with children. The table shows the total numbers and the numbers for these two categories.

In 2007, Broward County was the 16th most populous county in the country. The County's population is expected to grow by 29%[1]. Almost two-thirds of the county contains portions of the Everglades conservation area. The total land area excluding the Everglades area within the County is approximately 390 square miles. The population density (within the developable portions of Broward County, which excludes the conservation area) is expected to grow from approximately seven persons (7) per acre (4,500 per square mile) to approximately 9.1 persons per acre (5,800 per square mile). This is a large increase considering the fact the developable part of the county is already very densely populated, and necessitates the need for proper and efficient transportation planning in the region.

[1] Broward County Urban Planning and Redevelopment Division

Table 1: Land Use Data Tabulations

	2005	LRTP 2035	Growth %
Total Population	1,747,399	2,250,830	29%
Persons in households without children (<18 years age)	789,742	936,740	19%
Persons in households with children	957,657	1,314,090	37%
Total Households	694,489	838,737	21%
Households without children (<18 years age)	449,783	502,744	12%
Households with children	244,706	335,993	37%
Total Vehicles	1,098,982	1,342,127	22%
Vehicles in households without children (<18 years age)	623,621	694,083	11%
Vehicles in households with children	475,361	648,044	36%
Total Workers	845,734	1,051,592	24%
Workers in households without children (<18 years age)	419,551	468,117	12%
Workers in households with children	426,183	583,475	37%

Household Density

The number of persons per household is expected to increase from 2.52 in 2005 to 2.68 in 2035. Average number of vehicles per household shows a small increase from 1.58 to 1.60 between 2005 and 2035. Workers per household also show a small increase from 1.22 to 1.25 during the same period. This means that the rate of increase in population is higher than the rate of increase in vehicle and workers. In other words, the household size is increasing but not the number of vehicles and workers in the household.

Employment Data (ZDATA2)

Table 2 shows the aggregate employment data for 2005 and 2035. The total employment within the county is expected to increase by 37% to about 1.01 million. The percent increase in the industrial employment and commercial employment is much higher compared to the service employment. Table 3 summarizes the employment data at the major attractions. Downtown Fort Lauderdale has a high employment density with 32 employments per acre of land. The rate of employment growth is high along SR-7 near Sample Road. These are the areas where extensive transit service is needed.

Table 2: Employment Data Tabulations

	2005	LRTP 2035	Growth %
Total Employment	735,731	1,011,286	37%
Industrial Employment	85,577	136,315	59%
Commercial Employment	227,239	340,541	50%
Service Employment	422,915	534,430	26%

Table 3: Employment at Major Attractions

Major Attractions	% Growth (2005-2035)	2035 Employment	2035 Employment per acre
Sawgrass Mills Mall	52%	21,400	11.5
Plantation Midtown	17%	21,100	25.0
South Florida Education Center	15%	13,600	10.5
Airport (FLL)	10%	6,400	4.6
Port Everglades	52%	5,500	2.4
Downtown Fort Lauderdale	12%	46,700	32.0
Cypress Creek	31%	41,300	17.0
SR-7 at Sample Road	101%	22,100	11.5
Hollywood Downtown	12%	9,600	7.3
Fort Lauderdale Beach	10%	9,400	9.3

Population and Employment Growth Comparison with Neighboring Counties

The rate of growth in Broward County is less compared to the growth in Palm Beach and Miami-Dade counties. The region's total population is expected to grow by 36% and total employment by 43%. Table 5 shows population and employment data used in the regional model.

Table 4: Socioeconomic Data Comparison with Neighboring Counties

	Population			Employment		
County	2005	2035	% Growth	2005	2035	% Growth
Broward	1,747,399	2,250,830	29%	735,731	1,011,286	37%
Palm Beach	1,270,302	1,782,542	40%	544,486	799,700	47%
Miami-Dade	2,359,183	3,278,155	39%	1,379,355	1,994,215	45%
Total	5,376,884	7,311,527	36%	2,659,572	3,805,201	43%

The population, household, employment, worker, and auto-ownership density maps for 2005 and 2035 are shown at a TAZ-level in Figures 1 through 10. These density maps will provide guidance in planning for the transit service.

Figure 1: 2005 Population Density (by Traffic Analysis Zone)

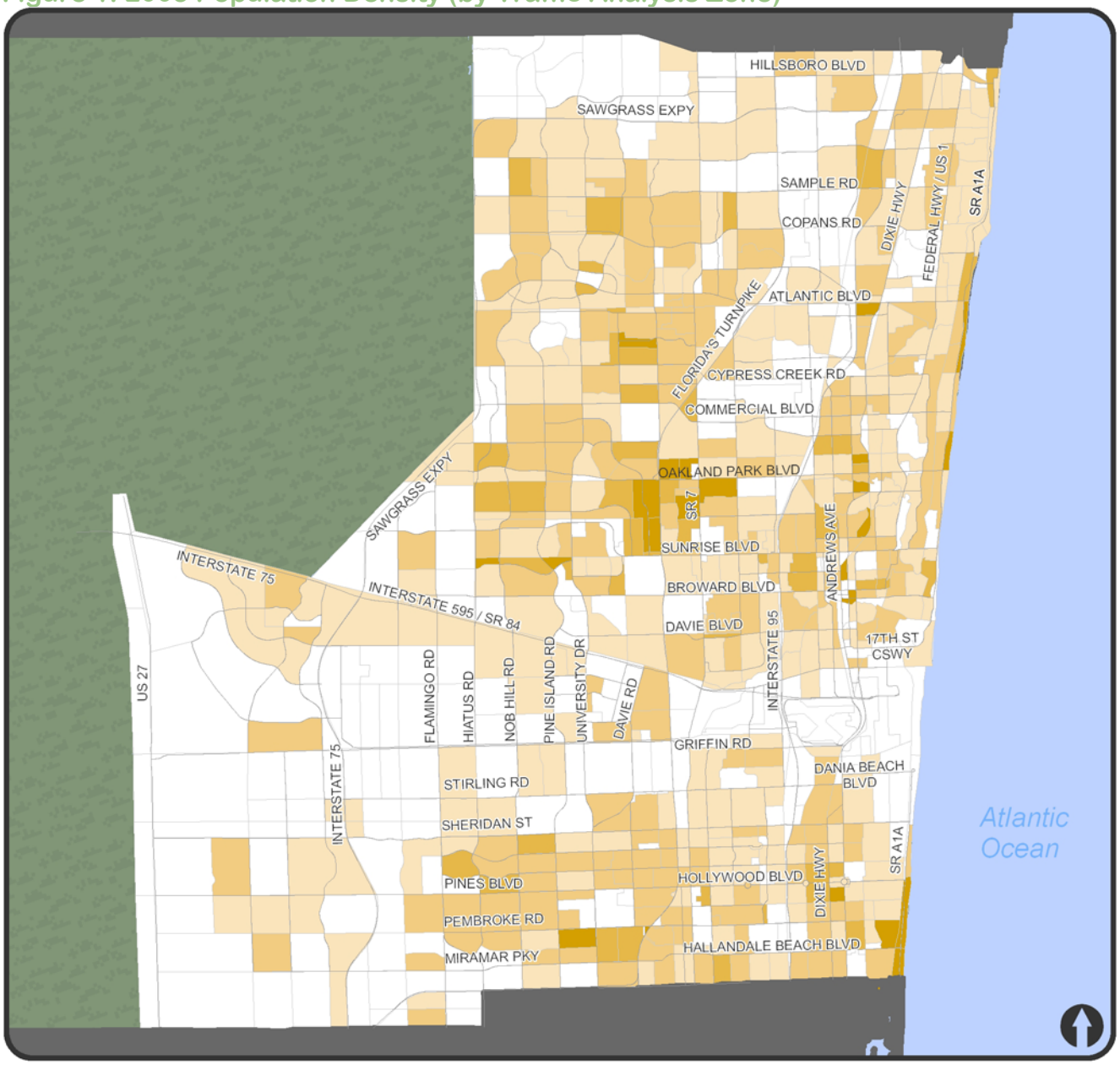


Figure 2: 2035 Population Density (by Traffic Analysis Zone)

Figure 3: 2005 Household Density (by Traffic Analysis Zone)

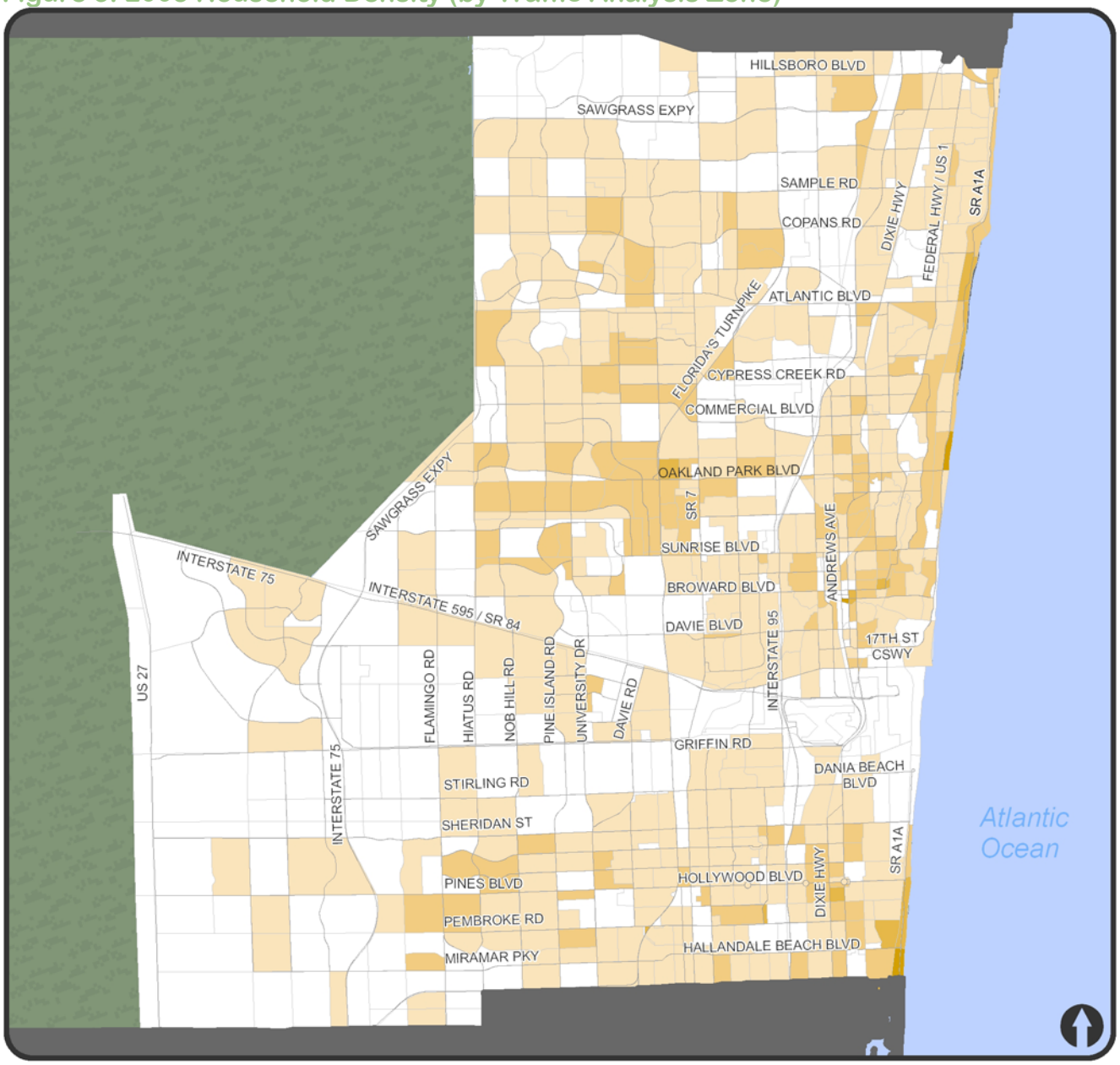


Figure 4: 2035 Household Density (by Traffic Analysis Zone)

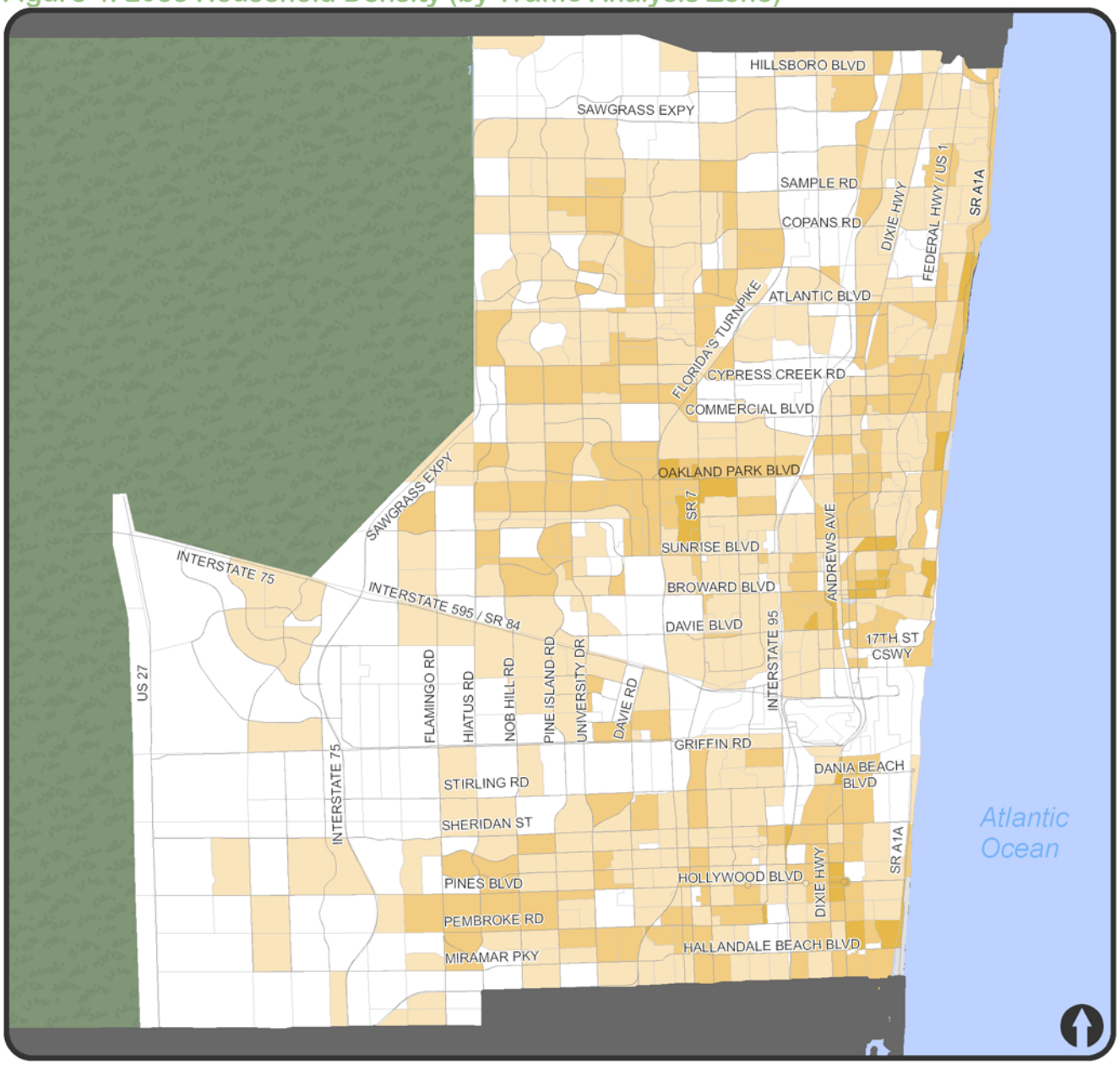


Figure 5: 2005 Employment Density (by Traffic Analysis Zone)

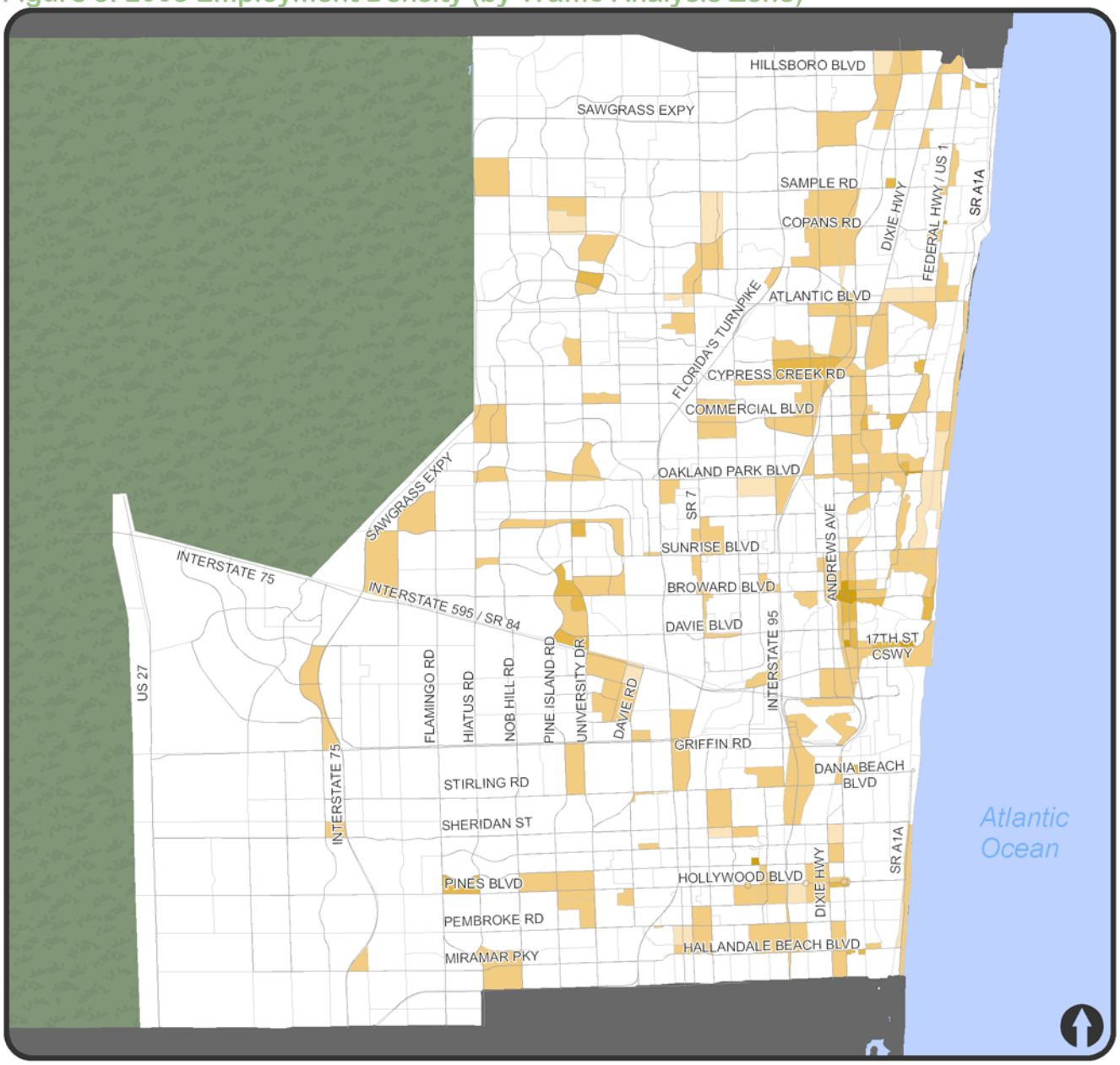


Figure 6: 2035 Employment Density (by Traffic Analysis Zone)

Figure 7: 2005 Worker Density (by Traffic Analysis Zone)

Figure 8: 2035 Worker Density (by Traffic Analysis Zone)

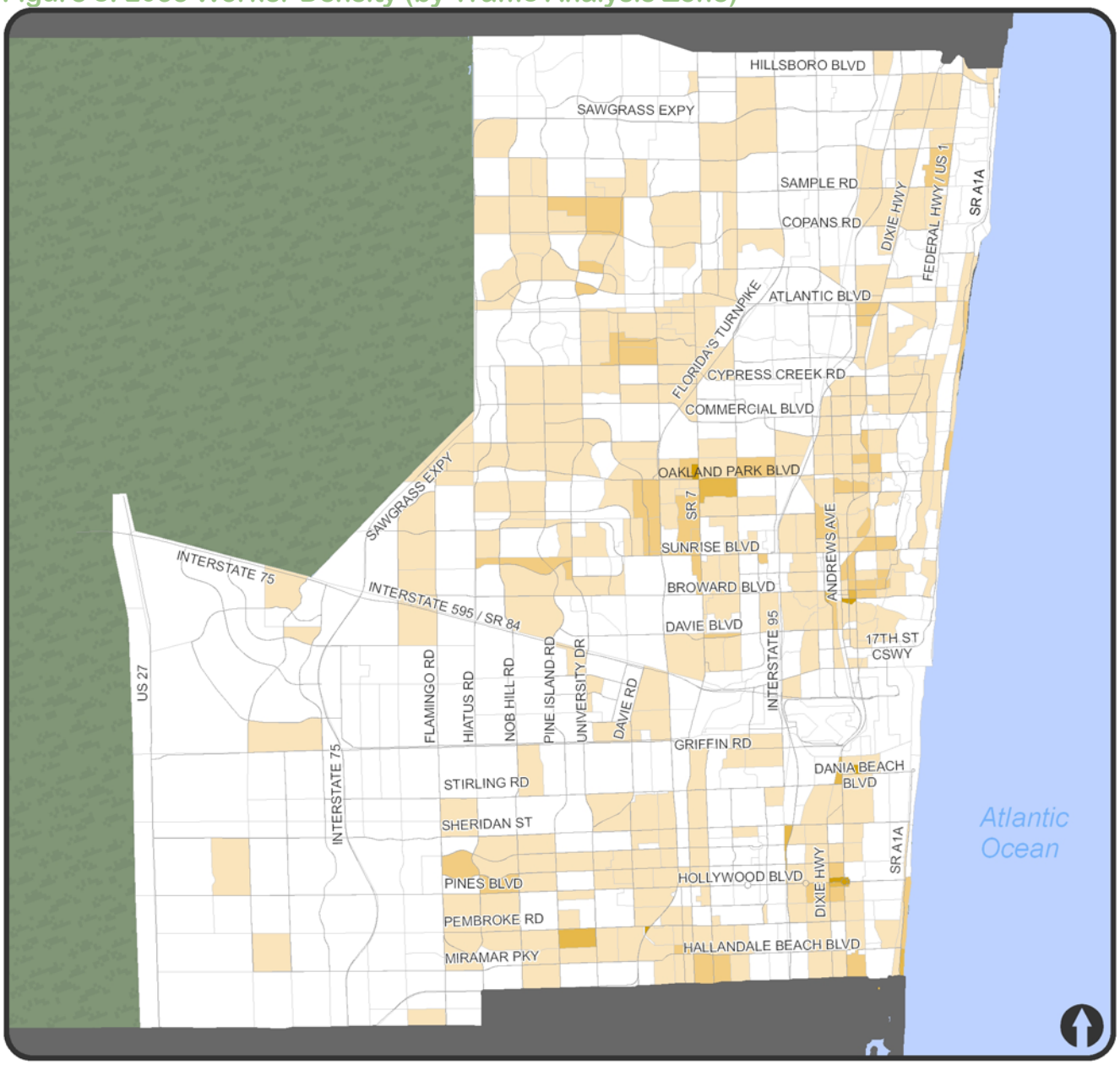


Figure 9: 2005 Auto Ownership (by Traffic Analysis Zone)

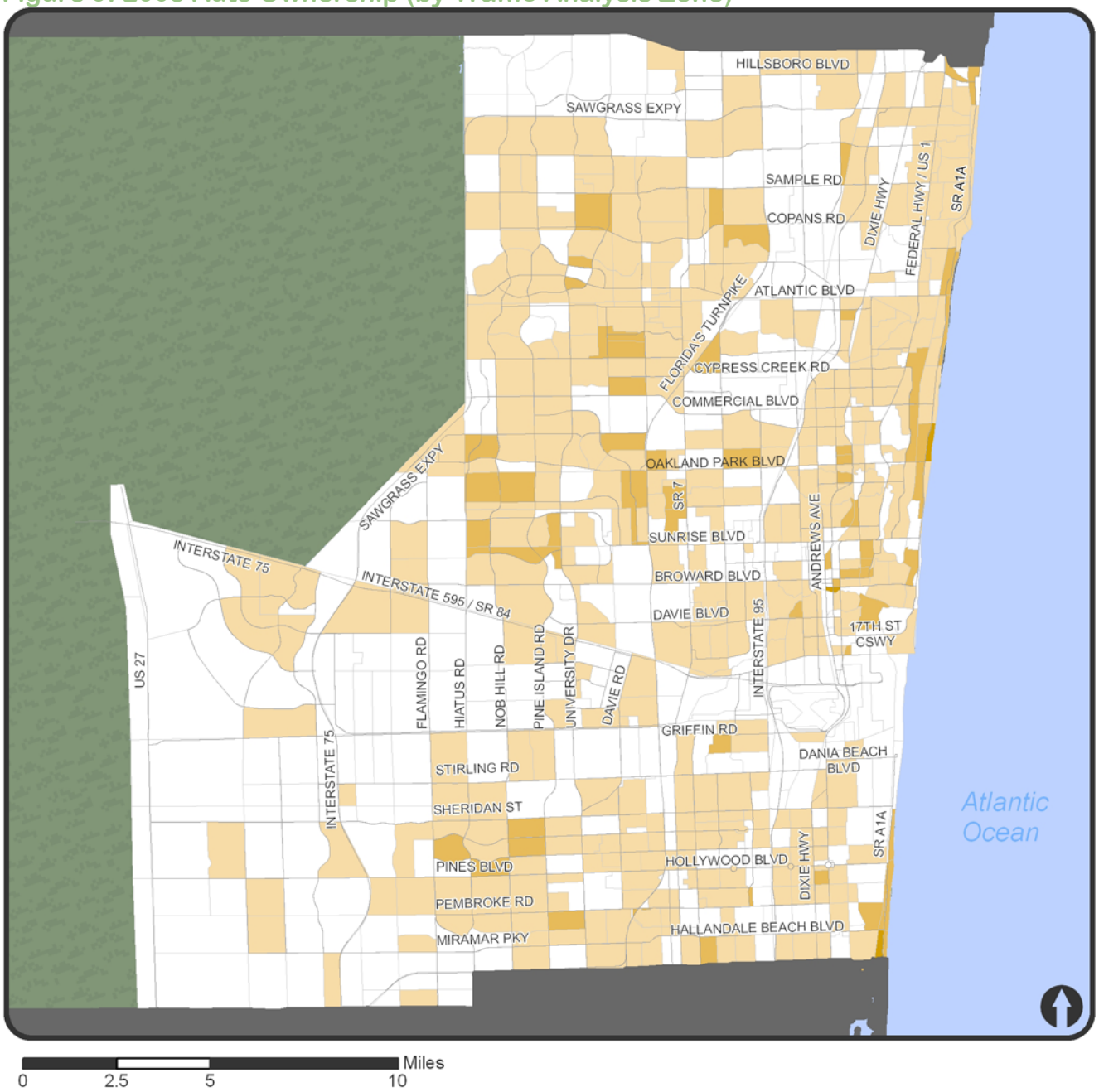
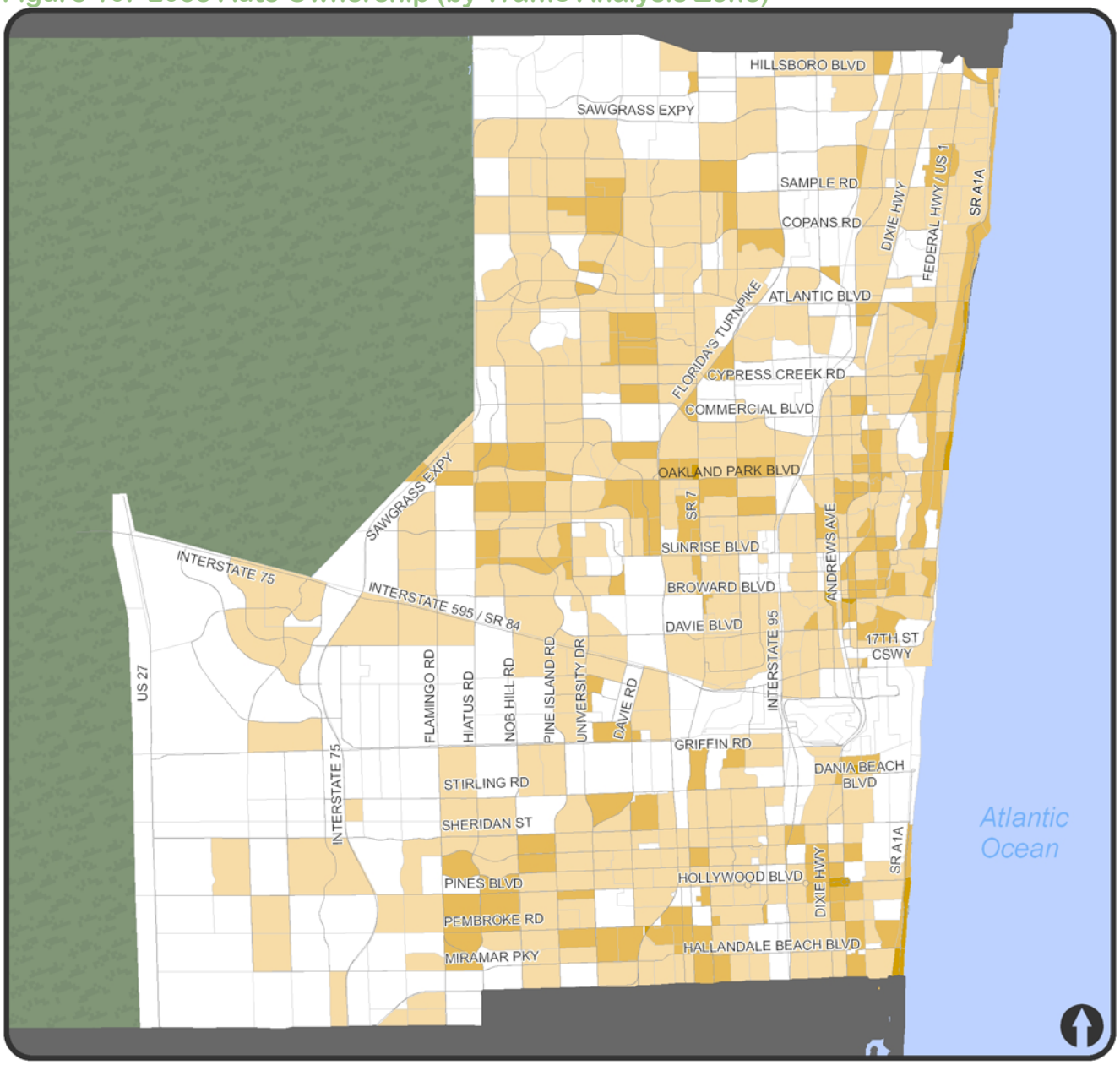


Figure 10: 2035 Auto Ownership (by Traffic Analysis Zone)



School and University Data

The model also needs separate data for elementary, middle and high school data for public schools for each TAZ. Private school and College/University enrollments figures are also required. Table 6 below shows the comparison between 2005 and 2035 school enrollments. A constant growth of 34% in the total enrollment is assumed. This growth assumption is comparable to the growth in the population and the employment of the county.

Table 5: School and University Enrollment

County	2005	2035 LRTP	% Growth
Public School (Elementary/Grade School)	120,000	161,400	34%
Public School (Middle School)	60,500	81,400	34%
Public School (High School)	69,200	93,100	34%
Private School	70,700	95,100	34%
College and University	95,700	128,800	34%
Total	416,100	559,700	34%

Figures 11 and 12 illustrate the college and university enrollment for years 2005 and 2035. Figures 13 and 14 show the school enrollment (public and private schools) for years 2005 and 2035.

Figure 11: 2005 College and University Enrollment (by Traffic Analysis Zone)

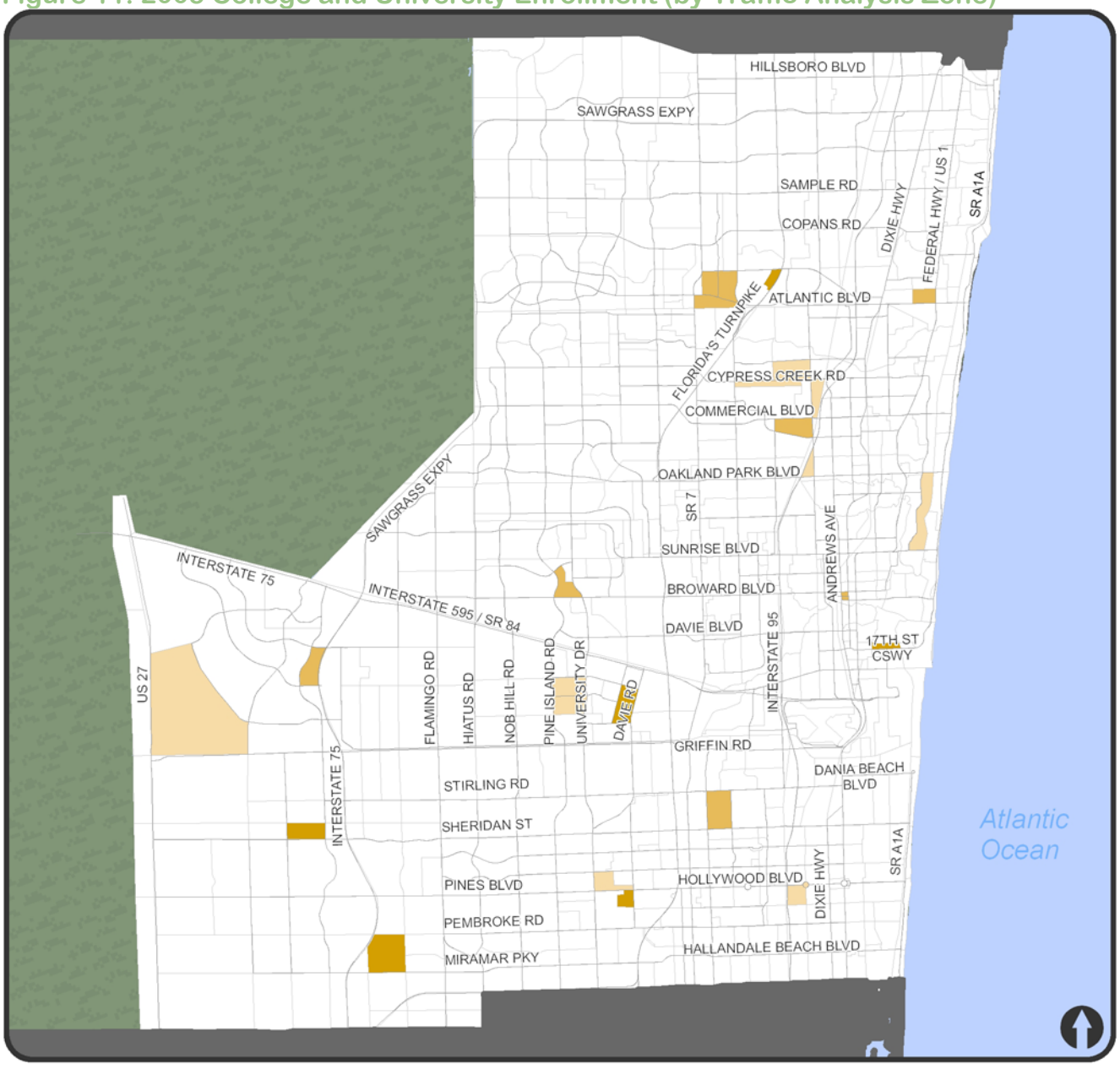


Figure 12: 2035 College and University Enrollment (by Traffic Analysis Zone)

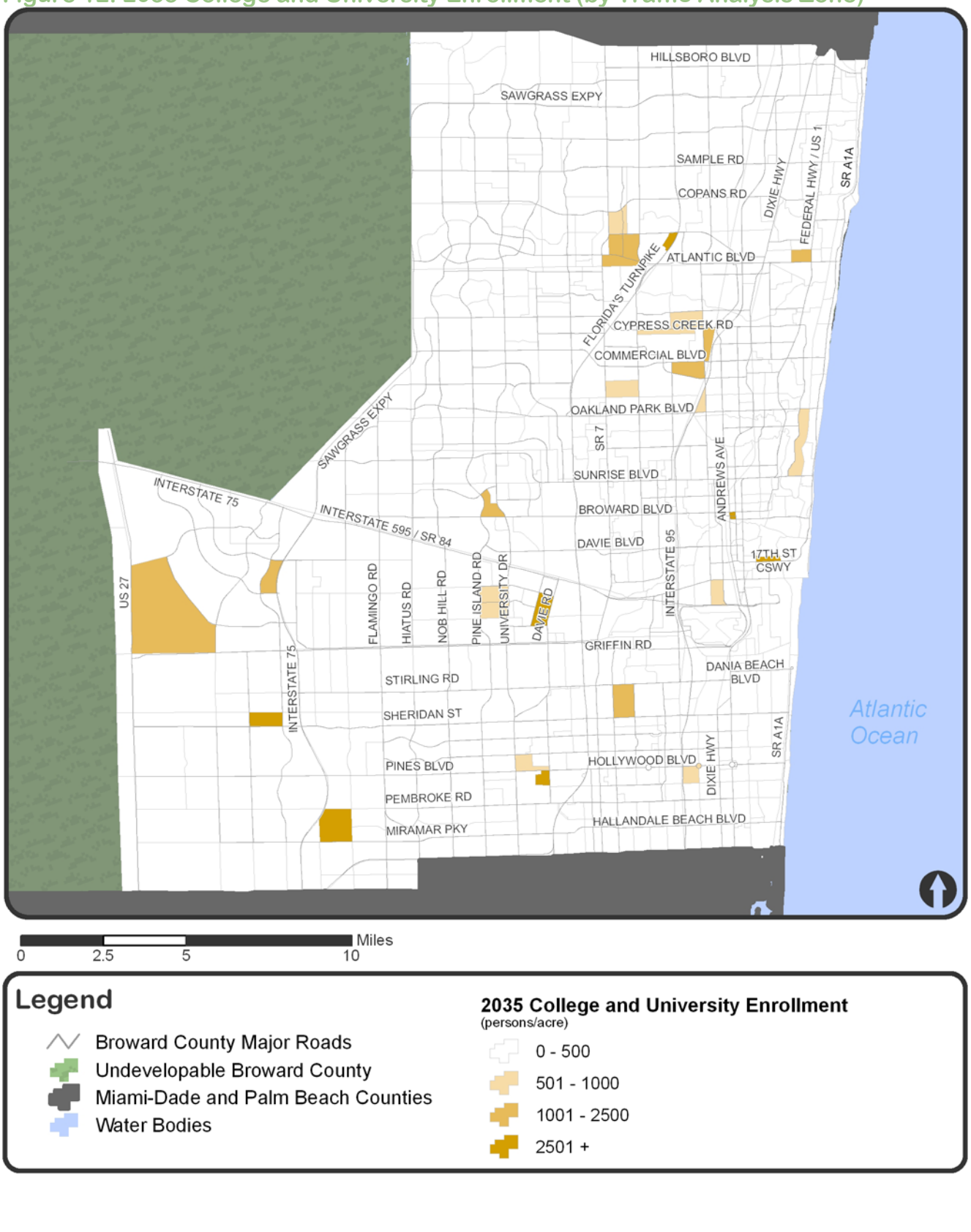


Figure 13: 2005 School Enrollment (by Traffic Analysis Zone)

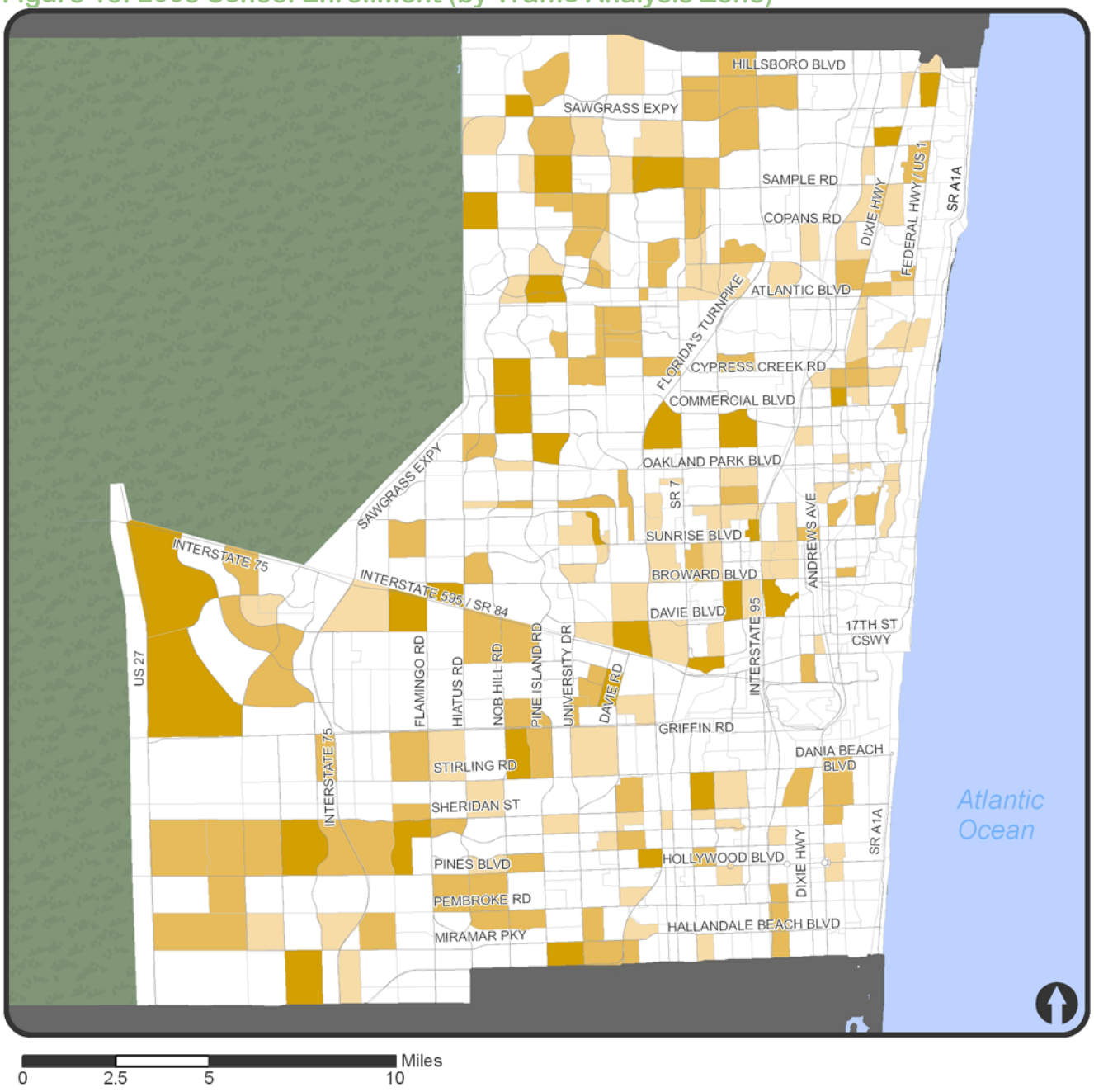
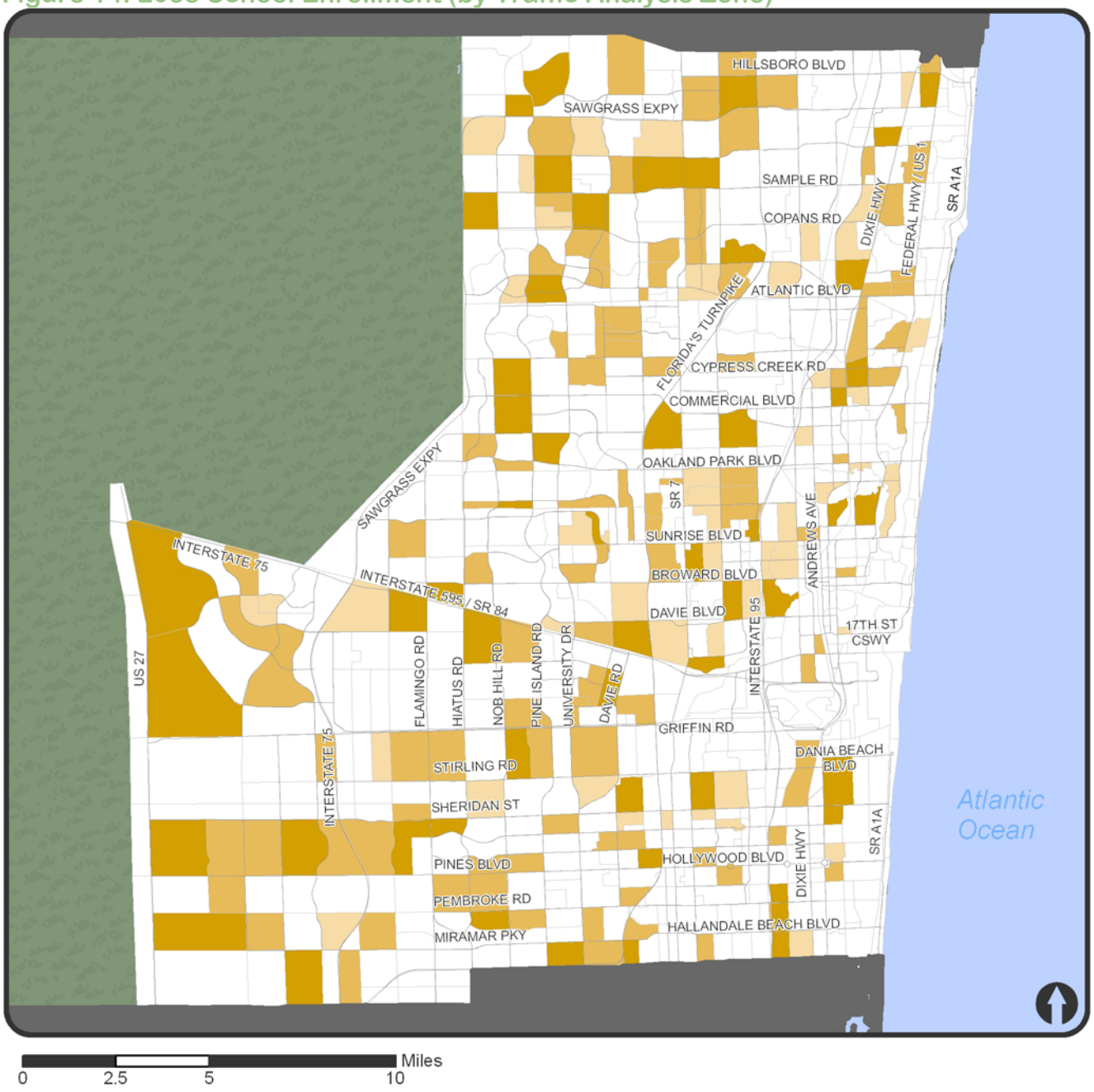


Figure 14: 2035 School Enrollment (by Traffic Analysis Zone)



Review of Special Generators (ZDATA3)

The special generators file (ZDATA3) contains TAZs with land use that exhibit trip generation characteristics that differ significantly from the averages represented by standard trip production or attraction rates. Broward's special generator file contains major attractions only and the trips generated from these attractions are the same in the base year model as well as year 2035 model with the exception of Port Everglades. An annual growth rate of 0.3% was assumed based on the total employment growth in the three zones representing the North, Mid and South Port. The special generator trips for the port added to the ZDATA3 file is 16,300 (person trips).

The daily airport enplanements are added along with other special generators in the special generator file[2]. The model includes only the major international airports in its airport model. Hence, in Broward County the enplanements figure includes only the Fort Lauderdale-Hollywood International Airport (FLL). The 2005 daily enplanements number used in the model is 29,396 enplanements per day. A review of socioeconomic data for SERPM region done by Cambridge Systematics for Southeast Florida Regional LRTP used Federal Aviation Administration's 2025 forecast data to extrapolate it to 2035. The growth ratio used for this purpose came from the ratio of Bureau of Economic and Business Research (BEBR) 2035 population forecast to BEBR 2025 population forecast. The estimate of 2035 daily enplanements using this method is 55,410.

Review of External Trips (ZDATA4)

ZDATA4 file contains the person trips at the external stations. The 2035 person trips forecasts were developed by extrapolating the counts at the station using the 2007 FDOT Traffic Count CD-ROM. The only external station in the model that lies within Broward County is I-75/SR-84. The methodology of forecasting was discussed by the Regional Transportation Technical Advisory modeling sub-committee. Based on the trend of past few years, a growth factor (average growth factors using the linear and logarithmic fits) of 1.79 was used to convert the 2005 counts to 2035 counts. The external-external trip percent was assumed to be 15.4% of the total count. The remaining 84.6% of the counts (IE-EI trips) were converted to person trips using average auto occupancy factor of 1.472.

The station-to-station distribution obtained from the 2030 SERPM model was used as seed matrix for 2035 and the 2035 external-external (EE) matrix was developed by Fratar balancing. Almost 95% of the EE trips occurring at I-75/SR-84 external station travel either on the Turnpike or on I-95.

Table 6: I-75 / SR 84 External Station

	2005 Count	2005	2035 LRTP
Total Vehicle Trips	23,672	23,672	42,373
EE Vehicle Trips	n/a	4,650 (19.6% of total)	6,525 (15.4% of total)
EI-IE Vehicle Trips	n/a	19,022	35,847
Person Trips in ZDATA4	28,000	28,000	52,768

[2] Enplanement data is in the special generator file; however, the trip generation model treats airport trips as a separate purpose and treats them differently from other special purpose zones. For modeling purposes, all airport trips are assumed to be produced at the airport. The attraction trip ends are based on rates derived from recent airport surveys at commercial, permanent-residential and visitor-residential land uses.

3.0 REVIEW OF RELEVANT PLANS AND STUDIES

As part of the 2035 LRTP update, many relevant plans and studies were reviewed at the local, regional, and state and federal level, to ensure compliance. Following are summaries of many of those plans.

3.1 LOCAL

Broward County Comprehensive Plan Transportation Element
Goals, Objectives & Policies – 2008

The goal of the transportation element of the Broward County Comprehensive plan is to focus on "public transportation systems, maintain and, where feasible, improve Broward County's multimodal transportation system that serves local and regional movement of people and goods in a manner that provides for safety and security, convenience and energy efficiency; that coordinates and balances the transportation system with the orderly growth, development, and sustainability of the environment… that is coordinated with adopted transportation plans, programs, neighboring counties and implementing agencies; that addresses the transportation needs of present and future populations… provides mobility choices; and provides for participation in regional transportation coordination."

Meeting these goals involved developing objectives and policies that support the facilities, hubs, and connectors associated with the Strategic Intermodal System (SIS) and regional arterials and programs qualifying for Transportation Regional Incentive Program (TRIP) funding.

Coordination efforts should be made to include the following:

- •Fort Lauderdale-Hollywood International Airport Master Plans (and amendments thereto)
- •North Perry Airport Master Plan (and amendments thereto)
- •Port Everglades Master Plan (and amendments thereto)
- •Broward County Bicycle Facilities Network Plan
- •Broward County Pedestrian Facilities Plan
- •Transportation Elements relating to the Sawgrass Expressway or Florida's Turnpike
- •Broward County Land Use Plan Trafficways Plan component
- •Florida's Strategic Intermodal System (SIS)
- •Broward County 2030 Highway Network and corresponding municipal plans

Broward County Comprehensive Plan Deepwater Port Component
Goals, Objectives & Policies – 2008

The goal of the deepwater port component of the Broward County Comprehensive Plan is to "maintain and develop a deepwater seaport, which provides the maximum economic, physical and social benefits to Broward County through planned use of land with the Port Jurisdictional Area (PJA) of Port Everglades; which provide a multimodal system that promotes the safe and efficient movement of passengers and cargo between ships, railroads, roadways and airports; which maximizes the utilization of marine resources for Port-related uses while concurrently protecting the Port's natural resources; which protects public and private property from natural disasters through the prohibition of residential land uses; and promotes international trade and waterborne commerce through the implementation of a capital improvements program that addresses the projected needs identified within the Port Everglades Master Plan".

Some policies set forth in the document include:

- •Adopting conforming and consistent land uses for affected jurisdictions within the PJA
- •Giving priority to the provision and maintenance of water access to Port Everglades' berths and facilities for Port-related maritime uses
- •Coordinating future transportation system improvements within the PJA with the Broward MPO, FDOT and the Broward County Office of Budget Services, by annually updating the Port Everglades Projects Section of the MPO's TIP, to be consistent with the PED Five-year Capital Improvements Program; annually updating Port-related projects listed within the FDOT D4 Annual Work Program; annually updating the unfunded Port Everglades transportation projects listed within the Broward County Capital Plan, in coordination with the Unfunded Priority List of the MPO's TIP; actively participating in the Florida Seaport Transportation and Economic Development Council; and coordinating with other applicable transportation entities.

Specific improvements expected to be completed by 2005 (according to this Component) include:

- •Widening Eller Drive to a minimum four lane roadway
- •Constructing Eller Drive Overpass within the Southport Expansion area to provide grade separated rail access to the planned near-dock Intermodal Transfer Facility
- •Widening Eisenhower Boulevard between SE 28th Street and SE 19th Avenue to a minimum four-lane roadway
- •Resurfacing Spangler Park Drive between the Port Entrance and Eisenhower Boulevard
- •Widening SE14th Avenue between Eller Drive and Spangler Boulevard to four lanes
- •Constructing a new two-lane bridge across the FPL Discharge Canal to connect Terminal 29 with McIntosh Road
- •Studying the feasibility of extending McIntosh Road to Griffin Road as a four-lane roadway
- •Paving and improving drainage on SE 20th Street, west of Eisenhower Boulevard

Broward MPO 2030 Long Range Transportation Plan (LRTP) - Adopted 2004 / Amended 2007

The Broward County 2030 Long Range Transportation Plan (LRTP) update is intended to be a truly multi-modal plan in accordance with the wishes of the Broward County MPO, which has advocated transportation choices - and particularly a vastly improved transit system - to address future travel needs in the County. The LRTP identified premium transit modes as part of its Transit System Needs.

The cost of implementing the recommended multi-modal transportation needs plan is estimated at $9.382 billion, which exceeds the anticipated revenues of $6.513 billion. It was therefore necessary to prioritize the improvements included in the needs plan to ensure that those projects which most closely address the Goals and Objectives of the 2030 LRTP would be included as cost-feasible and built with available monies. The result was a number of cost-feasible projects cited for pedestrian, greenway, bikeway, waterborne, transit, highway, ITS, and freight improvements, as shown in Appendix B.

Broward County Transit Development Plan-FY2009-18

A Transit Development Plan (TDP) is a requirement for agencies receiving state operating monies called Public Transit Block Grant funding. The Broward County Transportation Department (BCTD) operates fixed route service with 43 regular weekday routes, supports the Community Bus Program in 22 municipalities through interlocal agreements, and offers demand responsive Transportation Options (TOPS) for qualified individuals with disabilities. An assessment of the agency's transit needs, as well as an implementation program for prioritized improvements, can be found in the TDP FY2009-18, a major update, incorporating a 10-year planning horizon.

One way that Broward County TDP FY2009-18 plans for the future development of the transit system is by understanding the environment within which the system is operates. The TDP provides a descriptive overview of Broward County, including the demographic and economic conditions of the County. The TDP also provides a performance review of the County's transit system by evaluating measurable quantitative data from a standard reporting instrument, the National Transit Database (NTD). In addition, a situation appraisal is developed, which is an assessment of the strengths and weaknesses of the County's transit organization. An overview of areas such as the transit provider's organizational structure, agency coordination efforts, transit generators and attractors, roadway level of service, pedestrian infrastructure, and technology are undertaken to foster a more transit-friendly operating environment.

Broward County Transportation Improvement Program (TIP)

The TIP is a staged five-year program that prioritizes transportation improvement projects, consistent with the LRTP. The TIP fulfills federal requirements, in accordance with the Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users (SAFETEA-LU), and contains transportation projects funded by federal, state and local sources. The TIP process provides adequate public notices for public hearings to allow community citizens the opportunity to participate in the development of the document, which incorporates all modes of transportation, including transit, rail and commuter rail, bicycle and pedestrian facilities, roadways and bridges, aviation, and seaport.

This short-range planning document is produced annually and allocates money and resources by project phase. Project phases from inception to completion cover many, and sometimes all of the following: Planning, Project Development and Environmental Study, Right of Way Acquisition, Preliminary Engineering, Construction and Inspection. The projects in the Unfunded Multimodal Surface Transportation Priorities list are evaluated and ranked based upon a screening process that prioritizes. Major projects are projects of significant size and scope. Listed below are major projects from last year's TIP that were completed/underway, delayed, advanced or new:

Completed/Underway Projects:

- •Developer Project: Flamingo Road – Add 2L (4LD) is complete.
- •FM No. 406147-1: Sawgrass Expressway, Atlantic Blvd to Coral Ridge Drive – Add 2L (6LD) is complete.
- •FM No. 406153-1: Sawgrass Expressway, Coral Ridge Drive to Mainline – Add 2L (6LD) is complete.

Delayed Projects:

- •FM No. 406095-4: Turnpike Mainline, N of Johnson Street to Griffin Road - Add 2L, (8LD) - CST delayed to FY 2011/12.

Advanced Projects:

- •FM No. 406095-1: Turnpike Mainline, HEFT to N of Johnson Street – Add 2L (8LD) – CST advanced to FY 2010/11.
- •FM No. 406099-1: Turnpike Mainline at Hollywood Blvd – Interchange Modification – CST advanced to 2010/11.
- •FM No. 406150-1: Turnpike Mainline, Atlantic Blvd to Sawgrass Expressway – Add 2L (8LD) – CST advanced to FY 2011/12.

New Project:

- •FM No. 420809-3: I-595 Reconstruction/Public Private Partnership (P3) – East of I-75 to west of I-95 – Add 3 reversible lanes in median (6D + 3 Reversible), interchange improvements at turnpike mainline, reconstruction, resurfacing, widening, and operational improvements such as braided ramps and auxiliary lanes.

Broward County Transportation Disadvantaged Service Plan (TDSP)

The annually updated TDSP is developed in accordance with 42-1, F.A.C, in conformance with the Florida Commission for the Transportation Disadvantaged (FCTD) "Coordinated Transportation Contracting Instructions" dated June, 1996. It is a coordinated effort between the Broward County Board of County Commissioners, serving as the Community Transportation Coordinator (CTC), and the Broward County MPO. The CTC is the responsible agency for administering all contracts for paratransit services, seeking the guidance and approval of the Broward County Coordinating Board, which facilitates the coordination of services to eligible persons in Broward County who are transportation disadvantaged. The TDSP contains four components: a three-year Development Plan, identifying long term goals and objectives; a one-year Service Plan, identifying the operational and administrative structure of the program; quality assurance; and cost/revenue allocation and rate structure justification.

The County currently has paratransit contracts with nine (9) providers to provide paratransit services to over 17,000 registered clients. Broward County's paratransit service is known as Transportation Options (TOPS) and offers the Riders Choice Program, which allows paratransit riders to change providers if they are dissatisfied with the service being received. This feature promotes the provision of high quality service, fosters competition among providers, and increases scheduling efficiencies.

Broward County Congestion Management System

The Broward County Congestion Management System (CMS) is a federal and state mandated systematic approach to mitigating congestion and improving the operational level of service on certain corridors determined deficient and experiencing recurring congestion. The CMS cycle includes choosing performance measures, monitoring network performance, defining congestion location, choosing strategies to alleviate congestion, programming those projects into the Transportation Improvement Program and evaluating the effectiveness of those implemented strategies. Recommendations in the CMS Plan included transportation system management (TSM), transit, pedestrian/bicycle amenities, transportation demand management (TDM) and general recommendations. Some congested corridors were also selected for detailed multimodal corridor studies conducted by the Broward County Transportation Planning Division. These corridor studies include Oakland Park Boulevard (1995), State Road 7 / US 441 (1998), Atlantic Boulevard (1999), Sunrise Boulevard (2003), and Hollywood / Pines Boulevard (2004). No new corridor studies have been completed since the 2030 Long Range Transportation Plan.

Broward County Traffic Engineering Projects

The Broward County Traffic Engineering Division maintains certain street lights along major roadways. The Signal Systems Section of Broward County Traffic Engineering is responsible for operating and maintaining a County-wide computer controlled traffic signal system which protects motorists and pedestrians, reduces motorist travel time and aids in the efficiency of roadways. They design new signals and the evaluate signal timing and phasing. The Signal Construction & Maintenance Section of Broward County Traffic Engineering is responsible for the installation and maintenance of traffic signal systems, and the maintenance of roadway lighting on selected roadways. Street lights located along the interstate highways and their ramps are maintained by the State and are the responsibility of the Florida Department of Transportation. The Residential Street Light Program supports Traffic Engineering staff to work closely with the residents of unincorporated areas to address the installation of new street lights or upgrades to existing street lights within their community. If requested, staff members will attend Homeowner Association meetings to discuss the procedure for requesting a study and possible installation of street lights. There are currently approximately 1350 traffic signals in all of Broward County, as illustrated in Figure 15.

Aside from the those elements outlined above in the Broward County Intelligent Transportation Systems Intermodal Plan, other ITS projects have been identified and prioritized by Broward County Traffic Engineering, which include:

1. Advanced Transportation Management System (ATMS) is a six-phase major capital improvement project. Phase I is already funded and underway, Phase II is partially funded, and Phases III through VI are not funded yet. The project employs fiber-optic communication capabilities, enabling deployment of surveillance cameras, the ability to remotely troubleshoot signals, and enhancement DMS capabilities.
2. Traffic Signal System Software, which coordinated traffic signals, and would ultimately update an outdated system. The cost is approximately 300,000 dollars, and the source of the funding is still unknown. Expected completion of the project is fall of 2009.
3. Video detection for traffic signals (with cameras). Approximately 350 have already been put in place, and 700 more are expected within the next two to four years. Funding is already in place.
4. Transit Priority, a technology that allows buses to receive longer or earlier green lights when running behind schedule, is based on fiber-optics, which allows communication between the bus, BCT and Broward County Traffic Engineering. The technology is not yet in place.
5. GPS Based Pre-Emption, a technology that allows emergency vehicles to change traffic lights as needed. The project began in 2004 and is available at approximately 500 intersections. Any further implementation will be at the request of agencies, as there is no more funding.
6. Traffic Controller upgrades to the computer that resides in the cabinets at each signaled intersection, which controls the signals. 55% of the upgrades have been complete.
7. Replace traffic signal cabinets as needed, which would alleviate maintenance issues.
8. The railroad crossing project, which provides the ability to spot cars on tracks and report to appropriate agencies. A DOT and FDOT funded project currently being tested in several locations.

Figure 15: Broward County Signal Locations

Legend

- Broward County Major Roads
- Urbanized Broward County
- Undevelopable Broward County
- Miami-Dade and Palm Beach Counties
- Water Bodies

Signal Types

- Full Color Signals
- Fire House Signals
- Pedestrian Signals
- U-Turn Signals

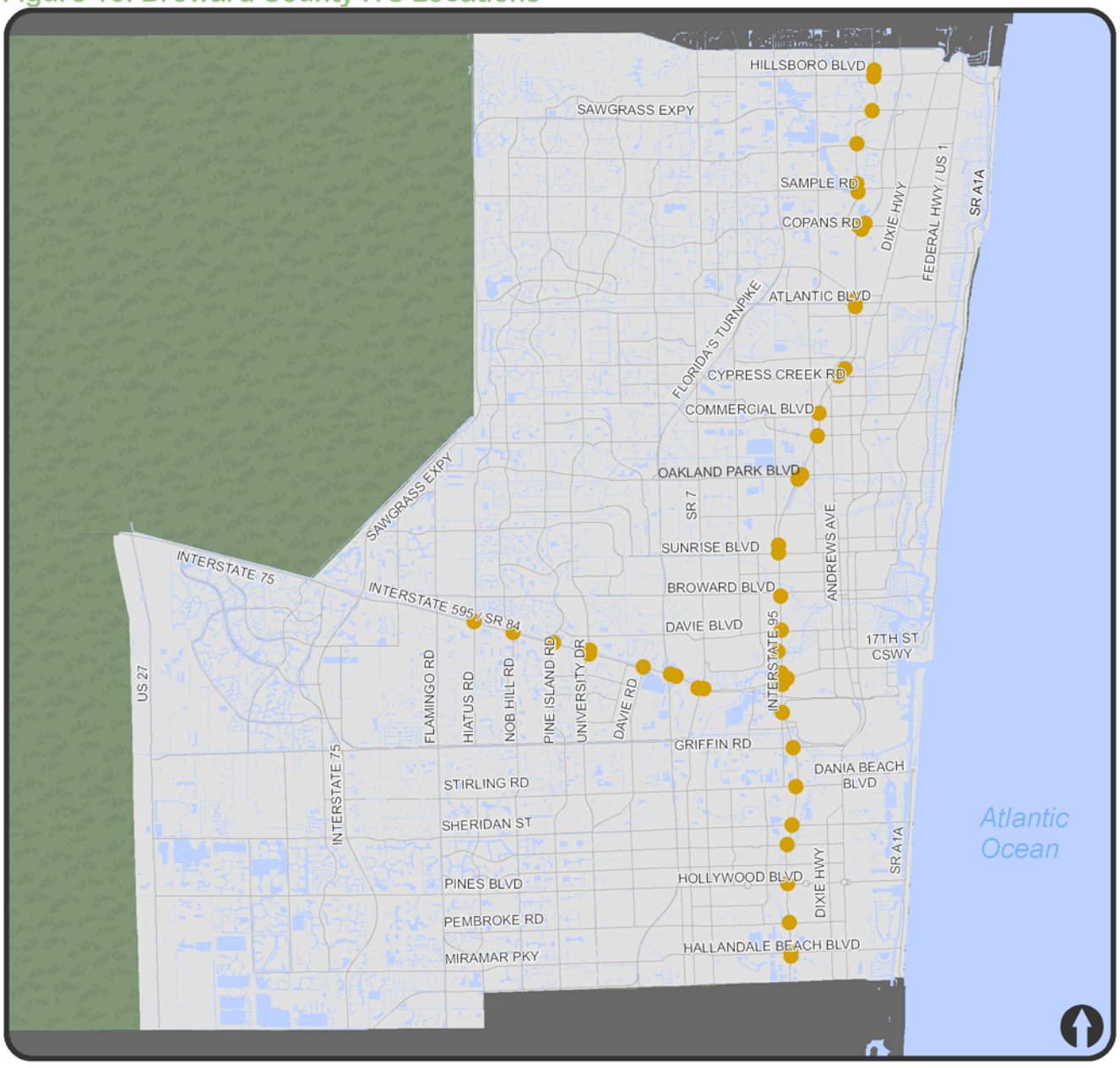
Broward County Intelligent Transportation Systems Intermodal Plan Summary-March 2004

The Intelligent Transportation Systems (ITS) Intermodal Plan was initiated by the Broward County MPO to address the ITS needs in Broward County in regards to freight security and mobility. After reviewing ITS applications and programs in Broward County and Florida, the following needs and deficiencies were identified: significant congestion in key freight corridors, limited access for freight movements, balance of freight operations and security, freight–specific management issues, need for improved regional communication and coordination, infrastructure limitations, and political and institutional barriers to freight mobility.

The implementation of the Plan included recommendations for identifying project and program ownership and stakeholder roles and responsibilities; recommendations for project phasing and program development; cost estimates and potential funding sources, integration, resource and information sharing, and coordination opportunities; recommendations for future planning and performance assessments; operations and maintenance considerations; and recommendations for compliance with the regional ITS architecture. Projects that were identified and developed for implementation as part of the ITS Intermodal plan represented the initiative that were deemed most likely to succeed with a positive impact on Broward County were designated as either existing or proposed, and include:

- Creating a speed warning system on the I-595 Terminus
- Optimizing signal timing for key freight movements on East-West arterials
- Providing travel Information via digital messaging systems (DMS) at Port Everglades exits
- Providing real-time train locations to fire and rescue response vehicles
- Creating an appointment system for cruise ship deliveries
- Integrating available databases into a centralized system

Figure 16: Broward County ITS Locations



Broward County Urban Freight/Intermodal Mobility Study--2007/2008

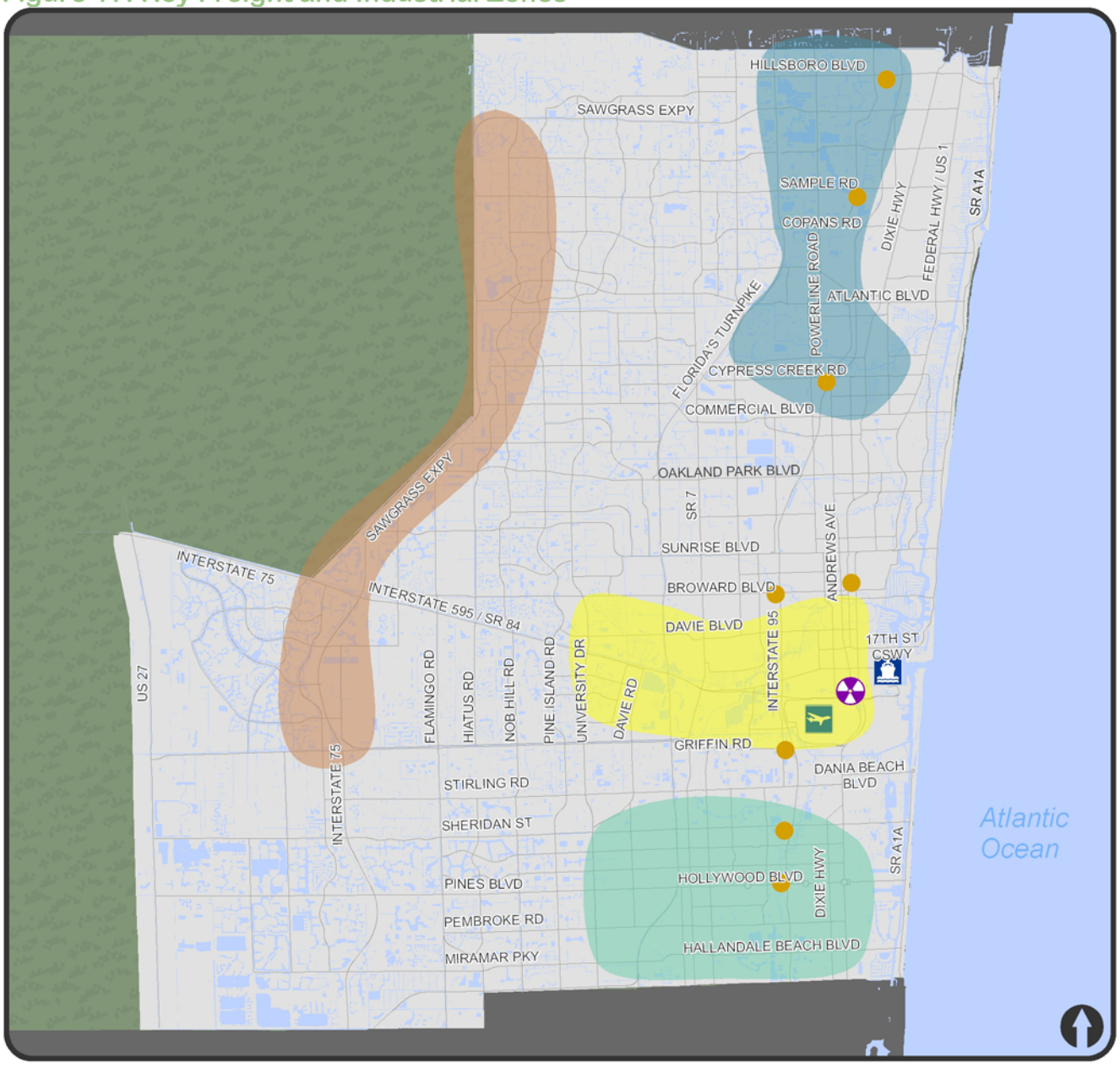
The Freight and Intermodal Mobility Study was initiated by the Broward County MPO in order to incorporate freight into the Broward County transportation program, as well as demonstrate a commitment to the safe and efficient movement of freight and goods. Based on a review of other relevant studies, an overview of the Broward County Freight System and global trends, and the Port Everglades Landside Access Operation and Needs, the following recommendations were made:

- At the Port
  - Construct the Eller Drive overpass at Port Everglades in an effort to improve both highway and rail access to the Port
  - Develop a queue management system for cruise operations/provisioning deliveries, including a formal staging area, an improved communication system and improved demarcation of queuing and parking areas
  - Develop a better queue management system for Southport container terminals, including improving the staging areas and creating a loop road along McIntosh Road to help improve traffic flow and queuing outside the terminal gates
  - Improve the physical lane and queue demarcation in the spaces immediately near the individual berths and terminals, including a Port-wide way-finding signage program
  - Continue to improve and upgrade SIS connectors to Port Everglades, include road improvements, traffic signal timing, addressing road and lane widths and turning radii at intersections

- At other Broward County Freight Areas (Illustrated in Figure 17)
  - Along the I-95/Powerline Road Corridor, improve roadway geometrics, drainage, and surfaces
  - Within the I-595/Airport Zone (Mega Transport Zone), created SR 84 enhancements in order to address constraints to port access, widen Florida's Turnpike from Griffin Road to Atlantic Boulevard, create a new at I-595/Florida's Turnpike interchange and create a new rail overpass on Eller Drive
  - Along the I-75/Sawgrass Corridor, widen roads along the Sawgrass Expressway, widen Griffin Road east of I-75, improve the Pines Boulevard and Miramar Parkway interchanges and install signals at Sawgrass/Commercial Boulevard, providing safe truck access at the interchange
  - Widen SR 7, Ravenswood Road north and south of Griffin Road, and improve Hollywood Boulevard/Florida's Turnpike interchange

- In general
  - Improve content and dissemination of traffic information services
  - Incorporate SAFETEA-LU's revised set of planning factors distinctly into freight planning, integrating them with freight-specific consideration in the planning process
  - Form a Freight Advisory Committee, and coordinate with, as appropriate, the Miami-Dade MPO's Freight Advisory Committee
  - Monitor, attend and participate in key regional meetings and initiatives
  - Ensure that freight remains a focal point of the Broward MPO's LRTP and is incorporated into the regional LRTP

Figure 17: Key Freight and Industrial Zones

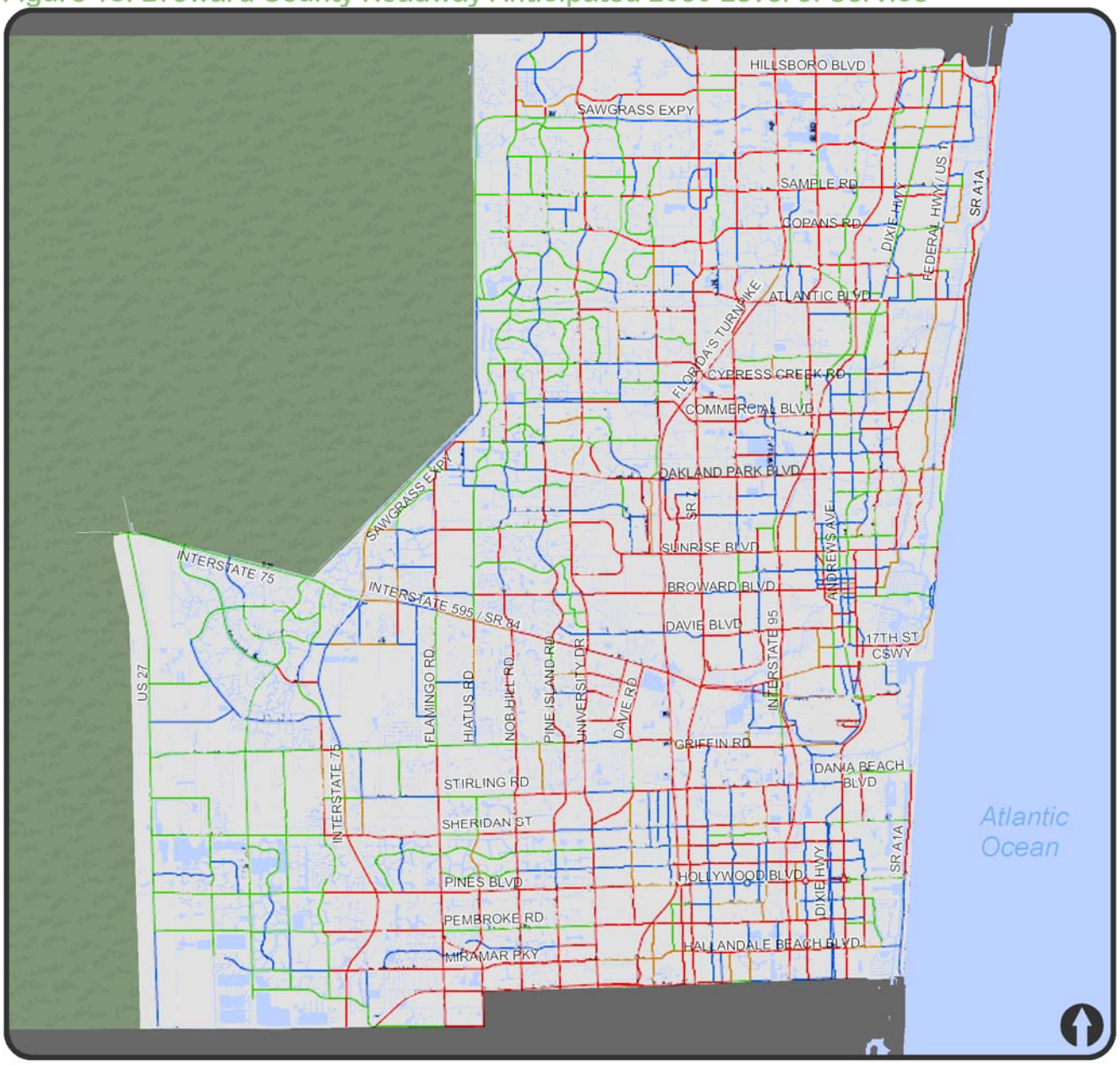


Broward MPO Roadway Capacity and Level of Service Analysis for 2007 and 2030-Sept 2008

The purpose of the Roadway Capacity and Level of Service Analysis is to present a general performance overview of the roadway system in Broward County, Florida. The roadway system evaluated in this report includes existing and planned principal and minor arterials, collectors, and some local/unclassified roads within the Broward County Metropolitan Planning Area. The existing conditions are based on the year 2007 data, and planned conditions are based on the year 2030 data. Roadway level of service was determined using the standards established in the 2002 Florida's Quality/Level of Service Handbook published by the Systems Planning Office of the Florida Department of Transportation (FDOT).

In general, Broward County recognizes level of service "D" as the standard acceptable level of service and therefore the maximum service volumes for level of service "D" are used to determine volume overcapacity (v/c) ratios in the report. A v/c ratio greater than 1 (one) indicated a roadway operating at level of service "E" or "F" and is considered as over-capacity. Of the roads analyzed, this Analysis determined that based on roadway configurations and daily traffic demands, 266 miles (25%) of the Broward County roadway system were operating at an over-capacity condition in 2007 (though peak hour traffic showed slightly fewer segments over-capacity at 24%) and over-capacity is expected to increase to 541 miles (50%) in 2030 (illustrated in Figure 18). No particular recommendations were made in the report.

Figure 18: Broward County Roadway Anticipated 2030 Level of Service



Broward MPO Transit "Bridge" Study

The Transit Bridge Study evaluated alternatives to develop a premium transit service extending from Pro Player Stadium in Miami-Dade County to the Hollywood Tri-Rail station in Broward County. This corridor was identified in the 2020 Broward County Transportation Plan as a way to better connect the two counties and supplement existing transit service. This study was sponsored by the Broward MPO, and was conducted with the guidance of the Federal Transit Administration (FTA) with the intent to identify a locally preferred alternative that could be integrated into a potential New Start Project proposal.

It became apparent, however, after reviewing the Year 2020 regional travel demand projections that a better orientation for the Transit Bridge corridor would be in a north-south direction, with an added south anchor at the Golden Glades Interchange, and a north anchor at Hollywood Boulevard. Using 11 criteria related to the objectives under the goals of the Transit Bridge project, two refined, build corridor alternatives were identified. Both corridors would have ties to the Golden Glades Intermodal Center and to NW 27th Avenue, allowing the new premium transit service to tie into the intermodal transfer opportunities at Golden Glades, and to new premium transit service on NW 27th Avenue in Miami-Dade County. The corridor limits for each alternative are identified below:

- US 441 from Golden Glades Intermodal Center to Hollywood Blvd, and NW 199th Street from US 441 to NW 27th Avenue; and
- Turnpike Mainline from Golden Glades Intermodal Center to Hollywood Blvd, and the HEFT from the Turnpike Mainline to NW 27th Avenue.

With respect to land use, socio-economic and environmental impacts, the build alternatives will not have any significant impact. Likewise, the noise impacts associated with either build alternative will be insignificant, as buses would be operating along the roadway with general traffic. The follow up environmental documentation and preliminary engineering stages of the project will build on the public and agency involvement framework and input achieved during the alternatives analysis study.

Central Broward East-West Transit Analysis (Current)

The purpose of the Central Broward East-West Transit Analysis is to create a Draft Environmental Impact Statement (DEIS) of the preferred locally preferred alternative (as illustrated in Figure 19) which was adopted as a result of the Central Broward East-West Transit Alternatives Study, as well as any other alternatives that come out of the scoping of the project.

The DEIS will include assessments of social and cultural impacts such as visual impacts and relocation potential, natural impacts such as water quality and wildlife and habitat, and physical impacts, such as noise and vibration and air quality. Scoping for the project has been completed and five build-alternatives are being considered. The anticipated completion time of the DEIS is late 2009.

Figure 19: Central Broward East-West Transit Analysis Alternatives

Plantation Midtown Park-n-Ride Feasibility Study (Current)

The purpose of the Plantation Midtown Park-n-Read Feasibility study is to assess the existing and future conditions of land uses, transportation, and transit, perform a parking needs analysis, and develop an estimate of the anticipated parking demand level in the Plantation Midtown District. The analysis will include reviewing existing conditions and relevant plans and reports, conducting a parking inventory, and assessing parking needs. The outcome of the Study will include a set of goals and objectives and a final parking needs analysis. Once the analysis is complete, Park-n-ride facility locations will be identified based on certain measures of effectiveness such as location to transit corridors, availability of suitable land and environmental issues. Upon site selection, a conceptual site plan will be submitted, along with site issues and constraints, including but not limited to land use, utilities, surface water management and development approvals. Cost estimates including project expenses and funding opportunities will also be submitted with the Study.

City of Tamarac Integrated Bikeway / Walkway System Feasibility Study-October 2007

The City of Tamarac intends to establish an integrated bikeway/walkway system providing safe connectivity between City facilities, schools, shopping areas, residential areas and Broward County's Greenway. The integrated system will enhance multi modal transportation, wellness and recreational opportunities. This study includes a feasibility assessment and a geo-demographic market analysis to assess the viability of designing and constructing an integrated bikeway/walkway system within the City of Tamarac. The City's Comprehensive Plan Transportation Element provides policy support for non-motorized forms of travel. In particular, Objective 3.2 and its associated policies call for developing a bicycle/pedestrian master plan and continued implementation of enhancements to the system.

After collecting the data from the public input and the demographic market analysis, the performance criteria and the potential biking/walking trip generators and attractors were used to determine the following biking and walking infrastructure improvement options:

- Add bicycle lanes either by re-striping four-lane roads to two-lane roads with a bike lane on streets with low to moderate interaction with traffic or by widening streets five feet to add a bike lane without reducing the number of lanes, primarily with roads that are currently two lanes
- Add sidewalks where they do not currently exist to provide pedestrians a safe route to exercise and travel while improving the aesthetics of the neighborhood
- Consider the east/west routes the main priority with the north/south roads being second priority
- Complete a bicycle master plan to ensure community support for improvements

Municipal Comprehensive Master Plans

Pursuant to Chapter 163, part II of the Florida Statutes, all municipalities should already have a comprehensive plan in place and should be updated on a regular basis. These documents are to be used as guides for future planning and development of Broward County and its cities. The municipal comprehensive plans should be consistent with county, regional and state comprehensive plans. Table 7 lists the status of Broward County's municipal Comprehensive Plans.

Table 7: Municipal Comprehensive Plan Status

Municipality	Status
Coconut Creek	Last amended in 2005, currently being updated
Cooper City	Adopted in 1990, last amended in 2004
Coral Springs	Adopted in 1989
Dania Beach	Adopted in 1989
Davie	Adopted in 1989, last amended in 1997
Deerfield Beach	Adopted in 1989, last amended in 2007
Fort Lauderdale	Adopted in 1999, last amended in 2008
Hallandale Beach	Last amended in 2001, currently being updated
Hillsboro Beach	None adopted yet, currently being created
Hollywood	Last amended in 2008
Lazy Lake	Adopted in 1982
Lauderdale-By-The-Sea	Last amended in 2008
Lauderdale Lakes	Adopted in 1989, last amended in 2008
Lauderhill	Adopted in 1989, last amended in 2008
Lighthouse Point	Adopted in1989, last amended in 2006, currently being updated
Margate	Adopted in1989, last amended in 2008, currently being updated
Miramar	Last amended in 2000
North Lauderdale	Adopted in 1989, last amended in 2008
Oakland Park	Last amended in 2007
Parkland	Adopted in 1989, last amended in 2002
Pembroke Park	Last known version in 1998
Pembroke Pines	Last amended in 2007
Plantation	Last amended in 2007
Pompano Beach	Last amended in 2008
Sea Ranch Lakes	Adopted in 1989
Southwest Ranches	Adopted in 2003
Sunrise	Adopted in 1998, last amended in 2008, currently being updated
Tamarac	Adopted in 1977, last amended in 2008
Weston	Adopted in 1999
West Park	Last amended in 2008
Wilton Manors	Last amended in 2008

3.2 REGIONAL

SFRTA Strategic Regional Transportation Plan-September 2008

The Strategic Regional Transit Plan was developed by the South Florida Regional Transit Authority (SFRTA) to "define a bold vision and strategic plan for regional transit's role in the overall regional transportation system to ensure mobility economic viability, and quality of life in the South Florida region for the next generation". Based on a number of analyses and coordination with regional transportation partners, the SFRTA Strategic Regional Transit plan defined three potential networks based on connectivity, productivity and value.

The Connective Network addresses slinking areas of the region that currently are expected to produce a large number of trips that make the most of our existing community investments and infrastructure land vision. The Productive Network compiles the individual alternative that produces the most ridership to determine if it creates the most overall-used system. The Value Network is set up to determine if the network would balance the cost of the system with the benefits of the system. A system will be finalized based on public input and the findings of the analyses.

South Florida East Coast Corridor Transit Analysis

The purpose of the study was to look at new regional passenger transit services in eastern Palm Beach, Broward, and Miami-Dade Counties, in an effort to reduce roadway congestion and meet north-south mobility needs in the tri-county region. The study spans an 85-mile long two-mile wide corridor, centered on the Florida East Coast (FEC) Railway tracks, essentially from downtown Miami to Jupiter. The study began in 2005 and Phase I, which determined that the FEC was the preferred alignment, is complete. The next Phase of the project will look at the preferred modes and technologies. The technologies being considered include bus rapid transit (BRT), light rail transit (LRT), heavy rail, and commuter rail.

The project spans three counties with three sections, though the sections are not necessarily constricted to county line boundaries. The southern section spans from downtown Miami (Miami-Dade County) to Pompano (Broward County); the middle section spans from Pompano to West Palm Beach (Palm Beach County); the Jupiter Extension spans from West Palm Beach to Jupiter (entirely within Palm Beach County limits). There are construction costs and right-of-way costs for this project, with costs higher in some sections more than others; therefore one of the items to consider in the next phase of the project is the distribution of costs. Other items to consider in the next phase of the project are the connection between Tri-Rail and the FEC, and what possible service can be implemented with the existing freight service on the FEC. Expected completion of Phase 2 is early 2010.

Fort Lauderdale-Hollywood International Airport Master Plan Update – Sept 2006

According to an interim briefing package, one preliminary terminal development concept of Phase 2 of the 2006 Airport Master Plan Update is to expand the gate count from 57 to 79 (and for beyond 2020, increase to more than 90 gates). Other preliminary terminal development options include:

- The Intermodal Center
- The Automated People Mover
- Roadway capacity improvements within the core of the terminal area
- Roadway adjustments to facilitate pedestrian connections between parking areas and the terminal
- Redeveloping garages

Most recently, one study showed that due to rising fuel prices, several airlines have filed for bankruptcy protection or have gone out of business in 2008, and as a result, a net decrease of more than 50,000 seats is projected over the next several months. If the number of passengers continues to drop, Broward County Aviation Department (BCAD) staff has projected revenue impacts and has developed scenarios for accommodating these drops on the expense side, including reducing operations, a hiring freeze, and deferral of non-safety related capital projects. Due to changes in various airline flight activities, including several airline's flight reduction, mergers, and market exits, BCAD has the opportunity to realign the Airport within the existing Agreement, prompting carriers to reevaluate their facility/gate requirements, and giving BCAD staff the opportunity to improve facility utilization via strategic airline relocations. Supply and demand will be the driving force in allocation/building of facilities. Through ongoing negotiations with signatory carriers, opportunities exist at almost every Concourse for facility reallocation to match demand. For example, the Airport anticipates gaining use of at least 5 gates due to these reallocation opportunities. Realignment may push mid-term (2015-2020) facility requirements farther out due to enhanced facility utilization.

Regardless of which development concept is decided upon, following the Board of County Commissioners (BOCC's) designation of a preferred development plan, steps will be taken to secure government agency approvals needed to facilitate subsequent implementation of elements of the plan. These initiatives will include obtaining FAA approval of the updated Airport Layout Plan and coordinating with State, County and local officials as required to amend the County's Comprehensive Plan so that it reflects the Airport Master Plan adopted by the BOCC.

North Perry Airport Master Plan

The North Perry Airport is a general aviation airport owned by Broward County and operated by the Broward County Aviation Department (BCAD). The Airport last updated its Master Plan in 1996. As of the last update, specific issues identified include the increased reliance on the airport as a reliever to Fort Lauderdale-Hollywood International Airport, increasing services and level of services (LOS), lack of updated navigation technology, security, land use and development concerns, and economic development plans consistent with local communities' goals.

BCAD is currently awaiting the North Perry Airport Master Plan Update. The Update will incorporate planning guidelines, forecasts, demand/capacity analysis, an alternative analysis and environmental analysis, which will result in the development of the Airport Layout Plan, the identification of new facilities needs, a capital improvement program, a financial feasibility plan, and an economic impact analysis. The North Perry Airport Master Plan Update is expected to be completed in spring 2009.

Port Everglades Master Plan (Update)-2007

The purpose of the Master Plan Update is to assess the changes that have occurred regionally, nationally, and internationally, since 2001, when the Port prepared the 2020 Vision Master Plan (adoption was interrupted by the events of 9/11). The goal of the Plan, with planning horizon 2026, is to "create a plan to maximize market share and revenue through a realistic 5-year facility development program with a framework of 10- and 20- year vision plans".

Phase I of the project included assessing existing facilities and infrastructure assets at the Port; assessing the market for containerized cargo, non-containerized cargo, petroleum, and cruising; assessing physical opportunities and constraints within the Port; identifying cargo and cruise needs to meet market forecasts; coordinating with on-going programs of sister County agencies and other stakeholders (including the Broward County Intermodal Center, Railway Initiatives, the US Army Corps of Engineers Dredging and Widening Program, the Calypso Pipeline Program, and the Broward County Convention Center Master Plan). Phase II consisted of community outreach, refining the 10- and 20- year vision plans, identifying economic impacts of port operations, developing financial strategies for plan implementation and preparation of a cost-feasible 5-year capital improvement plan, which was based on project costs, return on investment, economic impacts, environmental impacts, and overall need.

Proposed projects for implementation of the 5-year Plan include:

- •Constructing a bypass road parallel to Eisenhower Boulevard and Spangler Boulevard, permitting the public to travel between the intersection at Eisenhower Boulevard and 17th Street, without passing through a Port security gate
- •"Carving out" a security perimeter between Port-secured property and the public space at Terminals 2 and 4
- •Expanding the Turning Notch
- •Midport roadway expansion of East Eller Drive
- •Midport parking garage construction
- •Construction of the FPL discharge canal intermodal bridge
- •Construction of McIntosh Loop Road
- •Multiple cruise terminal expansions or renovations

Proposed projects for implementation of the 10-year Plan include:

- •Construction of Cruise Terminal 4 parking garage
- •Construction of the Midport Cruise Passenger Intermodal Center (Phase I)
- •FPL Discharge Canal realignment

Proposed projects for implementation of the 20-year Plan include:

- •Construction of the Midport Cruise Passenger Skyway
- •Construction of customs and border protection facility
- •Multiple terminal expansions and slip reconfigurations

Intermodal Center and People Mover System (SunPort) PD&E Study – 2007/2008

The SunPort PD&E Study is a culmination of the planning studies and plans for the Airport and Seaport, the Broward MPO Long Range Transportation Plan 2030 Update and other regional transit networks, which have outlined a framework to address growth and development at the Airport and Seaport and link it to the transit network for the county and the region. The project has two distinct elements: the Intermodal Center (IMC) and the People Mover. The IMC is a transportation hub and will provide connection to the commuters who would use the other regional transit projects to access the Airport and the Seaport. Additionally, the IMC could also serve the requirements of remote parking and potential joint development. The People Mover will provide an effective mode of transportation between the Intermodal Center and the Airport or Seaport. This will provide convenient access to the employees of the Airport and the Seaport, as well as to local residents and visitors who utilize these facilities. Over the past several years, the Florida DOT initiated the Central Broward East/West Transit Analysis Study and the South Florida East Coast Railway Corridor Transit Analysis Study for potential commuter services (to provide additional north/south transit connectivity) within the region. These regional transit projects and Broward County Transit through this project (Intermodal Center and People Mover) could provide the final connectivity, for commuters and tourists using transit, to access the Airport and Seaport. The project is compatible with the Port Everglades and Fort Lauderdale-Hollywood International Airport's Master plans and compliant with Port Security Screening Updates.

Viable locations and corridors were identified in the project to site the IMC and alternative routes. As of June 2008, the proposed project recommended alternative sited the IMC in the center of the cloverleaf just east of the airport, with two Port Intermodal Facilities (Midport and Northport), and a proposed maintenance and storage facility along 7th Avenue. The recommended route follows Terminal Drive through the proposed IMC, following NE 7th Avenue to Eller Drive, then heading north on Eisenhower Boulevard with stops at the Midport and Northport facilities. The project also identified incremental steps for phasing the project based on the prioritized needs of the project.

Florida Department of Transportation District 4 Regional Freight Initiatives

The Florida DOT District 4 Office of Modal Development has worked over the past several years to develop a district-wide freight program. To date, activities have includes a variety of initiatives designed to provide the necessary policies, plans, procedures and tools to support freight transportation. Broward County is the most urban county of all five counties located in District 4. It is home to an international airport, a major deepwater seaport, intermodal container transfer facility, and numerous freight related businesses. The regional freight program developed by FDOT directly impacts Broward County providing data collection and analysis activities, promoting the importance of freight considerations within established transportation planning activities, and encouraging regional partners to work together to identify needs and develop solutions. Highlights from the District's freight initiatives include:

- Sponsorship of the Atlantic Commerce Corridor Study, with subsequent designation as a "High Priority Corridor"
- Development of a GIS-based highway truck volume mapping and data management tool
- Development of an initial regional freight element to support the Southeast Florida Regional LRTP
- Preparation of a district-wide SIS Connector Study to identify connector needs and advance a select number of connector improvement projects.

Interstate 95 Managed Lanes / 95 Express (Current)

The I-95 Managed Lanes Pilot Project was initiated by the Florida DOT as a preferred long-term alternative to congestion management. Managed lanes are an innovative congestion-relief project that provides regional connectivity by introducing express lanes and bus rapid transit, which when completed, will operate from I-395 in downtown Miami to Broward Boulevard in Fort Lauderdale. Managed Lanes incorporate tolling, transit, technology, and transit demand management (flex-time programs). Some of the applications employed in I-95 Managed Lanes include expanded lane usage (with existing HOV lanes converted to Managed Lanes), ramp signaling, the 95 Express lane, variable congestion pricing (tolling), additional Road Ranger service patrols, new BRT routes, improved park-n-ride facilities, more detectors and closed circuit cameras to monitor traffic and improve accident response, and 511 Service, providing highway and transit options.

In 2007, 95 Express received support from the Broward MPO. The final phase of the initial project is expected to open in 2010. Future networks that may incorporate I-595, I-75, US 1, SR 826, and SR 836.

SR 93 / I-75 Project Development and Environment Study (Current)

The FDOT prepared the I-75 Master Plan Study to address the growing congestion in the 18-mile study segment between I-595 in Broward County and SR 826 / Palmetto Expressway in Miami-Dade County. As a result of working with local municipalities to address local existing and future traffic problems, a number of locally preferred alternative recommendations were made, and subsequently adopted by the local Metropolitan Planning Organizations (MPO's). Improvements within Broward County only include reconfiguring four Broward County interchanges to facilitate entering maneuvers rather than exiting maneuvers, and provide a new overpass bridge at Pembroke Road. Overall improvements in Miami-Dade and Broward Counties include providing reversible lanes within the median of I-75, develop a transitway (BRT) along the roadside of I-75 from I-595 to south of the Palmetto Expressway, phase the implementation of transit on I-75, determine how to access reversible median lanes during PD&E phase, and add new Florida's Turnpike ramps to and from the east of I-75.

In the fall of 2008, public workshops took place to discuss concept alternatives in Broward County and Miami-Dade County. Over the next year the FDOT will review environmental supporting documents and design alternatives, followed by a final alternatives workshop. Once the preferred alternative is identified, a public hearing is set to take place in October of 2010, with final location design concept acceptance in April of 2011.

3.3 STATE AND FEDERAL

FDOT 2025 Florida Transportation Plan – 2005

The 2025 Florida Transportation Plan (FTP) provides the policy framework for allocating funding that will be spent to meet the transportation needs of residents, tourist, and business people through horizon year 2025. Public input, the backbone of the FTP, was gathered through committee processes, consensus building, public forums, focus groups and general communications. The FTP focuses on sustained growth with a globally competitive economy, a sustainable environment, and more livable communities, while facing the challenges of capacity constraints, inadequate intermodal connectivity, continued safety and emergency management concerns, balancing transportation and community livability, and the rising costs of transportation. In order to accomplish this, the FTP suggests coordinating investments to ensure an integrated system, safeguarding existing transportation assets, enhancing mobility options, ensuring safer transportation systems, embracing new technology, investing in future needs, and employing transportation systems that support community livability in an environmentally responsible manner. Strategies that address these suggestions in the FTP include:

Safety, through

- •Increased use of ITS as a tool to improve transportation safety and security
- •Improved compatibility of communications and other critical equipment used by FDOT and federal, state and local responders
- •Implementation of GIS for plotting crash data and providing access to all safety partners

Enrich quality of life and responsible environmental stewardship, through

- •Effective public involvement, in order to develop transportation facilities that support community visions and enhance quality of life
- •Increased access to and use of alternatives to single-occupant vehicles, and enhance access to and availability of transportation services to persons who are transportation disadvantaged
- •Designing, building, and maintaining transportation facilities in a manner consistent with the protection and management of surrounding natural resources

Provide adequate and cost-efficient maintenance and preservation of transportation assets by

- •Monitoring system conditions to ensure that all transportation facilities, including bicycle and pedestrian facilities are adequately maintained and preserved
- •Emphasizing use of state-of-the-art technologies and innovative contracting methods to increase the efficiency of system maintenance
- •Creating strong relationships between the state, local governments, and modal partners

Create a stronger economy through enhanced mobility for people and freight by

- •Identifying and investing in regionally significant facilities under the Transportation Regional Incentive Program that support regional economic development
- •Identifying and investing in local transportation infrastructure and services that support locally defined visions and comprehensive plans
- •Promoting more effective use of existing rail and water corridors

Invest in sustainable transportation by

- •Encouraging the use of tolls, user fees, and “market choices” (e.g. express lanes, buses, etc)
- •Implementing technologies that increase efficiency of planning, design, and construction
- •Providing state, local and private sector incentives to encourage joint funding

Florida Strategic Intermodal System (SIS) Strategic Plan – Jan 2005/Updated 2007

Florida's SIS Strategic Plan, which was developed with extensive partnership and public involvement, was established to meet the following two key goals:

1. To efficiently serve the mobility needs of Florida's citizens, business and visitors; and
2. To help Florida Become a worldwide economic leader, enhance economic prosperity and competitiveness, enrich quality of life, and reflect responsible environmental stewardship.

Facilities are designated as either "SIS facilities", which meet high levels of people and goods movement, or "Emerging SIS facilities", which meet lower levels of people and good movement, both of which generally serve fast growing economic regions and Rural Areas of Critical Economic Concern. Some of the criteria considered for designation include adjacency to tourism industry, adjacency to counties with a large growth rate, and interregional boarding. Types of facilities include transportation hubs, which move people or goods; interregional corridors, which connect major origin/destination markets; or intermodal connectors, which connect hubs and corridors. SIS designations aid in the prioritization of project funding.

The 2007 SIS Data and Designation Update Report was provided to explain changes in SIS data, designations, and the methodology used to determine those designations. These designations can be found in Figure 20. As of the August 2008 update, there are no (zero) *emerging* SIS Hubs, Corridors, or Connectors in Broward County.

Florida Intelligent Transportation System (ITS) Strategic Plan – 1999/Updated 2005

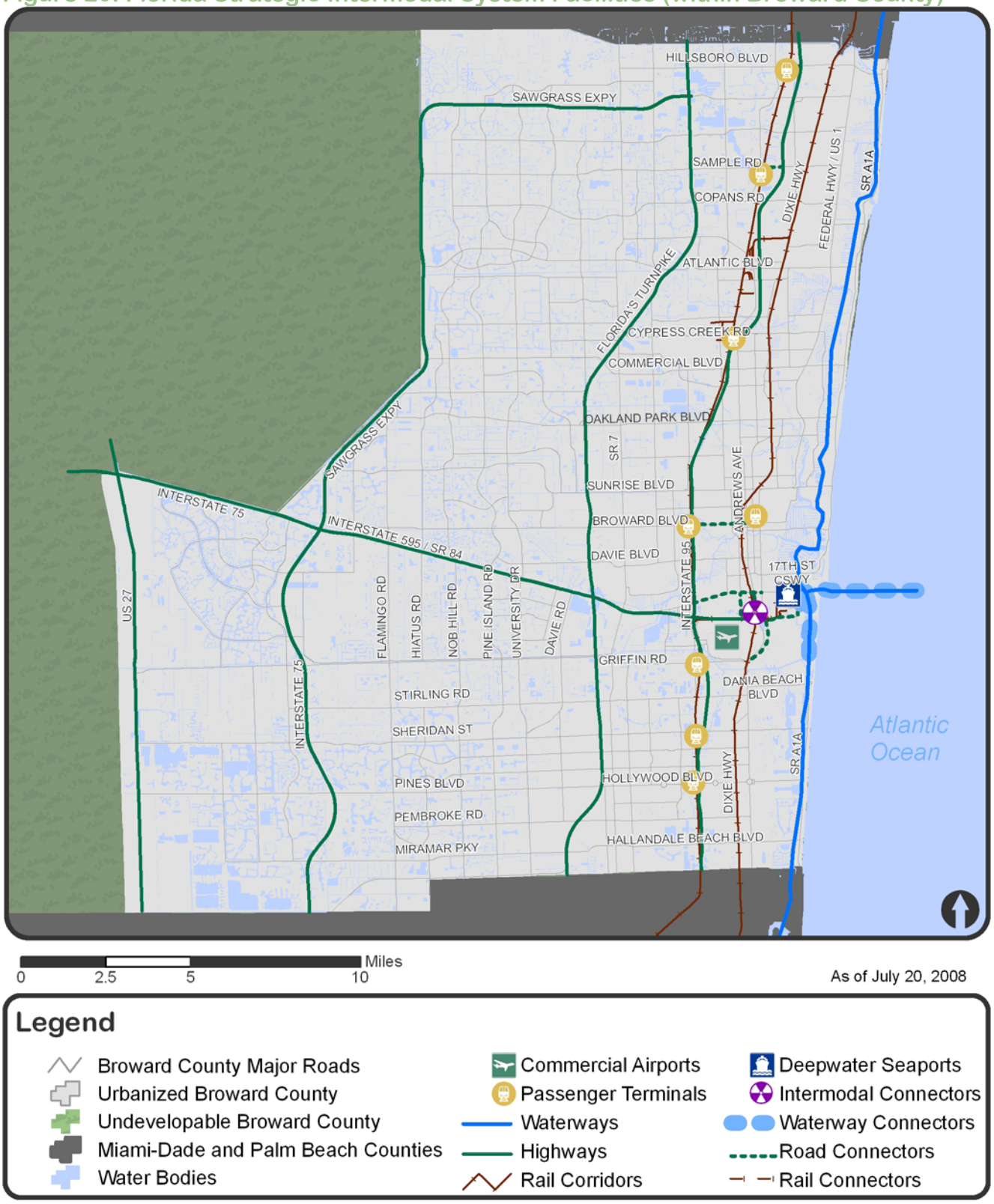
Florida's ITS Strategic Plan is a guide for planning, programming, and implementing integrated multimodal ITS services throughout the State. The four main goals identified in the 1999 ITS Plans, which are consistent with the FDOT's 2020 Florida Transportation Plan include:

- Safe transportation for residents, visitors, and commerce
- Protection for the public's investment in transportation,
- A statewide transportation system that enhances Florida's economic competitiveness, and
- Travel choices to ensure mobility, sustain the quality of the environment, preserve community values, and reduce energy consumption.

The following goals were added in the 2005 ITS Plan Update:

- Deploy an integrated, effective transportation system
- Provide a well-prepared and secure transportation system

Figure 20: Florida Strategic Intermodal System Facilities (within Broward County)



Recommendations from the Florida ITS Strategic Plan 2005 Update include evaluating the program of intelligent transportation systems in Florida's ITS 1999 Plan; updating the vision, mission and goals of Florida's ITS 1999 Plan; issuing papers on new national and statewide ITS initiatives; updating 1999 ITS Plan's resource documents and issue papers; and providing new cores strategies for the ITS program, such as:

- •Develop diversion routes, arterial trailblazer signage, and adjust plans for local signal system timings during an interstate diversion
- •Develop a statewide 511 system that standardizes messages across regions and jurisdictions
- •Implement and monitor ITS performance measures through a thorough data collection process
- •Develop and implement ITS standards
- •Prepare vulnerability assessment, response, recover, and implementation plans for cyber systems and field equipment utilized
- •Develop a plan to complete the telecommunication network for Florida Interstate Highway System (FIHS) facilities not programmed in the ITS capital funds program

The Florida Transportation Management Centers (TMCs) are the control centers of Florida's Intelligent Transportation System. The Broward County Smart SunGuide Transportation Management Center, an ITS component, opened in 2004. Transportation Management Centers monitor traffic conditions, respond to traffic incidents and coordinate ITS programs. The SunGuide TMCs disseminate information coming in from pavement sensors and cameras to distribute to motorists in real-time through SunGuide 511 Traveler Information, as well as law enforcement and emergency services to coordinate responses to freeway incidents and rush hour traffic congestion.

FDOT Accelerate Florida Program - October 2008

In an effort to strengthen and grow Florida's economy, Governor Crist launched "Accelerate Florida: Extending Florida's Economic Horizons", an economic stimulus plan that will speed up billions of dollars in construction and other capital projects, creating thousands of new jobs while improving the states [schools,] roads [and water projects]. The Florida DOT responded to the challenge by announcing the acceleration of more than 179 road construction projects including resurfacing, lane additions, bridge rehabilitation, and safety enhancements to the State's transportation system, in addition to other projects that the DOT had already initiated. Nine of the 179 projects occur in Broward County. These accelerated projects include:

- •City of Deerfield Beach Train Station rehabilitating and preservation along the CSX Corridor
- •Intelligent Transportation System (ITS) power upgrade on I-95
- •Resurfacing and added medians along SR 820 (Hollywood Blvd) between SR 5 and SR A1A
- •Resurfacing SR 25 (US 27) from Griffin Road to the Broward County/Palm Beach County line
- •Resurfacing SR A1A (Ocean Drive) from NE 18th Street to Oakland Park Boulevard
- •Resurfacing SR 834 (Sample Road) from Rock Island Road to SR 7 (US 441)
- •Resurfacing SR 817 (University Drive) from C-13 Canal to C-14 Canal
- •Resurfacing SR 862 (I-595) from west of I-95 to east of I-95
- •Resurfacing Florida's Turnpike from Miami-Dade County line to Miramar Parkway

FHWA Pedestrian Safety Guide for Transit Agencies- February 2008

The intent of the US DOT Federal Highway Administration Pedestrian Safety Guide was to provide transit agency state with a user friendly resource guide for improving pedestrian safety. The guide focuses on different elements of pedestrian safety that are most relevant to transit agencies, including tools for identifying pedestrian safety and access issues, such as check lists and questionnaires, policy and organizational approaches to enhancing pedestrian safety and access, actions that increase the safety of pedestrians accessing transit, background information on pedestrian safety and access to transit and legal issues in cases regarding pedestrian access to transit.

Approaches to enhancing pedestrian safety and access to transit included administrative actions such as organizational improvements, safety training and policy reform, as well as developing both public and private partnerships. Action items identified that would potentially increase the safety of pedestrians accessing transit include improving engineering and design of transit facilities, as well as improving education and enforcement actions. Specifically, these actions include:

- •Designing paths, sidewalks and transit stops that contribute to a passenger's experience and perception of safety, applying "universal design", which ensures the build environment is usable and can be shared by all people
- •Designing sidewalks with the appropriate width, surface, and buffers, while providing minimal grade changes at crossings, ample lighting, and directional signage
- •Improve/design roadway crossings with marked crosswalks, median islands, curb extensions, reduced curb radii, narrowed and limited motor vehicle travel lanes, pedestrian warning signs, pedestrian signals, and grade-separated crossings.
- •Improve pedestrian crossings of rails systems, by utilizing safety treatments such as traditional gate/flasher assemblies, active or passive warnings, fencing, grade-separated crossings, surveillance, education, and enforcement.
- •Apply the ASSHTO Guide for the Development of Bicycle Facilities during the planning, design and construction of projects to ensure that appropriate bicycle facilities are provided.
- •Invest in transit vehicle design technologies that improve safety such as collision avoidance technology, strobe lights on top of buses, door safety interlocks, rear wheel safety guards, and front brake lights
- •Select bus stop locations based on factors such as line-of-sight visibility, pedestrian patterns along the roadway at nearby intersections, proximity to destinations in the area, ease of transfer to other routes, location of traffic signals and other crossing facilities, and locations of sidewalks and other pathways that provide access to the stop
- •Design stops that follow the ADA Accessibility Guidelines for Buildings and Facilities, and provide appropriate loading zones and landing pads; shelters and other pedestrian waiting facilities; identification and way-finding devices; security; and proper maintenance.

Pedestrian Safety Bill (SB 154) Effective July 2008

Requires a driver to stop at intersections with traffic control signals, or crosswalks so indicated with signage, to allow a pedestrian to cross a roadway when the pedestrian is in the crosswalk, etc

FDOT Florida State Highway Transit Safety Study-August 2004

The purpose of the Florida DOT study was determine design considerations for the State and Federal Highway Safety System that would eliminate or reduce accidents at transit stops, routes, and stations, involving public transit vehicles, as well as increase efficiency and safety of pedestrian and bicycle movements and access for these locations. Through quantitative and qualitative analyses focused on accident data, transit agency surveys, and trend analyses, the following recommendations were suggested:

- •Install more bus pull-out bays on state roads[3]
- •A specific study should be completed to improve and standardize the lighting configurations on buses, in order to improve auto driver awareness of the presence and operation of the buses.
- •Initiate an on-going public awareness effort to better inform motorists of the Florida law that requires drivers to yield to buses entering the travel lane from a bus stop or station, via effective outreach strategies, including radio and television messages, messaging at required driver education courses and license and tag renewals, and billboards or other signage
- •Develop informational signage for the State Highway System (SHS) in areas where bus accidents are historically highest, stating the law requiring motorists to yield to public buses entering the travel lane from a bus stop or station.

Florida Rail Plan Freight Rail Component 2004

The principal purpose of the Freight Rail Component of the Florida Rail Plan was to provide the necessary information in a policy framework through which strategic actions could be taken to achieve the best freight rail system for Florida's future. The Freight Rail Component was intended to:

- Place critical information about freight rail issues, needs, choices, costs, and benefits within a larger public policy context
- Communicate these messages to a wide range of potential audiences
- Develop policy recommendations to create a strong freight rail system in Florida

The report analyzed the changing trend in the industrial profile and the goods transportation requirements in future. Some of the issues identified in this report that surfaced through research and interviews with several key stakeholders in the freight transportation industry were related to at-grade railroad crossings, impact of freight on passenger rail service, aging infrastructure (bridges), capacity constraints and lack of funding sources.

According to this plan, CSX would concentrate on improving freight service on a few high density corridors, partner with FEC to provide service in Southeast Florida and separate freight and passenger service in Florida to the extent possible. Consequently, CSX would shift freight service from Orlando-Miami route to the FEC rail line, which would improve the passenger rail service between Orlando and Miami but would impact plans and service for passenger rail in the FEC corridor. The report lists a number of recommendations regarding improving freight service, infrastructure, public policy, safety issues and so on. It also identifies various funding opportunities for the improvement projects.

3 The research in the FDOT Florida Highway Transit Safety Study identified specific high-accident locations, which can be applied to determine a prioritization of the construction of the pull-out bays.

Florida's Energy and Climate Change Action Plan 2008

In July of 2007, Governor Crist signed three Executive Orders, initiating Florida's energy policies, at the Serve to Preserve Florida Summit on Global Climate Change. Executive Order 07-128, titled "Florida Governor's Action Team on Energy and Climate Change", mandated the creation of a comprehensive Energy and Climate Change Action Plan which was to achieve or surpass greenhouse gas reduction targets specified in Executive Order 07-127. In October of 2008, Phase 2 Report was submitted to Governor Crist, providing 50 separate policy recommendations, plus an additional set of comments toward current regulatory work to develop Florida's program to reduce harmful greenhouse gas emissions. One of the findings from the report is that Florida exceeds the US in transportation-caused greenhouse gas emissions by nine percent. Of the 50 policy recommendations, the following are specifically related to improving the state of transportation-related gas emissions:

- Develop and expand low-GHG (greenhouse gas) fuels, ultimately replacing current gasoline and diesel fuel in the future
- Utilize low rolling resistance (LRR) tires and other add-on technologies, which can reduce vehicle fuel use and associated carbon dioxide emissions.
- Incorporate Smart Growth Planning[4], focusing on LEED construction; minimizing vehicle miles traveled (VMT) necessary to support communities; and adopting better land use policies that minimize carbon releasing development patterns, when developing (and redeveloping) human habitat communities.
- Improve Transportation System Management (TSM)[5] by encouraging and providing incentives for employers who implement programs such as job-sharing, flex-time, telecommuting, and carpooling; enhancing coordination between land use and transportation decision-makers, encouraging parking facility operations to implement smart parking policies, and encouraging local governments and private developers to build up the supporting transportation network, improving local transit routes; and increasing investments in ITS technologies at all levels.
- Increase choices in modes of transportation, by providing modal alternatives to the single-occupancy vehicle (SOV) to reduce the number of trips on the road and VMT per person. These alternatives can include bus transit, rail transit, paratransit, ridesharing, greenways, on and off-road bicycle facilities and all types of pedestrian facilities.
- Factor greenhouse gas emissions into the transportation and land use planning processes, such as increasing density within the urban service area, prioritizing compact developments, transit-oriented developments, and affordable workforce housing in proximity to major employment centers, and prioritizing the preservation of green space, natural and agricultural areas.
- Create incentive programs for increased vehicle fleet efficiency, such as tax credits for efficient vehicles, incentive programs for major fleet owners, including rental car and taxi companies
- Increase freight movement efficiencies by supporting incentives for shippers to use rail for freight movements, reducing freight bottlenecks in known urbanized, congested areas, and provide tax incentives or other reliable funding sources to trucking companies who invest in hybrid truck and alternative fuel technologies, and utilized emission reductions devices.

[4] Smart Growth Planning focuses on land use planning, site planning and urban design at the community level. Smart Growth focuses on restoring community and vitality to center cities and older suburbs. Smart Growth is town-centered, transit and pedestrian oriented, and has a greater mix of housing, commercial and retail. (Smart Growth Network, 2008)

[5] TSM is the concept of pairing transportation demand with transportation supply to help transportation networks serve the demand in an effective and efficient manner in an effort to reduce the daily VMT per capita of the transportation network.

Florida Greenways and Trails System

The Florida Greenways Commission which was established in 1993, and the 1995 Florida Greenways report to the Governor, “Creating a Statewide Greenways System: For People for Wildlife for Florida”, set the precedent and the vision for a statewide greenway and trail network.

A greenway, as defined by Florida Statutes Chapter 260, is “a linear open space established along either a natural corridor, such as a riverfront, stream valley, or ridgeline, or over land along a railroad right-of-way converted to recreational use, a canal, a scenic road, or other route; any natural or landscaped course for pedestrian or bicycle passage; an open space connector linking parks, nature reserves, cultural features, or historic sites with each other and populated areas; or a local strip or linear park designated as a parkway or greenbelt”. Trails are defined “as linear corridors and their adjacent land or water that provide public access for recreation or authorized alternative modes of transportation”.

The Florida Department of Environmental Protection (FDEP) Office of Greenways and Trails (OGT), in conjunction with the Geoplan Center of the University of Florida, has conducted a series of studies which define opportunities for establishing the statewide system of greenways and trails for recreation, conservation, and alternative transportation, also known as the Trails and Ecological Greenways Network. The following publications trace the history of those studies:

- “Connecting Florida’s Communities with Greenways and Trails” (1999)
- “Identification of Critical Linkages within the Florida Ecological Greenways Network” (2002)
- “Update of Florida Ecological Greenways Network” (2004)
- “Update and Prioritization of Florida’s Trail Network” (2004)
- “Reprioritization of the Florida Ecological Greenways Networks based on the New Base Boundaries Adopted in 2004” (2005)

The most up-to-date network of greenways, scenic trails, and priorities set by the OGT is illustrated in Figure 21.

Figure 21: Florida Trails and Greenways

4.0 EXISTING SYSTEMS AND SERVICES

4.1 BROWARD COUNTY ROADWAY SYSTEM

The major freeways serving Broward County are I-95 (with HOV lanes), I-595, I-75, Sawgrass Expressway (toll way) and Florida's Turnpike (toll way). I-95 and Florida's Turnpike are the major north-south freeways connecting Miami-Dade, Broward and Palm Beach Counties. In 2005, there were more than 4,500 lane miles of roadways within the county. Table 8 shows lane miles within the County for different facilities types. The data is developed using the highway network input to the travel demand model.

Table 8: 2005 Roadway Lane Miles within by Facility Type

Facility	Lane Miles	Percent
Freeways	439	9.6%
Toll ways	295	6.5%
HOV	51	1.1%
Arterials	3,787	82.8%
Total	4,572	100.0%

Figure 22 shows Broward County roadways by functional classification and Figure 23 shows Broward County roadways by lanage.

Figure 22: Broward County Roadways by Functional Classification

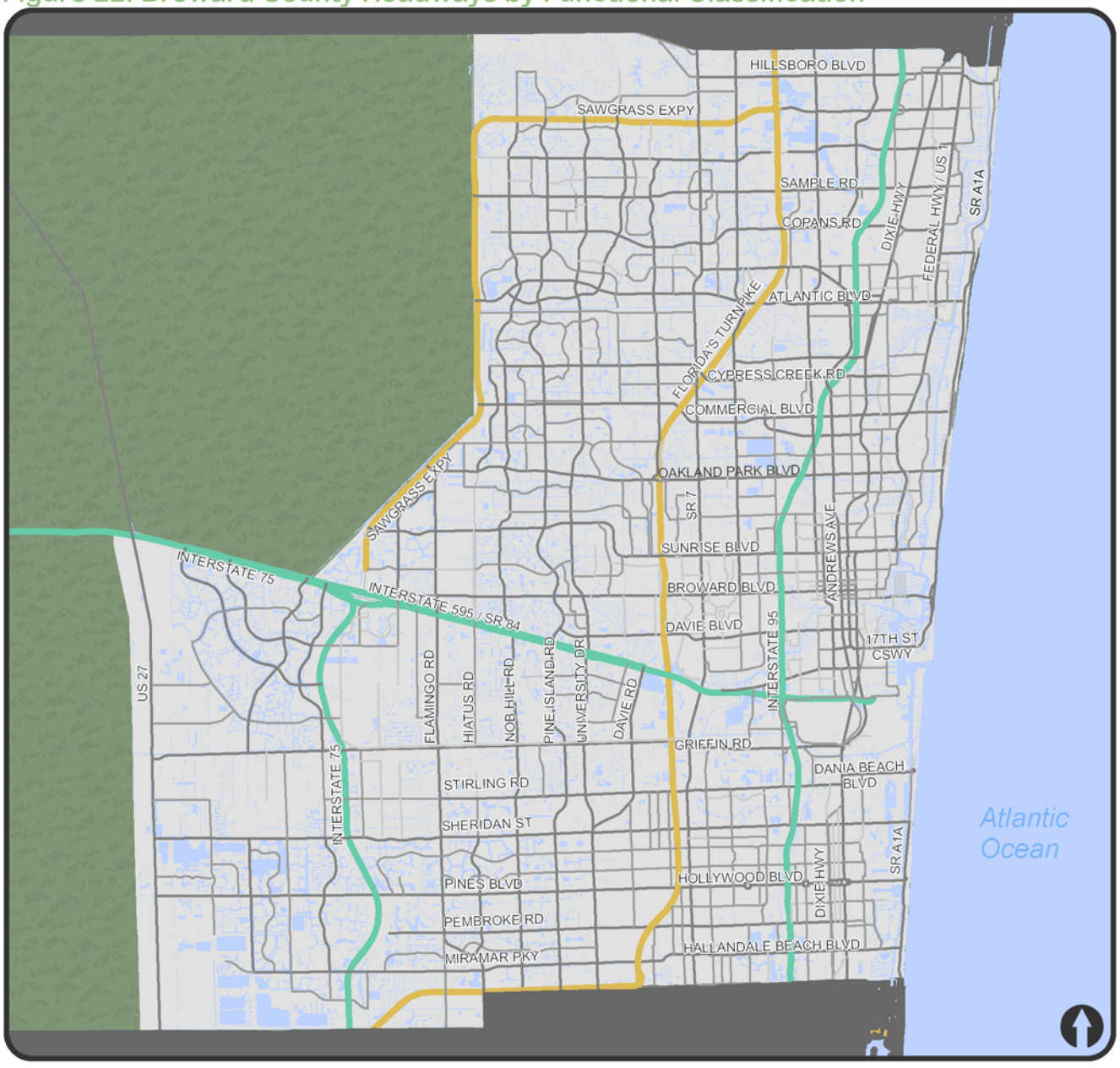
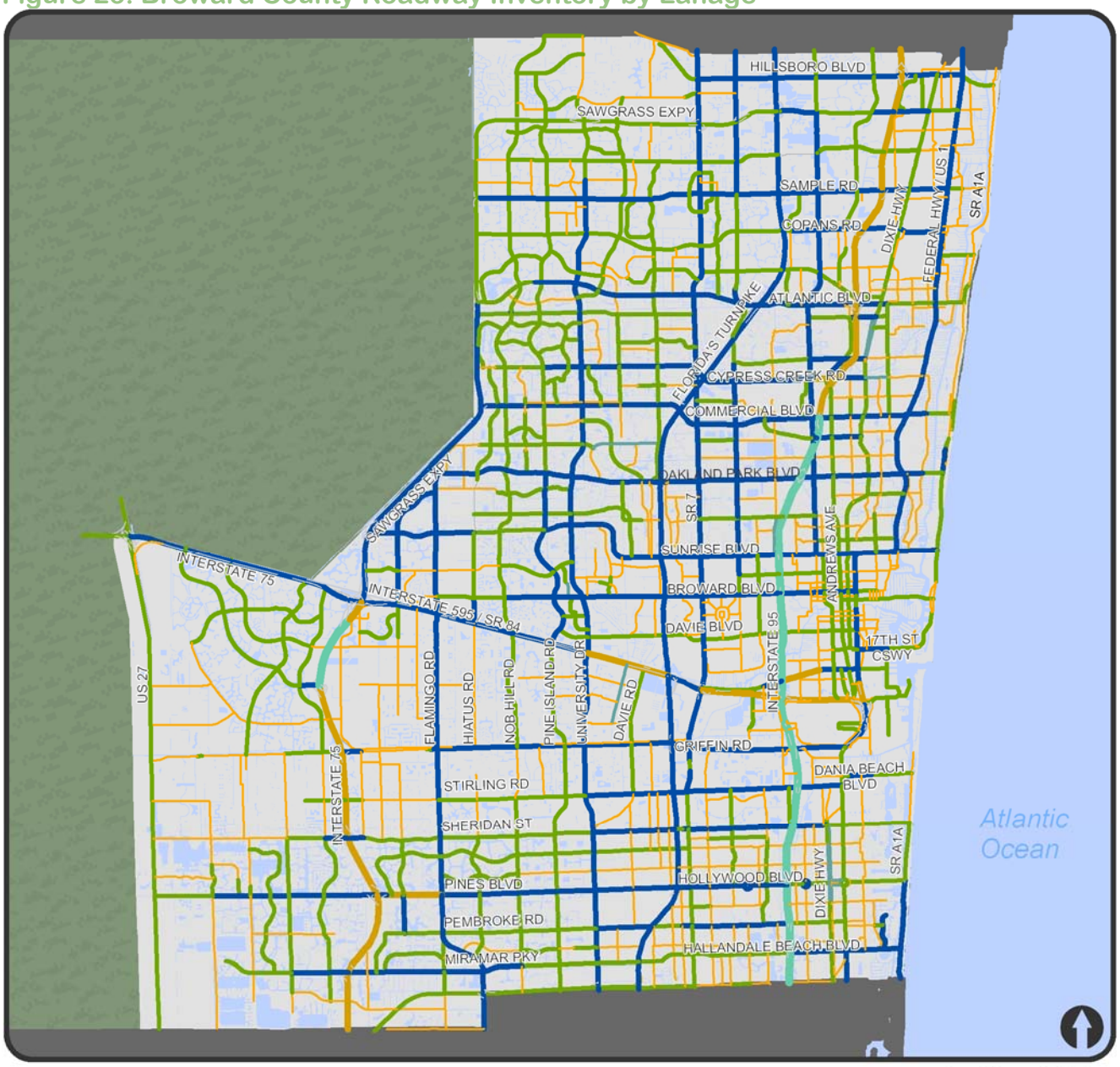


Figure 23: Broward County Roadway Inventory by Lanage



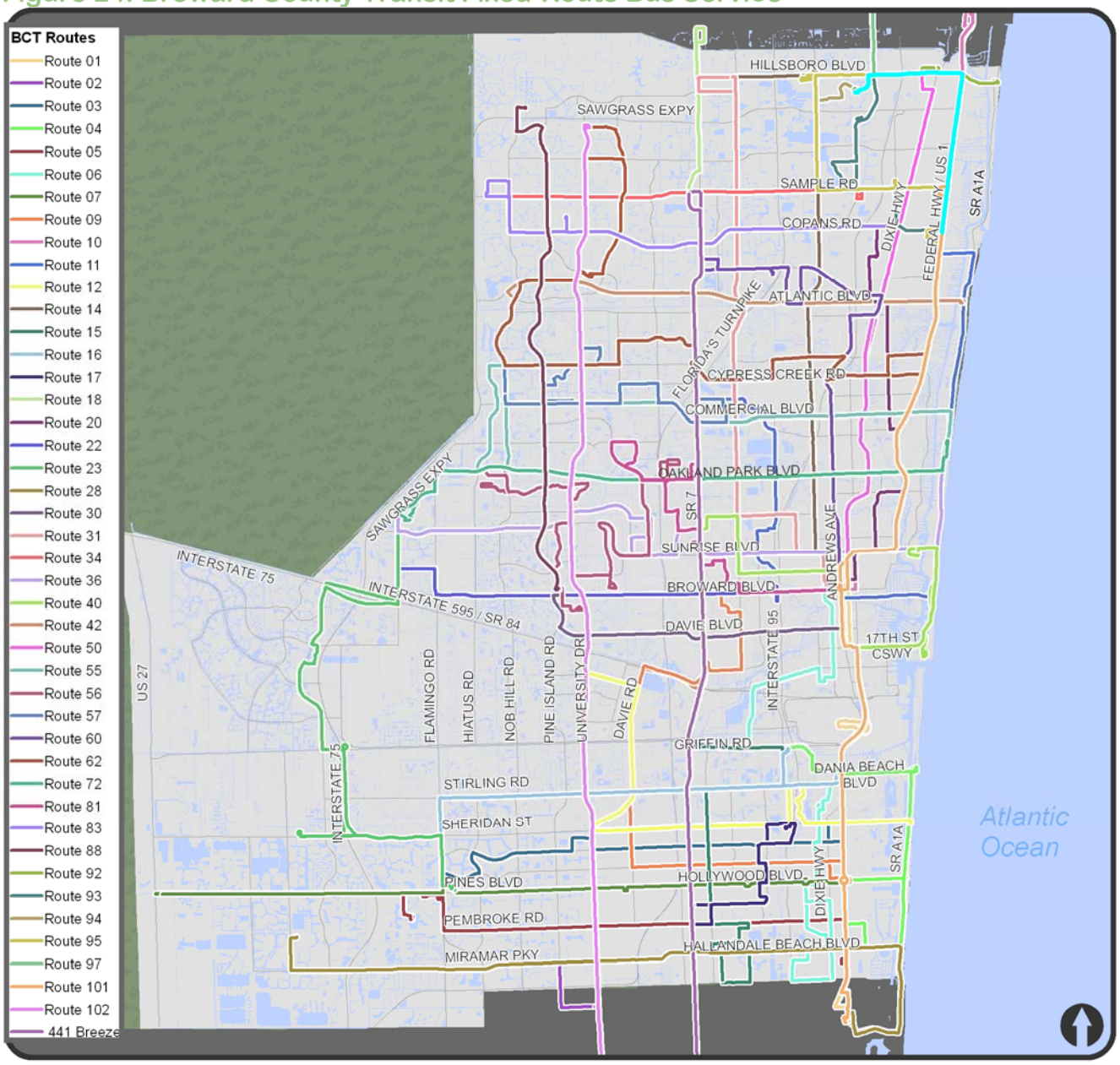
4.2 BROWARD COUNTY TRANSIT SYSTEM

4.2.1 Fixed Route Bus Service

The transit service in Broward County is operated by Broward County Transit (BCT) in conjunction with numerous municipalities. BCT provides service to 410 square miles within Broward County. The service is offered using 43 fixed routes with an active fleet of 290 fixed route buses and 88 community buses. Over 5,000 designated bus stops exist and 470 bus shelters within the county. BCT is linked to both the Miami-Dade and Palm Beach County transit systems. Apart from these, regional connectivity is provided by Tri-County commuter rail service (Tri-Rail). There are three main transfer terminals: Broward Central Terminal (downtown Fort Lauderdale); West Regional Terminal (Plantation) and Lauderhill Mall Transfer Facility (Lauderhill). The Northeast Transit Center (Pompano Beach) will open in fall 2009. There are approximately 129,000 passengers daily, over 39 million passenger trips annually.

As previously noted, the Transit Development Plan assesses transit needs and outlines an implementation program to set priorities for improvements, including bus service, routes, and headway (frequency). Figure 24 illustrates BCTs existing fixed-routes as of November 2008.

Figure 24: Broward County Transit Fixed-Route Bus Service

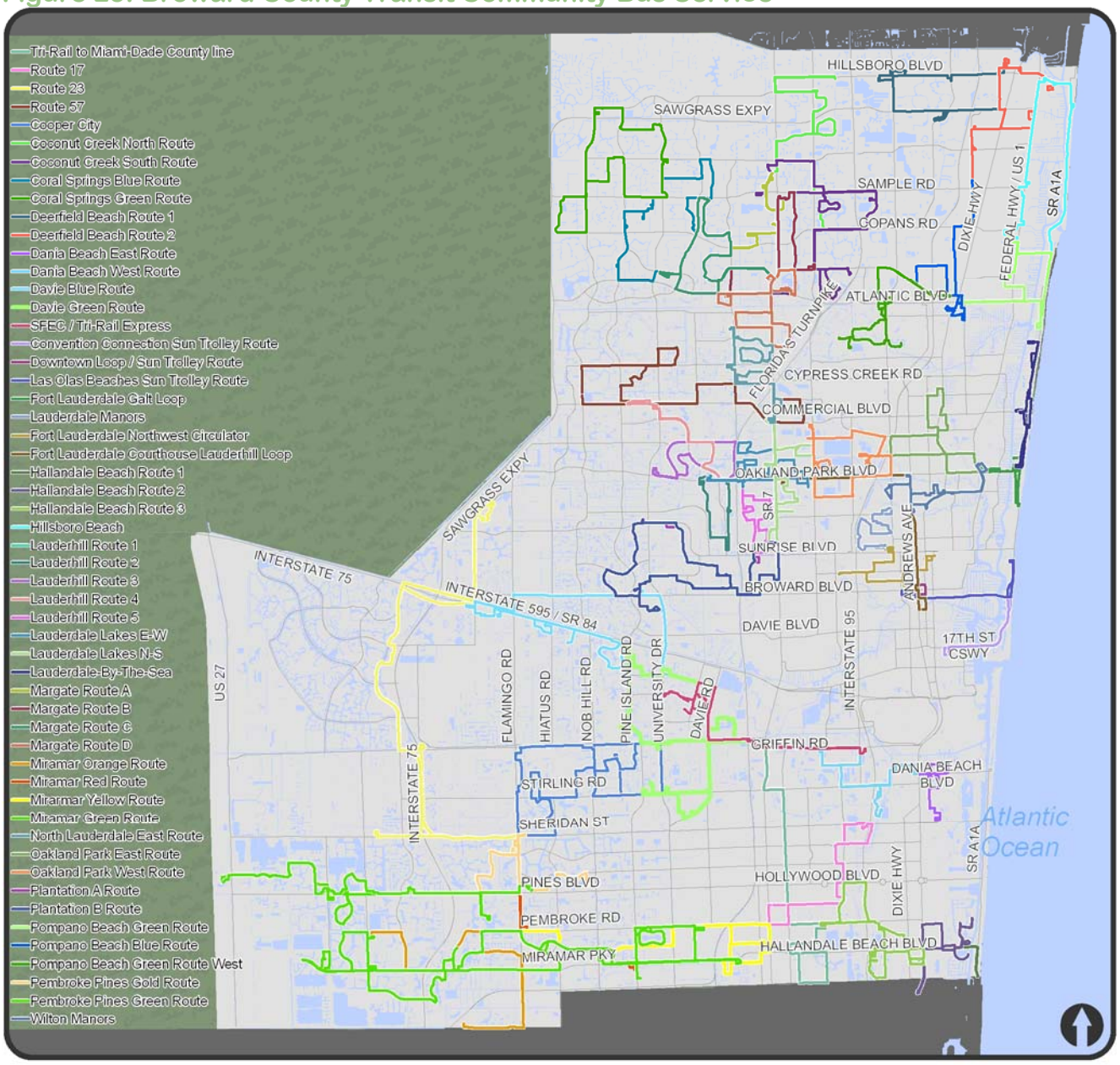


4.2.2 Community Bus Service

Community bus service is provided by the 23 municipalities to increase the number of destinations within city limits that are accessible through public transit. All community buses connect to BCT fixed routes and are wheelchair accessible. The following municipalities provide the service:

- Coconut Creek
- Cooper City
- Coral Springs
- Dania Beach
- Davie
- Deerfield Beach
- Fort Lauderdale
- Hallandale Beach
- Hillsboro Beach
- Lauderdale-by-the-Sea
- Lauderdale Lakes
- Lauderhill
- Lighthouse Point
- Margate
- Miramar
- North Lauderdale
- Oakland Park
- Pembroke Pines
- Plantation
- Pompano Beach
- Sunrise
- Tamarac
- Wilton Manors

Figure 25: Broward County Transit Community Bus Service



4.2.3 Paratransit Service

Broward County's Paratransit Service, also known as Transportation Options (TOPS) service is offered to all eligible riders, in accordance with the Americans with Disabilities Act (ADA) of 1990. The ADA Paratransit Service is for persons with physical, cognitive, emotional, visual, or other disabilities which *functionally prevent them from using the BCT fixed-route bus system* permanently, temporarily, or under certain conditions. Paratransit service is available during BCTs fixed-route service times, from early in the morning until late evening. A one-way fare is $2.50 with a free transfer to the BCT fixed route services. Emergency service is also provided in the event of a hurricane or any evacuation order from the County Administrator.

4.2.4 Other Services

Tri-Rail is a commuter rail service connecting Palm Beach, Broward and Miami-Dade Counties. The service is operated by the Tri-County Rail Authority, South Florida Regional Transit Authority. The total directional route mile is approximately 71-miles and it runs parallel to I-95 in Broward County. Out of the total 18 stations, seven are in Broward County. A total of 25 trains run on a weekday with approximately 30-minute frequency during the peak hours and 60-minute frequency during the off-peak. Each station is served by Tri-Rail feeder buses as well as Broward County Transit buses that connect the rail stations with nearby areas.

Figure 26: Tri-Rail Service and Stations

4.3 BICYCLE AND PEDESTRIAN FACILITIES

4.3.1 Bicycle Facilities

According to the Broward County website, Broward County wishes to establish bicycle commuter facilities, a network of secure bicycle parking and storage facilities to serve local cyclists. A number of facilities of this type – known as bicycle stations – are currently operated around the country, serving areas of high bicycle usage such as downtowns, school campuses, major transit stations and recreational destinations. The exact details of the proposed facility network have not been defined. A Request for Proposals (RFP) was submitted and respondents are requested to provide detailed recommendations which would address the possible locations for these facilities, as well as the following elements:

- •Secure long term bicycle parking, covered from the elements
- •Changing rooms including bathrooms and shower facilities that shall be climate controlled
- •Lockers for storage of personal items (including clothing)
- •Kiosk providing information on bicycle routes and destinations, and transit services

In addition, the following elements were requested, but not obligatory:

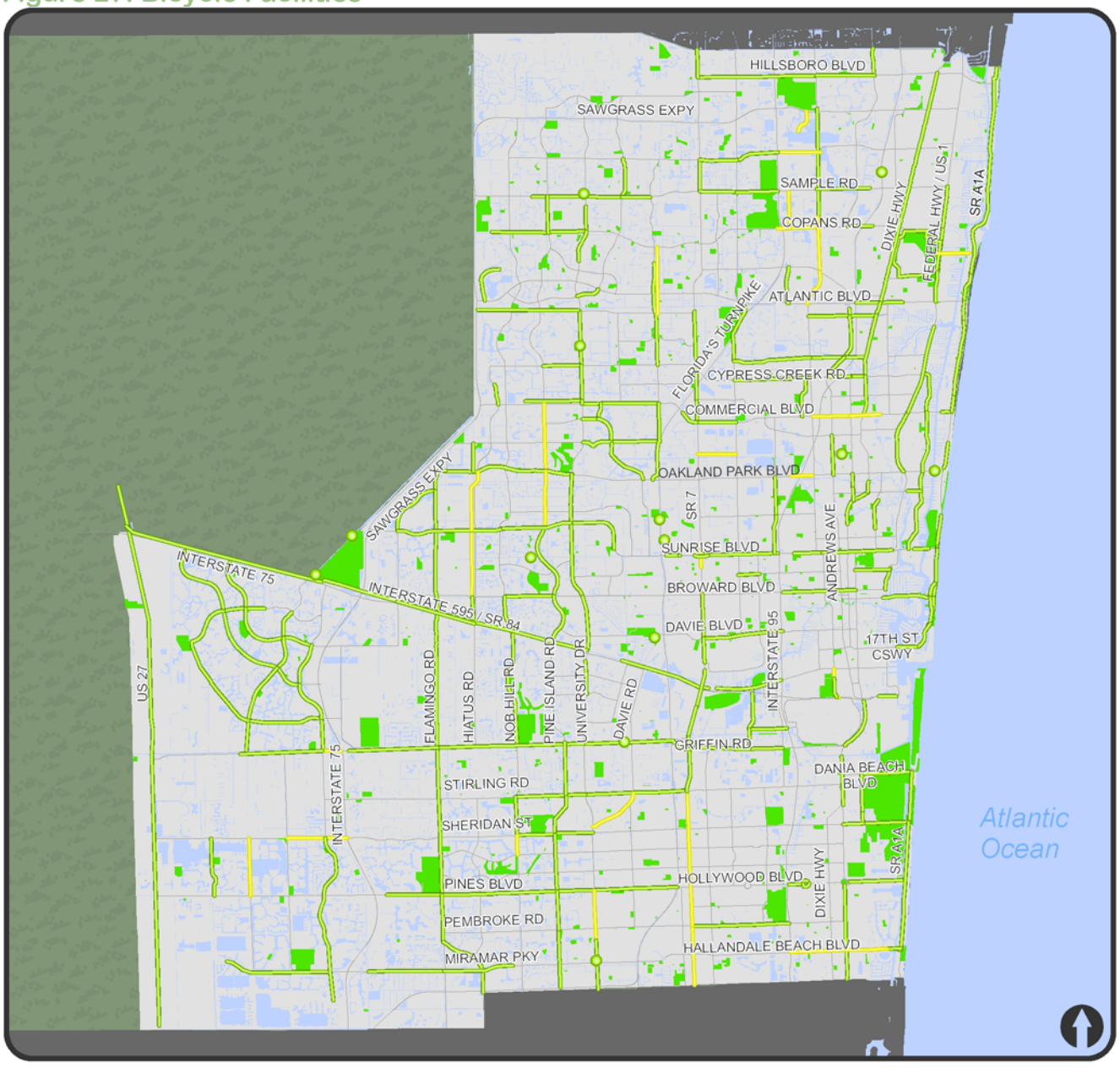
- •Daily bicycle repair service
- •Bicycle rental services
- •Refreshment and merchandise sales for general public consumption

According to the RFP, the locations for these facilities should be located on public or institutional property to minimize real estate costs. The facilities shall be located so that they serve regular bicyclists and commuters in a convenient way, and are highly visible to the general public. Ideally, these facilities would also be located near bicycle sales/repair stores. The facilities should provide controlled access during normal commuter hours, either through providing a trained staff person, or utilizing smart cards or other access technologies, and access to the facilities should be provided via a membership system for which a fee may be charged.

While this network of facilities has not yet been established, there are on-road bicycle facilities, as illustrated in Figure 27. These on-road bicycle facilities include the following:

- •Wide curb lanes, vehicular lanes that are wider than adjacent travel lanes in order to provide more room for motorists to pass bicyclists, typically three feet wide
- •Bicycle lanes, lanes specifically designated for bicycle use, adjacent to the road and typically four feet wide
- •Paved shoulders, the outermost portion of the road that has neither curb nor gutter construction, typically at least four feet wide.

Figure 27: Bicycle Facilities



4.3.2 Pedestrian Facilities

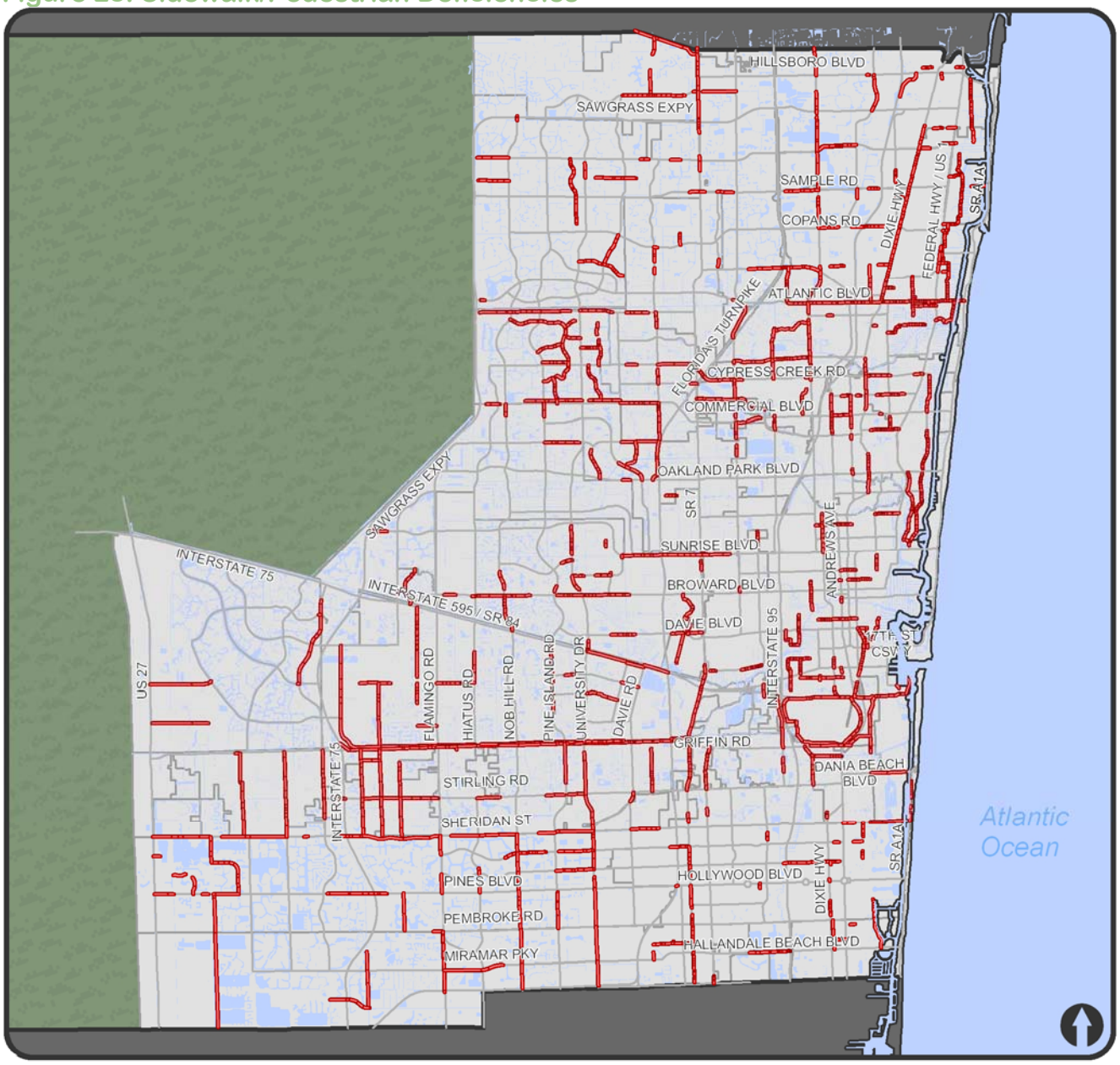
In the early 1990s, the Transportation Planning Division and the Broward MPO developed a Pedestrian Facilities Plan based on the idea of promoting walking for short-distance trips, and walking in combination with transit usage for most long-distance trips. The plan envisioned a countywide system of pedestrian facilities, along which individuals could walk safely and conveniently. This pedestrian system is composed of a primary regional network of facilities extending throughout the County along state and county right-of-ways, and a set of local networks extending along municipal and neighborhood streets. The notion of linking the regional network to several local or secondary networks is being explored using a concept along the lines of pedestrian districts.

Broward County Traffic Engineering Division is responsible for the County's sidewalk program, which consists of evaluating new sidewalk locations, as well as completing missing links of sidewalks of all County roads and any roads within the unincorporated portions of Broward County.

New developments are typically required to have sidewalks installed as a part of their project. However, in doing so, this may create missing links of sidewalks within older developments which may not have been required to install sidewalks. Also, new roadway projects may have been given waivers for standard sidewalks on both sides of the road in order to install a wider sidewalk on one side of the road, which may also create missing links of sidewalks.

Upon receiving a request, Broward County Traffic Engineering staff visit the site to determine if the area is safe for pedestrians and determine if there is ample room for the installation or if there are conflicts such as utilities poles, drainage, etc. If a determination is made that the proposed sidewalk is warranted, staff coordinate with the Highway Construction & Engineering Division for the installation of the new sidewalk. Figure 28 illustrates the missing sidewalks within Broward County.

Figure 28: Sidewalk/Pedestrian Deficiencies



4.3.3 Broward County Greenways Master Plan

There are over 370 miles of regional greenways, land trails and water trails delineated on the Broward County Greenways Conceptual Mater Plan. The greenways will connect each neighborhood, from the Everglades to the Atlantic Ocean to conservation lands, parks and recreation facilities, cultural and historic sites, schools and business areas. The system will provide opportunities for recreation, restoration and enhancement of native vegetation and wildlife habitat, and alternative modes of transportation.

Based on the public input and planning considerations, six priority corridors were selected for more detailed planning. These corridors included Dixie Highway, Cypress Creek, Conservation Levee, New River (State Road 84), Flamingo Road / Hiatus Road corridors and AIA/Barrier Island.

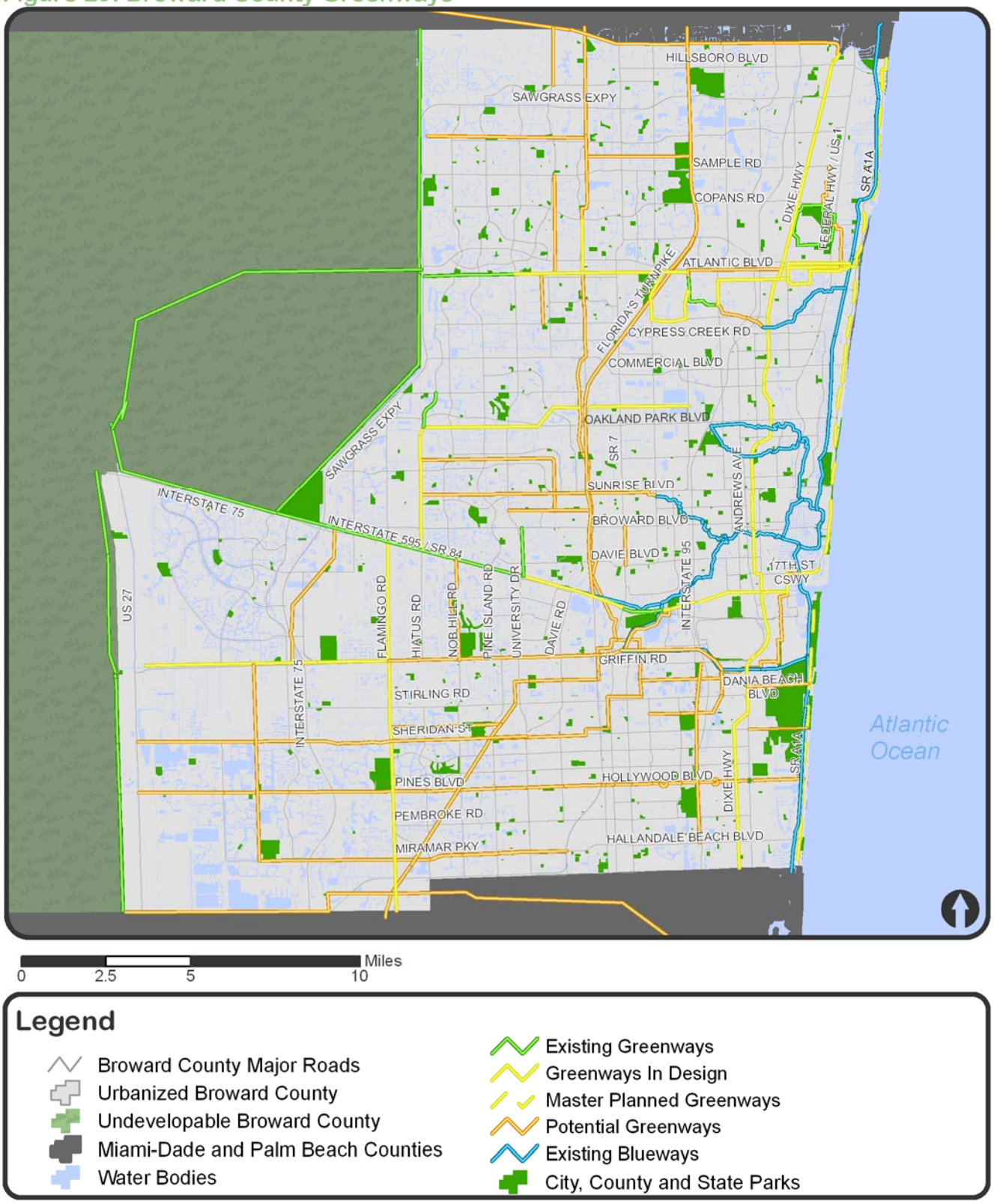
It should be noted that four (4) greenways projects totaling 67.9 miles were noted as 'cost-feasible' in the 2030 LRTP. These projects included:

- •Dixie Highway (North), from Perimeter Road to Broward Palm Beach County Line (Dixie Highway Greenway)
- •Dixie Highway (South), from Perimeter Road to Broward Miami-Dade County Line (Dixie Highway Greenway)
- •SR A1A, from the Broward Palm Beach County line to the Broward Miami-Dade County Line (Barrier Island Greenway)
- •C-11, from Flamingo Road to US 27 (an extension of the Flamingo Road Greenway/ a portion of the Pembroke Pines Hollywood Trail)

As of 2004, the status of the Greenways is as follows:

- •The Conservation Levee Greenway is complete
- •Portions of the New River Greenway is either existing or in design
- •The Cypress Creek Greenway is either master planned or in design
- •The Barrier Island Greenway is master planned
- •Dixie Highway Greenway is in design
- •All except the northern tip of the Flamingo Road/Hiatus Road Greenway is either existing or in-design

Figure 29: Broward County Greenways



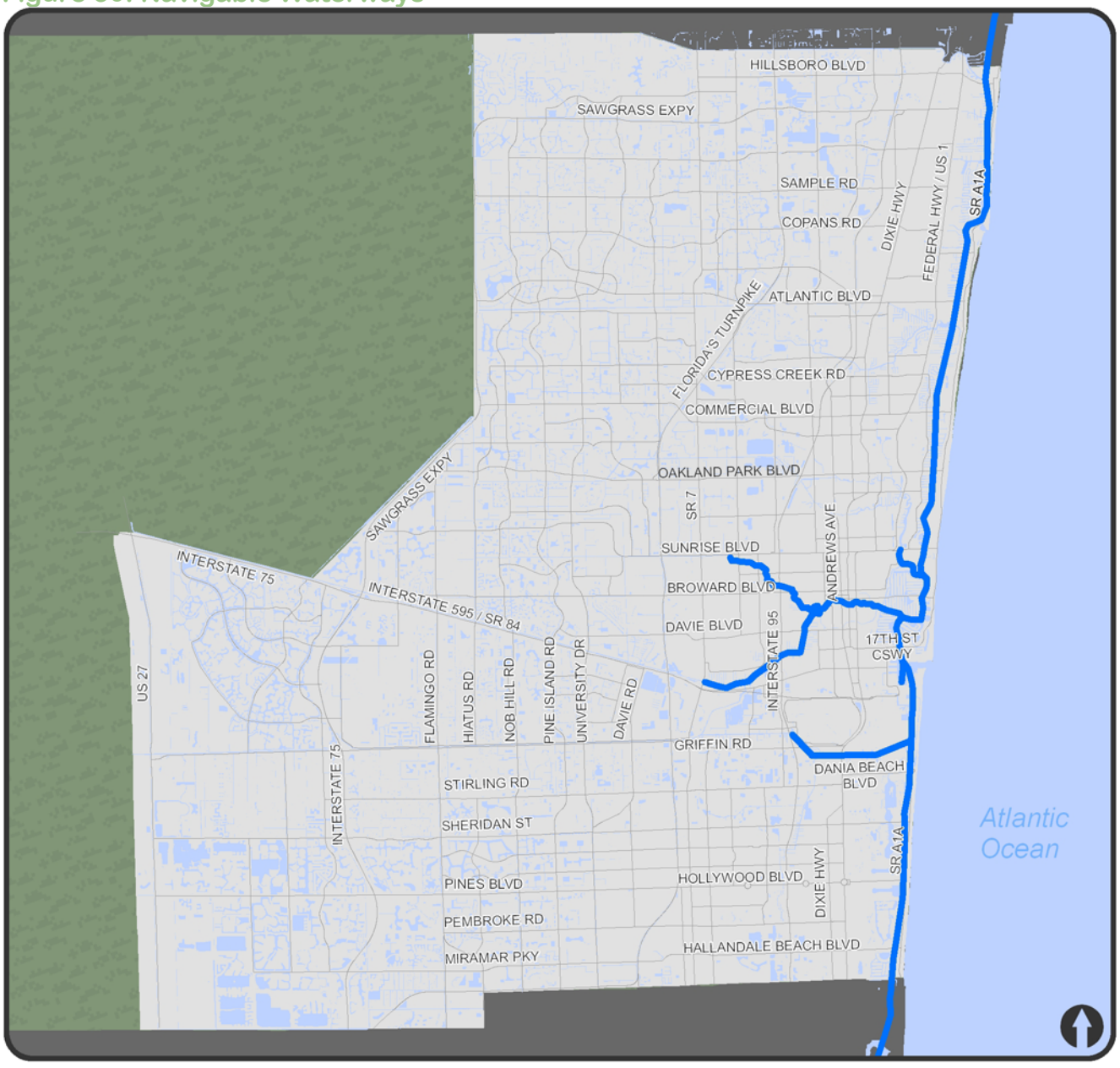
4.4 WATERBORNE TRANSPORTATION

4.4.1 Waterways

The United States Coast Guard defines navigable waterways as those waters that are subject to the ebb and flow of the tide shoreward to the mean high water line and/or are presently used, or have been used in the past or may be susceptible to transport of interstate or foreign commerce (33 CFR Part 329). The US Army Corps of Engineers and Bureau of Transportation Statistics recognize the Intercoastal Waterway and portions of the New River (approximately 37 miles in total) as navigable, as illustrated in Figure 30. The Broward County Parks and Recreation Department identifies more than 300 miles of navigable inland waterways.

The Broward County Comprehensive Plan Transportation Element supports the periodic dredging of navigable waterways to assure appropriate water depths.

Figure 30: Navigable Waterways



4.4.2 Water Transit Service

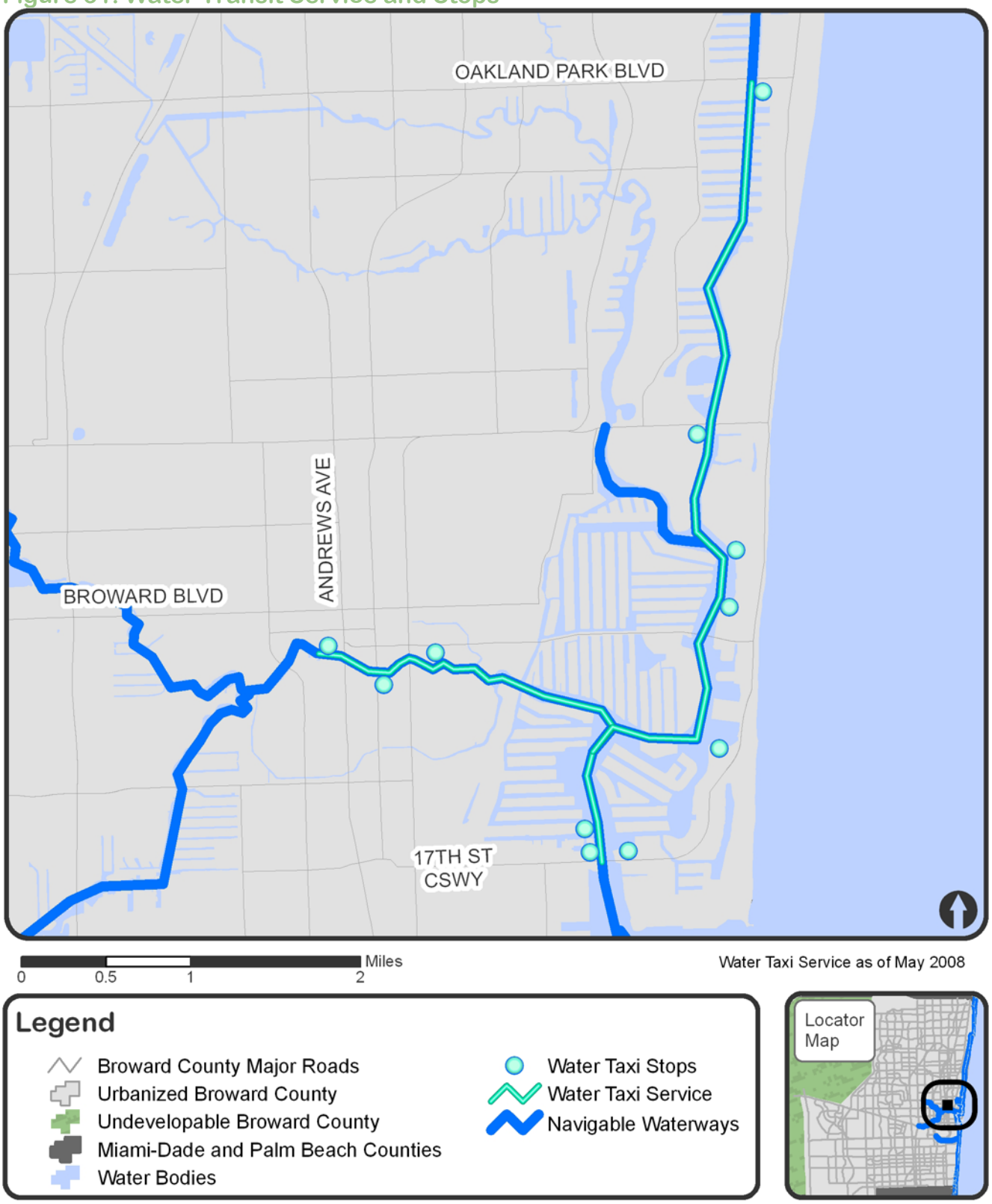
Water Buses typically operate in navigable waterways that are adjacent to an existing urban core to serve activity centers or pedestrian areas. Water Buses allow flexibility in service operations due to their size and maneuverability. These attributes typically enable a service vessel to serve an area wherever suitable docking is available.

The Fort Lauderdale Water Taxi is owned and operated by Water Transportation Alternatives, Inc. (WTAI), which is comprised of a group of business entities, specializing in marine transportation and related maritime industries. The Fort Lauderdale Water Taxi operates five vessels on a frequent schedule connecting 11 stops on the Intercoastal Waterway and New River. The company currently operates a fleet of five 45' water taxis including two diesel-electric hybrid vessels. In addition to scheduled service, Water Taxi also operates day trips to South Beach and charter services. Tickets can be purchased on board or at ticket kiosks.

The Water Taxi runs between Oakland Park Boulevard and Southeast 17th Street along the Intercoastal Waterway (ICW), and west along the New River into downtown Fort Lauderdale as far as Las Olas Riverfront. Effective May 2008, stops include:

1. Shooter's Waterfront Cafe and other local restaurants (Oakland Park and the ICW)
2. Gallery One/Galleria Mall/Bonnet House (Sunrise Boulevard and the ICW)
3. Seville Street and Fort Lauderdale Beach (Seville Street and the ICW)
4. Beach Place (Cortez Street and the ICW)
5. Bahia Mar/International Swimming Hall of Fame (AIA and the ICW)
6. Pier 66 (17th Street Causeway and the ICW-East)
7. Convention Center Campus (17th Street Causeway and the ICW-West
8. 15th Street Fisheries/Lauderdale Marina (15th Street and the ICW)
9. Fort Lauderdale Historic Society/Stranahan House (SE 9th Avenue and the New River)
10. Downtowner Saloon (SE 3rd Avenue and the New River)
11. Las Olas Riverfront/Historic Downtown Fort Lauderdale (SW 1st Avenue and the New River)

Figure 31: Water Transit Service and Stops



4.4.3 Waterway Obstructions

Broward County's waterways are crossed by several drawbridges that require boaters to request an opening. There is only one 55' span on the Intercoastal Waterway in Fort Lauderdale, the 17th Street Bridge, providing access to Port Everglades and the inlet to the ocean. The rest are all bascule bridges, with their respective locations, clearance and schedule of openings listed in Tables 9 and 10. Effective July 31, 2006, the Coast Guard changed the regulations governing the operation of all Broward County drawbridges across the Atlantic Intracoastal Waterway, requiring those drawbridges to open twice an hour to "meet the reasonable needs of navigation while accommodating increased vehicular traffic flow throughout the County".[6]

Table 9: Bridges on the Navigable Portion of the Intercoastal Waterway

Municipality	Location	Clearance	Openings
Deerfield Beach	Hillsboro Boulevard/SR 810	21 ft.	Opens on the hour and half-hour
Pompano Beach	NE 14th Street Causeway	15 ft.	Opens on the 1/4 and 3/4 hour
Pompano Beach	Atlantic Boulevard/SR 814	15 ft.	Opens on the hour and half-hour
Lauderdale-by-the-Sea	Commercial Boulevard	15 ft.	Opens on the hour and half-hour
Fort Lauderdale	Oakland Park Boulevard	22 ft.	Opens on the 1/4 and 3/4 hour
Fort Lauderdale	Sunrise Boulevard/SR 838	25 ft.	The draw shall open on the hour and half-hour. On the first weekend in May, the draw will not open from 4 p.m. to 6 p.m. on Saturday and Sunday, and, on the first Saturday in May, the draw will not open from 9:45 p.m. to 10:45 p.m.
Fort Lauderdale	Las Olas Boulevard	31 ft.	The draw shall open on the 1/4 and 3/4 hour. On the first weekend in May, the draw will not open from 4 p.m. to 6 p.m. on Saturday and Sunday, and, on the first Saturday in May, the draw will not open from 9:45 p.m. to 10:45 p.m.
Fort Lauderdale	SE 17th Street Causeway	55 ft.	Opens on the hour and half-hour
Dania	Dania Beach Boulevard	22 ft.	Opens on the hour and half-hour
Hollywood Beach	Sheridan Street	22 ft.	Opens on the 1/4 and 3/4 hour
Hollywood Beach	Hollywood Boulevard/SR 820	25 ft.	No regulations, opens on demand
Hallandale	Hallandale Beach Boulevard	22 ft.	Opens on the 1/4 and 3/4 hour

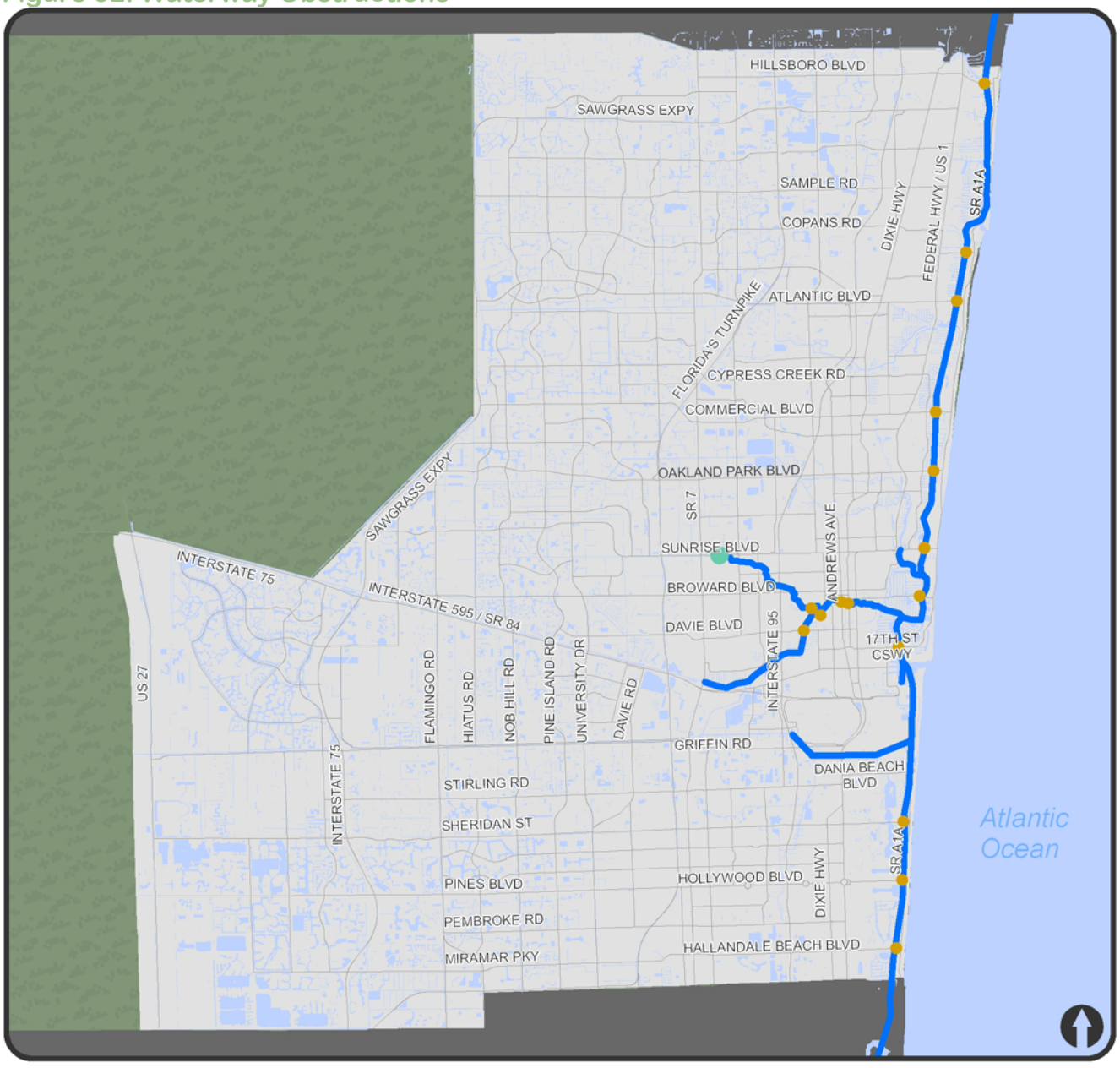
Table 10: Bridges on the Navigable Portion of the New River

Municipality	Location	Clearance	Openings
Fort Lauderdale	Andrews Avenue	22 ft.	Mon-Fri closed 7:30am-9am and 4:30pm to 6pm, all other times open on demand
Fort Lauderdale	SE 3rd Avenue		
Fort Lauderdale	SW 3rd Avenue/7th Avenue		
Fort Lauderdale	11th Avenue Bridge	0 ft./Swing	Opens on demand

The South Florida Water Management District's water control structure (dam) S33 is located at the westernmost portion of the navigable portion of the North Fork of the New River. All other control structures are further than one mile from navigable waterways in Broward County. These waterway obstructions are illustrated in Figure 32.

[6] Per Federal Regulation 1625-AA09, Department of Homeland Security

Figure 32: Waterway Obstructions



Legend

- Broward County Major Roads
- Urbanized Broward County
- Undevelopable Broward County
- Miami-Dade and Palm Beach Counties
- Water Bodies

Waterway Obstructions

- Broward County drawbridges that cross the Intercoastal Waterway and the New River
- SFWMD Water Control Structure/Dam
- Navigable Waterways

4.4.4 Manatee Protection Zones

Manatees are large slow-moving marine mammals currently on the Florida Fish and Wildlife Conservation Commission endangered species list.

Recent federal protections for the manatee primarily stem from the following federal laws:

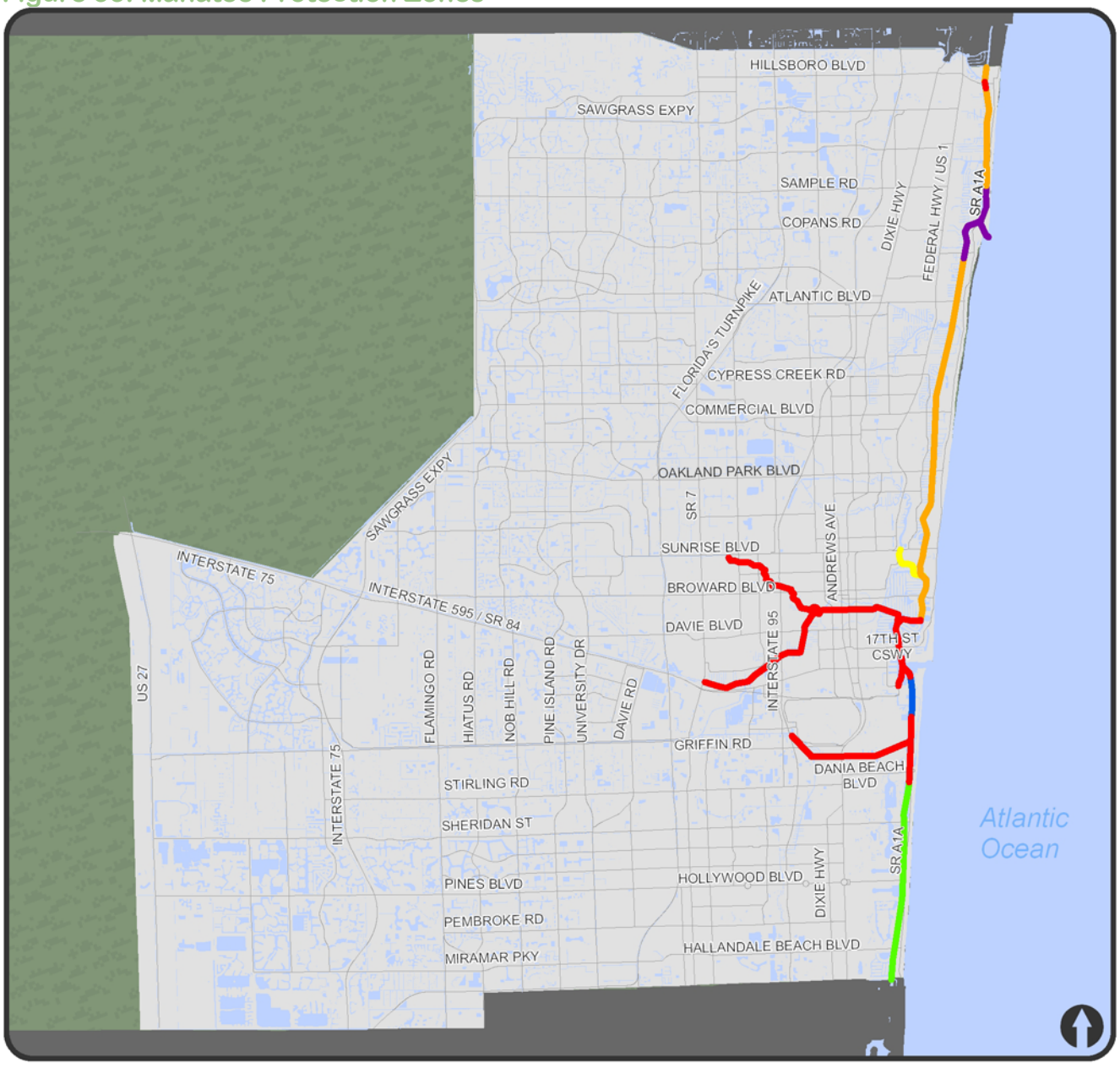
- •The National Environmental Policy Act of 1969 (NEPA)
- •The Marine Mammal Protection Act of 1972 (MMPA)
- •The Endangered Species Act of 1973 (ESA)
- •The Clean Water Act of 1977 (CWA)

In addition to federal laws, the State of Florida has enacted its own set of concurrent protections to the manatee. The primary authority comes from the Florida Manatee Sanctuary Act, s. 370.12 (2), Florida Statutes (2006). The process is described and further clarified in Chapter 68C-22, Florida Administrative Code (Antista, 2004; State of Florida, 2006; State of Florida, 2007). The state protects the manatee independently of the manatee's status as a "state or federal listed species." These laws require boaters to maintain their distance from manatees, and make it illegal to harass or feed a manatee.

The Florida Fish and Wildlife Conservation Commission (FWC) establishes regulatory zones in areas that manatees inhabit on a regular basis and where manatee sightings are frequent. Such zones include: "Idle Speed Zone," "Slow Speed Zone," "Motorboat Prohibited Zone," "No Entry Zone," "Maximum 25 MPH Speed Zone," "Maximum 30 MPH Speed Zone," and "Maximum 35 MPH Speed Zone." These zones have been applied to waterways with frequent manatee sightings and can coincide with federal and local manatee protections (State of Florida, 2007), as illustrated in Figure 33.

Both the Broward County Comprehensive Plan Manatee Protection and the Boating Safety Component are consistent with the state designated restrictions.

Figure 33: Manatee Protection Zones



5.0 DEVELOPMENT PATTERNS AND ACTIVITIES

Transportation networks are greatly affected by land use and the intensity of activities. While ideally, the intensity of land use in an area would not exceed the capacity of the network that serves the traffic it generates, that is not typically the case. Therefore, when updating the long range transportation plan, it is important to not only to consider, but calculate existing and proposed developments and land uses within the County.

The designation of Future Land Uses is a holistic approach to future-focused, state mandated by Chapter 163, Part II, F.S., Local Government Comprehensive Planning and Land Development Regulation Act while zoning is a current-focused, local regulatory tool to control the character of geographically specific land and buildings. Broward County Future Land Use amendments are to be consistent with the County's Comprehensive Plans and municipal zoning codes should be consistent with County's Future Land Uses.

Zoning

While zoning codes often differentiate between municipalities, the following municipal mixed-use zoning districts illustrate some examples of supportive of/consistent with transit supportive land uses:

- •City of Fort Lauderdale: City Center District, Urban Village District, Transitional Mixed-Use District
- •City of Oakland Park: Downtown Mixed Use District
- •City of Plantation: Midtown Plantation

Transit Supportive Future Land Uses in Broward County

Regional Activity Centers

The Regional Activity Center (RAC) land use category was established with the adoption of the 1989 Broward County Land Use Plan to provide flexibility and facilitate development of mixed uses in areas considered to be of regional significance and importance. A major impetus for the category was the need to reduce automobile travel demand and facilitate mass transit by creating mixed commercial and residential centers where people could live and work. The designation is restricted to areas that are of regional significance. The examples of appropriate areas include: downtown and redevelopment areas; regional employment centers, Area-wide Developments of Regional Impact; centers for tourism, including beaches and associated development, and areas surrounding regional community facilities such as airports, colleges and universities, convention centers or governmental complexes.

Local Activity Centers (LAC)

In addition to the RAC, the Broward County Land Use Plan encourages mixed uses through the Local Activity Center Land Use Category (LAC) and flexibility provisions of the plan. The Local Activity Center Land Use Category was approved in 2002 providing an alternative to the RAC to facilitate mixed-use/pedestrian-oriented development at a local scale.

Transit Oriented Developments

Transit-oriented development (TOD) is a pattern of land development designed to support public transit services. It is generally a high-density mix of residential, employment and shopping opportunities designed for use by pedestrians. Transit is integrated in the development to make it the preferred mode for longer-distance trips, while making allowances for automobiles. TOD promotes transit ridership through density, mixed-uses, and pedestrian-friendliness. Local zoning and development policies must be revised to promote TOD. The Broward County TOD Land Use Amendment was to encourage mixed use development in areas served by regional transit stations, such as Tri-Rail stations, major transit hubs, and neighborhood and regional transit centers. The land use criteria include:

- •Residential uses being a principal component
- •At least two non-residential uses must be permitted as principal uses
- •Automobile-oriented uses are limited or prohibited

Transit Oriented Corridors

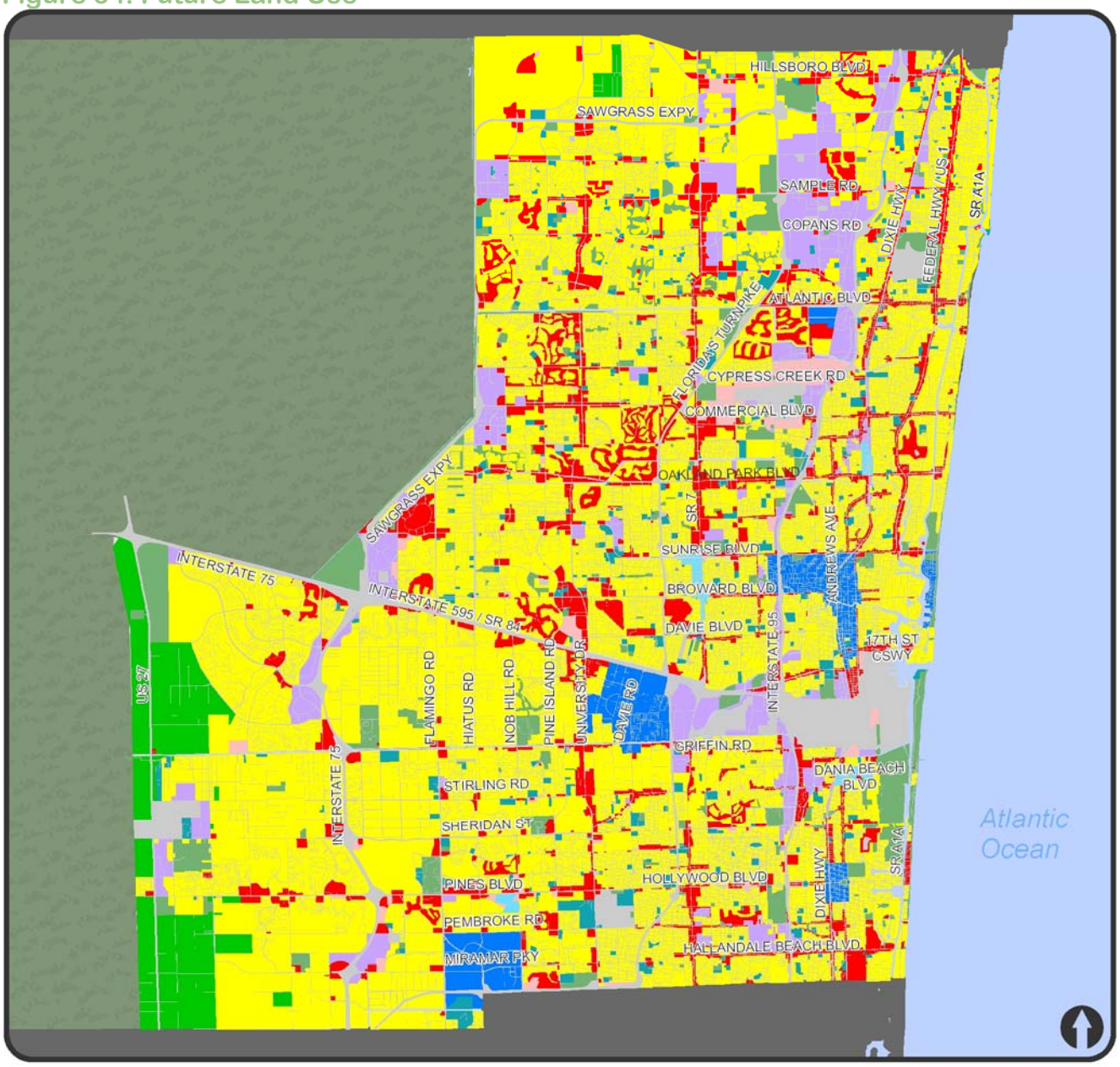
Transit Oriented Corridors (TOC) provide the necessary mix of land uses, density, and design that encourage the creation of an environment that promotes transit usage and sense of place. The Broward County TOC land use amendment was implemented to facilitate mixed-use development with access to transit stations or stops along existing and planned “high performance” transit service corridors. The land use criteria include:

- •Residential uses being a principal component
- •Quarter-mile on either side of the mainline transit corridor
- •At least two non-residential uses as a principal use
- •Automobile-oriented uses are limited or prohibited

Mixed-Use Residential

The Broward County Mixed-Use Residential (MUR) amendment promotes mixed-use land development patterns which combine residential and non-residential uses to achieve an attractive, well-integrated, and pedestrian and transit friendly environment.

Figure 34: Future Land Use



Other Notable Land Development Activities/Designations

Community Redevelopment Areas

Under Florida law (Chapter 163, Part III), local governments are able to designate areas as Community Redevelopment Areas when certain conditions exist, including, but not limited to: the presence of substandard or inadequate structures, a shortage of affordable housing, inadequate infrastructure, insufficient roadways, and inadequate parking. These redevelopment area plans must be consistent with local government comprehensive plans.

Developments of Regional Impact

According to Florida Statute 380.06, a Development of Regional Impact (DRI) is any development which, because of its character, magnitude, or location, would have a substantial effect upon health, safety, or welfare of citizens of more than one county. The Florida Department of Community Affairs (DCA), in accordance with F.S. Chapter 380, reviews developments of regional impact for compliance with state law and to identify the regional and state impacts of large-scale developments, and ultimately makes recommendations to local governments for approving, suggesting mitigation conditions, or not approving proposed developments. The DCA recognizes 14 categories of development, including office developments, multi-use developments, and retail service developments.

Planned Unit Developments

According to the Broward County Code of Ordinances, Planned Unit Development (PUD) districts are planned developments approved by Ordinance of the Board of County Commissioners (prior to September 11, 1991), and Planned Development Districts (PDD) are intended to encourage the implementation of innovative land planning and site design which create enhanced living and working environments while concurrently discouraging urban sprawl through the enforcement of the concurrency management and levels of service standards specified within the Broward County Land Development Code. PDDs should provide for density or intensity bonus incentives which promote compact urban areas and should also be utilized to protect, preserve and enhance lands designated Agriculture by the certified Future Unincorporated Area Land Use Element Map Series of the Broward County Comprehensive Plan through the adoption and enforcement of creative land development regulations.

Transit Housing Oriented Redevelopment

The goal of Transit/Housing Oriented Redevelopment (THOR) is to protect existing neighborhoods by directing future growth along transit corridors. Since the County is nearing build-out of its vacant land, developers are looking at under-utilized land or blighted areas for future developments and the benefits are two-fold. *Potential* THOR areas identified by Broward County include Broward Boulevard (from I-95 to SR 7) and SR 7 (from I-595 to Peters Road/Davie Boulevard).

Transit Oriented Concurrency District

A compact geographic area with an existing network of roads where multiple, viable alternative travel paths or modes are available for common trips.

Figure 35: Development Activities