

# CHAPTER SEVEN

## CUMULATIVE IMPACTS

### 7.0 INTRODUCTION

This chapter provides a discussion of cumulative impacts of actions proposed at Fort Lauderdale-Hollywood International Airport (FLL) evaluated in this Draft Environmental Impact Statement (EIS), in combination with other related or independent actions in the vicinity of FLL. The analysis of cumulative impacts recognizes that while the impacts of many actions may be individually small, when combined with the impacts of past, present, and reasonably foreseeable future actions on populations or resources in and around FLL, the impacts could be potentially significant.

Cumulative impacts are those impacts that can be reasonably expected to occur as a result of implementation of the proposed action, in combination with the impacts from other past, present, and reasonably foreseeable future activities, development, and/or projects that may be connected by geography or time. The known adverse impacts associated with past, present, or reasonably foreseeable future actions were incorporated into the evaluation of the No Action and the runway development alternatives, as described in Chapter Six, *Environmental Consequences*.

### 7.1 BACKGROUND

The Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) defines cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." See 40 CFR 1508.7. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.<sup>1</sup>

Cumulative impacts must be evaluated relative to the direct and indirect effects of the proposed action for each environmental category discussed in Chapter Six, *Environmental Consequences*. As with the environmental consequences discussion, the No Action Alternative serves as the reference point against which to evaluate potentially significant cumulative impacts. Significant cumulative impacts are determined according to the same thresholds of significance used in the evaluation of each environmental category in the environmental consequences discussion.

It can be difficult to determine levels beyond which cumulative impacts significantly degrade a resource. Local, state, and Federal standards for some resources will apply, and goals or objectives from land use management plans and other guiding programs may serve as thresholds. Where numerical thresholds are not available or cannot be determined, impacts are typically qualified in relative terms of

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<sup>1</sup> CFR Title 40: *Protection of Environment*. § 1508.7 Cumulative Impact.

magnitude. The thresholds of significance for each environmental category, where applicable, are defined in FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, dated March 20, 2006, and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*.

### **7.1.1 IDENTIFICATION OF PERTINENT PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS**

The evaluation of cumulative impacts in this Draft EIS<sup>2</sup> considers the past, present, and reasonably foreseeable future projects or actions undertaken at FLL by Broward County or other parties (such as FAA), as well as notable actions that affect the airport area, including development undertaken in the airport environs. For the purposes of this assessment, the past actions are defined as those that were completed between 1999 and 2004. Present actions are defined as those completed from 2005 to 2008. Foreseeable future actions are defined as those planned to occur between 2009 and 2020, which is within the planning horizon of this Draft EIS. This section identifies those past, present, and reasonably foreseeable future projects.

#### **7.1.1.1 Past Projects**

Recent past projects at FLL and at other facilities in the vicinity of FLL that are related to airport operations, or could potentially add incremental impacts to the Airport Sponsor's Proposed Project are described in this section. The availability of older data often determines how far back past effects may be examined. Certain types of data "may be available for extensive periods in the past," while other data "may be available only for much shorter periods," according to CEQ guidance. Consequently, because the data describing past conditions are usually scarce, the analysis of past impacts is often qualitative.<sup>3</sup>

##### **7.1.1.1.1 FLORIDA AIRSPACE OPTIMIZATION PROJECT<sup>4</sup>**

The Florida Airspace Optimization Project was initiated to alleviate airspace congestion over southern Florida. The actions included in the Florida Airspace Optimization are within the airspace controlled by Washington Air Route Traffic Control Center (ARTCC), Jacksonville ARTCC, Miami ARTCC, West Palm Beach Terminal Radar Control Center (TRACON), and Miami TRACON; with the changes primarily impacting operations within the Washington ARTCC, Miami TRACON, and West Palm Beach TRACON. The purpose of the project was to address capacity constraints and complexity issues within Washington ARTCC due to the need to merge cross (aircraft) flows to Miami International Airport (MIA), FLL, Palm Beach International Airport (PBI), Boca Raton (BCT), and satellite airports in the South Florida region. The airspace capacity constraints and complexity issues were predominantly caused by the so-called "snowbird system problem," which occurs

<sup>2</sup> *Considering Cumulative Impacts Under the National Environmental Policy Act*, Council on Environmental Quality, January 1997.

<sup>3</sup> *Considering Cumulative Impacts Under the National Environmental Policy Act*, Council on Environmental Quality, January 1997.

<sup>4</sup> *Florida Airspace Optimization Preliminary Environmental Review Checklist and Categorical Exclusion Declaration*. Department of Transportation FAA. August 2005.

when South Florida airports and airspace controlled by Washington ARTCC become congested in the winter months due to increased traffic volume caused by increased demand to/from the northeastern U.S. Three project components were designed to alleviate this congestion:<sup>5</sup>

1. Develop new sectors for the Washington and Miami airspace to facilitate improved flow of northeast arrivals and address constraints in existing sectors. This includes a number of boundary changes to existing sectors to facilitate more efficient airspace operations. Because the sector changes were related to airspace boundaries rather than aircraft flight paths, there were no associated environmental impacts to analyze.
2. Implement new over-water routes and changes to existing over-water routes. Because the new routes occur above 24,000 feet (Flight Level 240) and over water, there were no associated environmental impacts to analyze.
3. Revise instrument arrival procedures to MIA, FLL, PBI, and BCT. Environmental analysis determined that there would be no new noise or air quality impacts associated with the revised instrument arrival procedures.

The airspace optimization project was designed to reduce congestion in the Washington ARTCC airspace, the resulting congestion and operational constraints in other Florida airspace, and the effect this congestion has on the entire National Airspace System. Other benefits of this project included reduced complexity, workload, and frequency congestion for controllers; as well as shorter flight routes, reduced delays, and reduced re-routes for aircraft operators. The Florida Airspace Optimization Project was implemented on October 27, 2005.

#### **7.1.1.1.2 PORT EVERGLADES HARBOR**

The Port Everglades Harbor and Seaport (the Port) is located on the southeastern coast of the Florida peninsula within the cities of Fort Lauderdale, Hollywood, and Dania Beach, as well as unincorporated Broward County. Port Everglades' jurisdiction encompasses a total of 2,190 acres (1,742 acres of upland and 448 acres of submerged land) that fall within the following municipalities (only upland acreage is indicated below):<sup>6</sup>

- 1,242 acres (71 percent) - City of Hollywood
- 232 acres (13 percent) - City of Fort Lauderdale
- 234 acres (14 percent) - City of Dania
- 34 acres (2 percent) - unincorporated Broward County

The Port was constructed between 1925 and 1928, and was authorized for Federal maintenance in 1930 under the Rivers and Harbors Act of 1899 (including subsequent acts). The Port's Harbor is a gateway for international trade and cruise ships. The Port is one of South Florida's leading economic engines providing more

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<sup>5</sup> *Florida Airspace Optimization Preliminary Environmental Review Checklist and Categorical Exclusion Declaration*. Department of Transportation FAA. August 2005.

<sup>6</sup> Port Everglades Internet web site: <http://www.porteverglades.org/>. Retrieved March 22, 2006.

than 15,000 direct jobs and generating \$2.87 billion in business activity and \$879.5 million in personal income annually in Broward County. The Port is ranked as one of the busiest cruise ports in the world, is the 12<sup>th</sup> busiest containerized cargo port in the U.S., and is South Florida's main distribution port for petroleum products such as gasoline and jet fuel.<sup>7</sup> The Port is a self-supporting Enterprise Fund of Broward County government with operating revenues of approximately \$105 million annually. It does not rely on local tax dollars for operations. The Port is governed by the Commission.<sup>8</sup>

The following projects were recently completed at the Port:

**Terminal 25 Expansion:** In 1999, the baggage and passenger areas at Cruise Terminal 25 were expanded to allow the facility to accommodate the increased cruise passenger capacities of the new breed of mega-cruise ships operating at the Port. Terminal 25 was expanded by 15,000 square feet to bring the baggage handling area to a total size of 25,000 square feet and the passenger area to a total size of 23,000 square feet. Other improvements included repositioning of the terminal's passenger loading bridge to match the loading doors on ships over 900 feet long, the installation of a second escalator, an additional set of restrooms, full air conditioning, and a new overhead canopy for the passenger drop-off/pick-up area.<sup>9</sup>

**Terminal 21 Expansion and Reconstruction:** In 2000, the south side of Cruise Terminal 21 was expanded to allow the facility to accommodate the increased cruise passenger capacities of the new breed of mega-cruise ships operating at the Port. A 33,000-square foot elevated terminal was constructed adjoining the existing facility, which became a large baggage handling area. The new enlarged world-class facility offers a direct connection to the Midport Parking Garage by a covered passenger walkway.<sup>10</sup>

**Construction of Operations Center and Harbormaster Tower:** In February 2001, the new Port Everglades Operations Center and Harbormaster Tower was dedicated. The nine-story building affords the harbormaster staff a 270-degree view of the Port and its surrounding communities. The building is topped with a 75-foot high communications monopole, which is equipped with state-of-the-art security cameras, and navigational and weather monitoring devices. The Harbormaster's office serves as an information source for the Port's customers by providing real-time information on ship scheduling, berthing, traffic flow, and other

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<sup>7</sup> *Public Provides Enological [sic] Input for Port Everglades' 20-Year Master Plan.* Internet web site: [http://porteverglades.poweri.com/dev/site/pub/port/news\\_pressreleases.html?news=1&newsid=132](http://porteverglades.poweri.com/dev/site/pub/port/news_pressreleases.html?news=1&newsid=132). March 15, 2006.

<sup>8</sup> *Port Everglades Plans for Future Growth with New Master Plan Development.* Internet web site: [http://porteverglades.poweri.com/dev/site/pub/port/news\\_pressreleases.html?news=1&selectedYear=2006](http://porteverglades.poweri.com/dev/site/pub/port/news_pressreleases.html?news=1&selectedYear=2006). July 18, 2006.

<sup>9</sup> Broward County, Port Everglades Cruise Terminals. Internet web site: [http://www.broward.org/port/cruise\\_terminals.htm/](http://www.broward.org/port/cruise_terminals.htm/). Retrieved October 24, 2006.

<sup>10</sup> Broward County, Port Everglades Cruise Terminals. Internet web site: [http://www.broward.org/port/cruise\\_terminals.htm/](http://www.broward.org/port/cruise_terminals.htm/). Retrieved October 24, 2006.

pertinent operational information. The Operations Center and Harbormaster Tower is constructed atop the Midport Parking Garage, which was expanded to include three additional floors, doubling the number of parking spaces from 1,000 to 2,000.<sup>11</sup>

**Terminal 29 Reconstruction:** In 2002, Terminal 29 at the Port was converted from a cargo terminal into a dual purpose facility to handle both cruise and cargo operations. Terminal 29 handles cargo operations on weekdays and serves as a reliever Cruise Terminal on weekends. Terminal 29 measures 20,250 square feet and the baggage handling area measures 24,500 square feet.<sup>12</sup>

**Terminal 2 Expansion:** In 2005, Terminal 2, a dual purpose facility that handles both cruise and cargo operations at the Port, was expanded to double the existing baggage hall area to 50,000 square feet. Other features included stair and ramp improvements, new toilet facilities, air conditioning, lighting, two new elevators, and fire protection upgrades.<sup>13</sup>

**Port Security Enhancements:** Security improvements at the Port were initiated in response to attempts to stop drug trafficking, the flow of stolen vehicles, and cash laundering that was occurring at the Port during the late 1990s. Soon after September 11, 2001, the projects took on priority status, with emphasis on addressing the Port's vulnerabilities from threats of potential terrorism. A Security Operations Center was constructed in 2003 and additional security improvements continued through 2005 with the installation of additional fencing, roadside access gates, a wall surrounding fuel storage facilities, a barrier wall to protect hazardous materials, closed-circuit television monitoring systems at all entrances, a cargo x-ray system, increased number of Port checkpoints, increased presence of law enforcement personnel, electronically-controlled dock access gates, an employee identification (ID) processing center to manage the use of Port IDs by authorized personnel, and upgrades to the fire alarm systems. Temporary U.S. Customs offices have been replaced with permanent facilities.<sup>14 15</sup>

#### **7.1.1.1.3 PORT EVERGLADES OCEAN-DREDGED MATERIAL DISPOSAL SITE (ODMDS)**

The U.S. Environmental Protection Agency (USEPA), with the cooperation of the U.S. Army Corps of Engineers (USACE) Jacksonville District, investigated the feasibility of designating Ocean-Dredged Material Disposal Sites (ODMDS) at locations off the east coast of Florida including possible sites at Palm Beach Harbor

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<sup>11</sup> Press Release: *Port Everglades Dedicates New Operations Center and Harbormaster Tower*. February 13, 2001. Internet web site:

<http://porteverglades.poweri.com/remote/pr.php?news=1&newsid=75&selectedYear=2001>

<sup>12</sup> Broward County, Port Everglades Cruise Terminals. Internet web site:

[http://www.broward.org/port/cruise\\_terminals.htm/](http://www.broward.org/port/cruise_terminals.htm/). Retrieved October 24, 2006.

<sup>13</sup> Broward County, Port Everglades Cruise Terminals. Internet web site:

[http://www.broward.org/port/cruise\\_terminals.htm/](http://www.broward.org/port/cruise_terminals.htm/). Retrieved October 24, 2006.

<sup>14</sup> Port Everglades Security. Internet web site: <http://www.broward.org/port/security.htm>. Retrieved October 24, 2006.

<sup>15</sup> Press Release: *Port Everglades Gains Florida Seaport Security Approval*. November 9, 2005. Internet web site:

<http://porteverglades.poweri.com/remote/pr.php?news=1&newsid=125&selectedYear=2005>

and the Port. The environmental amenities in the vicinity of each alternative site were investigated to determine the suitability of each location as an ODMDS. The physical, chemical, and biological characteristics of each site were examined along with an evaluation of the potential dispersants from each site and possible non-ocean alternatives for dredged material disposal.<sup>16</sup>

The investigation showed that Palm Beach Harbor and the Port were the preferred ODMDSs, located 4.5 and four nautical miles offshore, respectively. The preferred sites, each approximately one square nautical mile (3.4 square kilometers) in size, consist primarily of soft-bottom habitat. Each site is located on the upper continental slope on the western edge of the Florida Current. The depth of each site exceeds 150 meters (492 feet). Based on USEPA and USACE surveys, it was concluded that no natural reefs, no natural or cultural features of historical importance, and no areas of special scientific importance are located within or near the preferred sites. Therefore, each site met all evaluation criteria for use as an ODMDS.<sup>17</sup> The preferred ODMDSs for both Palm Beach Harbor and the Port were designated and became effective on February 17, 2005.<sup>18</sup>

### **7.1.1.2 Current Projects**

This section includes a discussion of development and improvement plans at FLL and at other facilities in the vicinity of FLL that are currently being proposed or were recently completed.

#### **7.1.1.2.1 FORT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT (FLL)**

**Concourse A and Group Check-in Facility:** This project includes the development of an additional five-gate concourse in Terminal 1 with a holdroom area, concessions, and a connector to Terminal 1. The proposed project would be integral to the overall design and function of Terminal 1 and, if approved, could be operational by 2008.<sup>19</sup>

The group check-in facility would accommodate existing cruise passengers and buses arriving from both the Port and the Port of Miami. The facility includes the development of ticket counters, a passenger holdroom with concessions (which would be integrated with Concourse A), a Transportation Security Administration

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<sup>16</sup> *Draft Environmental Impact Statement (EIS) for Designation of the Palm Beach Harbor Ocean Dredged Material Disposal Site and the Port Everglades Harbor Ocean Dredged Material Disposal Site*, February 2004. Internet web site: <http://www.saj.usace.army.mil/pd/envdocs/Broward/PBH-PE/index.html/>.

<sup>17</sup> *Draft Environmental Impact Statement (EIS) for Designation of the Palm Beach Harbor Ocean Dredged Material Disposal Site and the Port Everglades Harbor Ocean Dredged Material Disposal Site*, February 2004. Internet web site: <http://www.saj.usace.army.mil/pd/envdocs/Broward/PBH-PE/index.html/>.

<sup>18</sup> Environmental Protection Agency, *Ocean Dumping; Designation of Sites Offshore Palm Beach Harbor, FL and Offshore Port Everglades Harbor, FL*. Federal Register: January 18, 2005 (Volume 70, Number 11).

<sup>19</sup> *Concourse A and Group Check-In Facility Environmental Assessment*. Broward County Aviation Department. Internet web site: <http://www.broward.org/airport/communityairportexpansion.htm/>. Retrieved March 27, 2006.

(TSA) bag screening facility, a bag make-up shelter, and tug cart staging area. A passenger-only shuttle system would transport processed passengers arriving from cruise ships to the airport terminals.<sup>20</sup>

A Draft Environmental Assessment (Draft EA) was prepared in June 2004 and included coordination with the USEPA Region 4 and the Florida State Clearinghouse, allowing for review and comment. Broward County held a public workshop on the Draft EA in January 2005. The Final EA was submitted to the FAA in May 2005 and is currently under review.<sup>21</sup>

**Airport Master Plan Update:** On December 9, 2003, the Commission initiated an Airport Development Plan Definition (ADPD) that is the first part of a two-phase process to update the 1994 FLL Master Plan to address the development of terminals and ancillary facilities at FLL for the period 2010 to 2020. The ADPD process will provide the Commission with a range of potential future scenarios for the development of FLL landside and terminal facilities, as well as an understanding of associated technical issues. Key areas addressed in the ADPD will include the following:<sup>22</sup>

- Management of growth and impacts
- Financial capacity once airline agreements expire in 2011
- Airfield configuration, operational capacity, and airspace compatibility
- Terminal capacity and facilities
- Landside access and parking
- Synergy with Port Everglades, including cruise passengers
- Role of 2020 Vision Plan concepts
- Balancing of airfield, terminal, and landside development
- Ongoing role of general aviation at FLL
- Development opportunities and constraints on the west side of FLL
- Infrastructure needs (including fuel, power, water, sewer)
- Coordination with the Runway 9R/27L EIS Consultant Team, the Part 150 Study, and (Broward County) environmental services
- Stakeholder involvement process

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<sup>20</sup> *Concourse A and Group Check-In Facility Environmental Assessment.* Broward County Aviation Department. Internet web site: <http://www.broward.org/airport/communityairportexpansion.htm/>. Retrieved March 27, 2006.

<sup>21</sup> *Final Environmental Assessment for Concourse A and Group Check-in Facility for Fort Lauderdale-Hollywood International Airport.* Broward County Aviation Department. May 10, 2005.

<sup>22</sup> *Master Plan Update.* Broward County Aviation Department. Internet web site: <http://www.broward.org/airport/communityairportexpansion.htm/>. Retrieved March 27, 2006.

The first in a series of public workshops was held on March 31, 2005 at the Broward County Convention Center and the Commission held a Master Plan Update Workshop on Tuesday, October 18, 2005. In January and February 2006, the Phase 1 portion of the Master Plan Update was presented to local interest groups. On April 25, 2006, Commissioners approved the agreement to begin work on Phase 2 of the Master Plan Update.<sup>23</sup> Phase 2 is ongoing and is expected to be complete in the spring of 2007.

**FAR Part 150 Noise Compatibility Study Update:** The County prepared Part 150 Noise Compatibility studies for FLL in 1987 and 1994. In June 2005, the FLL FAR 14 CFR Part 150 Noise Compatibility Study Update was initiated; it is anticipated that the update currently underway will be completed in 2007. FAR 14 CFR Part 150, *Airport Noise Compatibility Planning*, was established under the Federal Aviation Safety and Noise Abatement Act of 1979. A Noise Compatibility Study includes the development of Noise Exposure Maps and a Noise Compatibility Program, which involves the analysis of existing and future noise exposure, identification of appropriate uses for land surrounding the airport, and recommendations of noise mitigation programs to benefit surrounding communities. Public meetings were held in May 2006 to discuss the FAR 14 CFR Part 150 Noise Compatibility Study Update and obtain input and feedback from the officials of Dania Beach, Davie, and Hollywood; members of the Airport Advisory Board of Fort Lauderdale; and area residents. The following initial tasks are included in the FAR 14 CFR Part 150 Noise Compatibility Study Update:<sup>24</sup>

- Identification of areas eligible for mitigation under Federal guidelines that are impacted by the proposed south runway extension (the Airport Sponsor's Proposed Project). Mitigation elements will be provided to the FAA for use in preparation of this EIS.
- Development of more general airport noise mitigation policies to guide additional County-sponsored mitigation.

**Terminal 4 Interior Improvement Project:** This project involves improvements to the ticket counters, security checkpoint, baggage make-up areas, and Federal inspection areas in Terminal 4. County administrative offices were relocated to a temporary location on-airport during the reconstruction in Terminal 4. The permanent relocation of the offices to an administrative building is projected to occur in 2009<sup>25</sup> at a location that has not yet been determined.<sup>26</sup>

**Green Airport Initiative (GAI):** The Commission has set the goal for FLL to be a leader in sustainable design. On November 9, 2004, the Commission approved a contract with Clean Airport Partnership (CAP), to implement a Green Airport

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<sup>23</sup> *Master Plan Update*, Broward County Aviation Department. Internet web site: [http://www.broward.org/airport/community\\_airportexpansion.htm/](http://www.broward.org/airport/community_airportexpansion.htm/). Retrieved August 21, 2006.

<sup>24</sup> Noise Compatibility Study, Broward County Aviation Department. Internet web site: [http://www.broward.org/airport/community\\_noise.htm/](http://www.broward.org/airport/community_noise.htm/). Retrieved March 27, 2006.

<sup>25</sup> Press Release: *Broward County Aviation Department Moves to New Location*. Internet web site: [http://www.broward.org/airport/press\\_news\\_release.htm#DEPARTMENT/](http://www.broward.org/airport/press_news_release.htm#DEPARTMENT/). February 2006.

<sup>26</sup> E-mail correspondence between BCAD and consultant. September 19, 2006.



Initiative (GAI) at FLL.<sup>27</sup> CAP introduced the GAI project at a public meeting on March 31, 2005. The purpose of the program is “to create a collaborative program that identifies innovative approaches to protecting the natural environment above and beyond Federal, state, and local regulatory requirements.” The goal is to “identify priority research and an overall environmental strategy that can yield benefits during a period that spans the next several years to several decades.”<sup>28</sup>

The GAI is designed to provide a framework for managing the environmental impacts of future forecast growth at FLL and to be a means for the airport to become a community model for sustainable development. The five-phase implementation process is designed to help improve the environmental quality and efficiency at FLL. The first phase measured the existing conditions at FLL in the five environmental categories of air quality, water quality, solid waste, noise, and energy consumption. In September 2005 at the end of the first phase, the CAP report, *Environmental Footprint of FLL Operations*, was completed which presented the current baseline footprint against which future phases will be measured.

According to the GAI and as stated in the report, “The power of using an environmental footprint is in tracking performance over time to see how the footprint changes – seeing where environmental initiatives are successful and where more effort may be required.” The baseline footprint, presented in the report, is a graphical representation used to establish a baseline for measuring the current environmental efficiency of airport operations at FLL and for use as a starting point in tracking future environmental data. As future phases of the project are completed, the associated future versions of the footprint will show changes that take place in environmental performance over time and will, therefore, be more informative than the current baseline footprint. The CAP team recommended that the Commission publish the footprint and its associated computation table each year in the *Broward County Aviation Department Annual Statistical Report*.<sup>29</sup> CAP held public workshops in March and April 2006 to gather input from the public on ways to reduce the environmental effects of activities at FLL. Representatives from CAP discussed the status of the study, answered questions, and recorded the public's suggestions.<sup>30</sup>

**Addition of Biodiesel Hybrid Electric Busses to Clean Air Shuttle System:** On March 6, 2006, the first of five new biodiesel hybrid electric busses was put into service at FLL. The vehicles combine the use of biodiesel fuel with hybrid electric

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<sup>27</sup> Broward County is conducting the efforts of the Clean Airport Partnership (CAP), while the FAA conducts the EIS analysis. As CAP makes their inventories, study, and analysis available to the County, that information will be incorporated into the EIS documentation as deemed appropriate by FAA.

<sup>28</sup> Broward County Aviation Department, *Environmental Footprint for FLL Operations*, September 2005. Clean Airport Partnership (CAP).

<sup>29</sup> Broward County Aviation Department, *Environmental Footprint for FLL Operations*, September 2005. Clean Airport Partnership (CAP).

<sup>30</sup> *Green Airport Initiative*, Broward County Aviation Department. Internet web site: [http://www.broward.org/airport/community\\_environment.htm/](http://www.broward.org/airport/community_environment.htm/). Retrieved March 27, 2006.

features and will be used primarily to access the Airport's remote parking area and the intra-terminal loop. The County made the decision in 2005 that all 52 shuttle busses and trams at FLL would eventually be powered by biodiesel fuel.<sup>31</sup>

#### **7.1.1.2.2 BROWARD INTERMODAL CENTER AND AUTOMATED PEOPLE MOVER**

In 2002, Broward County developed and endorsed the conceptual *2020 Vision Master Plan* to define the framework for future development at FLL and the Port, as well as elements that would promote improvement in regional transportation and transit systems. This conceptual plan was consistent with certain strategic goals stated by the Commission, including promoting mass transit in the County, capitalizing on a co-located airport-seaport, and providing a catalyst for economic development. The *2020 Vision Master Plan* proposed new facilities and improvements for surface transportation to provide the capacity to accommodate future growth anticipated in the County.

Two key elements of the *2020 Vision Master Plan* included the Broward Intermodal Center (IMC) and the Automated People Mover (APM):<sup>32</sup>

- The IMC would serve as a regional transportation hub, housing such facilities as bus and train stations, kiss and ride areas, people mover connection, vehicle parking, and concession spaces. The IMC would facilitate transfers to other regional transit systems.
- The APM system would be designed to transport passengers within and between FLL and the Port, with connections to other regional transportation modes at the IMC.

This public-use system is envisioned to relieve traffic congestion, and address safety and security concerns at the airport and seaport terminals, on access roadways (specifically Eller Drive, Spangler Boulevard, U.S. Highway 1, Interstate-595 and Griffin Road), area corridors Interstate-595, U.S. Highway 1, and Interstate-95, as well as mitigation to support the anticipated population and passenger growth in the area. Alternatives for the system include grade-separated roads, dedicated bus routes, rail, and the APM system.

In August 2004, the county completed a technical and financial feasibility study of the proposed IMC and APM systems, which considered the following elements.<sup>33</sup>

- Concept-level technical evaluation of alternatives to identify any fatal flaw that would prevent any alternative from moving forward for further evaluation in the environmental study phase of the project; and
- Financial feasibility analysis of the viable alternatives.

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<sup>31</sup> Press Release: *Broward County Aviation Department Adds Biodiesel Hybrid Electric Busses to Clean Air Shuttle System*. Internet web site: [http://www.broward.org/airport/press\\_news\\_release.htm#DEPARTMENT/](http://www.broward.org/airport/press_news_release.htm#DEPARTMENT/). March 6, 2006.

<sup>32</sup> *Intermodal Center and People Mover Project Draft Briefing Book*. Federal Highway Administration and Federal Transit Administration. October 2005.

<sup>33</sup> *FLL Airport/Port Everglades APM and Intermodal Center – Feasibility Analysis*. Lea+Elliott, Inc. August 2004.

The County authorized the initiation of the environmental study phase of the project, with the Federal Highway Administration (FHWA) as the lead agency. The project's Advanced Notification was issued on March 3, 2006. This document informs local, state, and Federal agencies about the project and initiates outreach to solicit input, in compliance with NEPA.<sup>34</sup> A Draft Environmental Assessment (EA) is currently being developed for the proposed IMC and APM systems. Public release of the Draft EA is tentatively scheduled for mid-2007. A public workshop will be held when the Draft EA is finalized and released to the public.<sup>35</sup>

#### **7.1.1.2.3 PORT EVERGLADES HARBOR**

The projects described in the following sections are currently on-going at the Port:

**Draft Environmental Impact Statement for the Feasibility Study of Navigation Improvements at Port Everglades Harbor:** The USACE Jacksonville District is preparing a Draft EIS for the Feasibility Study of Navigation Improvements at Port Everglades Harbor. That Draft EIS should be available for public and agency review sometime during 2007. If approved, construction of the navigational improvements would begin in 2010.<sup>36</sup> The study is a cooperative effort between the USACE and the Broward County Department of Port Everglades. As stated in the Notice of Intent to prepare the Draft EIS, improvements at the Port are required to accommodate future commercial fleets and to more effectively transit the existing fleet. The proposed solution is to widen and deepen every major Federal channel and basin within the project area and develop (widen and deepen) the Dania Cut-Off Canal.<sup>37</sup>

The USACE Draft EIS will consider impacts on seagrass (including Johnson Seagrass, a Federally-threatened species), mangrove and hardbottom communities, other protected species, shore protection, health and safety, water quality, aesthetics and recreation, fish and wildlife resources, cultural resources, energy conservation, socioeconomic resources, and other impacts identified through scoping, public involvement, and interagency coordination.

The proposed action is being coordinated with both the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act, with the USFWS under the Fish and Wildlife Coordination Act, with the NMFS concerning Essential Fish Habitat, and the State Historic Preservation Officer. The Port's proposed action involves evaluation for compliance with guidelines pursuant to Section 404 (b)(1) of the Clean Water Act; application (to the State of Florida) for Water Quality Certification

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<sup>34</sup> *In Motion, Broward County*. Lea+Elliott, Inc. Spring 2006 Newsletter. Internet web site: [http://www.leaelliott.com/Information/PDF/ Newsletter%20Spring%202006.pdf/](http://www.leaelliott.com/Information/PDF/Newsletter%20Spring%202006.pdf/).

<sup>35</sup> E-mail correspondence between FAA (Virginia Lane) and Lea+Elliott (William Bascus), consultant. October 6, 2006.

<sup>36</sup> Information obtained from the U.S. Army Corps of Engineers. [Email correspondence dated: **11/7/2006**]

<sup>37</sup> Department of Defense Department of the Army, Corps of Engineers, *Notice of Intent To Prepare a Draft Environmental Impact Statement (DEIS) for a Feasibility Study of Navigation Improvements at Port Everglades, Broward County, FL*. Federal Register: March 23, 2001 (Volume 66, Number 57).

pursuant to Section 401 of the Clean Water Act; certification of state lands, easements, and rights-of-way; and determination of consistency with the Coastal Zone Management Act.<sup>38</sup>

**Port Everglades 2020 Vision Master Plan Project:** The Broward County Public Works Department has contracted with DMJM Harris to prepare a comprehensive five-year Master Plan and to develop ten-year and 20-year Vision Plans to guide the growth and development of the Port. The Master Plan is scheduled for completion in April 2007.<sup>39</sup> A public environmental workshop for the Master Plan was held March 10, 2006. Broward County Port Everglades Department staff met with approximately 60 County residents and environmental experts to generate ideas to further the Port's environmental stewardship as its Master Plan and Vision Plans are developed. The workshop provided participants with a presentation about the Port's past and current environmental programs, after which break-out groups were formed to allow participants to discuss their ideas and concerns about the natural habitat, water quality, air quality, recycling, and the use of "green" products. Some of the ideas generated as a result of the break-out groups' discussions included:<sup>40</sup>

- Seeking alternative transport modes for passengers and cargo
- Reducing traffic congestion and emissions
- Protecting wildlife species
- Further incorporating stakeholders and outreach efforts
- Changing the Port's mission to include environmental stewardship
- Avoiding and minimizing habitat impacts, including essential fish habitat
- Considering the cumulative impacts of port plans and other programs
- Managing energy efficiently
- Managing the solid hazardous waste stream
- Encourage participation of the Port's tenants
- Procuring green and recycled products
- Becoming more proactive in monitoring ballast water and other discharges
- Considering the impact of stirring up pathogens and diseases that could result from dredging
- Enforcing compliance with the Master Plan, current and future programs

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<sup>38</sup> Department of Defense Department of the Army, Corps of Engineers, *Notice of Intent To Prepare a Draft Environmental Impact Statement (DEIS) for a Feasibility Study of Navigation Improvements at Port Everglades, Broward County, FL*. Federal Register: March 23, 2001 (Volume 66, Number 57).

<sup>39</sup> Telephone conversation between Consultant and Broward County Seaport Planning and Construction Division. October 13, 2006.

<sup>40</sup> *Public Provides Ecological Input for Port Everglades' 20-Year Master Plan*. Internet web site: [http://porteverglades.poweri.com/dev/site/pub/port/news\\_pressreleases.html?news=1&newsid=132](http://porteverglades.poweri.com/dev/site/pub/port/news_pressreleases.html?news=1&newsid=132). March 15, 2006.

It is anticipated that the completed Master Plan and Vision Plans will incorporate recommendations from a study of the Port's petroleum facilities, which identified ways to improve their efficiency of operations.<sup>41</sup> In January 2005, the Commission contracted with Purvin and Gertz, Inc. to conduct a comprehensive study of the current and future facility needs of the petroleum sector at the Port through 2020.<sup>42</sup> As a result of the Petroleum Sector Study, completed in Fiscal Year 2006, the Port plans to create a database to benchmark the performance of petroleum tank ships in Fiscal Year 2007.<sup>43</sup>

#### **7.1.1.2.4 PROPOSED OCEAN EXPRESS NATURAL GAS PIPELINE**

The AES Corporation, a global power company, proposes to construct an Ocean Express natural gas pipeline that would transport 842 million cubic feet of natural gas to southeastern Florida. The project consists of a new 53.62-mile intrastate natural gas pipeline that would extend from the Exclusive Economic Zone (EEZ) boundary between the U.S. and The Bahamas, to interconnect with the Florida Gas Transmission (FGT) system in Broward County, Florida. At the EEZ boundary, the Ocean Express pipeline will connect with, and receive natural gas transported by a 40-mile Bahamian-jurisdictional pipeline (owned by another AES affiliate) that extends to Ocean Cay, The Bahamas. The Ocean Express pipeline will deliver natural gas to markets in the State of Florida and beyond via the interstate pipeline grid.<sup>44</sup> The proposed route may affect the Airport Perimeter Road right-of-way along the FLL perimeter.

The project is designed to help satisfy the growing demand for natural gas in Florida, to diversify the sources of supply to the state, and to increase competitive alternatives to the existing pipeline infrastructure for the benefit of customers in an environmentally acceptable manner. In evaluating route alternatives, AES Ocean Express sought to select a route that avoids or minimizes environmental impacts, particularly to sensitive or protected ecological areas. In addition, AES factored impacts on existing businesses and residential communities into its route selection, as well as maximizing the benefits associated with interconnecting with the existing FGT infrastructure. Since the project's inception, AES Ocean Express has consulted extensively with numerous state and Federal agencies, various departments of Broward County, and other interested parties to refine its route in a collaborative fashion and will continue to do so as the project advances. Construction is expected to begin during the third quarter of 2006 (between July and September). Delivery of natural gas to customers is estimated to begin in mid 2008.<sup>45</sup> It is not known at this time whether the project is progressing as scheduled.

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<sup>41</sup> Port Everglades Plans for Future Growth. South Florida Business Journal. July 18, 2006. Internet web site: <http://southflorida.bizjournals.com/southflorida/stories/2006/07/17/daily13.html>

<sup>42</sup> Press Release: *Port Everglades to Undertake Petroleum Sector Study*. January 26, 2005. Internet web site: <http://porteverglades.poweri.com/remote/pr.php?news=1&newsid=93&selectedYear=2005>

<sup>43</sup> Broward County Florida, Port Everglades Operating Fund, Operating Budget 2007. Internet web site: <http://www.co.broward.fl.us/budget/yr2007/operating/14port.pdf>

<sup>44</sup> *Ocean Express Pipeline Project, Draft Environmental Impact Statement*; AES Ocean Express, L.L.C.; Docket No. CP02-090-001, FERC/EIS-0160D; June 2003.

<sup>45</sup> AES Ocean Express. Internet web site: <http://www.aesoceanexpress.com/>. Retrieved August 21, 2006.

#### 7.1.1.2.5 TRACTEBEL CALYPSO NATURAL GAS PIPELINE

Tractebel North America, Inc. (TNA) proposes construction of a 42.5-mile long pipeline to transport natural gas from their planned Tractebel Calypso Liquefied Natural Gas storage and regasification facility in Freeport, Grand Bahamas to Fort Lauderdale. The pipeline would make landfall at the Port with 6.2 miles of onshore pipeline connecting it to the FGT system tie-in, adjacent to the Florida Power and Light Fort Lauderdale Plant (FPL). The pipeline would transport approximately 832 million cubic feet of natural gas to Florida per day. The Tractebel Calypso Pipeline is designed to satisfy about 40 percent of Florida's projected increase in electric generation capacity through 2014.<sup>46</sup> The route of the Tractebel Calypso Pipeline is proposed to pass along the northern edge of FLL, within the existing FGT pipeline easement near Interstate-595.

The Federal Energy Regulatory Commission (FERC) granted a Certificate of Public Convenience and Necessity on March 24, 2004, allowing TNA to proceed with implementation of the pipeline. Similar to the process for development of the Ocean Express Pipeline described previously, TNA sought to select a route that avoids or minimizes environmental impacts, particularly to marine life, bottom/coral reef habitats, and essential fish habitats.

Construction of the Tractebel Calypso Pipeline began in 2004 with active transport of natural gas beginning in 2007.

#### 7.1.1.2.6 PROPOSED SHORELINE STABILIZATION AT WEST LAKE PARK

West Lake Park is a 1,522-acre restored mangrove wetland preserve that is located approximately five miles southeast of FLL. West Lake Park is owned and operated by the Broward County Parks and Recreation Division.<sup>47</sup> The project includes stabilizing the shoreline of the Intracoastal Waterway to halt the constant erosion caused by many factors including boat traffic and storms. Habitat restoration and enhancement projects are on-going within West Lake Park to serve as mitigation for past and present Port and FLL development projects. As described in Section 6.J, *Conceptual Measures Considered for the Avoidance/Mitigation of Adverse Environmental Impacts*, mitigation proposed for impacts resulting from the implementation of the alternatives evaluated in this Draft EIS would take place within West Lake Park, as planned by Broward County. Broward County currently holds a permit authorizing the mitigation and bank stabilization projects on-going in West Lake Park.

#### 7.1.1.2.7 SOUTH FLORIDA EAST COAST CORRIDOR TRANSIT ANALYSIS STUDY

This project seeks to reduce roadway congestion and improve mobility by providing local and regional passenger transit service for Palm Beach, Broward, and Miami-Dade counties. The Florida Department of Transportation (Florida DOT) District 4 is

<sup>46</sup> *Tractebel Calypso Pipeline Project, Final Environmental Impact Statement*; Tractebel Calypso Pipeline, LLC, Docket No. CP01-409-000; January 2004.

<sup>47</sup> *West Lake Park and Anne Kolb Nature Center*. U.S.G.S. Internet web site: [http://sofia.usgs.gov/virtual\\_tour/wlak/](http://sofia.usgs.gov/virtual_tour/wlak/). Retrieved March 29, 2006.

currently leading the regional partnership that is conducting this South Florida East Coast Corridor Transit Analysis (SFECCTA). The 204-square mile study area for this project centers on 85 of the total 351 existing Florida East Coast (FEC) Railway miles in the highly urbanized and traffic-congested eastern portions of Miami-Dade, Broward, and Palm Beach counties.<sup>48</sup>

The scope of the study is to develop and analyze alternatives that would potentially integrate passenger and freight transport throughout the SFECCTA study area. Alternatives to be considered will include designated right-of-way on streets and areas parallel to the FEC Railway, as well as stretches of waterways for alternative transit routes and technologies that include, but are not limited to bus, waterway transit, light-rail, commuter-rail, and heavy-rail.<sup>49</sup>

The study is being carried out in two tiered phases. Tier 1 began on September 26, 2005 and is scheduled to be complete by spring of 2007. The objectives of Tier 1 are to identify possible technologies (i.e., heavy rail like Metrorail, commuter rail like Tri-Rail, light rail such as streetcars or trolleys, bus rapid transit like the South Miami Busway, express bus, or a combination of any of these), identify possible alternatives or routes in specific sections of the SFECCTA study area, and obtain a Record of Decision from the Federal Transit Administration (FTA), which would allow the Tier 2 analysis to begin in the fall of 2007. The objective of Tier 2 is the selection of the Locally Preferred Alternatives. Several alternatives are likely to be considered due to the length of the study area, the presence of existing commuter rail service, the wide variation in land use densities, the potential for coordinating freight movement, and the desire to balance passenger and freight needs. If approved, it is estimated that transit service could begin as early as 2012 within portions of the study area.<sup>50</sup>

In December 2005, an Advance Notice document regarding the SFECCTA Study was released by Florida DOT.<sup>51</sup> Public kick-off meetings were held in Miami-Dade, Broward, and Palm Beach counties in December 2005. Joint public meetings and scoping meetings were held in April 2006 at locations in Miami-Dade, Broward, and Palm Beach counties. Public workshops were held in all three counties in June and August of 2006. The meetings provided the public with an overview of the project. The overview included illustrations of vehicles, stations, and other improvements; the project schedule; and the status of the environmental analysis process.<sup>52</sup>

#### **7.1.1.2.8 NORTH PERRY AIRPORT MASTER PLAN UPDATE**

North Perry Airport is a general aviation airport in the city of Pembroke Pines, located approximately four miles southwest of FLL in Broward County. The airport serves primarily training and recreational business uses, as well as a small amount

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<sup>48</sup> South Florida East Coast Corridor Study. Internet web site: <http://www.sfecstudy.com/>.

<sup>49</sup> South Florida East Coast Corridor Study. Internet web site: <http://www.sfecstudy.com/>

<sup>50</sup> South Florida East Coast Corridor Study. Summer 2006 Newsletter. Internet web site: <http://www.sfecstudy.com/>

<sup>51</sup> *Advance Notification for South Florida East Coast Corridor (SFEC) Study*. Florida Department of Transportation. December 2005.

<sup>52</sup> South Florida East Coast Corridor Study. Internet web site: <http://www.sfecstudy.com/>

of corporate and military users. North Perry has no 14 CFR Part 135 operators, and charter operations account for less than one percent of all aviation activity. Military operations are limited to Coast Guard touch-and-goes and mosquito patrol flights.<sup>53</sup>

The Commission approved a contract for preparation of an update of the Master Plan for North Perry Airport in August 2006. It is anticipated that this study will be initiated in late 2006 or early 2007. The Airport Master Plan Update will evaluate the increased services and levels of service at North Perry Airport to help the County effectively and efficiently operate and maintain the airport. The update will address the potential for providing a U.S. Customs Facility at the airport. Broward County's vision for the future is to expand the facilities at North Perry and encourage development at the airport, while maintaining the use of the facility for flight training and recreational/sport activities. North Perry is looking for greater involvement with local communities and sees the opportunity to increase services to corporate users during the long-term planning period. Benefits to be derived from the expansion, renovations, and new U.S. Customs Facility would hopefully serve to attract an air charter operation to the field.<sup>54</sup>

### **7.1.1.3 Reasonably Foreseeable Future Actions**

This section describes foreseeable future development and improvement plans at FLL and at other facilities in the vicinity of FLL that are under preliminary study or designed for possible future development.

#### **7.1.1.3.1 TAXIWAY C EXTENSION AND RELOCATION OR DECOMMISSIONING OF THE VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE (VOR) BEACON AT FORT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT**

Phase 2 of the Taxiway C construction includes extension of the taxiway from Runway 13/31 into the main terminal core. Broward County has proposed the relocation or decommissioning of the VOR at FLL to enable this project, which is independent of the proposed runway development alternatives evaluated in this document. The County is currently awaiting completion of an FAA analysis to determine the best alternative for the relocation or decommissioning of the VOR.<sup>55</sup> A potential timeframe for this project has not yet been established.

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<sup>53</sup> *North Perry Airport*. Florida Community Airports. April 2005. Internet web site: <http://www.cfaspp.com/FASP/AirportPDFs/northperryapril2005.pdf>

<sup>54</sup> *North Perry Airport Public Meeting*. Presented by Broward County Aviation Department on June 14, 2006. Internet web site: [http://www.broward.org/airport/pdfs/north\\_perry\\_meeting.pdf](http://www.broward.org/airport/pdfs/north_perry_meeting.pdf)

<sup>55</sup> Broward County Aviation Department. August 2006.



#### **7.1.1.3.2 NEW BROWARD COUNTY AVIATION DEPARTMENT ADMINISTRATION FACILITY**

On March 1, 2006, Broward County moved its offices to a temporary location pending their relocation to a permanent administrative building in 2009. When completed, the new offices would highlight a news media briefing center, as well as on-site employee and visitor parking. The location of this administrative building has not yet been determined.<sup>56</sup>

#### **7.1.1.3.3 REHABILITATION OF RUNWAYS 9R/27L AND 13/31 AT FLL**

As a temporary maintenance measure, the County is planning to treat Runways 9R/27L and 13/31 with either seal coat or Grip-Flex in 2008 and 2009, respectively. This would extend the life of these two runways until they are decommissioned during the redevelopment of Runway 9R/27L, as described in this Draft EIS.

#### **7.1.1.3.4 ATLANTIC VILLAGE HOTEL AND MARINA**

The proposed Atlantic Village Hotel and Marina would be developed on a ten-acre site located directly south of, and in close proximity to FLL, within the City of Dania, Florida. The proposed Atlantic Village property sits on the Dania Cut-Off Canal and would include a large, deep water marina. The five-star hotel would include 349 condo-hotel units, 80 private boat slips, swimming pool and tennis court areas, 20,000 square feet of ballroom and conference facilities, a 1,200-square foot business center, and over 1,000 parking spaces in two multi-level garages. The complex would include a 125,000-square foot office building that would adjoin the two parking garages.<sup>57 58</sup> A timeline for this proposed development is not available at this time.

#### **7.1.1.3.5 PORT EVERGLADES**

The projects described in the following sections are reasonably foreseeable future actions at the Port. These projects have been budgeted and are currently undergoing various stages of planning and design. If implemented, the earliest that construction would begin for each is mid- to late 2007, with completion estimated no earlier than 2009.<sup>59</sup>

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<sup>56</sup> Press Release: *Broward County Aviation Department Moves to New Location*. Internet web site: [http://www.broward.org/airport/press\\_news\\_release.htm#DEPARTMENT/](http://www.broward.org/airport/press_news_release.htm#DEPARTMENT/). February 2006.

<sup>57</sup> Atlantic Village Hotel and Marina. Internet web site: <http://www.avhm.net/>. Retrieved March 28, 2006.

Atlantic Village Hotel and Marina. Internet web site: <http://www.condohotelcenter.com/condo-hotels/featured-properties/atlantic-village.html/>. Retrieved March 28, 2006.

<sup>58</sup> Broward County Aviation Department. August 2006.

<sup>59</sup> In a telephone conversation between Consultant and Broward County Seaport Planning and Construction Division (October 13, 2006), Broward County stated that it would be at least one year (from the date of the conversation) before construction for each planned project would begin.

**Bridge Construction:** The Port has proposed construction of a vehicular bridge over the FPL discharge canal at the Port, linking the Berth 29 area and Midport Cargo Yards to Southport. The bridge would be located adjacent to and north of the current Dry Marinas and south of the existing Florida Marine Patrol.<sup>60</sup> This project is currently in the planning stage. If implemented, the earliest that construction would begin is mid to late 2007.<sup>61</sup>

**Terminal 4 Expansion:** Improvement of Cruise Terminal 4 at the Port is necessary to provide an expanded cruise terminal with greater baggage area space to accommodate the increasing number of cruise passengers. Building access improvements would relocate the entrance operations along the west side of the Terminal 4 building and would provide a dedicated Terminal 4 roadway system separate from the existing roadway system that serves Cruise Terminal 2.<sup>62</sup> This project is currently at 35 percent design. If implemented, the earliest that construction would begin is mid to late 2007.<sup>63</sup>

**Cruise Terminal 21 Baggage Claim Expansion:** Expansion of the first floor of Cruise Passenger Terminal 21 and modification of the adjacent terminal roadway is proposed to improve the management and storage of passenger baggage for the cruise ship companies. To achieve the space necessary to accommodate passenger's baggage as they disembark cruise ships, approximately 15,000 square feet of additional baggage claim space would be added to the north side of the existing building. This additional space would allow the facility to better serve the large number of passengers carried by the mega-cruise ships in operation at the Port.<sup>64</sup> This project is currently at 20 percent design. If implemented, the earliest that construction would begin is mid to late 2007.<sup>65</sup>

**Renovation of Terminal 27 and Extension of Berth 27:** This project would renovate an existing cargo terminal at the Port into its newest permanent cruise passenger terminal facility, which would be designated as Terminal 27. Terminal 27 would be designed to accommodate mega-cruise ships, which would require a 350-foot long extension of the existing Berth 27. The renovation of the terminal would include modifications to improve the site's ability to accommodate large buses, cabs, and private vehicles. All Federal inspection facilities and security

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<sup>60</sup> *Future Projects*, Broward County Seaport Planning and Construction Division. Internet web site: <http://www.broward.org/seaport/futureprojects.htm/>. Retrieved March 24, 2006.

<sup>61</sup> Telephone conversation between Consultant and Broward County Seaport Planning and Construction Division. October 13, 2006.

<sup>62</sup> *Future Projects*, Broward County Seaport Planning and Construction Division. Internet web site: <http://www.broward.org/seaport/futureprojects.htm/>. Retrieved March 24, 2006.

<sup>63</sup> Telephone conversation between Consultant and Broward County Seaport Planning and Construction Division. October 13, 2006.

<sup>64</sup> *Future Projects*, Broward County Seaport Planning and Construction Division. Internet web site: <http://www.broward.org/seaport/futureprojects.htm/>. Retrieved March 24, 2006.

<sup>65</sup> Telephone conversation between Consultant and Broward County Seaport Planning and Construction Division. October 13, 2006.

needs would be incorporated into the design of Terminal 27.<sup>66</sup> This project is currently in the environmental permitting stage. If implemented, the earliest that construction would begin is mid to late 2007.<sup>67</sup>

**Planned Dredging of Port Everglades:** Improvement of the Port to accommodate future commercial fleets and to more effectively transit the existing fleet will involve dredging to deepen and widen the port basin, as well as the Dania Cut-Off Canal, starting in 2008. As previously discussed in Chapter Four, *Alternatives*, Broward County is currently considering the potential use of the dredge material from the planned dredging project of the Port. The dredge material may be suitable for use in constructing elevated Runway 9R/27L associated with Alternatives B1, B1b, B1c, B5, and D1. Should this material be available and deemed to be suitable, it could be transported via a slurry pipeline from the Port and utilized as fill material for the proposed elevating of Runway 9R/27L. A final determination of the alignment of the slurry pipeline has not been made.

To minimize wetland impacts, current County planning initiatives have identified the proposed use of an existing access road located between the Port and the noncontiguous airport property immediately east of U.S. Highway 1. To further minimize vehicular traffic during construction, the potential use of the FEC for transportation of fill material to the airport may occur. Preliminary discussions with County staff and FEC Railway engineers have determined that the existing rail staging areas off the northeast corner of the airfield would be a suitable location for off-loading fill material transported via the FEC Railway. This method of transportation could involve the use of a conveyor system to distribute the materials throughout the construction site.

#### **7.1.1.3.6 FLORIDA POWER AND LIGHT (FPL) PORT EVERGLADES POWER PLANT**

FPL in its *Ten Year Power Plant Site Plan 2006-2015*, identified two preferred and eight potential sites for future generation power plant additions to meet future capacity needs. Preferred sites are those locations where FPL has conducted significant reviews and taken action to site generation. Potential sites are those sites that have attributes that support the siting of generation and are under consideration as a location for future generation. These sites include the remainder of FPL's existing generation facilities and have been identified as potential sites due to their proximity to FPL load centers, available space, existing infrastructure, and/or accessibility to fuel and transmission facilities. Each of the eight sites is considered by FPL to be equally viable. One of the eight potential sites is the existing Port Everglades Power Plant in Broward County, Florida.<sup>68</sup>

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<sup>66</sup> *Future Projects*, Broward County Seaport Planning and Construction Division. Internet web site: <http://www.broward.org/seaport/futureprojects.htm/>. Retrieved March 24, 2006.

<sup>67</sup> Telephone conversation between Consultant and Broward County Seaport Planning and Construction Division. October 13, 2006.

<sup>68</sup> *Florida Power & Light Ten Year Power Plant Site Plan, 2006-20015*. Internet web site: [http://www.fpl.com/about/ten\\_year/pdf/plan.pdf/](http://www.fpl.com/about/ten_year/pdf/plan.pdf/). April 2006.

The Port Everglades Power Plant site encompasses 94 acres in the Port. The existing plant consists of four steam boiler generating units that are capable of firing residual fuel oil, natural gas, or a combination of both. Land uses on this site are primarily industrial. The adjacent land uses are a combination of Port facilities and associated industrial activities: oil storage, cruise ship facilities, and light commercial development. If this site is selected as a future generation power plant addition, FPL expects to use the existing municipal water supply for industrial process and makeup water. Cooling water to support the operation of cooling towers would be drawn from the Intracoastal Waterway. FPL has estimated that sufficient water is available for generation technologies that might be considered for the site.<sup>69</sup>

Definitive timelines have been set for the two preferred sites but there are no further indications in FPL's *Ten Year Power Plant Site Plan 2006-2015* that any concrete plans have progressed beyond an exploratory scope to determine potential sites that are under consideration for possible increased future generation.

## **7.2 BASELINE FOR INCREMENTAL INCREASES IN ADVERSE EFFECTS**

Chapter Five, *Affected Environment*, describes the existing environmental conditions within the Study Area for the runway development alternatives. If no actions were to take place, it can be reasonably determined that the existing environment at FLL and its vicinity would not change significantly from current conditions. However, as the population of the region increases (as projected) in the future, related changes are anticipated to occur; these changes would occur regardless of whether any of the runway development alternatives are approved and implemented. Therefore, the conditions described in Chapter Five, *Affected Environment*, serve as a baseline for comparison of the incremental increases in adverse effects that would potentially result from implementation of any of the runway development alternatives.

## **7.3 CUMULATIVE IMPACT COMPARISON**

The scope of projects for cumulative impacts consideration can vary by resource, just as the geographic study areas for the different resources may vary, as discussed in Chapter Five, *Affected Environment*. In general, those projects on or within the existing FLL property boundary are included because they are within the area considered for construction of the proposed runway development alternatives. Consideration of impacts beyond the FLL property boundary is dependent on the resource being considered, and is influenced by such factors as political and land use jurisdictions, any unique characteristics of the resource, importance of the resource in a local and regional setting, and the distance the impact within that resource can travel.

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<sup>69</sup> Florida Power & Light Ten Year Power Plant Site Plan, 2005-2014. April 2005.

In the Final EIS, the cumulative impacts of the Preferred Alternative in 2020 will be disclosed, as requested by the USEPA. At this time, a Preferred Alternative has not been identified.

The following discussion of cumulative impacts discloses only those environmental categories where potential impacts would be caused by the Airport Sponsor's proposed project or its alternatives. Those categories are: air quality; noise; compatible land use; water quality and water resources; fish, wildlife, plants, and habitat; hazardous and solid wastes; social and community resources; light emissions and visual impacts; natural resources and energy supply; construction impacts; and sustainable design and development.

### **7.3.1 AIR QUALITY**

Operation of an airport produces emissions of Federally-regulated air pollutants. Both operational and physical improvements at an airport can increase emission levels. Emissions that are of particular interest in Broward County are nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC), which are caused primarily by the operation of motor vehicle engines and other mobile sources such as aircraft. These two pollutants are referred to as ozone precursor pollutants because they contribute to the formation of ozone in the presence of abundant sunlight. For the protection of human health in many of the country's larger cities, the USEPA regulates and reports the concentration of "criteria pollutants" such as ozone, carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter<sup>70</sup> (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead. The USEPA requires that states take action to reduce emissions of these criteria pollutants to achieve and maintain healthful air quality in the future.<sup>71</sup> In addition, under NEPA, Federal actions, such as implementation of any of the proposed runway development alternatives at FLL, are not permitted to interfere with a state's actions to reduce emissions and maintain healthful air quality, as defined in the regulations. The Florida State Implementation Plan (SIP) is the document that sets forth strategies to reduce harmful air emissions in Florida.

The Southeast Florida Airshed (Airshed) consists of Broward, Miami-Dade, and Palm Beach counties, and is located within the Southeast Florida Intrastate Air Quality Control Region (AQCR),<sup>72</sup> as designated by the USEPA. The City of Fort Lauderdale and FLL are located entirely within Broward County and, therefore, are within the Airshed and subject to USEPA air quality regulations pertaining to the Airshed. At the time of the preparation of this Draft EIS, Broward County was in compliance with all Federal and state air quality standards, including the emission of ozone and fine particulate matter. While Broward County may not be currently experiencing

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<sup>70</sup> Particulate matter emissions are categorized by size. Coarse particles are defined as having a diameter of 10 micrometers or less and are referred to as PM<sub>10</sub>; fine particles are defined as having a diameter of 2.5 micrometers or less and are referred to as PM<sub>2.5</sub>.

<sup>71</sup> Collectively, the pollutants CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, ozone, and lead are referred to as the "criteria" pollutants because the quality of the air with regard to these pollutants is measured relative to numerical criteria, or standards.

<sup>72</sup> In addition to Broward, Miami-Dade, and Palm Beach counties, the Southeast Florida Intrastate Air Quality Control Region also includes Indian River County, and Martin, Monroe, Okeechobee, and St. Lucie counties. Refer to 40 CFR Part 81.49 *Southeast Florida Intrastate Air Quality Control Region*.

significant episodes of unhealthful air quality conditions, an analytical assessment of potential air quality impacts due to the improvements proposed at FLL is required to ensure compliance to Florida's plan to maintain healthful air quality.

Past projects and growth within the Fort Lauderdale area have had little effect on air quality in Broward County and southeast Florida, as demonstrated by the area's compliance with all Federal and state air quality standards (See Chapter Six, Section 6.B, *Air Quality* for detailed information). The results of the air quality analysis completed for this Draft EIS show that implementation of any of the 2012 runway development alternatives would result in a reduction in annual emissions and therefore, a benefit to air quality at the airport as compared to the 2012 No Action Alternative, Alternative A. This is because of the net reduction in (1) aircraft operations on the ground during taxi and (2) departure queue delay. However, emissions from construction of any of the runway development alternatives combined with emissions from the construction of other planned development in the Fort Lauderdale area could potentially cause a temporary increase in air emissions.

Construction activities may result in short-term impacts on air quality including direct emissions from construction equipment and trucks, fugitive dust emissions from site demolition and earthwork, and increased emissions from motor vehicles and haul trucks on the on-site and off-site roads. These impacts would be temporary and would be distributed over the construction timeframe. The impacts would affect only the immediate vicinity of the construction site. Fugitive dust, suspended particulates, and emissions could occur during ground excavation, material handling and storage, movement of equipment at the site, and transport of material to and from the site. Fugitive dust could be a problem during periods of intense activity and would be aggravated by windy and/or dry weather conditions. The combination of emissions resulting from the runway development alternatives and the facility growth at the Port are not anticipated to have an adverse effect on overall air quality for the region.

The Port has experienced rapid growth in recent years and is now the world's second busiest cruise port with 40 cruise ships and 17 cruise lines that currently call at the Port.<sup>73</sup> Several new facilities, such as cruise terminals and parking garages, have been constructed at the Port in recent years to better accommodate the increased number of passengers, as well as the new large mega-cruise ships that are in operation today. The Port is the 12<sup>th</sup> busiest containerized cargo port in the U.S., and is South Florida's main distribution port for petroleum products such as gasoline and jet fuel.<sup>74</sup> Growth at the Port is expected to continue into the future regardless of whether any of the runway development alternatives are implemented.

The Port and FLL are related because they are located in close proximity to each other and because cruise passengers typically arrive and depart the Fort Lauderdale

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<sup>73</sup> Press Release: *Port Everglades Reaches 50 Million Passengers and Counting*. April 12, 2005. Internet web site:

<http://porteverglades.poweri.com/remote/pr.php?news=1&newsid=95&selectedYear=2005>

<sup>74</sup> *Public Provides Enological Input for Port Everglades' 20-Year Master Plan*. Internet web site: [http://porteverglades.poweri.com/dev/site/pub/port/news\\_pressreleases.html?news=1&newsid=132](http://porteverglades.poweri.com/dev/site/pub/port/news_pressreleases.html?news=1&newsid=132). March 15, 2006.

area through FLL. Companies using container ships arriving and departing the U.S. through the Port operate cargo aircraft at FLL to aid in the timely distribution of products. In the near future, cruise passengers will have the option to utilize the planned IMC and APM for travel to and from FLL and the Port, as well as throughout the Fort Lauderdale area, which would potentially relieve vehicular traffic congestion and decrease associated vehicular emissions in the Fort Lauderdale area. The IMC would serve as a regional transportation hub housing such facilities as bus and train stations, kiss and ride areas, people mover connection, vehicle parking, and concession spaces, and would facilitate transfers to other regional transit systems.

The APM system would be designed to transport passengers within and between FLL and the Port, with connections to other regional transportation modes at the IMC. In addition, the current SFECCTA study, led by the Florida DOT, seeks to reduce roadway congestion and improve mobility by providing local and regional passenger transit service for Palm Beach, Broward, and Miami-Dade counties. All of these projects would minimize impacts on regional air quality by providing mass transit and transportation alternatives to the use of personal vehicles on local roadways. As transit ridership potentially increases in the future, it is anticipated that the number of personal vehicles on the roadway system could potentially decrease.

In 2005, the Commission made the decision that all 52 shuttle busses and trams at FLL would eventually be powered by biodiesel fuel. The Commission has set a goal for FLL to be a leader in sustainable design through the newly implemented GAI. Combined with the Port's participation in the national Port Environmental System Assistance Program<sup>75</sup> and the goal of continued environmental stewardship through the development of the Port's Master Plan Update, these actions would ensure that future projects at both facilities would not only comply with all Federal, state, and local air quality standards, but that they would most likely seek to set the standard for air quality improvement measures at other similar facilities throughout the country.

### **7.3.2 AIRPORT NOISE**

Analyses were completed to determine if potential significant aircraft noise impacts would occur as a result of the proposed runway development alternatives. The disclosure of aircraft noise impacts in this Draft EIS are defined as incompatible land uses<sup>76</sup> located within a 65+ Day-Night Average Sound Level (DNL) noise contour. With implementation of any of the runway development alternatives described in this Draft EIS, the FAA would consider a significant noise impact to occur if noise-sensitive areas would experience an increase in noise of DNL 1.5 decibels (dB) or more at or above DNL 65 dB noise exposure when compared to the No Action Alternative for the same time frame. The FAA identifies the 65 DNL noise contour as the threshold of eligibility for Federal funding of mitigation

<sup>75</sup> Press Release: *Port Everglades Selected to Participate in National Environmental Program*. January 26, 2004. Internet web site:

<http://porteverglades.poweri.com/remote/pr.php?news=1&newsid=9&selectedYear=2004>

<sup>76</sup> Incompatible land uses are identified in accordance with *Federal Aviation Regulations FAR 14 CFR Part 150 Airport Noise Compatibility Planning, Appendix A, Table 1*. See Appendix H, Table H-1.

programs for incompatible land uses. The identified land uses located between the 60 to 65 DNL noise contours are considered to be compatible by FAA in accordance with *FAR 14 CFR Part 150 Airport Noise Compatibility Planning, Appendix A, Table 1*.

The disclosure of land uses between the 60 to 65 DNL noise contours is provided for local planning purposes only. Section 6.C.1, *Airport Noise*, provides a summary of the noise analysis and land use impact assessment for the 2012 No Action Alternative and the runway development alternatives, including the Airport Sponsor's proposed project. The 2012 No Action Alternative is also compared to each of the 2012 runway development alternatives. An analysis of the 2020 conditions is provided to disclose the potential noise impacts associated with each of the alternatives eight years after the opening of the new or redeveloped runway(s). For comparative purposes, the 2020 analysis discloses noise impacts for the 2020 No Action condition.

The results of the noise analysis (see Sections 5.C.1, *Noise*, and 6.C.1, *Airport Noise*) are presented in terms of total number of residential housing units (i.e., single-family, multi-family, and mobile homes), total population, and total number of noise-sensitive facilities (i.e., churches, schools, libraries, nursing homes, and hospitals) within the 65+ DNL contour for each runway development alternative in both 2012 and 2020, in comparison to the 2005 Baseline and the No Action Alternative (Alternative A).

For the project year 2012, the results of these analyses show that the residential population and the number of residential housing units located within the 65+ DNL contour would increase for all alternatives as compared to the No Action Alternative (Alternative A); there would be no noise-sensitive facilities impacted by noise levels at or above 65 DNL with any alternative in 2012. The area of noise exposure, measured in square miles, for all but three of the alternatives in 2012, would increase as compared to the No Action Alternative in 2012; the exceptions are Alternatives B1c and B4, which would see virtually no change, and Alternative C1, which would see a decrease in noise exposure area as compared to the No Action Alternative.

By 2020, the population and number of residential housing units within the 65+ DNL contour would decrease for Alternatives B4, C1, and D2 as compared to the No Action Alternative in 2020; the remaining alternatives would see an increase in population and number of residential housing units within the 65+ DNL contour. By 2020, one noise-sensitive facility would be impacted by noise levels at or above 65 DNL. Also by 2020, the area of noise exposure in comparison to the No Action Alternative would not change for Alternatives B1, B1b, B1c, and D1; would decrease for Alternatives B4, C1, and D2; and would increase for Alternative B5.

A supplemental Federal Interagency Committee on Noise (FICON) screening analysis was prepared for each runway development alternative (See Section 6.C.1.1.9, *Supplemental Noise Analysis – Noise Impacts Between the 60 and 65 DNL Noise Exposure Contours*) in comparison to the No Action Alternative in 2012. The analysis concluded that a 1.5 dB increase would occur within the 65+ DNL noise contour for each of the runway development alternatives. Therefore, the



second step of the FICON screening procedures was performed to identify if there were areas where a 3 dB increase in noise would occur within the 60 to 65 DNL noise contour. This analysis concluded that a 3 dB increase would occur within the 60 to 65 DNL contour for each of the runway development alternatives.

The noise screening analysis of potential impacts associated with all projected arrival and departure operations for the year 2012 between the altitudes of 3,000 feet and 10,000 feet Above Ground Level (AGL) (See Section 6.C.1.1.9 *Supplemental Noise Analysis – Noise Considerations of Aircraft Over 3,000 AGL*) indicates that none of the runway development alternatives would cause a significant (5 dB) change between the 45 and 60 DNL.

Although the potential noise impacts of the runway development alternatives are not significant, aircraft noise in combination with noise generated from other area developments and activities could contribute to an increase in noise levels in the area surrounding FLL. Because the area surrounding FLL is heavily developed and has been for quite some time, recent past projects and current projects in the FLL area have not imposed noise impacts on areas that had been previously undeveloped. Although the activities of ships and vehicles at the Port are concentrated, the reasonably foreseeable future projects would not change or impact zoning or land use around the Port or in the vicinity of FLL. Other future projects, such as the proposed Atlantic Village Hotel and Marina, and future regional transit systems could potentially change existing land uses in their vicinities through property acquisition and redevelopment. Because these projects would involve the use of already developed land and existing transportation corridors, it is not anticipated that they would create overall noise compatibility issues in combination with existing or forecast airport operations.

### **7.3.3 COMPATIBLE LAND USE**

Generally, the commercial and transportation land uses located immediately east and west of FLL are largely compatible with airport operations. The areas north and south of the airport are more residential in character, with commercial uses located within a half-mile wide corridor running along both sides of Interstate-95 from Davie Road, south to Sheridan Road. There are a number of noise-sensitive public land uses (i.e. churches, schools, libraries, hospitals, or nursing homes) surrounding FLL, which are graphically depicted on Exhibit 5.C.2-2, *Noise-Sensitive Facilities*.

The results of the analysis of land use compatibility in relation to the runway development alternatives (See Section 6.C.2, *Land Use Compatibility*) indicate that direct impacts to off-airport property would occur with Alternatives B1, B1b, B1c, B4, B5, D1, and D2. Each of these alternatives would require the acquisition of all or a portion of the Wyndham Fort Lauderdale Airport Hotel; no other off-airport property would be directly impacted by these alternatives. While disruption of the area and traffic access around the hotel site is expected with the potential acquisition of all or part of the Wyndham Fort Lauderdale Airport Hotel, the specific quantity of disruptions will not be known until further planning and design is conducted. Impacts would be mitigated through compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act*, which “establishes

a uniform policy for the fair and equitable treatment of persons displaced from their homes, businesses, or farms as a direct result of programs or projects undertaken by a Federal agency or with Federal financial assistance. The primary purpose of this title is to ensure that such persons shall not suffer disproportionate injuries as a result of programs and projects designed for the benefit of the public as a whole and to minimize the hardship of displacement on such persons."<sup>77</sup>

Recent past projects, as well as current projects in the vicinity of FLL have not significantly changed land use and, therefore, have not created compatibility issues with airport operations. The area surrounding FLL is heavily developed and has been for quite some time. Future projects involving established facilities, such as Port Everglades, would most likely not change or impact land use. Other future projects, such as the proposed Atlantic Village Hotel and Marina and future regional transit systems could potentially change existing land uses in their vicinities through property acquisition and redevelopment. Because these projects would involve the use of already developed land and existing transportation corridors, it is not anticipated that they would create compatibility issues in combination with existing or forecast airport operations.

#### **7.3.4 WATER QUALITY AND WATER RESOURCES**

Results of the water quality analysis conducted for this Draft EIS (See Section 6.E.1, *Water Quality*) estimated increases in annual surface water quality pollutant loads discharged to receiving waterbodies under each of the runway development alternatives. However, it is anticipated that any direct or cumulative impacts to surface water or groundwater quality resulting from the runway development alternatives would be negligible, as it would be mandatory for all projects to comply with existing and future water quality permit requirements. Also, the Best Management Practices (BMPs) in place at the airport are considered to be sufficient to ensure that concentrations of pollutants of concern would not exceed the regulatory criteria. Accordingly, none of the runway development alternatives would result in unavoidable water quality problems. Based on the low background concentrations of the pollutants of concern, coupled with the relatively small volume of runoff to be generated by an improved airfield, impacts to the quality surrounding waterbodies would be unlikely.

As indicated by the analysis of potential impacts to floodplains resulting from the runway development alternatives (see Section 6.E.3, *Floodplains*), the 100-year floodplain encroaches onto the airfield, and would be affected by all of the runway development alternatives under consideration. With the exception of the No Action Alternative, complete avoidance and minimization of new floodplain impacts resulting from any of the runway development alternatives is not practicable due to the existing airfield geometry and presence of major transportation corridors and surrounding development. Although the proposed runway options and relocation of on-airport tenants would impact the floodplain, these impacts would not be significant. Therefore, it is not anticipated that the runway development alternatives would contribute to cumulative impacts to floodplains within the Study

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<sup>77</sup> Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601 et seq.).

Area. Mitigation for the loss of flood storage capacity due to these additional floodplain encroachments could be accomplished through the design of the airfield stormwater management system.

Further analyses (see Section 6.E.4, *Coastal Resources [Coastal Barriers and Coastal Zone Management]*) show that no coastal resources, including coral reefs, are located within the Detailed Study Area or the larger Study Area that extends over the Atlantic Ocean. No Wild and Scenic Rivers are located within the Study Area. Therefore, no significant impacts would occur to coastal resources, including coral reefs, or to Wild and Scenic Rivers as a result of the runway development alternatives.

Because the numerous safety, operational, and engineering design requirements proposed as part of the runway development alternatives, unavoidable impacts to wetlands would occur under each alternative. However, these impacts would be mitigated in accordance with regulatory requirements. Under an existing Environmental Resource Permit (ERP) issued by the South Florida Water Management District (SFWMD) (ERP #06-00339-S), Broward County has a total of 3.82 acres of available mitigation credit within the Westside Development Area. While not stipulated within the conditions of that permit, it is presumed that these 3.82 acres of credit may be applied toward this proposed project. Similarly, 5.03 acres of wetland mitigation credits may be available at Hugh Taylor Birch State Recreation Area, and these credits could be applied toward this project. Any wetland credits needed in excess of these 8.85 acres/credits could be mitigated at West Lake Park.

Broward County, in conjunction with the Port, has acquired permits from the SFWMD and USACE for a significant environmental restoration and enhancement project at West Lake Park, located at 1200 Sheridan Street, Hollywood, Florida, just southeast of the airport. Broward County proposed to mitigate wetland impacts resulting from any of the runway development alternatives at the 1,522-acre West Lake Park. The final type and location of mitigation would be coordinated further with Federal, state, and local permitting agencies during development of the Final EIS and subsequent permitting of the preferred alternative. The West Lake Park site may be capable of accommodating additional mitigation needs in the future, depending on the availability and applicability of credits. Broward County intends to use West Lake Park to mitigate impacts resulting from projects at the Port.

Current and future development projects within Broward County and neighboring jurisdictions could potentially have a cumulative effect on water resources beyond the impacts caused by the runway development alternatives. Increases in impervious areas, utility relocations, and navigation improvements would likely affect wetlands and Waters of the U.S. to varying degrees. As part of the environmental analysis completed for the Port Everglades Ocean Dredged Material Disposal Site, it was concluded that no natural reefs would be affected by that project. Improvement of the Port to accommodate future commercial fleets and to more effectively transit the existing fleet would involve dredging to deepen and widen the port basin as well as the Dania Cut-Off Canal starting in 2008.

The proposed construction of either the Ocean Express or the Tractebel Calypso natural gas pipelines between south Florida and The Bahamas have been routed keeping sensitive ecological sites in mind, but could still potentially disturb shallow and deepwater habitats depending upon the final routes to be selected. Potential expansion and conversion of the existing FPL power plant at the Port could affect wetlands depending on the actual scope of the development. Mitigation for unavoidable impacts would be required for these projects in a fashion similar to the mitigation proposed for the runway development alternatives. Sites suitable for mitigation would need to be determined at the time permit applications are submitted for these projects.

It is likely that other regional projects, in combination with any of the runway development alternatives would impact wetland resources in the vicinity of FLL. Although cumulative impacts are likely to occur in the future, it is anticipated these would be offset through implementation of mitigation programs developed in coordination with Federal and state regulatory agencies in accordance with applicable laws.

### **7.3.5 FISH, WILDLIFE, PLANTS, AND HABITAT**

The results of the analysis of potential impacts resulting from the runway development alternatives on Federal and state-listed species and critical habitats (see Section 6.F.1, *Fish, Wildlife, Plants, and Habitat*) show that all runway development alternatives would be consistent with the Federal Endangered Species Act and no significant direct or secondary impacts to Essential Fish Habitat (EFH) are expected to occur with any of the runway development alternatives.

Although various Federal and state-listed species can be found in Broward County as residents or as trans-migratory species, the airport is located in a highly urbanized area that has been developed and heavily used by people for over half a century. It is highly unlikely that any listed species or their habitats would be present within the airport vicinity and be negatively affected by implementation of the proposed improvements.

Certain species located within the EFH found in the Detailed Study Area would be temporarily displaced during the construction phase for the runway development alternatives. Similar refuge, forage, and other habitat areas would exist through mitigation upon project completion. Temporary and permanent impacts to certain habitat would occur as a result of construction of the road fill required for installation and future maintenance access of the approach light towers. Given the location and area of the access road coupled with the abundant availability of similar habitat in the immediate area, significant impacts to the resident species or the EFH is not anticipated (see Section 6.F.1, *Fish, Wildlife, Plants, and Habitat*).

As the permanent impacts to EFH impact jurisdictional mangrove wetlands, the planned wetland mitigation, previously discussed in Section 7.3.4, *Water Quality and Water Resources*, is proposed to be used to mitigate EFH impacts. Broward County, in conjunction with the Port, has acquired permits from the SFWMD and USACE for a significant environmental restoration and enhancement project at West Lake Park, just southeast of the airport. In general, it is anticipated that the

wetland mitigation provided at West Lake Park would improve the structure and function of the existing EFH by providing a more natural shallow water habitat. Additional mitigation opportunities, if appropriate, would continue to be evaluated throughout subsequent project final design phases, in coordination with the NMFS and other permitting agencies.

Past development within the surrounding areas of Broward County has resulted in hydrological impacts from increased surface water runoff and resulting reduction in groundwater recharge. Fragmentation and the reduction in size and diversity of other available habitats in Broward County have limited the amount and locations of suitable habitat available to support plant and animal species. These impacts were not the result of any one project, yet cumulatively they have been significant to the natural ecosystems, inclusive of EFH. As the population of Broward County has grown in the last 20 years, the construction of major transportation thoroughfares, the extensive urbanization of the county, and the increased consumption of freshwater in South Florida have all contributed to these cumulative impacts. However, based on the minimal short-term and permanent impacts that would be associated with any of the proposed runway development alternatives, and the extent of mitigation for unavoidable impacts, it is anticipated that each of the runway development alternatives would make only a negligible contribution to these cumulative impacts.

As part of the environmental analysis completed for the Port Everglades Ocean Dredged Material Disposal Site, it was concluded that no natural reefs would be affected. The Ocean Express and Tractebel Calypso natural gas pipelines between south Florida and The Bahamas have been routed keeping sensitive ecological sites in mind, although the final routes have not yet been determined. Due to the extensive nature of existing regulations and mitigation requirements, it is not anticipated that any other future projects would have a significant cumulative effect on fish, wildlife, plants, and habitats in the region.

### **7.3.6 HAZARDOUS AND SOLID WASTE MATERIALS**

Results of the hazardous waste analysis for this Draft EIS (see Section 6.G.1, *Hazardous Waste*) show that, due to the age of many of the buildings located at FLL, it is likely that asbestos is present in a number of structures on-airport. For locations potentially affected by the runway development alternatives, asbestos surveys would need to be conducted to determine the quantities of asbestos at the facilities and the extent of asbestos abatement required. Potential clean-up of asbestos would be completed in accordance with all Federal, state, and local regulations.

A number of areas at FLL have previously documented incidences of petroleum contamination. Construction and demolition activities proposed in these areas would include measures that would be taken during the excavation or dewatering process to ensure worker safety and proper disposal of any contaminated media encountered during construction. A contingency plan would be put in place to address potential worker exposure, as well as clean-up and disposal of any contaminated material that is unearthed during the construction phases of the

proposed project. Proper storage, use, and disposal procedures would reduce the probability of releases and as a result minimize cumulative impacts on human health and the environment.

Results of the solid waste analysis for this Draft EIS (see Section 6.G.2, *Solid Waste*) show that expected increases in airport use would result in the generation of greater amounts of waste. Based on the current capacity of the solid waste facilities used by FLL, and the resources available at each facility, it is not anticipated that the facilities would have to be expanded to accommodate near-future needs. Therefore, the potential construction activities associated with the runway development alternatives are not expected to have any long-term impacts on the total quantities of solid waste produced and handled in the region.

Reasonably foreseeable future actions in and around FLL would contribute solid waste to the local landfills, primarily in the form of construction debris. The increase in the amount of construction waste produced is considered a temporary impact and would not have any long-term impacts on the total quantities of solid waste produced and handled in the region. These proposed and reasonably foreseeable future actions would occur with or without the implementation of a runway development alternative.

### **7.3.7 SOCIAL AND COMMUNITY RESOURCES**

#### **7.3.7.1 Socioeconomic Impacts**

No residential property acquisitions are required for implementation of the runway development alternatives as described in this Draft EIS. Acquisition of all or a part of the Wyndham Fort Lauderdale Airport Hotel may be required depending on which alternative is implemented. In addition, access to or crossing of rights-of-way owned by Broward County, the Florida DOT, the Dania Cut-Off Canal, or FEC Railway may need to be negotiated. Other than the Wyndham Hotel, all other potential relocations would affect only on-airport tenants. Surface traffic leading to and from the site would increase during the construction period. Construction vehicles, personal vehicles of construction workers, and heavy vehicles would access the site during the construction phase. Any potential road detours have not yet been established. These inconveniences would be temporary and would cease immediately upon completion of construction.

#### **7.3.7.2 Environmental Justice**

As presented in Section 6.H.1.2, *Environmental Justice*, construction of any of the runway development alternatives would generate noise contours that would minimize impacts on the surrounding residents and thus on the minority and low-income populations that are present. The percentage of minority population living under the 65+ DNL contour would be reduced, as compared to the No Action Alternative, if any of the runway development alternatives were constructed. The percentage of low-income households living within the 65+ DNL contour would be reduced if any of its alternatives were constructed. There would be no disproportionate impacts to minorities or low-income populations associated with implementation of any of the alternatives evaluated in this Draft EIS.

### 7.3.7.3 Children's Environmental Health and Safety

It is not expected that the runway development alternatives would contribute significant levels of harmful agents into the water, air, or soil above what currently exists at FLL. It is expected that no health or safety impacts would occur with the implementation of any of the runway development alternatives. Past and present projects compliant with applicable Federal, state, and local laws have not adversely impacted the health and safety of area residents. All future regional projects would need to document compliance with such laws. Further coordination with agencies would be conducted throughout the EIS process to review health data and identify specific concerns related to children's health and safety. It is anticipated that the health and safety of area residents should not be affected by the cumulative development of any future projects in the region.

### 7.3.8 SECONDARY, INDUCED, AND INFRASTRUCTURE

Major development proposals often involve the potential for induced or secondary impacts on surrounding communities. Induced impacts would normally not be significant except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, Appendix A, Section 15, *Secondary (Induced) Impacts*, states that shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by major airport development proposals often involve the potential for induced or secondary impacts on surrounding communities.

#### 7.3.8.1 Surface Transportation

The surface transportation analysis prepared for this Draft EIS (see Section 6.H.2.1, *Surface Transportation*) determined that the roadway intersections in the vicinity of FLL operate at Level of Service (LOS)<sup>78</sup> "D" or "F" during peak hours. Traffic volumes on these local roadways are anticipated to increase in the future with or without implementation of improvement projects at FLL. Depending on the runway development alternative selected, minor amounts of traffic that currently travel along on-airport roadways, would be shifted to local roadways due to the closure of various sections of Airport Perimeter Road. The introduction of this airport traffic onto these congested local roadways would not further worsen the LOS of local roadways or intersections.

Planned future transportation projects in the region would relieve traffic congestion. The planned future IMC and APM would relieve traffic congestion, and address safety and security concerns along access roadways serving FLL and seaport terminals (specifically Eller Drive, Spangler Boulevard, U.S. Highway 1, Interstate-595, and Griffin Road), area corridors Interstate-595, U.S. Highway 1 and Interstate-95, as well as mitigation to support the population and passenger

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<sup>78</sup> Level of service (LOS) is a quantitative measure of the quality of service on a roadway developed from the perspective of transportation users. See Section 5.H.2.1 *Surface Transportation* for a more detailed description.

growth anticipated in the area. The IMC would serve as a regional transportation hub housing such facilities as bus and train stations, kiss and ride areas, people mover connection, vehicle parking, and concession spaces; it would facilitate transfers to other regional transit systems. The APM would be designed to transport passengers within and between FLL and the Port, with connections to other regional transportation modes at the IMC.<sup>79</sup> The current SFECCTA study, led by the Florida DOT, seeks to reduce roadway congestion and improve mobility by providing local and regional passenger transit service.

### **7.3.8.2 Employment Impact**

Implementation of any of the runway development alternatives would not adversely impact employment in Broward County and the South Florida region. Construction jobs would be created and airport-supported jobs would be created and maintained, which would thereby create a benefit, as described in Section 6.H.2.2, *Employment Impacts*. Recent past projects have created short-term planning and construction jobs, as well as long-term operational positions once the projects were completed. This benefit to the economy is likely to continue as current projects progress and future regional projects are developed and implemented.

### **7.3.8.3 Public Services and Utilities**

Results of the analysis of potential impacts on public services and utilities (i.e. water and electricity consumption) as a result of the runway development alternatives are presented in Section 6.H.2.3, *Public Services*. The results indicate that aircraft operations and passenger demand at FLL would continue to grow for each runway development alternative at the rates forecast, thus creating an increase in the level of water and electricity consumed per enplaned passenger. Expansion of airfield capacity would increase the amount of electricity consumed to provide power to support additional terminal space and airfield lighting. The continued growth in aircraft operations and passenger demand at FLL is forecast to occur regardless of whether any of the runway development alternatives are approved and implemented.

It is expected that future demand for public services and utilities in the South Florida region would continue to be met by existing providers. Implementation of the runway development alternatives would not significantly impact existing water and electricity supplies. Recent past projects have not significantly impacted the water and electricity supplies in the region. Likewise, it is anticipated that current and reasonably foreseeable future projects would not impact regional water and electricity supplies.

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<sup>79</sup> *Intermodal Center and People Mover Project Draft Briefing Book*. Federal Highway Administration and Federal Transit Administration. October 2005.



Because no changes in population would occur with implementation of any of the runway development alternatives, no additional fire personnel, police, or hospitals would be required to serve the area. Construction and implementation of any of the runway development alternatives would not significantly disrupt local traffic patterns and would not substantially reduce the LOS on airport or local roadways.

#### **7.3.8.4 Regional Economic Impact**

As stated in Section 6.H.2.2, *Economic Impacts*, the Regional Input-Output Modeling System (RIMS II) was used as a means of quantifying the construction impacts of the runway development alternatives on the regional economy. RIMS II is a set of regional and industry specific economic multipliers produced by the U.S. Department of Commerce, Bureau of Economic Analysis, commonly used to estimate the regional impacts of airport construction projects.

Results of the RIMS II analysis are presented in terms of Final Demand Employment, which represents the number of jobs in all industries that result from the construction of each runway development alternative. Based on the magnitude of the construction costs, additional jobs would be created within the region as a result of the construction of any of the runway development alternatives. These jobs would be associated with industries that directly and indirectly support construction activities. There would be no adverse economic impacts to the region as a result of implementation of any of the runway development alternatives, and likewise, no cumulative impacts are anticipated from other current and reasonably foreseeable future projects in the region.

#### **7.3.9 LIGHT EMISSIONS AND VISUAL IMPACTS**

Many of the residential areas surrounding FLL are currently shielded from airport light emissions primarily due to the buffer of undeveloped and compatible land uses that surround the airport. These include major highways, industrial development, noise berms, and mature trees. The distance of the residential structures from the airport property further attenuates light emissions. In addition, the Aviation Greenbelt and the landscaping and wall on the south side of Griffin Road act as a buffer between airport property and the residential use on the south side of Griffin Road. This would remain the case with any of the runway development alternatives. Therefore, no significant light emissions or visual impacts would occur as a result of implementation of the runway development alternatives.

The character of development around the airport acts as a buffer, shielding residential developments from airport light emissions. No recent past projects at FLL or other places in the region have created adverse light emissions or visual impacts to residential areas surrounding FLL because of the shielding provided by these buffers, which are the result of development in an urbanized area. Structures on airport property are required to meet height and line-of-sight requirements set forth in FAR 14 CFR, Part 77, *Objects Affecting Navigable Airspace*. Further, the City of Fort Lauderdale Municipal Code states that: "It shall be unlawful for any person to build, construct, establish or maintain any building, smokestack, chimney, flagpole, tower, derrick, or other structure or appurtenance of any kind or character within the city, as applicable, without first complying with FAR 14 CFR

Part 77, *Objects Affecting Navigable Airspace*, and without advance written approval from the FAA." (Sec. 7-15. Erection of buildings, smokestacks, flagpoles, etc., near airports. Code 1953, § 4-16; Ord. No. C-83-62, § 1, 5-17-83). Because any current and future regional project occurring in this highly developed area would be subject to the same building codes, it is not anticipated that these projects would create adverse light emissions or visual impacts.

### **7.3.10 NATURAL RESOURCES AND ENERGY SUPPLY**

There are two primary sources of energy consumption at an airport – stationary facilities and aircraft operations. Stationary facilities use utility energy (i.e., electric energy and natural gas) to provide cooling, lighting, heat, and hot water to buildings, the airfield, and parking areas. Aircraft operations consume fuel energy (i.e., Jet-A fuel, low-lead aviation gasoline referred to as AVGAS, unleaded gasoline, and diesel fuel) to operate aircraft and power the ground support equipment (GSE) that service aircraft and support airport operations.<sup>80</sup> Airport development projects may impact the demand for energy by proposing the development of new buildings, runways, taxiways, or other on-airport facilities that could affect energy consumption. With regard to natural resources, a construction project may require acquisition of land or require removal of dirt, rock, or gravel that could destroy or deplete the available supply of natural resources such as oil, coal, minerals, or trees, if present.

No irreversible or irretrievable commitments of natural resources are anticipated for construction of the runway development alternatives. There would be no depletion of materials in short supply or substantial irreversible changes to the natural or cultural environment. While the source of the fill needed to support an elevated runway at FLL is not yet known, there are several potential sources, including obtaining fill from quarries in Miami-Dade County or utilizing dredge materials from the Port. If the dredge material could be used, it would create a beneficial use of resources. If material is needed from quarries, there are several limestone quarries located in Miami-Dade County that could serve as a source for the embankment material needed for the construction of proposed runways and safety areas.

Potential future energy and fuel demands necessary to support stationary facilities and aircraft operations at FLL were evaluated. With implementation of a runway development alternative, it is not anticipated that FLL would use or consume energy or fuel sources that may be in short supply. Due to the forecast increase in aircraft operations, which would occur regardless of implementation of any of the alternatives, an increase in both the amount of aircraft fuel and GSE fuel are anticipated through 2020. It is anticipated that the providers of aircraft fuel and GSE fuel to FLL would be able to accommodate these future increases. With the extension and redevelopment of runways and taxiways, an increase in the amount of electric energy would be required to support the lighting, signage, navigation equipment, and the proposed expanded passenger terminal spaces.

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<sup>80</sup> Included with GSE are the other types of ground access vehicles, including, but not limited to, staff vehicles, shuttles, and maintenance vehicles.

Based on the improvements outlined in the FPL *Ten-Year Power Plant Site Plan 2005-2014*,<sup>81</sup> it is anticipated that FPL could accommodate the increased demand for electricity at FLL through 2026. It is assumed that the Gulfstream Natural Gas Pipeline, operated by the Peoples Gas Company since 2002, would provide ample natural gas to FLL to meet the anticipated demand through 2026. The future energy and fuel demand, as described in Section 6.H.4, *Natural Resources and Energy Supply*, would not have an adverse effect on future power and fuel supplies or for the supply of natural resources.

Recent past projects have not significantly impacted the supply of natural resources and energy in the region. In 2005, the Commission made the decision that all 52 shuttle busses and trams at FLL would eventually be powered by biodiesel fuel. The Commission has set a goal for FLL to be a leader in sustainable design through the newly implemented GAI. The proposed IMC and APM could potentially relieve traffic congestion in the Fort Lauderdale area and decrease the consumption of fossil fuels. The current SFECCTA study, led by the Florida DOT, propose to reduce roadway congestion and improve mobility by providing local and regional passenger transit service. As transit ridership is anticipated to increase in the future, the number of personal vehicles on the roadway system could potentially decrease, which, in turn would decrease fossil fuel consumption.

### 7.3.11 CONSTRUCTION IMPACTS

Construction activities are generally short-term and temporary in nature, and do not usually cause significant adverse environmental impacts at airports. The construction impacts analysis conducted for this Draft EIS (see Section 6.H.5, *Construction Impacts*) indicates that implementation of any of the runway development alternatives would not have any long-term adverse impacts. Construction would cause minor short-term impacts in the categories of noise, air quality, water quality, and surface transportation, as described below. The short-term impacts of the construction process can usually be mitigated with proper construction management and the use of BMPs, as outlined in FAA AC 150/5370-10A, *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*.

- **Noise** - Noise levels caused by construction vehicles and equipment would temporarily increase at the site and along haul roads leading to the site during daytime hours. However, the construction noise is not expected to be distinguishable from general background noise from the airport and major streets and highways.
- **Air Quality** – Construction activities can result in short-term impacts of ambient air quality. These potential impacts include increased emissions from motor vehicles on the nearby streets due to traffic disruption at the construction site accesses, fugitive dust emissions, and direct emissions from construction equipment and trucks. These impacts will be temporary and of short duration, and will affect only the immediate vicinity of the construction site and access routes. Fugitive dust emissions can occur during ground excavation, material handling and storage, movement of equipment at the

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<sup>81</sup> See Chapter Five, *Affected Environment*, Section 5.H.4.1, *Energy Sources*.

site, and transport of material to and from the site. Fugitive dust is most likely to be a problem during periods of intense activity during windy and/or dry weather conditions. BMPs such as wetting, paving, or landscaping; chemically treating exposed earth areas; covering dust-producing materials during transport; limiting dust-producing construction activities during high wind conditions; and providing street sweeping or tire washes for trucks leaving the site can minimize the impacts from fugitive dust.

- **Water Quality** - Compliance with all permit conditions would be required to minimize short-term impacts on surface waters caused by erosion and sedimentation. Permanent and temporary erosion control measures would be implemented to limit the area of exposed soil, to manage stormwater, and to minimize the production of dust that could be carried on equipment or by the wind to waterbodies on and off-airport. A Stormwater Pollution and Prevention Plan (SWPPP) would be developed and implemented throughout construction. The SWPPP would stipulate what types of BMPs should be installed, practiced, and monitored to minimize impacts on water quality.
- **Surface Traffic** – Surface traffic leading to and from the site would increase during the construction period. Construction vehicles, personal vehicles of construction workers, and heavy vehicles would access the site during the construction phase. This inconvenience would be temporary and would cease immediately upon completion of construction.

Because construction of past projects in the region has not created long-term adverse impacts, it is anticipated that impacts experienced with construction of current and reasonably foreseeable future projects in the region would be temporary in nature and would not create long-term adverse impacts.

### **7.3.12 SUSTAINABLE DESIGN AND DEVELOPMENT**

As previously stated in this chapter, given the Commission's goal for FLL to be a leader in sustainable design and the subsequent creation of the GAI, it is anticipated that, if approved, sustainable design and development strategies would be incorporated to the greatest extent possible in the implementation of any of the runway development alternatives, thereby lessening potential impacts to the environment and creating a benefit to the environment as well. This would also be the case with any other current and future projects at FLL.

The Port's participation in the National Port Environmental System Assistance Program<sup>82</sup> and the goal of continued environmental stewardship through the development of the Port's Master Plan Update have ensured that recent past and current projects not only comply with all Federal, state, and local environmental regulations, but that they would most likely seek to set the standard for environmental protection and mitigation measures in the future. It is anticipated

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<sup>82</sup> Press Release: *Port Everglades Selected to Participate in National Environmental Program*. January 26, 2004. Internet web site:  
<http://porteverglades.poweri.com/remote/pr.php?news=1&newsid=9&selectedYear=2004>

that the reasonably foreseeable future projects planned within the Study Area would follow the same design and development guidance while striving to achieve their goals with minimal impacts on the environment.

## **7.4. CONCLUSIONS AND FINDINGS**

### **7.4.1 SUMMARY OF CUMULATIVE IMPACTS**

The discussion of cumulative impacts discloses the impacts of the runway development alternatives under consideration at FLL in combination with past, present, and reasonably foreseeable future actions at FLL, the Port, and within the FLL environs. These notable actions have been implemented, are under current planning, or are anticipated in the near future to address transportation and infrastructure needs. When grouped together, these independent actions have a cumulative effect on resources, land use patterns, and the character of the Fort Lauderdale community.

As described in Chapter Five, *Affected Environment*, the Study Area and Detailed Study Area encompass a built environment, dominated by transportation uses, commercial and industrial development, and residential areas. This built environment limits the categories within which cumulative impacts would occur. For the runway development alternatives and the past, present, and reasonably foreseeable projects described in this chapter, cumulative impacts are limited to: air quality; noise; compatible land use; water quality and water resources; fish, wildlife, plants, and habitat; hazardous and solid wastes; social and community resources; light emissions and visual impacts; natural resources and energy supply; construction impacts; and sustainable design and development. The level of cumulative impact anticipated to occur within these categories is not significant due to the types of projects proposed, the extent of the built environment in which they will occur, and the options considered or implemented to mitigate for unavoidable impacts.

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