U.S. Department of Transportation
Federal Aviation Administration

Written Re-Evaluation of the June 2008 Final EIS for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects

Fort Lauderdale-Hollywood International Airport

Broward County, Florida

July 2011

TABLE OF CONTENTS

TABLE OF CONTENTS *(continued)*

LIST OF TABLES

LIST OF EXHIBITS – *all exhibits are located at the end of the document*

1.0 INTRODUCTION AND BACKGROUND

In December 2008, the Federal Aviation Administration (FAA) issued a Record of Decision (ROD) for the Final Environmental Impact Statement that evaluated the proposed expansion of Runway 9R-27L and other associated airport projects (identified in this Written Re-evaluation as the **Previously Approved Action** or **2008 Approved ALP**) at the Fort Lauderdale-Hollywood International Airport.[1] The FAA's ROD was based on the information and analysis contained in the *Final Environmental Impact Statement for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport Broward County,* Florida, June 2008 (the FEIS). The runway expansion and other associated airport projects are currently undergoing engineering and design. Construction activities are scheduled to begin in the summer of 2011.

In January 2009, the FAA approved an Airport Layout Plan (2008 Approved ALP) submitted by the Broward County Aviation Department (BCAD).[2] The 2008 Approved ALP depicts, amongst other things, the expansion of existing Runway 9R-27L to an 8,000-foot by 150-foot runway with the use of Engineered Materials Arresting System (EMAS) on both runway ends. Consistent with the Broward County objective statement, this airfield configuration does not encroach on the Dania Cut-Off Canal on the west, nor does it extend beyond NE 7th Avenue on the east. The expanded runway was shown on the 2008 Approved ALP as elevated on the Runway 27 end to 45 feet Above Mean Sea Level (AMSL) over the Florida East Coast (FEC) Railway and U.S. Highway 1. The elevation of the expanded runway on the west end was shown on the 2008 Approved ALP as 8 feet AMSL. Since the FAA's approval of the 2008 Approved ALP, BCAD has been conducting engineering and design studies[3] that refine the runway design and geometry. In March 2011, BCAD submitted a request to the FAA for the approval of an update to the 2008 Approved ALP[4] that depicts refinements to the runway expansion project that resulted from the engineering and design studies.[5] *See* **Appendix A, *2011 Proposed Airport Layout Plan***.

---

1 The runway expansion and other associated airport projects are identified in the FAA's Record of Decision dated December 19, 2008; Section 1, *Description of the Airport Sponsor's Proposed Action and Purpose and Need*.

2 Letter to Kent George, Director, Broward County Aviation Department, from Bart Vernace, Assistant Manager, FAA Orlando Airports District Office, Airport Layout Plan Approval, January 22, 2009.

3 *Broward County Aviation Department Airport Expansion Program, Engineer's Report BP-1 60% Submittal for Consultant Design Services—Expansion of Runway 9R-27L, Fort Lauderdale-Hollywood International Airport (FLL)*, RLI No: R0729109R1, FAA Project No.: 3-12-0025-062-2009. Prepared by PBS&J, dated: February 4, 2011.

4 Landrum & Brown Memorandum to Ms. Rebecca Henry, FAA, Orlando Airports District Office, From: Tom Cornell (L&B) on behalf of the Broward County Aviation Department. RE: FLL Runway Geometry Update—Record of Changes. Dated: March 3, 2011. BCAD provided the FAA with an addendum to the March 3, 2011 "Record of Changes" memorandum dated May 4, 2011 along with a revised 2011 Proposed ALP. These documents are provided in Appendix A, *2011 Proposed Airport Layout Plan*.

5 The Broward County Commission approved the updated 2011 Proposed ALP on April 5, 2011 and it was submitted to the FAA May 4, 2011.

1.1 Need for a Written Re-Evaluation

In accordance with FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, paragraph 1401 c.(2) and FAA Order 1050.1E, *Policies and Procedures for Considering Environmental Impacts,* these proposed changes (identified in this Written Re-evaluation as the Proposed Changes or 2011 Proposed ALP) are analyzed "to determine whether the proposed changes are substantial and whether the resultant environmental impacts present significant new circumstances or information relevant to environmental concerns that have a bearing on the proposed action or its impacts."[6] FAA Orders 5050.4B and 1050.1E provide guidance on preparing written re-evaluations.[7/8]

This Written Re-evaluation reviews the Proposed Changes and the Previously Approved Action to determine if the data and analyses in the FEIS remain substantially valid and whether there are new environmental concerns from those disclosed in the FEIS and ROD. *See* **Section 1.3, *Proposed Changes to the Previously Approved Action*, Section 2.0, *Affected Environment* Section, 3.0 *Environmental Consequences***, and **Section 4.0, *Cumulative Impacts***.

The Proposed Changes are depicted on the 2011 Proposed Airport Layout Plan (2011 Proposed ALP) Sheets 3 and 4 and described in the engineering and design studies being prepared by the BCAD. The Previously Approved Action is depicted on Sheets 3 and 4 of the 2008 Approved ALP and was described in the FEIS.

Per FAA Order 1050.1E, paragraph 515a, "The preparation of a new EIS is not necessary when it can be documented that the:

(1) Proposed action conforms to plans or projects for which a prior EIS has been filed and there are no substantial changes in the proposed action that are relevant to environmental concerns;

(2) Data and analyses contained in the previous EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and

---

6 FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, Effective Date: April 28, 2006. Chapter 1. Order Objectives and Definitions, paragraph 9.v.(1).

7 FAA Order 5050.4B, paragraph 1401c.(2) "Substantial changes in the proposed action. If substantial changes in an action occur, the responsible FAA official should determine if the changes are relevant to environmental concerns. That determination should focus on the affected environment and anticipated impacts due to the changes and how they would relate to the proposed action or proposed mitigation. The official must decide if the resultant environmental impacts present significant new circumstances or information relevant to those environmental concerns bearing on the proposed action or impacts. The official should use his or her professional judgment to determine if a written reevaluation is needed."

8 FAA Order 1050.1E, paragraph 515, identifies the scope and applicability of a written re-evaluation. In summary, this is a document the responsible FAA official prepares to document the continuing validity of a previously prepared EIS. Conversely, the re-evaluation may conclude that substantial changes to the project or new information pertaining to affected environmental resources require preparation of a new EIS or that a supplement to an earlier-prepared EIS is needed.

(3) Pertinent conditions and requirements (all) of the prior approval have, or will be, met in the current action."

If the proposed changes do not meet the above criteria, then further analysis is necessary. (*See* FAA Order 1050.1E, Paragraph 516a.)

1.2 Required FAA Federal Actions and Approvals

The FAA federal action and approval necessary for Broward County as the Airport Sponsor to implement the project as now shown on the 2011 Proposed ALP is:

FAA APPROVAL TO AMEND THE ALP TO DEPICT THE PROPOSED ACTION AND ASSOCIATED DETERMINATIONS: FAA approval of an updated ALP.[9]

1.3 Proposed Changes to the Previously Approved Action

In its December 2008 ROD, the FAA approved the Runway 9R-27L expansion and other associated projects at FLL. In January 2009, the FAA approved the 2008 Approved ALP (*see* **Exhibit 1, *2008 Approved Airport Layout Plan***). The BCAD engineering and design studies refined elements of the project that resulted in changes to the Previously Approved Action.[10]

The 2011 Proposed ALP submission to the FAA included three sheets of the FLL Airport Layout Plan Drawing Set; Sheet 2—*Existing Airport Conditions Drawing*, Sheet 3—*Future Airport Conditions Drawing,* and Sheet 4—*Airport Data Sheet*. A March 3, 2011, memorandum from BCAD to the FAA[11] documented the changes to the drawings since the previous ALP was submitted to the FAA in 2008. *See* **Exhibit 2, *2011 Proposed Airport Layout Plan*** and **Appendix B, *Changes to 2008 Approved ALP Sheets 2—3—4***, to review the list of updates and other supporting information.

The Proposed Changes to the Previously Approved Action are identified on Sheet 3 and Sheet 4 of the 2011 Proposed ALP. The Proposed Changes to the Previously Approved Action that are the subject of this Written Re-Evaluation are as follows:

- **Change in Runway 9R-27L Effective Runway Gradient** – an increase in the runway end elevations results in a change to the effective runway gradient.[12] The proposed revised runway end elevations are 10.0 feet AMSL for the Runway

---

9 49 U.S.C. § 47107(a)(16).

10 There are no changes to the connected actions associated with the Previously Approved Action as identified in the 2008 FEIS. The connected actions are listed in Chapter Two, Section 2.1 *Connected Actions*, of the 2008 FEIS. The BCAD *Airport Expansion Program, Engineer's Report BP-1 60% Submittal* identified that the runway expansion project will have impacts on a number of existing facilities, primarily within the existing airport property boundary. These facilities are identified in the BCAD report as *Enabling Projects, Related Projects, and Interfaces*; a listing and discussion of these facilities is provided in Appendix B, *Changes to ALP Sheets 2, 3, and 4.*

11 With the May 2011 Proposed ALP submittal to the FAA, BCAD provided an updated memorandum of the "Record of Changes." (A copy of that memorandum, dated May 4, 2011, is provided in Appendix A - *2011 Proposed Airport Layout Plan.*

12 Effective Runway Gradient. The difference between the highest and lowest elevations of the runway centerline divided by the runway length. Source: FAA AC 15-/5325-4B *Runway Length Requirements for Airport Design*.

9R threshold (previously 8.0 feet AMSL) and 64.9 feet AMSL for the Runway 27L threshold (previously 45.42 feet AMSL). The revised effective runway gradient on the 2011 Proposed ALP is 0.686 percent (west to east) as compared to the previous effective runway gradient of 0.458 percent shown on the 2008 Approved ALP.[13]

- **Changes to Associated Taxiway System, Runway/Taxiway Bridge Structure, and Runway/Taxiway Shoulders –** There are proposed changes shown on the 2011 Proposed ALP to the associated taxiway system, to the single runway/taxiway bridge structure over U.S. Highway 1 and the FEC Railway, and to the runway/taxiway shoulders widths, from what was depicted on the 2008 Approved ALP. The proposed changes add connecting taxiways, separates the runway and taxiway bridge structure resulting in two bridge structures rather than one bridge structure over the FEC railway and U.S. 1, and widens the runway/taxiway shoulders by ten feet and the runway blast pads by 20 feet.

- **Change in NAVAID Facilities/Approach Light System (ALS)[14] for Runway 9R-27L-** There is a proposed change to the NAVAID/ALS facility for Runway 9R-27L from what was depicted on the 2008 Approved ALP; the approach light system has been proposed to change from a MALSR (Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights) on the west end of the runway and a MALS (Medium-Intensity Approach Lighting System) on the east end of the runway, to a MALSF (Medium-intensity Approach Lighting System with Sequenced Flashing lights) for both ends of the runway. The size and location of the MALSF differ from what was analyzed and approved in the 2008 ALP.

1.3.1 Change in Runway 9R-27L Effective Runway Gradient

The Runway 9R-27L profile shown on the 2008 Approved ALP was revised based on the analysis in the BCAD engineering and design studies. (For the FEIS analysis, only a planning level of detail was available to develop the runway profile.[15]) The proposed runway profile changes the runway end elevations, which in turn changes the effective runway gradient.

The runway profile was revised to address the following factors: enhance/improve the required clearances over the FEC Railway corridor and pilot line of sight issues, enhance airfield connectivity particularly in the midfield area, minimize

---

[13] The 2008 Approved ALP data sheet (Sheet 4 of 18 dated December 9, 2008, prepared by Jacobs Consultancy) is provided in Appendix C, *Supplemental Information*. The 2011 Proposed ALP data sheet (Sheet 4 of 4 dated May 3, 2011, prepared by Landrum & Brown) is provided in Appendix A, *2011 Proposed Airport Layout Plan.*

[14] NAVAID is an acronym for navigational aid. The term NAVAID includes electrical and visual air navigation aids, lights, signs, and associated supporting equipment. Approach lighting systems (ALS) are configurations of lights positioned symmetrically along the extended runway centerline.

[15] Airport planning information is used by the FAA in the development of Environmental Impact Statements. Plans or designs for a proposed action and its reasonable alternatives are developed to a level needed to properly analyze their environmental consequences. Normally, this analysis requires no more than 25 percent of an alternative's overall project design ("25% design level"). FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. Para 1004.c. *Plans and designs for the NEPA Process.*

embankment and earthwork requirements, and improve airfield drainage.[16] The revised profile and effective runway gradient meet all FAA design criteria and required clearances over the FEC Railway corridor.

The runway end elevation for 27L (east runway end) was raised from 45.42 feet AMSL to 64.9 feet AMSL. The runway end elevation for 9R (west runway end) was raised from 8.0 feet AMSL to 10 feet AMSL. The effective runway gradient shown on the 2008 Approved ALP was 0.458 percent (west to east) for Runway 9R-27L; the revised effective runway gradient on the 2011 Proposed ALP is 0.686 percent (west to east).[17]

Exhibit 3, *Base/Revised Profile Comparison—Expanded Runway 9R-27L*, provides a comparison of the FEIS runway profile with the revised runway profile associated with the Proposed Changes.[18] Due to the length of the runway, this drawing exaggerates the vertical scale to enhance readability and does not reflect actual conditions.

General engineering and design comparisons between the FEIS runway profile and the revised runway profile are discussed below:

FAA Airport Design Criteria

Both the FEIS runway profile and the revised runway profile considered the FAA airport design criteria. However, the revised runway profile is based on a more detailed analysis that focused on the major factors of clearances over the rail and highway corridors, pilot line of sight, airfield connectivity, embankment and earthwork, and drainage. FAA Advisory Circular 150/5300-13A *Airport Design*, paragraphs 502 "Surface Gradient Standards" and 503 "Line of Sight Standards," and localizer line of sight standards per FAA Order 6750.16D *Siting Criteria for Instrument Landing Systems*,[19] establish the criteria for runway gradient and pilot line of sight.

---

16 *Broward County Aviation Department Airport Expansion Program, Engineer's Report BP-1 60% Submittal for Consultant Design Services—Expansion of Runway 9R-27L, Fort Lauderdale-Hollywood International Airport (FLL)*, RLI No: R0729109R1, FAA Project No.: 3-12-0025-062-2009. Prepared by PBS&J, dated: February 4, 2011. Section G, *Pavement Profiles and Gradients*. (The applicable FAA Advisory Circulars (ACs) are listed in Section G of the *Engineer's Report BP-1 60% Submittal* report.)

17 The 2008 Approved ALP data sheet (Sheet 4 of 18 dated December 9, 2008, prepared by Jacobs Consultancy) is provided in Appendix C, *Supplemental Information*. The 2011 Proposed ALP data sheet (Sheet 4 of 4 dated May 3, 2011, prepared by Landrum & Brown) is provided in Appendix A, *2011 Proposed Airport Layout Plan.*

18 Exhibit 3 was originally prepared for a Broward County Commission workshop held in December 2010 and represented the project at a 30 percent stage of engineering and design. (Broward County Aviation Department - Board Workshop, PowerPoint Presentation, December 7, 2010, p. 18. Internet site: http://www.broward.org/Airport/Community/Documents/Boardworkshopdec10noground%20transportationwebversion.pdf)

19 The localizer line of sight is established per FAA Order 6750.16D *Siting Criteria for Instrument Landing Systems*. It requires that a clear line of sight must be provided from the localizer antenna signal array to the following heights above threshold: for CAT I approaches, 100' above landing threshold; for CAT II/III approaches, actual threshold crossing height (TCH). Per the BCAD studies, though the BCAD Project Definition Document (PDD) indicates only CAT I approaches will be accommodated, an actual threshold crossing height of 50' (standard TCH = 55',+/-5') was used

The FEIS runway profile proposed runway gradients of 0.6 percent on the west and 0.1 percent on the east, connected with a vertical curve that had a length of 750 feet.[20] As shown in Exhibit 3, *Base/Revised Profile Comparison—Expanded Runway 9R-27L,* the revised runway profile has a gradient of 1.31 percent immediately west of the "critical design point" (discussed below), a 0.0 percent grade on the runway's west end, and a 0.8 percent grade to the east of the critical design point. Both profiles meet the maximum allowable gradients and line of sight standards established by the FAA. However, as explained below, the revised runway profile has substantial advantages in earthwork and embankment requirements and improves airfield connectivity.

Critical Design Point and Runway 27L Runway End Elevation

The expansion of Runway 9R-27L requires the runway and taxiway system to cross over the existing FEC Railway and the U.S. Highway 1 corridors via an overpass bridge structure. The FEC Railway corridor has the greatest clearance requirements and is one of the main factors driving the elevation of the runway profile. Other factors contributing to the railway clearance requirements include the top of rail elevation, railway vertical clearance, bridge structure depths, and runway transverse gradient criteria.

In the FEIS, the elevation of the bottom of the bridge structure was determined based on a minimum allowable clearance of 23.5 feet over the railway (top of rail elevation). This top of rail elevation, bridge structure depth, and runway transverse gradient accounted for the Runway 27L end elevation of 45.42 AMSL described in the FEIS and identified on the 2008 Approved ALP.

The more detailed BCAD engineering and design studies established a minimum runway centerline elevation of 45.00 feet. This elevation is located where the FEC Railway corridor intersects with the south side of the runway bridge structure at the Runway Safety Area (RSA). This 45.00 foot elevation was determined in the BCAD studies as the "critical design point" which the revised profile must pass through in order to meet required FEC Railway corridor clearances on the east end of the runway (27L end). The longitudinal gradient for the east end of the runway is dependent on the surface grade and line of site standards. As the grade increases on the west side of the critical design point, the grade on the east side of the critical design point must also increase. This is to ensure the pilot's line of sight from any point located 5 feet above the runway centerline is unobstructed from any other point located 5 feet above the runway centerline for one-half the length of the runway. By maximizing the allowable gradient to 0.8 percent east of the critical design point, the runway gradient immediately west of the critical design point can

to conservatively evaluate the worst-case scenario. This analysis confirmed that satisfying the requirements for pilot's line of sight supersedes the localizer line of sight requirements for the longitudinal profile established for the proposed Runway 9R-27L. *Broward County Aviation Department Airport Expansion Program, Engineer's Report BP-1 60% Submittal for Consultant Design Services—Expansion of Runway 9R-27L*, Fort Lauderdale-Hollywood International Airport (FLL), RLI No: R0729109R1, FAA Project No.: 3-12-0025-062-2009. Prepared by PBS&J, dated: February 4, 2011. *Airport Design Criteria*, pp. G-1.

[20] *Fort Lauderdale-Hollywood International Airport Proposed Reconstruction/Extension of Runway 9R/27L Evaluation of Runway Length and Grade*, prepared by URS Corporation. February 2005.

be increased accordingly. These maximized grades minimize earthwork and embankment requirements while still maintaining the pilot's line of sight. As a result, the revised runway profile design establishes the Runway 27L end elevation at 64.9 AMSL on the 2011 Proposed ALP.

Runway 9R End Elevation

On the 2008 Approved ALP, the Runway 9R end elevation was established at 8 feet AMSL based on airfield connectivity and to enhance the drainage capability of the west end of the runway. The BCAD engineering and design studies determined that to avoid further potential impacts from anticipated seasonal high water and to improve airfield drainage the runway end elevation should be raised to 10 feet AMSL. The 10-foot runway end elevation is shown on the 2011 Proposed ALP.

Equivalent Runway Length

the FEIS identified a runway length of 8,000 feet for the south runway, and established that the physical runway length, excluding grade adjustments, should be as close to 8,000 feet in length as practicable, but not less than 6,000 feet.[21] The revised runway profile and gradient do not affect the physical runway length of 8,000 feet.

However, the Proposed Changes in the runway profile and gradient do affect aircraft payload capability due to the reduced acceleration of going "uphill" with aircraft takeoffs to the east. The refinement to the runway profile and associated change in gradient, which establishes a 64.9-foot runway end elevation for Runway 27L, will slightly improve payload/range performance for aircraft operating at FLL over the 45.42-foot runway end elevation identified in the FEIS.[22] The BCAD engineering studies documented that the revised runway profile results in an approximate equivalent runway length of 7,425 feet. This length is within the range established in the FEIS of between 6,000 and 8,000 feet.

Embankment and Earthwork Requirements

The refinements to the runway profile reduce the amount of embankment and earthwork required to construct the project and improve connectivity to the midfield area. The FEIS runway profile required elevated grade changes to the existing midfield area to in order to connect the existing taxiways to the proposed runway's elevation. As shown in Exhibit 3, *Base/Revised Profile Comparison—Expanded Runway 9R-27L,* the revised runway gradient was increased immediately west of the critical design point (to 1.31 percent slope) while still meeting FAA criteria.[23]

---

[21] *Final Environmental Impact Statement for the Development and Expansion of Runway 9R/27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport*, Broward County, Florida. U.S. Department of Transportation, Federal Aviation Administration, February 2008. Appendix D.3 *Airfield Geometric Requirements,* Section D.3.4.2 *Recommended Runway Length.*

[22] Broward County Aviation Department Aviation Planning Consultant Services – Final Report, *Validate Runway 9R/27L Length at Ft. Lauderdale-Hollywood International Airport (FLL)*. Prepared by Landrum & Brown, dated January 30, 2011.

[23] FAA Advisory Circular 15/5300-13A *Airport Design*, paragraphs 502 "Surface Gradient Standards" and 503 "Line of Sight Standards," a. Along Individual Runways.

The west end of the expanded runway remains close to existing grade (a 0.0 percent slope) for the longest possible distance, thereby reducing embankment and earthwork needed in this area. According to BCAD, embankment is estimated to be similar to the estimates in the FEIS; however, there could be some savings in fill by meeting more of the grade in the midfield area.[24]

Summary

Based on the information provided Section 1.3.1, the FAA determined that the revised effective runway gradient is not a substantial change and conforms to the Previously Approved Action.

1.3.2 Changes to Associated Taxiway System, Runway/Taxiway Bridge Structure, and Runway/Taxiway Shoulders

The FEIS analysis disclosed that the expanded Runway 9R-27L would expand and elevate Runway 9R-27L to an overall length of 8,000 feet and width of 150 feet, include a new full-length parallel taxiway on the north side of the expanded runway, and an outer dual parallel taxiway that would be north of the full-length parallel taxiway. This configuration was shown on the 2008 Approved ALP.

As shown on the 2011 Proposed ALP, there is no change to the length and width of the expanded runway. There is still a full-length parallel taxiway on the north side of Runway 9R-27L, and an outer dual parallel taxiway to the north of the full parallel taxiway. However, there are changes to the associated taxiway system, the runway/taxiway bridge structure, and the runway/taxiway shoulder widths.

A comparison of changes between the 2008 Approved ALP and the 2011 Proposed ALP for the associated taxiway system, the runway/taxiway bridge structure and the runway/taxiway shoulder widths is provided below.

Associated Taxiway System

- *Runway 27L Connector:*[25] This connector is located at the east end of Runway 27L and connects the full length parallel taxiway to the runway. The 2008 Approved ALP showed a single lane; the 2011 Proposed ALP shows a hold pad with triple lanes. The addition of these *hold pads* at each end of the full length parallel taxiway facilitates operational and emergency needs of the airport, the FAA Air Traffic Control Tower (ATCT), and FAA operations. The hold pads help to assure minimal delays in moving aircraft to the runway thresholds for departures and to the terminal complex for passenger deplaning. Hold pads also provide for emergency staging and re-routing of aircraft for emergency situations to ensure continued safe arrivals and departures of other aircraft.

[24] Email from Jamie McCluskie, Director of Planning and Development, Broward County Aviation Department, to Chris Babb, Landrum & Brown; cc: Virginia Lane, FAA Orlando Airports District Office, Suzie Kleymeyer, Landrum & Brown. Dated: April 19, 2011, 1:41 PM.

[25] A "connector" refers to a connecting taxiway; an "exit" refers to an exit taxiway.

- *East Exits, East-Flow*: These exit taxiways are located at the east end of Runway 27L and connect the full-length parallel taxiway to the runway. The 2008 Approved ALP showed two 90-degree exit taxiways; one located 500 feet from the runway end and one at the bridge structure. The 2011 Proposed ALP shows one 30-degree taxiway exit west of the bridge structure and another 45-degree taxiway exit east of the bridge structure at 3,200 feet and 1,730 feet from the runway end, respectively. The revised design of the *exit taxiways* for aircraft taxiing to the east will allow aircraft to exit at higher speed as compared to the 90-degree exits shown on the 2008 Approved ALP. The revised design will decrease aircraft runway occupancy time for landing operations when in east flow conditions, and will result in a more efficient system as well as enhancing runway safety. As explained below (*Full Parallel Taxiway East End Alignment and Separated Bridge Structure*), the new location for these taxiway exits also reduces the construction and maintenance cost of the roadway and structure system for U.S. Highway 1, the FEC Railway, and Perimeter Road.
- *Mid-Runway Connector*: The 2008 Approved ALP did not show this mid runway taxiway connector. The 2011 Proposed ALP shows a 90-degree taxiway connector approximately midpoint of the runway. This will allow aircraft to exit the runway at midpoint and improves runway efficiency.
- *West Exits, West-Flow*: These exit taxiways are located at the west end of Runway 9R and connect the full-length parallel taxiway and the outer dual parallel taxiway to the runway. The 2008 Approved ALP showed one 30-degree and one 90-degree taxiway exits. The 2011 Proposed ALP shows two 30-degree exits. Similar to the discussion provided in the *East Exits, East-Flow* bullet, these exits allow aircraft to exit the runway at higher speeds and reduce runway occupancy time.
- *Runway 9R Connector*: This connector is located at the west end of Runway 9R and connects the full length parallel taxiway and the outer dual parallel taxiway to the runway. The 2008 Approved ALP showed a single lane; the 2011 Proposed ALP shows a hold pad with triple lanes. As discussed above for the *Runway 27L Connector* bullet, hold pads facilitate operational and emergency needs of the airport.
- *Full Parallel Taxiway*: This new full-length parallel taxiway is located on the north side of Runway 9R-27L, and was identified on the 2008 Approved ALP as Taxiway H. Taxiway H is now identified on the 2011 Proposed ALP as Taxiway J. The 2008 Approved ALP showed a standard straight parallel taxiway separation of 400 feet. Due to the separation of the bridge structure in the revised design, the 2011 Proposed ALP shows an alignment over the bridge structures with a parallel separation of taxiway and runway of 600 feet. The remainder of the taxiway has a runway to taxiway separation of 400 feet. As discussed below in *Full Parallel Taxiway East End Alignment and Separated Bridge Structure*, the 600-foot separation is due to the Florida Department of Transportation (FDOT) requirements and National Fire Protection Association (NFPA) 502 guidelines.
- *Outer Dual Parallel Taxiway*: This outer dual parallel taxiway, identified on the 2008 Approved ALP as Taxiway G, is located to the north of the full parallel taxiway. Taxiway G is now identified as Taxiway H on the 2011 Proposed ALP.

The 2008 Approved ALP showed a configuration that provided for a taxiway from the terminal area apron to the Sheltair FBO apron located to the west. The revised design removes the connection from the taxiway north to the FBO apron and the taxiway stub-out that was extended to the west beyond the Runway 9R threshold. More detailed design studies indicated that the Sheltair facilities violated FAA Part 77 operational surfaces associated with the runway. This facility is currently being re-designed for access to the airfield system.

- *Cross-field Taxiway System*: The 2008 Approved ALP identified a dual cross-field taxiway system connecting the expanded runway with existing midfield taxiways and the terminal area apron. The 2011 Proposed ALP shows further separation of this dual cross-field taxiway system, and allows for a future south hold pad located mid-field. Additional connecting taxiways were added. Similar to the discussion provided in the *Runway 27L Connector* bullet above, this design improves airfield efficiency and safety, and will facilitate operational and emergency needs of the airport.

Runway/Taxiway Bridge Structure

- *Full Parallel Taxiway East End Alignment and Separated Bridge Structure*: The 2008 Approved ALP showed a minimum FAA standard 400-foot parallel separation for the full parallel taxiway from the runway centerline and a single large bridge/tunnel structure over U.S. Highway 1 and the FEC Railway. The new alignment separates the runway and taxiway resulting in two bridge structures rather than one single large bridge structure. The alignment, depicted in **Exhibit 4, *Expanded Runway End 27L (re-designated 28L) 2011 Proposed Airport Layout Plan***, will provide two high speed taxiway exits, improve operations at the hold pad, and separates the bridge structure into separate taxiway and runway bridge structures.

  As the full parallel taxiway approaches Perimeter Road, the FEC Railway, and U.S. Highway 1, the *alignment* shifts to the north from the minimum FAA standard 400-foot parallel separation from the runway centerline, to a 600-foot runway-taxiway parallel separation. This separation provides for the locations of the two exit taxiways as discussed above in *East Exits, East-Flow*. The 600-foot runway centerline to taxiway separation at the east end of Runway 9R-27L provides the required distance between the runway safety area and the taxiway safety area to separate the *bridge structure* into separate taxiway and runway structures. The separation of the bridge structure allows the structure lengths to be 800 feet or less in length and classified as a Category "A" tunnel per NFPA 502 guidelines.[26] According to BCAD, this new configuration significantly reduces the required life safety elements (monitoring, maintenance, and the associated costs) of the two bridge structures compared to the original length of the single structure identified on the 2008 Approved ALP of 1,200 feet in length.

[26] The National Fire Protection Association (NFPA) is responsible for instituting standards and codes for dealing with fire prevention. The NFPA 502 standards provide guidelines for road tunnels, bridges, and other limited access highways.

A 1,200-foot structure is classified as a Category "C" tunnel, per NFPA 502 guidelines.[27] A graphic representation of the revised bridge/tunnel structure is provided on **Exhibit 5, *Possible Design for Tunnel—Expanded Runway 9R-27L***.

Runway/Taxiway Shoulder Widths

- *Runway 9R/27L Shoulder Width*: The FEIS disclosed that the design airplane[28] for the expanded runway was an Airplane Design Group (ADG) IV aircraft, the B-767-400.[29] The 2008 Approved ALP depicted runway shoulder widths of 25 feet for the expanded runway in accordance with geometric requirements for ADG IV aircraft.[30] However, ADG V aircraft such as the B-777, the A-330, and the B-747, have operated at FLL using the north runway.[31] The north runway is constructed to ADG V standards.

  The FEIS noted that while ADG-V aircraft were not considered the design airplane,[32] the entire airfield should be configured to ADG-V standards to accommodate these aircraft without imposing operational restrictions on the airfield. Such restrictions would cause congestion on the airfield by controlling the activity on adjacent taxiways so that the more demanding aircraft wingspan could move as safely and efficiently as possible.

  BCAD requested that expanded Runway 9R-27L include runway shoulders and blast pads to accommodate ADG V aircraft. The construction of these runway elements at a later date would affect future airfield operations.[33]

---

27 Minimum fire protection and fire life safety requirements are based on tunnel length: Category "A" where tunnel length is 300 feet or greater; Category "B" where tunnel length equals or exceeds 800 feet; Category "C" where tunnel length equals or exceeds 1,000 feet.

28 Critical Design Airplanes - the listing of airplanes (or a single airplane) that results in the longest recommended runway length. The listed airplanes will be evaluated either individually or as a single-family grouping to obtain a recommended runway length. FAA Advisory Circular 150/5325-4B *Runway Length Requirements for Airport Design.* July 2005.

29 Much of the design of an airport is based on the types of aircraft that are anticipated to use the airport. FAA airport design standards are discussed in FAA Advisory Circular (AC) 150/5300-13A, "Airport Design."

30 The Airplane Design Group (ADG) is a grouping of airplanes based on wingspan or tail height. ADG IV aircraft have a wingspan of 118 feet or more but less than 171 feet. For example, the B767-400, an ADG IV aircraft, with a maximum aircraft takeoff weight of 450,000 pounds and a capacity of 245 to 375 passenger seats, has a wingspan of 170 feet

31 An ADG V aircraft has a wingspan of 171 or more but less than 214 feet and or tail height from 60 up to but not including 66 feet. For example, a B777-200, an ADG V aircraft, with a maximum aircraft takeoff weight of 506,000 pounds and a capacity of 305 to 440 passenger seats, has a wingspan of 200 feet.

32 FAA Advisory Circular 150/5325-4B *Runway Length Requirements for Airport Design.* July 2005. This AC notes that Federally funded projects require that critical design airplanes have at least 500 or more annual itinerant operations at the airport (landings and takeoffs are considered as separate operations) for an individual airplane or a family grouping of airplanes.

33 Broward County would prefer to construct all runway expansion improvements during the initial construction period to induce future cost savings and minimize future airfield disruption due to construction activities.

As shown in **Table 1, Runway/Taxiway Design Standard Differences for Runway 9R-27L – ADG IV and ADG V**, the geometric design standards for ADG IV and ADG V aircraft are generally the same. The only difference relative to the runway standards is the width of the paved runway shoulders and paved blast pad. For ADG V airplanes the runway shoulder width would increase by 10 feet and the runway blast pad would increase by 20 feet. The increase in runway blast pad length is superseded by the installation of 600 feet of EMAS on both runway ends. If the shoulder and blast pad changes are not constructed ADG V aircraft could still use the expanded runway, however the operating restrictions would apply.

The addition of wider paved runway shoulders and blast pads to accommodate ADG V aircraft on the expanded south runway results in a more efficient, balanced, and safer airfield system as operating restrictions would not be required.

- *Taxiway/Apron Shoulder Width:* Similar to the need to increase the runway shoulder widths by 10 feet to meet ADG V standards as discussed above, the associated taxiway and apron shoulder widths must also increase by 10 feet, from 25 to 35 feet. The remaining associated taxiway elements that would change to meet ADG V standards are not shown on an ALP. These elements include taxiway safety area width, taxiway object free area (OFA) width, taxilane OFA width, taxilane centerline to fixed or movable object, and taxilane wingtip clearance.

Table 1, *Runway/Taxiway Design Standard Differences for Runway 9R-27L—ADG IV and ADG V*, illustrates that generally the runway/taxiway design standards for ADG IV and ADG V are the same. The shaded rows depict where there are differences between ADG IV and ADG V standards.

Summary

Based on the information provided Section 1.3.2, the FAA determined that the changes to the associated taxiway system, runway/taxiway bridge structure, and runway/taxiway shoulder widths, do not constitute a substantial change and conforms to the Previously Approved Action.

Table 1
RUNWAY/TAXIWAY DESIGN STANDARD DIFFERENCES FOR RUNWAY 9R-27L – ADG IV AND ADG V[1]
Fort Lauderdale-Hollywood International Airport

Design Standards			Airport Layout Plan (ALP)	
DESIGN CRITERIA	**GROUP IV REQUIREMENT**	**GROUP V REQUIREMENT**	**APPROVED 2008 Approved ALP**	**2011 PROPOSED ALP**
Runway Width	150 feet	150 feet	ADG IV/V	Same
Runway Shoulder Width	25 feet	35 feet	ADG IV	ADG V
Runway Blast Pad Width	200 feet	220 feet	ADG IV	ADG V
Runway Blast Pad Length	200 feet	400 feet	EMAS	Same[2]
Runway Safety Area Width	500 feet	500 feet	ADG IV/V	Same
Runway Safety Area Length	1,000 feet	1,000 feet	ADG IV/V	Same
Runway Object Free Area Width	800 feet	800 feet	ADG IV/V	Same
Runway Object Free Area Length	1,000 feet	1,000 feet	ADG IV/V	Same
Runway/Taxiway Separation	400 feet	400 feet	ADG IV/V	Same[3]
Taxiway/Taxiway Separation	215 feet	267 feet	ADG V	Same[4]
Taxiway Width	75 feet	75 feet	ADG IV/V	Same
Taxiway/Apron Shoulder Width	25 feet	35 feet	ADG IV	ADG V
Taxiway Safety Area Width	171 feet	214 feet	Not shown on ALP	---
Taxiway Object Free Area Width	259 feet	320 feet	Not shown on ALP	---
Taxiway Centerline Turning Radius	150 feet	150 feet	Not shown on ALP	Same
Taxiway Edge Safety Margin	15 feet	15 feet	Not shown on ALP	Same
Taxilane Object Free Area Width	225 feet	276 feet	Not shown on ALP	---
Taxilane Centerline to Fixed or Movable Object	112.5 feet	138 feet	Not shown on ALP	---
Taxilane Wingtip Clearance	27 feet	31 Feet	Not shown on ALP	---

[1] FAA Advisory Circular (AC) 150-5300-13, *Airport Design*. Table 3-3. Runway design standards for aircraft approach categories C & D; Table 4-1. Taxiway dimensional standards; Table 4-2. Taxiway fillet dimensions; and Table 4-3. Wingtip clearance standards.

[2] The runway blast pad length, per AC 150-5300-13, is superseded by the installation of 600 feet of Engineered Materials Arresting Systems (EMAS) on both runway ends. Source: FAA Advisory Circular 150/5220-22A, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*.

[3] The runway centerline to full parallel taxiway separation is 400 feet, except at the east end of Runway 9R-27 L where the separation is increased to 600 feet to accommodate separation of the runway and taxiway bridge structures.

[4] The separation between the new full length parallel taxiway and the outer dual taxiway was shown as 267 feet on the 2008 Approved ALP.

Source: FAA Advisory Circular 150-5300-13, *Airport Design*

Landrum & Brown Memorandum to Virginia Lane, FAA Orlando Airports District Office, from Tom Cornell, Re: *Assessment of Changes in FLL Runway 10L/28R Design from ADG IV to ADG V*. Dated: April 15, 2011/revised June 8, 2011.

1.3.3 Change in NAVAID Facilities / Approach Light System (ALS) for Runway 9R-27L

The FEIS identified a approach light system for Runway 9R-27L that includes a 2,400 foot Medium Intensity Approach Light System (ALS) with runway alignment indicator lights (MALSR), localizer, and glideslope for the Runway 9R end and a 1,400 foot MALS for the Runway 27L end.[34] Based on consultation with the FAA,[35] the approach light system for Runway 9R-27L has been changed to a 1,400 foot Medium-intensity Approach Lighting System with sequenced flashing lights (MALSF).[36] This lighting system, which meets FAA standards, will provide equivalent approach visibility minimums to Runway 9L-27R, and improves pilot recognition of the ALS when there are distracting lights in the airport vicinity. Additionally, the MALSF system has a smaller footprint requiring less land area than a MALSR. Use of the MALSF on the Runway 9R end (the west end) removes light pole obstructions from the Dania Cut-Off Canal.

Summary

Based on the information provided Section 1.3.3, the FAA determined that the change in NAVAID facilities–approach light system does not constitute a substantial change and conforms to the Previously Approved Action.

[34] *Final Environmental Impact Statement for the Development and Expansion of Runway 9R/27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport*, Broward County, Florida. U.S. Department of Transportation, Federal Aviation Administration, February 2008. Chapter Two, *The Proposal*, Section 2.0, *Airport Sponsor's Proposed Project.*

[35] FAA National Airspace System Planning & Integration Team and the FAA Air Traffic Organization Eastern Service Center.

[36] According to FAA AC 150/5300-13, a MALSF is a medium intensity ALS identical to a MALS except that sequenced flashing lights are added to the outer three light bars. The sequenced flashing lights improve pilot recognition of the ALS when there are distracting lights in the airport vicinity.

2.0 AFFECTED ENVIRONMENT

The FEIS *Affected Environment* chapter provided a description of the existing environmental conditions in and around the vicinity of FLL. The FAA has determined the data collected for the FEIS baseline is still relevant and reasonably representative of existing conditions at the time of this Written Re-Evaluation because conditions have not changed substantially in and around the vicinity of FLL.

2.1 Study Areas

The two study areas defined in the FEIS are used for this Written Re-evaluation analysis. The Study Area (*see* **Exhibit 6, *Previously Approved Action—Study Area***) as described in the FEIS covers a broad area based on a composite of the projected future 60 Day-Night Average Sound Level (DNL) noise contours obtained from previous airport studies. The Detailed Study Area (*see* **Exhibit 7, *Previously Approved Action—Detailed Study Area***), while smaller in scale, includes the entire airport property, which encompasses the limits of disturbance shown on **Exhibit 8, *Previously Approved Action—Limits of Disturbance*** (which is Exhibit 6.H.5-1 in the FEIS).

In the FAA's ROD, the expanded runway was anticipated to be completed in the 2012 to 2014 timeframe. As of the date of this Written Re-evaluation, the opening year for the expanded runway is 2014, which is within the range identified in the FAA ROD. The FEIS analyses of future-year conditions were 2012 and 2020, which remain valid.

2.2 FAA Terminal Area Forecast

Under 49 USC 47101(a)(7), the FAA is charged with carrying out a policy ensuring "that airport construction and improvement projects that increase the capacity of facilities to accommodate passenger and cargo traffic be undertaken to the maximum feasible extent so that safety and efficiency increase and delays decrease."[37] The FAA, through the independent analyses provided in the FEIS, determined that the existing airfield infrastructure lacks sufficient capacity[38] to accommodate existing and forecast air carrier demand at a level of delay established for FLL in the FEIS.[39] The delay threshold used in the EIS to define acceptable levels of delay at FLL is six minutes per operation.[40] As discussed in the FEIS, at six minutes of delay the FLL capacity with the existing airfield is estimated to be 310,000 total annual operations. The FAA's most recent Terminal Area Forecast (2010 TAF) for FLL shows that this level of operation will be exceeded in

---

[37] 49 U.S.C. 47101(a)(7). Title 49 Transportation. SUBTITLE VII—AVIATION PROGRAMS PART B—AIRPORT DEVELOPMENT AND NOISE CHAPTER 471—AIRPORT DEVELOPMENT SUBCHAPTER I-AIRPORT IMPROVEMENT § 47101.

[38] As stated in FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*, capacity (throughput capacity) is a measure of the maximum number of aircraft operations that can be accommodated on the airport or airport component in an hour.

[39] An established delay threshold is typically around four to six minutes of average delay per operation based on data contained in the FAA National Plan of Integrated Airport Systems (NPIAS) (2007-2011).

[40] The threshold used in the FEIS to define acceptable levels of delay at FLL is six minutes per operation. *See* the FEIS, Chapter Three, *Purpose and Need*, Section 3.3.1.3, *Level of Delay*.

2013, with 311,716 total operations.[41] (*See* Appendix C, *Supplemental Information*, TAF Comparison FLL 2010 v 2006.) Per the FAA 2010 TAF, FLL is forecast to have 284,637 total operations in 2011.

FAA's review of the most recent FLL aviation forecast provided in the 2010 FAA Terminal Area Forecast (2010 TAF) indicates that operations will continue to increase for the period 2010 through 2030 (*see* **Table 2a, *Summary of FAA Terminal Area Forecasts—Enplaned Passengers*** and **Table 2b, *Summary of FAA Terminal Area Forecasts—Air Carrier Operations***). The continued projected growth in enplaned passengers (and consequently, air carrier operations) demonstrates that the need to provide sufficient airfield capacity to accommodate existing and forecast air carrier demand remains valid.

The 2006 FAA TAF was used in the 2008 FEIS analysis. The FAA reviewed the 2010 FAA TAF to determine the variance between the 2006 TAF and 2010 TAF projections for the analysis years in the FEIS (2012 and 2020). A copy of the FAA's 2010 TAF is provided in Appendix C, *Supplemental Information*. For 2012, the 2006 TAF forecasted 341,877 total operations while the 2010 TAF forecasts 298,791 total operations (a decrease of 13 percent). However, air carrier forecasts remained substantially the same, with a decrease of only 1 percent. For 2012, the 2006 TAF forecast 209,315 air carrier operations compared with the 2010 TAF forecast of 207,172 air carrier operations.

For 2020, the 2006 TAF forecasted 408,536 total operations while the 2010 TAF forecasts 375,709 total operations (a decrease of 8 percent). Again, the air carrier operations remain substantially the same, with an increase of 2 percent. The 2006 TAF forecasts 257,027 air carrier operations in 2012 compared with the 2010 TAF forecast of 261,126 air carrier operations.

The FAA standard for determining projected forecast consistency defines acceptable as when a forecast is within 10 percent for the five-year projection and 15 percent for the 10-year projection.[42] While the variance (13 percent) in total operations for 2012 is greater than the 10 percent consistency standard for the five-year projection, the variance is within 10 percent by the anticipated opening year of the runway, 2014. The variance in total operations for 2020 (8 percent) is well within the 15 percent consistency standard.

Furthermore, the forecasted air carrier operations are within 1 percent for the 2012 projection and within 2 percent for the year 2020 forecast projections. As noted in the FEIS, the need for sufficient airfield capacity was based on accommodating existing and projected air carrier demand.

The aviation forecasts shown in Table 2a for passenger enplanements and in Table 2b for air carrier operations depict a pattern of growth along the same trend line as the FAA 2006 TAF. Therefore, the FEIS projection of future conditions at FLL will continue to trend in the same manner as assessed in the FEIS.

---

[41] The FAA's Terminal Area Forecast (TAF) system is the official forecast of aviation activity at FAA facilities. FAA's most recent TAF was published in December 2010 and the FLL TAF summary report is provided in Appendix C, *Supplemental Information*.

[42] FAA Order 5100.38C *Airport Improvement Program Handbook*, paragraph 428.a. Aviation Forecasting. June 2005.

Table 2a
SUMMARY OF FAA TERMINAL AREA FORECASTS—ENPLANED PASSENGERS
Fort Lauderdale-Hollywood International Airport

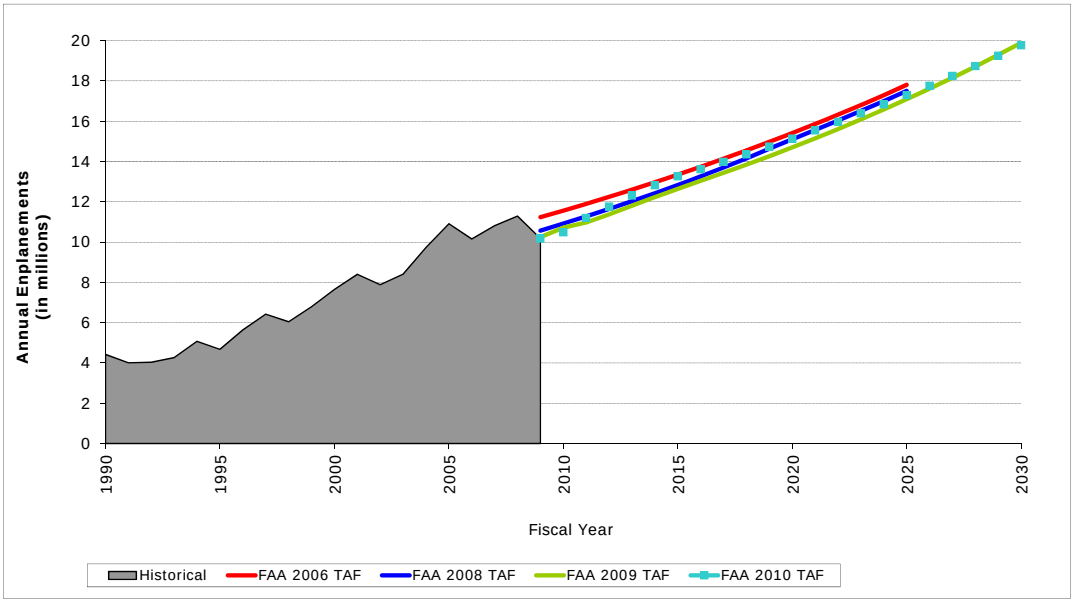
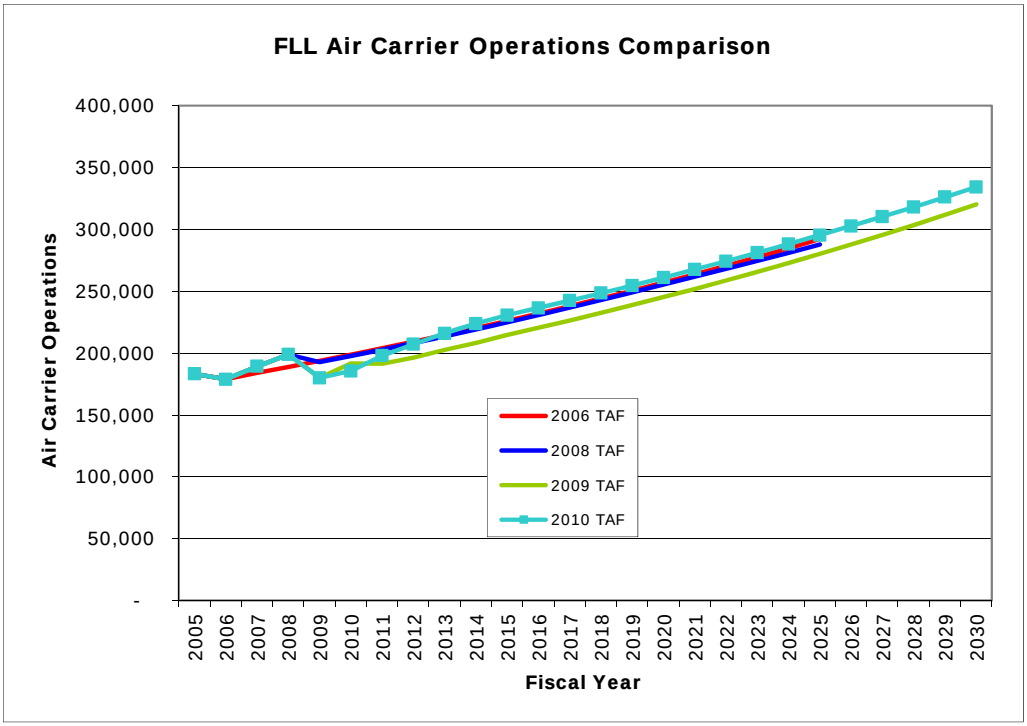


Table 2b
SUMMARY OF FAA TERMINAL AREA FORECASTS—AIR CARRIER OPERATIONS
Fort Lauderdale-Hollywood International Airport



Source: *FAA Terminal Area Forecast Summary–Fiscal Years 2010-2030*, (HQ111208), FAA Forecast and Performance Analysis Division, Office of Aviation Policy and Plans. Landrum & Brown, 2011.

THIS PAGE INTENTIONALLY LEFT BLANK

3.0 ENVIRONMENTAL CONSEQUENCES

Pursuant to the requirements of FAA Orders 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions,* and 1050.1E, *Environmental Impacts*, *Policies and Procedures*, the FAA has reviewed the environmental consequences of the Proposed Changes to the Previously Approved Action to determine if the data and the analysis in the FEIS are still substantially valid, and to determine whether there are any new significant circumstances or information from those disclosed in the FEIS requiring additional NEPA analysis. This Written Re-evaluation also determines whether pertinent conditions and requirements of the prior approval have, or will be, met with the Proposed Changes to the Previously Approved Action.

The FEIS environmental analysis included the following environmental resource categories:

- Air Quality
- Coastal Resources
- Compatible Land Use
- Construction Impacts
- Department of Transportation Act Section 303(c) (Formerly Section 4(f) Resources)
- Farmlands
- Fish, Wildlife, and Plants
- Floodplains
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Historical, Architectural, Archaeological, and Cultural Resources
- Light Emissions and Visual Impacts
- Natural Resources and Energy Supply
- Noise
- Secondary (Induced) Impacts
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
- Water Quality
- Wetlands
- Wild and Scenic Rivers

3.1 Environmental Categories Where No Changes Occur

Based on the FAA's review, there is no change in environmental impacts associated with the Proposed Changes to the Previously Approved Action for the resource categories listed below. The study areas and the limits of disturbance are the same as in the FEIS and the types of construction and development are similar in type and character to those for the Previously Approved Action.

Department of Transportation Act Section 303(c) (Formerly Section 4(f) Resources)

There would be no direct or constructive use of any publicly-owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance; or land from an historic site of national, State, or local significance, as a result of the Proposed Changes. The Proposed Changes are related to airfield design, and construction would not exceed the limits of disturbance assessed in the FEIS. The FEIS identified that the Previously Approved Action would have a temporary construction impact to West Lake Park, which is a Section 4(f) resource, in the event that a temporary slurry pipe is used to transport dredge material from

Port Everglades to FLL. The Proposed Changes would not affect these temporary construction impacts. BCAD is in the process of finalizing the type and source of fill material. *Therefore, no change in environmental impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid.*

Farmlands

The FEIS disclosed there was no prime farmland, unique farmland or farmland of state or local importance within the FEIS study areas. This resource impact category was determined in the FEIS to be neither applicable nor pertinent to the proposal. *Therefore, no change in environmental impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid.*

Hazardous Materials, Pollution Prevention, and Solid Waste

The effect on the storage, release, and generation of hazardous wastes; existing petroleum-impacted sites and LUSTs; and fuel storage tanks and fuel facilities would be the same with the Proposed Changes as with the Previously Approved Action. The Proposed Changes are related to airfield design, and construction would not exceed the limits of disturbance assessed in the FEIS. *Therefore, no change in environmental impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid.*

Historical, Architectural, Archaeological, and Cultural Resources

There would be no effect on any properties either listed or eligible to be listed on the National Register of Historic Places as a result of implementation of the Previously Approved Action. The effect on these resources would be the same with the Proposed Changes because the Proposed Changes are related to airfield design, and construction would not exceed the limits of disturbance assessed in the FEIS. *Therefore, no change in environmental impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid.*

Secondary (Induced) Impacts

The FEIS disclosed there would be beneficial economic impacts to the local community as a result of job creation and increased earnings and no impact to public services. Surface traffic impacts and road closures disclosed in the FEIS for the Previously Approved Action are the same with the Proposed Changes.[43] The Proposed Changes are related to airfield design and there would be no changes associated with economic impacts, public services, and surface traffic impacts.

[43] However, Taylor Road was identified as being closed on the 2008 Approved ALP. The 2011 Proposed ALP shows Taylor Road still being closed, however a portion of Taylor Road east of U.S. Highway 1 would be extended as N.E. 10th Street and connect to NE 7th Avenue. This project occurs off airport property. *See* Appendix B, *Changes to ALP Sheets 2, 3, and 4*.

Therefore, no change in environmental impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid.

Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

The FEIS disclosed that no significant socioeconomic impacts would occur with the Previously Approved Action; no disproportionality high and adverse impacts would occur to minority or low income populations with the Previously Approved Action; and there would be no release of or exposure to significant levels of harmful agents in the water, air, or soil that would affect children's health or safety. The Proposed Changes are related to airfield design, and construction would not exceed the limits of disturbance assessed in the FEIS. *Therefore, no change in environmental impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid.*

Wild and Scenic Rivers

The FEIS disclosed that no wild and scenic rivers, as designated by the U.S. Department of the Interior, National Park Service, are located in the vicinity of FLL. This resource impact category was determined in the FEIS to be neither applicable nor pertinent to the proposal. The same is true for the Proposed Changes. *Therefore, no change in environmental impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid.*

3.2 Environmental Categories Where a Change in Impacts May Occur

The resource categories where environmental consequences could potentially differ from those disclosed in the FEIS are addressed below.

3.2.1 Air Quality

Broward County is within the Southeast Florida Intrastate Air Quality Control Region.[44] Broward County is considered attainment for all the Federally-regulated standards. These would include the standards for emissions of carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. The County is still considered included in an ozone maintenance area.

A NAAQS assessment was completed for the Previously Approved Action. The FEIS analysis demonstrated a projected decrease in emissions with the Previously Approved Action as compared to the No Action Alternative. Emissions due to the Previously Approved Action would not cause a new violation of the NAAQS, or increase the severity or frequency of an existing NAAQS violation and would comply

[44] U.S. Environmental Protection Agency, 40 CFR Part 81, Section 81.49, *Southeast Florida Intrastate Air Quality Control Region*, July 1, 2006.

with 40 CFR Part 93.158 (b)(2), "The areawide and/or local air quality modeling analyses must show that the action does not: (i) Cause or contribute to any new violation of any standard in any area; or (ii) Increase the frequency or severity of any existing violation of any standard in any area." The results of the comparative analyses and evaluations support the conclusion that the construction and implementation of the Previously Approved Action would not have the potential to cause significant adverse air quality impacts in Broward County.

As provided in the FEIS, an increase in net emissions would occur only during the construction years prior to implementation of the Previously Approved Action. Annual net emissions for the years of construction and during implementation were shown to be *de minimis*. The construction of the Previously Approved Action with the Proposed Changes would be similar to that assessed in the FEIS. This includes the change in runway end elevation, the runway/taxiway bridge structure, and the increase in runway/taxiway shoulder width. The types of construction vehicles, duration of use, and construction activities are similar in type and character to those for the Previously Approved Action. In addition, the study areas and the limits of disturbance are the same as in the FEIS.

Construction activities may still 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 affect 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; however, these conditions would occur with or without the Proposed Changes.

According to BCAD, embankment is estimated to be similar to the estimates in the FEIS; however, there could be some savings in fill by meeting more of the grade in the midfield area.[45]

As noted in Section 1.3.2, the associated taxiway changes would reduce runway occupancy times thus creating a more efficient taxiway system. This improves aircraft ground circulation resulting in less emissions. These negligible changes would not significantly change the environmental impacts analyzed in the FEIS and would not result in a violation of NAAQS or Conformity standards.

The FAA determined in the ROD that the Previously Approved Action conforms to the State Implementation Plan for all criteria pollutants including the ozone standard. The Proposed Changes to the runway and associated taxiway system are designed to provide a more efficient airfield.

[45] Email from Jamie McCluskie, Director of Planning and Development, Broward County Aviation Department, to Chris Babb, Landrum & Brown; cc: Virginia Lane, FAA Orlando Airports District Office, Suzie Kleymeyer, Landrum & Brown. Dated: April 19, 2011, 1:41 PM.

The FAA would still require Broward County to conduct construction activities in accordance with the provisions of FAA Advisory Circular 150/5370-10B, *Standards for Specifying Airport Construction of Airports*, Change 13. BMPs would be incorporated to minimize fugitive dust impacts and other impacts resulting from construction activities.

Therefore, only minor changes in environmental impacts with respect to air quality would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid, and the Proposed Changes to the Previously Approve Action would comply with all Federal and state air quality regulations and guidelines and would not have the potential to cause significant adverse air quality impacts in Broward County.

3.2.2 Coastal Resources[46]

As disclosed in the FAA's ROD, the Florida Department of Environmental Protection (FDEP) issued a preliminary determination that the FAA's Preferred Alternative is consistent with the policies of the Florida Coastal Management Program (FCMP). The state's issuance of the necessary resource permits to Broward County as airport sponsor will serve as the final finding of consistency with the FCMP. Broward County has applied for an Environmental Resource Permit (ERP) from the South Florida Water Management District (SFWMD), and all conditions of this permit when issued will be met by Broward County.

Therefore, no substantial changes in environmental impacts with respect to coastal resources would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid and all mitigation requirements that were conditions of the prior approval have, or will be, met by Broward County. The Proposed Changes to the Previously Approved Action would not result in any changes to the FEIS conclusions regarding coastal resources.

3.2.3 Compatible Land Use

The FEIS disclosed that with the Previously Approved Action, there would be direct impacts to compatible land uses but not to incompatible land uses.[47] Direct impacts would be due to the full or partial acquisition of the Hilton Fort Lauderdale Airport Hotel and the Dania Boat Sales properties. The Proposed Changes are related to

[46] The FEIS disclosed that there were no direct impacts to coastal barrier resources or coral reefs with the Previously Approved Action. The Proposed Changes are related to airfield design, and construction would not exceed the limits of disturbance assessed in the FEIS.

[47] The definition of compatible and incompatible land uses are provided in 14 CFR Part 150—*Airport Noise Compatibility Planning*. All land uses are normally considered compatible with airport operations below 65 decibel (dB) day-night average sound level (DNL) (14 CFR Part 150, Appendix A). Incompatible land uses include the following land use types that are located in areas with noise exposure levels above 65 dB DNL sound level and include all residential uses; institutional uses involving churches, schools, hospitals, nursing homes, and libraries; and recreational uses involving outdoor artistic or instructional venues such as amphitheaters. Most other types of recreational activities become incompatible land uses at, and above, the 75 dB DNL. Most commercial, industrial, and agricultural uses are considered compatible at, and above, 75 dB DNL.

on-airport airfield design, and construction that would not exceed the limits of disturbance assessed in the FEIS. Therefore, there is no change in direct impacts related to compatible land use as a result of the Proposed Changes. Regarding incompatible land use, as discussed below in Section 3.2.9 Noise, because there is no substantial change in noise impacts, there is also no substantial change in impacts related to incompatible existing and planned land uses in the vicinity of the airport.

Therefore, no substantial changes in land use impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid and all mitigation requirements that were conditions of the prior approval have, or will be, met. The Proposed Changes to the Previously Approved Action would not result in any changes to the FEIS conclusions regarding compatible land use impacts.

3.2.4 Construction Impacts

Construction impacts associated with the Proposed Changes would occur within the limits of disturbance disclosed in the FEIS. Embankment (fill) requirements are similar to or less than what was disclosed in the FEIS.

Due to a change in the NAVAID facility for the Runway 9R-27L approach light system, there are minor changes in the construction impacts from what was disclosed in the FEIS. The FEIS disclosed a MALSR[48] with a light lane 2,400 feet in length on the 9R runway end and a MALS[49] on the 27L end with a 1,400 light lane; the BCAD engineering and design study identified a MALSF[50] that has a light lane 1,400 feet in length for both runway ends. Installation of the MALSF on the Runway 9R end will avoid impacts to the Dania Cut-Off Canal.

Portions of two stormwater ponds (GB Pond West and GB Pond East) located near the Runway 9R end on the west side of the airport and within the existing Airport Greenbelt are now proposed to be filled because they are located in the glideslope critical area.

Embankment is expected to be similar to the estimates in the FEIS; however, there could be some savings in fill by meeting more of the grade in the midfield area.[51] (*See* Section 1.3.2, *Changes to Runway/Associated Taxiway System and Runway/Taxiway Bridge Structure*.)

Therefore, no substantial changes in environmental impacts with respect to construction impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid. The Proposed Changes to the Previously Approved Action would not result in any changes to the FEIS conclusions regarding construction impacts.

---

[48] MALSR: Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights.
[49] MALS: Medium-Intensity Approach Lighting System.
[50] MALSF: Medium-intensity Approach Lighting System with Sequenced Flashing lights.
[51] Email from Jamie McCluskie, Director of Planning and Development, Broward County Aviation Department, to Chris Babb, Landrum & Brown; cc: Virginia Lane, FAA Orlando Airports District Office, Suzie Kleymeyer, Landrum & Brown. Dated: April 19, 2011, 1:41 PM.

3.2.5 Fish, Wildlife, and Plants – Direct Effects / Secondary Effects

The FAA consulted with the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) during the development of the FEIS for the project's potential impacts on federally listed species. There are no designated critical habitats within the Study Area. The FAA determined that the Previously Approved Action would have "No Effect" on Federally Listed species described in the FEIS, except for the smalltooth sawfish, West Indian manatee, and the wood stork, for which a determination of "May Affect-But Is Not Likely to Adversely Affect." The FWS and the NMFS concurred with the FAA's determinations, in January 2008 and March 2008, respectively.[52]

In the FEIS, the FAA made a "no effect" determination on the Eastern Indigo Snake due to the urban character of the Detailed Study Area. In response to the Airport Sponsor's application for a U.S. Army Corps of Engineers (USACE) Section 404 permit for impacts to wetlands, the USACE consulted with the FWS regarding potential effects to the Eastern Indigo Snake. The USACE determined that the project "May Affect–But Is Not Likely to Adversely Affect" the Eastern Indigo Snake. The FWS concurred with the USACE determination in January 2010.[53] The USACE has noted that the special conditions required by the consultations will be included in any permit issued by the USACE for the project. Because the Proposed Changes as depicted on the 2011 Proposed ALP will not encroach on any area outside of the limits of disturbance disclosed in the FEIS, there is no change to these determinations.

Based on consultation with Florida state agencies, the FAA also determined that the Previously Approved Action is "not likely to affect" the Florida Burrowing Owl, and there would be no effect to 16 listed wildlife species and 35 state-listed plant species that could potentially occur in the Study Area. Because the Proposed Changes as depicted on the 2011 Proposed ALP will not encroach on any area outside of the limits of disturbance disclosed in the FEIS, there is no change to these determinations.

The FEIS consulted with the NMFS during the FEIS for the project's potential impacts to Essential Fish Habitat (EFH) and determined that the Previously Approved Action would have no significant effects to EFH. In a letter to the FAA in July 2008, NMFS noted that they expected to resolve issues related to the

---

[52] West Indian manatee and the wood stork: Letter from Paul Souza, Field Supervisor, South Florida Ecological Services Office, U.S. Fish and Wildlife Service; to Virginia Lane, FAA Orlando Airports District Office. Dated: January 31, 2008. *See* the 2008 FEIS, Appendix M *Biological Natural Resources*, sub appendix M.1 *Fish and Wildlife*.

Smalltooth sawfish: Letter from Roy E. Crabtree, Ph.D., Regional Administrator, National Marine Fisheries Service; to Virginia Lane, FAA Orlando Airports District Office. Dated: March 24, 2008. *See* the 2008 FEIS, Appendix M *Biological Natural Resources*, sub appendix M.1 *Fish and Wildlife.*

[53] Jacksonville District Corps of Engineers, Regulatory Division, Palm Beach Gardens Section, PUBLIC NOTICE, dated March 1, 2011. Permit Application No. SAJ-1995-04561 (IP-MJW) – Section 404 of the Clean Water Act (33 U.S.C §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403).

compensatory mitigation plan and associated monitoring through the EFH consultation with the USACE during the Section 404 permit process.[54]

As a result of the initiation of the Section 404 permit process by BCAD, and coordination between the USACE and the NMFS in accordance with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act 1996, the USACE has made an initial determination that the project would have a substantial adverse impact on EFH or Federally managed fisheries in the South Atlantic Region. The USACE has informed the FAA that this initial determination by the USACE was made because the project will affect mangrove habitat. (It was disclosed in the FEIS that the project would affect mangrove habitat.[55]) Per the USACE Public Notices dated March 1, 2011 and May 31 2011, the USACE final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.[56]

In response to the March 1, 2011 USACE Public Notice, the NMFS noted that the EFH Assessment prepared by the FAA adequately describes the EFH in the runway expansion area and potential effects to fishery resources from the project and these descriptions do not require amendment; however they noted that additional information is needed on the impacts associated with the Navigation Aids. They also note that based on the new information provided in the USACE public notice, clarification on impact amounts is needed because direct impacts to mangrove wetlands appears to have increased. The NMFS requested that the USACE provide additional information regarding proposed mitigation at West Lake Park for impacts to mangrove wetlands resulting from project construction. (*See* the discussion of mitigation credits in Section 3.2.10 *Wetlands*.)[57]

Per the USACE May 31, 2011 Public Notice, consultation is continuing with the National Marine Fisheries Service on EFH. The proposed project is identified as impacting approximately 3.94 acres of tidally influenced and/or mangrove wetlands interspersed with exotic vegetation. This acreage includes the mangroves consulted on through the FAA's FEIS (3.05 acres) and the addition of the mangroves impacted by the eastern Navigation Aids (0.74 acres), mangroves impacted in the greenbelt ponds (0.12 acres), and the western Navigation Aids (0.03). The applicant (Broward County) proposes mitigation at West Lake Park to replace habitat loss and

---

54 Letter to Virginia Lane, FAA Orlando Airports District Office; from Paul Weller for Miles M. Croom, Assistant Regional Administrator, Habitat Conservation Division, National Marine Fisheries Service, RE: F/SER4:JK/pw. Dated: July 25, 2008.

55 Telephone call: Virginia Lane, FAA Orlando Airports District Office, and Melody White, U.S. Army Corps of Engineers, April 20, 2011.

56 Jacksonville District Corps of Engineers, Regulatory Division, Palm Beach Gardens Section, PUBLIC NOTICE, dated March 1, 2011. Permit Application No. SAJ-1995-04561 (IP-MJW) – Section 404 of the Clean Water Act (33 U.S.C §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403); Jacksonville District Corps of Engineers, Regulatory Division, Palm Beach Gardens Section, PUBLIC NOTICE, dated May 31, 2011. Permit Application No. SAJ-1995-04561 (IP-MJW) – Section 404 of the Clean Water Act (33 U.S.C §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403)

57 Wetlands: Letter from Miles M. Croom, Assistant Regional Administrator, Habitat Conservation Division; to Colonel Paul L. Grosskruger, District Engineer, Jacksonville District, Department of the Army Corps of Engineers, Jacksonville Regulatory Office, South Permits Branch. Dated: March 30, 2011.

ecological productivity at the proposed project site. As noted above, the USACE's initial determination is that the proposed action would have a substantial adverse impact on EFH or Federally managed fisheries in the South Atlantic Region. The USACE's final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS. The USACE continues EFH coordination with NMFS and expects all issues to be resolved.[58]

With regards to Listed Species, while there is a change in impacts there is no change to the "Effect" determinations as disclosed in the FEIS with the Proposed Changes to the Previously Approved Action, for potential impacts to Federal or state listed species. Data and analysis contained in the FEIS remains substantially valid and the Proposed Changes combined with the Previously Approved Action would not result in any changes to the FEIS conclusions regarding Federal or state listed species.

With regards to EFH, impacts to tidally influenced and/or mangrove wetlands has increased (0.89 acres).As noted in the USACE Public Notices dated March 1 and May 31, 2011, because the proposed project will impact mangrove habitat, the USACE has made an initial determination that the project would have a substantial adverse impact on EFH. FAA has conferred with the USACE regarding this initial determination, and defers to the USACE in the finalization of compensatory mitigation for impacts to EFH and the Magnuson-Stevens Fishery Conservation and Management Act 1996. Broward County has proposed mitigation at West Lake Park to replace habitat loss and ecological productivity at the proposed project site. While a final determination regarding mitigation and permitting will not be made by the USACE until they complete the required regulatory evaluation and public interest review of the project, based on the information provided it appears that the mitigation proposed is both appropriate and sufficient to address project impacts, including impacts to EFH. The USACE continues EFH coordination with NMFS and expects all issues to be resolved. Data and analysis contained in the FEIS remains substantially valid.

All mitigation measures identified in the FAA's ROD, Section 4.4 "Identification of Wetlands and Consideration of Executive Order 11990, Protection of Wetlands," and Section 8, "Conditions of Approval," will be met by the Airport Sponsor. Therefore, there is no substantial change with regards to the 2008 FEIS conclusions regarding impacts to EFH.

3.2.6 Floodplains

The FAA determined in the ROD that the Previously Approved Project would not result in a significant encroachment on a floodplain as defined in DOT Order 5650.2, Floodplain Management and Protection which implements Executive Order 11998, Floodplain Management. This determination was based on analysis contained in the FEIS.

[58] Email to Virginia Lane, FAA Orlando District Office, from Leah Oberlin, Chief, Palm Beach Gardens Section, Jacksonville District, USACE. Dated: July 13, 2011.

The FAA will ensure through special grant conditions that the Airport Sponsor's final design for the Previously Approved Action with the Proposed Changes minimizes potential harm to or within the base floodplain. The Previously Approved Action with the Proposed Changes will conform to applicable state and local floodplain protection standards. The Proposed Changes would not affect the FAA's determination because they are related to airfield design, and construction would not exceed the limits of disturbance assessed in the FEIS.

Additionally, the Proposed Changes in runway elevation, specifically on the west end (Runway 9R) to 10 feet AMSL, will provide capability for the runway pavement to drain more efficiently during periods of seasonal high water. Runway drainage flow is important to minimize tire hydroplaning potential and maintain adequate aircraft ground operational safety.

There would be no change in the FAA's determination that the Previously Approved Project would not result in a significant encroachment on a floodplain. Data and analysis contained in the FEIS remain substantially valid. The Proposed Changes to the Previously Approved Action would not result in any changes to the 2008 FEIS conclusions regarding impacts to floodplains.

3.2.7 Light Emissions and Visual Effects

There are no Federal statutory or regulatory requirements for adverse effects due to light emissions or visual impacts. State, regional, or local requirements may apply to airport-related light emissions or visual effects. However, FAA encourages local sponsors to consider the effects of projects with regard to light emissions and visual effects. The runway approach light system for the Previously Approved Action was a Medium-Intensity Approach Light System (MALS) with Runway End Identifier Lights (REIL) on Runway 9R (referred to as a MALSR); Runway 27L would be equipped with a shorter MALS. The FEIS disclosed that no light emissions from either the MALSR or MALS would impact any existing residential areas. A MALSR is typically 2,400 feet in length and a MALS is 1,400 feet in length.

The Proposed Change to the runway approach light system for Runway 9R-27L is from a MALSR/MALS to a MALSF. MALSF is a medium intensity approach lighting system providing a visual lighting path for landing aircraft. The MALSF system is typically a 1,400-foot-long array of lights.

The Aviation Greenbelt, Griffin Road, and the wall along Griffin Road would continue to act as a buffer between the airport and the residential area to the south of Griffin Road. The expanded runway, to the east, would continue to be elevated to bridge over the FEC Railway tracks and U.S. Highway 1. Lighting in this area would not affect the surrounding commercial/mixed-use area south of the east runway end and would continue to have minimal effects on West Lake Park to the east of the airport. The runway and associated runway lighting would be elevated above the park. The MALSF approach lights installed on the west end of the expanded runway would continue to be directed to the west and upward, and would not affect the existing commercial and transportation land uses west of the airport. The FEIS disclosed that light emission impacts with the Previously Approved Action would not

affect sensitive land uses, and there would be no change to this conclusion as a result of the proposed change to the runway approach light system.

Pavement and lighting systems installed on the south airfield under the elevated runway would continue to be shielded from view of adjacent properties by the Aviation Greenbelt, Griffin Road landscaping, and the Griffin Road wall. Thus, no new light emission or visual effects would occur for adjacent residential land uses south of the airport.

Expanded Runway 9R-27L to the east would continue to be elevated to bridge over the FEC Railway tracks and U.S. Highway 1. The existing land use in the eastern area of the runway is commercial and mixed-use. The current view from those properties is the entrance and exit ramps from U.S. Highway 1 to the airport. The elevated runway at 65 feet AMSL would not significantly alter the existing views in this area.

The expanded Runway 9R-27L extends to the east toward, but not within West Lake Park; the FEIS disclosed that with the runway elevated at 45 feet AMSL could potentially be seen from the park. The FEIS disclosed that the view of the expanded runway would not be significantly different from the existing conditions. With the Proposed Changes, elevating the runway to 65 feet AMSL would not change that conclusion.

The Proposed Changes to the Previously Approved Action would not result in any changes to the 2008 FEIS conclusions regarding light emissions or visual effects. Data and analysis contained in the FEIS remain substantially valid.

3.2.8 Natural Resources and Energy Supply

The FEIS disclosed that any increase in energy and fuel demand would not adversely affect future power and fuel supplies or the supply of natural resources. The Proposed Changes are related to airfield design. The Proposed Changes to the runway and associated taxiway system are designed to provide a more efficient airfield. There would be no substantial changes associated with energy supply, fuel demand, or natural resources associated with the Proposed Changes.

The Proposed Changes to the Previously Approved Action would not result in any substantial changes to the 2008 FEIS conclusions regarding natural resources and energy supply. Data and analysis contained in the FEIS remain substantially valid.

3.2.9 Noise

The FEIS noise analysis generated noise exposure contours upon which potential noise impacts were identified and land use mitigation measures were developed and approved in the FAA ROD. The FEIS noise assessment evaluated the noise effects of the expanded runway with the eastern runway end elevation at 45 feet AMSL.[59] Version 6.1 of the Integrated Noise Model (INM) computed the 65+ Day–

[59] *Final Environmental Impact Statement for the Development and Expansion of Runway 9R/27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport*, Broward

Night Average Sound Level (DNL) noise exposure contour. The INM model took into account the end elevations of the runway and the model computed the effects of differences in runway end elevation using the slant-range distance[60] between the noise source and the receiver to compute the projected noise levels at the source.

The FEIS noise exposure contours were developed based on runway end utilization, aircraft activity levels, fleet mix, and flight track locations. With the Proposed Changes to the Previously Approved Action, there would be no change to runway end utilization, aircraft activity levels, fleet mix, or flight track locations.

With the elevation of the east runway end raised from 45 to 65 feet AMSL, there would be no effect associated with aircraft *departures to the east* (Runway 9R) because aircraft would be airborne well before passing over the east runway end, thus the runway end elevation would not cause the aircraft noise effects to move significantly closer to the residential areas south of the airport. *Departures to the west* (Runway 27L) would also be off the ground by the time the aircraft reach the west end of the runway. (The runway end elevation for the 9R runway end elevation is 2 feet higher with the Proposed Change; the total runway end elevation is designed to be 10 feet AMSL.)

Aircraft *landing from the west* (arrivals on Runway 9R) would be essentially at the same altitude along the descent to Runway 9R because the elevation change on this threshold is only 2 feet higher. *Landings from the east* (arrivals on Runway 27L) would descend along a glide slope 20 feet higher than was disclosed in the FEIS, to land near the 65-foot elevated eastern threshold. This would result in minimally quieter noise effects to the east from arriving aircraft because they would be higher on approach to the elevated runway end.

In the FEIS, the assessment of *sideline noise effects* was based on the approximate distance from the mid-point of the expanded runway to the nearest line of homes in the Melaleuca Gardens residential subdivision, which is approximately 1,000 feet. The projected elevation at the expanded runway mid-point for the Previously Approved Action is 45 feet AMSL.[61] The BCAD engineering and design studies determined that with the Proposed Changes the runway mid-point elevation is approximately 35 feet AMSL[62] (*see* Exhibit 3, *Base/Revised Profile Comparison—Expanded Runway 9R-27L*).

County, Florida. U.S. Department of Transportation, Federal Aviation Administration, February 2008. Chapter Four, *Alternatives*, Section 4.3.2.

Preliminary Evaluation of Runway 9R/27L Lengths and Grades, Section 1.0 *Summary of Findings;* 2008 FEIS Administrative Record, document number 0226.

60 For the purposes of discussing aircraft noise effects, the slant-range distance is a third-dimensional distance along a straight line between an aircraft and a point on the ground.

61 *Final Environmental Impact Statement for the Development and Expansion of Runway 9R/27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport*, Broward County, Florida. U.S. Department of Transportation, Federal Aviation Administration, February 2008. Appendix E, *Airfield Planning, Design, & Constructability Review*, Section 2.1 *Connected Actions*. Table E.2-3, Runway 9R/27L Centerline Profile – Alternative B1b/B1c.

62 Broward County Aviation Department - Board Workshop, PowerPoint Presentation, December 7, 2010, p. 18. Internet site: http://www.broward.org/Airport/Community/Documents/Boardworkshopdec10noground%20transportationwebversion.pdf

This difference in mid-runway point elevation (from 45 feet AMSL to 35 feet AMSL) affects the slant-range distance. With the lower runway mid-point elevation the potential change in sideline noise effects is approximately four inches to the nearest line of residences south of Griffin Road/Northwest 10th Street.[63] The change in noise effects would be neither perceptible, nor would it have any effect on the locations of the DNL noise contours and incompatible land use impacts computed for the FEIS.

Broward County Implementation of the *Noise Mitigation Plan*

Since the approval of the FEIS and issuance of FAA's ROD for the Previously Approved Project, Broward County is proceeding with the implementation of a noise mitigation program based on the measures stipulated in the FAA ROD. The Broward County Aviation Department (BCAD) will manage and administer the *Noise Mitigation Plan*[64] proposed and approved by the FAA in the FEIS Record of Decision.[65] On January 26, 2010, the Broward County Board of County Commissioners (Board) authorized the Early Action Voluntary Residential Sound Insulation Pilot Program (Pilot Program). The Board further determined that an avigation easement would not be a pre-requisite to participate in the Pilot Program or the Voluntary Residential Sound Insulation Program.

Therefore, no substantial changes in noise impacts would occur with the Proposed Changes to the Previously Approved Action. Data and analysis contained in the FEIS remain substantially valid, and all mitigation requirements that were conditions of the prior approval have, or will be, met. The Proposed Changes to the Previously Approved Action would not result in any changes to the 2008 FEIS conclusions regarding noise impacts or the Broward County Noise Mitigation Plan*.*

3.2.10 Water Quality

The FAA determined in the ROD that the Previously Approved Action would not result in significant adverse water quality impacts for either surface or ground waters. This determination was based on analysis contained in the FEIS. All permits in accordance with water quality requirements will be obtained including a Section 401 Water Quality Certification from the SFWMD and a modification to the National Pollutant Discharge Elimination System (NPDES) permit (Section 402 of the Clean Water Act) for proposed construction activities; this would be coordinated through the SFWMD.

---

[63] Landrum & Brown Memorandum to Jamie McCluskie, Director of Planning, Broward County Aviation Department, from Jon M. Woodward, Senior Vice President, RE: Noise Memo for 30% Design. Dated: November 17, 2010. A copy of this memorandum is provided in Appendix C, *Supplemental Information*. The qualitative noise analyses provided in this memorandum assessed the potential change in noise with the runway at a 30% level of engineering and design. That analysis and the conclusions remain valid with the 60% level of engineering and design because the 9R runway end elevation is the same in both studies.

[64] *Noise Mitigation Plan—Fort Lauderdale-Hollywood International Airport Runway 9R/27L Expansion Project*, October 25, 2010. Prepared by The Urban Group, Inc. Submitted to: Broward County Aviation Department.

[65] Federal Aviation Administration Record of Decision*, The Development and Expansion of Runway 9R/27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport, Broward County, Florida, Executive Summary*, Section 4, Summary of Mitigation Measures, Page 55, December 2008.

As of April 2011, BCAD continues to proceed with the NPDES permitting process. Any effect of the change in stormwater runoff and water quality caused by the Proposed Changes will be addressed by the NPDES permit. Broward County is still responsible that all required NPDES permitting requirements are met.

The SFWMD[66] notes that through the permit process and coordination Broward County has met the requirements of the State of Florida with regards to the Public Interest Test (Section 373.414 (1)(a): the permitted mitigation areas: meets the full extent of the SFWMD rules governing water quality and quantify; provides additional habitat for State protected species; provides measures to protect manatees both during and after construction; is not anticipated to affect navigation, flow of water, or cause harmful erosion or shoaling in the Dania Cut-Off Canal; is not anticipated to have an adverse impact on local fishing or recreational values or marine productivity in the vicinity; and is unlikely to have an effect on archaeological or historical resources.

The Proposed Changes to the Previously Approved Action would not result in any substantial changes to the 2008 FEIS conclusions regarding water quality impacts. Data and analysis contained in the FEIS remain substantially valid. All permit and mitigation requirements that were conditions of the prior approval have, or will be, met.

3.2.11 Wetlands

As discussed in the FEIS, the Previously Approved Action was developed to avoid and minimize direct impacts to wetlands to the extent practicable. However, it was disclosed in the FEIS that direct impacts to 15.41 acres of wetlands would result from fill, erosion, sedimentation, and the clearing of vegetation associated with the expansion of Runway 9R-27L, the installation of the runway approach lights, and the associated access roads.

In addition to direct impacts, the FEIS disclosed potential secondary impacts to wetlands. In accordance with the methodologies of the SFWMD at the time of the FEIS,[67] a buffer zone extending 25 feet out from the limits of disturbance was used to assess for possible secondary impacts to wetlands. A secondary impact was generally assumed to be a decrease in the value to wetlands occurring within 25 feet of the directly disturbed areas.

During the FEIS process, a conceptual wetland mitigation plan was developed for the Previously Approved Action in consultation with USACE and the SFWMD. The wetland mitigation was based on Uniform Mitigation Assessment Method (UMAM) Functional Loss (FL) units based on the Project's anticipated impacts and Functional

[66] Letter to the Broward County Board of County Commissioners from Anthony M. Waterhouse, PE, Deputy Director, Water Resource Regulation, South Florida Water Management District. RE: Permit No. 06-00339-S, dated June 15, 2011. Enclosed with this letter was a copy of the "Individual Environmental Resource Permit Staff Report."

[67] *Basis of Review for Environmental Resource Permit Applications Within the South Florida Water Management District*, South Florida Water Management District's (SFWMD), July 2007.

Gain (FG) units required to compensate for both direct and secondary impacts.[68] The UMAM FG units provided a conservative estimate of total mitigation required for the project. UMAM scores were calculated based on input from, and in coordination with, the USACE, the SFWMD, and the U.S. Environmental Protection Agency (EPA).

Broward County previously obtained permits from the SFWMD and the USACE that allow for habitat restoration and enhancement within West Lake Park.[69] It is Broward County's intent to use mitigation credits at West Lake Park to mitigate for the project's potential wetland impacts. As stated in the ROD, it is Broward County's responsibility, as the Airport Sponsor, to apply for and obtain permits required by these regulatory agencies.

The direct and secondary impacts and associated UMAM scores developed in the FEIS are provided in **Table 3**, ***Direct and Secondary Wetland Impacts and UMAM Scores as Disclosed in the 2008 FEIS for the Previously Approved Action.***

Based upon the UMAM evaluation/methodology used in the FEIS, the direct and secondary wetland functional loss impacts (5.63 UMAM FL direct impacts and .77 UMAM FL indirect impacts) were to be compensated for by a total of 6.40 UMAM FG units. As noted in the USACE letter received by the FAA in February 2009, the USACE said that the conceptual mitigation proposed appeared to be appropriate and sufficient to address project impacts.[70] According to the USACE permit for West Lake Park, there are 20.57 mangrove mitigation credits available for Broward County based on the creation, enhancement, and preservation projects permitted at West Lake Park.[71] According to the SFWMD permit for Westlake Park, there are 38.79 mangrove FG credits available for Broward County.[72]

Proposed Changes

Due to changes in design associated with the installation of the navigation aids as described in Section 1.3, *Proposed Changes to the Previously Approved Action*, a portion of two storm water ponds (GB Pond West and GB Pond East) on the west side of the airport and within the existing Airport Greenbelt would now be in the glideslope critical area and need to be filled. Mangroves rim the entire bank of these ponds, so a portion of these mangrove rims would now be impacted. Direct wetland impact to these areas is 0.12 acres.

Also on the west side of the airport located off the Runway 9R end, two wetland areas designated W-9 Peninsula and W-8 would have increased direct impacts from those disclosed in the FEIS. Due to the change from the MALSR to the MALSF, 0.01 acres of W-8 and 0.02 acres of W-9 are now impacted.

---

[68] Functional loss (FL) credits refer to the impacts from the Project. Functional gain (FG) credits refer to the amount of mitigation required.

[69] U.S. Army Corps of Engineers, SAJ-2002-00072, issued March 2, 2006 and South Florida Water Management District, SFWMD 06-04016-P, issued April 22, 2004.

[70] Letter to Virginia Lane, FAA Orlando Airports District Office, from Tori White, Chief Palm Beach Gardens Section U.S. Army Corps of Engineers, February 4, 2009.

[71] U.S. Army Corps of Engineers, SAJ-2002-00072 issued March 2, 2006.

[72] South Florida Water Management District, SFWMD 06-04016-P, issued on April 22, 2004.

Table 3
DIRECT AND SECONDARY WETLAND IMPACTS and UMAM SCORES AS DISCLOSED IN THE 2008 FEIS FOR THE PREVIOUSLY APPROVED ACTION
Fort Lauderdale-Hollywood International Airport

DATA DISCLOSED IN THE 2008 FEIS FOR THE PREVIOUSLY APPROVED ACTION				
Wetland ID	**Direct Impacts (ACRES)**	**Secondary Impacts (ACRES)**	**Direct UMAM Functional Loss**	**Secondary UMAM Functional Loss**
W-N3a	2.83	0.09	0.85	0.03
W-N3b	0.74	0.24	0.30	0.10
W-8	0.00	0.07	0.00	0.04
W-17a	0.61	0.00	0.16	0.00
W-17b	2.81	0.00	1.03	0.00
W-17c	2.67	0.00	1.25	0.00
W-25a	0.20	0.39	0.12	0.23
W-25b	0.18	0.41	0.13	0.30
W-33	5.37	0.22	1.79	0.07
TOTAL	**15.41 (ACRES)**	**1.42 (ACRES)**	**5.63 UMAM FL**	**0.77 UMAM FL**

Source: *Final Environmental Impact Statement for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport*, Broward County, Florida. U.S. Department of Transportation, Federal Aviation Administration, February 2008. Landrum & Brown, 2011

Note: Totals may not sum exactly due to rounding.
W-8, W-17c, W-25a, and W-25b were considered mangroves/tidal wetlands.

On the east side of the airport, direct impacts to wetlands W-25a and W-25b increased from impacts disclosed in the FEIS due to more specific information being developed during the design process as to the exact configuration and location of the equipment associated with the navigational aids. Direct impacts to W-25a are 0.57 acres; direct impacts to W-25b are 0.55 acres.

In addition, 6.48 acres of W-33 are now directly impacted by the runway project instead of the 5.37 acres disclosed for the FEIS. This is due to the navigational aids equipment siting. This is an increase of 1.11 acres of direct impacts for W-33.

Also on the east side of the airport there would be a decrease in direct wetland impacts to W-N3A and W-N3B; impacts would decrease by a total of 1.32 acres to W-N3A and there would be no direct impacts to W-N3B, a decrease of 0.74 acres from the FEIS. This change is due to more detailed design siting of the structures that support the navigation aids.

Broward County submitted a joint SFWMD Environmental Resource Permit (ERP)/USACE 404 permit application for potential wetland impacts in November 2010 to the SFWMD and the USACE. As part of the permitting process, SFWMD issued a Request for Additional Information (RAI) to Broward County December 28, 2010, and in that letter recommended a reassessment of secondary impacts.

In response to the USACE 404 permit application, the USACE issued a Public Notice on March 1, 2011 based on the information contained in the permit application submitted in November 2010.[73]

In response to the SFWMD RAI and request for a reassessment of secondary impacts, Broward County expanded the area of secondary impacts. This expansion was based on field review and coordination meetings with SFWMD and USACE. As a result of expanding the area of secondary impacts, the amount of secondary impacts is more extensive than what was disclosed in the FEIS. Total secondary impacts increased from 1.42 acres as disclosed in the FEIS to 39.4 acres with the Proposed Changes to the Previously Approved Project. UMAM scores were recalculated based on input from, and in coordination with, the USACE and the SFWMD.

Overall, the Proposed Changes to the Previously Approved Action result in a net increase of 2.05 acres of direct wetland impacts and utilizing the SFWMD 25-foot buffer zone methodology, indirect wetland impacts would increase to 37.98 acres. UMAM scores increased from 5.63 UMAM FL units to 6.56 for direct impacts and from .77 UMAM FL units to 1.41 for indirect wetland impacts. Total UMAM FL units is now 7.97 units compared to 6.40 disclosed in the 2008 FEIS, an increase of 1.57 units.

The USACE Jurisdictional Determinations for the airport were finalized in May 2011. The USACE determined that wetlands W-N2a, W-N2b and W-33 are non-jurisdictional per the Rapanos decision criteria.[74] **(**Wetlands W-N2a and W-N2b were not identified as impacted in the FEIS.) Due to the USACE determination of W-33 being non-jurisdictional, the direct impacts to USACE jurisdictional wetlands are now 8.87 acres compared to 15.41 acres of direct impacts identified in the FEIS. Due to changes in both direct and secondary impacts, and the completion of the jurisdictional determinations, the USACE reissued a Public Notice May 31, 2011 with the revised information.[75]

Because the area of secondary impacts was expanded, the remaining areas of wetland W-33 became fragmented. Although the remaining portion of W-33 are not impacted due to the Proposed Changes, BCAD has requested that the additional 2.11 acres of low quality wetlands in W-33, dominated by Brazilian Pepper, be

---

[73] Jacksonville District Corps of Engineers, Regulatory Division, Palm Beach Gardens Section, PUBLIC NOTICE, dated March 1, 2011. Permit Application No. SAJ-1995-04561 (IP-MJW) – Section 404 of the Clean Water Act (33 U.S.C §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403).

[74] The Rapanos decision refers to the U.S. Supreme Court decision made in the consolidated cases of Rapanos v. Unites States and Carabell V. United States. Because of this decision, the USACE is reexamining wetland jurisdictional determinations in order to confirm hydrologic connections for certain wetland sites. This ruling took effect after the original determinations were made on August 10, 2006 as part of the EIS process.

[75] Jacksonville District Corps of Engineers, Regulatory Division, Palm Beach Gardens Section, PUBLIC NOTICE, dated May 31, 2011. Permit Application No. SAJ-1995-04561 (IP-MJW) – Section 404 of the Clean Water Act (33 U.S.C §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403).

removed because they become fragmented wetland areas. This increases the direct impacts to wetlands considered by the SFWMD for the ERP as compared to the Previously Approved Action.

The revised direct and secondary impacts and associated UMAM scores developed in response to requests for additional information from the SFWMD and the USACE is provided in **Table 4, *Direct and Secondary Wetland Impacts and UMAM Scores Proposed Changes***.

As noted above, according to the USACE permit for West Lake Park, there are 20.57 mangrove mitigation credits available for Broward County based on the creation, enhancement, and preservation projects permitted at West Lake Park.[76] According to the SFWMD permit for Westlake Park, there are 38.79 mangrove FG credits available for Broward County.[77]

Conclusion

Total direct impacts to mangroves/tidal wetlands increases to 3.94 acres as compared to 3.05 acres identified in the FEIS, an increase of 0.89 acres. Total direct impacts to USACE jurisdictional wetlands decreases to 8.87 acres from 15.41 acres of direct impacts identified in the FEIS. According to the SFWMD, total direct wetland impacts has increased from 15.41 to 17.46 acres, and secondary impacts has increased from 1.42 to 39.39 acres.

According to the SFWMD, the UMAM FG units needed for mitigation has been revised to 7.97 FG units (6.56 direct FG units and 1.41 secondary FG units) as compared to 6.40 FG units disclosed in the FEIS. Based on the amount of mitigation credits available to Broward County in the SFWMD and USACE permits for West Lake Park, it appears that there is sufficient mitigation credits available to accommodate this 1.57 increase in total FG units.

The SFWMD notes in the Staff Report[78] that the functional value of the wetland resources will be offset with mitigation that replaces the wetland functions to be lost. Therefore, no net adverse impact to the functional values of the wetland resources and water quality is anticipated as the result of the proposed activities. The SFWMD also indicates that proposed wetland impacts associated with the project indicates that no unacceptable adverse impacts to wetlands or other surface waters will occur in the cumulative impact basin.

[76] U.S. Army Corps of Engineers, SAJ-2002-00072 issued March 2, 2006.
[77] South Florida Water Management District, SFWMD 06-04016-P, issued on April 22, 2004.
[78] Letter to the Broward County Board of County Commissioners from Anthony M. Waterhouse, PE, Deputy Director, Water Resource Regulation, South Florida Water Management District. RE: Permit No. 06-00339-S, dated June 15, 2011. Enclosed with this letter was a copy of the "Individual Environmental Resource Permit Staff Report."

The USACE has informed the FAA that as previously stated in their letter to the FAA in February 2009, the mitigation proposed by Broward County appears to be appropriate and sufficient to address project impacts to wetlands.[79] All mitigation measures identified in the FAA's ROD, Section 4.4 "Identification of Wetlands and Consideration of Executive Order 11990, Protection of Wetlands," and Section 8, "Conditions of Approval," will be met by the Airport Sponsor.

Although overall the acreage for both direct and secondary impacts to wetlands has increased and UMAM FG units has increased, there is adequate mitigation for project impacts with the Proposed Changes to the Previously Approved Action. Broward County has proposed mitigation at West Lake Park to replace wetland loss at the proposed project site. Data and analysis contained in the 2008 FEIS remains substantially valid and all mitigation requirements that were conditions of the prior approval have, or will be, met with the Proposed Changes to the Previously Approved Action. The Airport Sponsor is in the process of securing all required permits from the regulatory agencies.

[79] Email to Virginia Lane, FAA Orlando District Office, from Leah Oberlin, Chief, Palm Beach Gardens Section, Jacksonville District, USACE. Dated: July 13, 2011.

Table 4
DIRECT AND SECONDARY WETLAND IMPACTS and UMAM SCORES
PROPOSED CHANGES
Fort Lauderdale-Hollywood International Airport

DATA PROVIDED TO THE USACE AND SFWMD FOR THE PROPOSED CHANGES				
Wetland ID	**Direct Impacts (ACRES)**	**Secondary Impacts (ACRES)**	**Direct UMAM Functional Loss**	**Secondary UMAM Functional Loss**
*W-N2a	0	0.23	0.00	0.01
*W-N2b	0	0.00	0.00	0.00
W-N3a	1.51	1.68	0.45	0.10
W-N3b	0.00	2.78	0.00	0.08
W-N4	0.00	11.97	0.00	0.36
W-6	0.00	0.10	0.00	0.00
W-8	0.01	0.94	0.01	0.05
W-17a	0.61	0.00	0.16	0.00
W-17b	2.81	0.00	1.03	0.00
W-17c	2.67	0.00	1.25	0.00
W-25a	0.57	5.68	0.34	0.21
W-25b	0.55	15.10	0.40	0.54
*W-33	8.59	0.00	2.86	0.00
GB Pond West	0.10	0.35	0.04	0.02
GB Pond East	0.02	0.06	0.01	0.00
W9 Peninsula	0.02	0.50	0.01	0.03
TOTAL	**17.46 (ACRES)**	**39.4 (ACRES)**	**6.56 UMAM FL**	**1.41 UMAM FL**

Source: Broward County Aviation Department and Miller Legg, 2011.

Note: Totals may not sum exactly due to rounding.
W-N4, W-6, W-8, W-17c, W-25a, W-25b, GB Pond West, GB Pond East, and W9 Peninsula are considered mangroves/tidal wetlands.
* W-33, W-N2a and W-N2b are considered non-jurisdictional by the USACE. The direct impacts to USACE jurisdictional wetlands is now 8.87 acres as opposed to 15.41 acres of direct impacts identified in the 2008 FEIS.
Wetlands W-2a, W-2b, W-N4, W-6, GB Pond West, GB Pond East, and W9 Peninsula were not identified in the FEIS.

4.0 CUMULATIVE IMPACTS

The potential cumulative impacts of the Proposed Changes to the Previously Approved Action, in combination with other related or independent actions in the vicinity of FLL are presented in this section.[80] The analysis of potential 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, the impacts could be potentially significant from a cumulative perspective.

This discussion of cumulative impacts provides the status of projects identified in the FEIS [2008 FEIS, Chapter Seven, *Cumulative Impacts*] as well as other past, present, and reasonably foreseeable future actions that have been identified since the publication of the FEIS.

4.1 Projects Identified in the 2008 FEIS and Written Re-evaluation

The cumulative impact analysis in the FEIS disclosed that the level of cumulative impact is not expected to be significant when considering the impacts of the Previously Approved Action together with other past, present, and reasonably foreseeable projects. The FEIS concluded that it was reasonable to expect that significant cumulative impacts would not occur because of the types of projects proposed, the extent of the built environment surrounding FLL, compliance with regulatory requirements, and required mitigation in accordance with local, state, and Federal regulations.

In the FEIS, past actions were defined as those that were prior to 2004. Present actions were defined as those completed from 2005 to 2008. Foreseeable future actions were defined as those planned to occur between 2009 and 2020, which was within the planning horizon of the FEIS.

In this Written Re-evaluation, the potential for cumulative impacts, is limited to impacts associated with the Proposed Changes to the Previously Approved Action and impacts of past, present and reasonably foreseeable actions in the surrounding area.

The analysis of cumulative impacts relies on existing conditions as identified in Section 2, Affected Environment, of this Written Re-evaluation. The information presented for past, present, and foreseeable future projects is based on review of readily available records and documents, and discussions with local, state, and federal agency staffs. Review of this information did not result in the identification of any new major development from what was disclosed in the FEIS.

[80] Cumulative impacts are those impacts that can be reasonably expected to occur as a result of implementing the Proposed Changes, 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. *Considering Cumulative Impacts Under the National Environmental Policy Act*, Council on Environmental Quality, Executive Office of the President. Dated: January 1997.

4.1.1 STATUS OF "PAST" PROJECTS IDENTIFIED IN THE 2008 FEIS AND WRITTEN RE-EVALUATION

The FAA reviewed the past projects identified in the 2008 FEIS and other past projects at the Port Everglades Seaport and Harbor that were not identified in the FEIS. This review did not identify any additional past projects that would affect the cumulative impact determinations in the FEIS.

4.1.2 STATUS OF "PRESENT" PROJECTS IDENTIFIED IN THE 2008 FEIS AND WRITTEN RE-EVALUATION

The FAA reviewed the present projects identified in the 2008 FEIS and other present projects at the Port Everglades Seaport and Harbor that were not identified in the FEIS. This review did not identify any additional present projects that would affect the cumulative impact determinations in the FEIS.

4.1.3 STATUS OF "REASONABLY FORESEEABLE FUTURE ACTIONS" PROJECTS IDENTIFIED IN THE 2008 FEIS AND WRITTEN RE-EVALUATION

The FAA reviewed the "reasonably foreseeable future actions" projects identified in the 2008 FEIS and did not identify any additional "reasonably foreseeable future actions" projects, other than the Taylor Road project noted below, that would affect the cumulative impact determinations in the FEIS.

BCAD plans to extend Taylor Road as N.E. 10th Street to N.E. 7th Avenue. This project is estimated to impact one acre of wetlands. Mitigation is proposed in an approved Broward County mitigation area in the western portion of the County. This project occurs off airport property and is outside the authority of FAA review and approval. Based on information provided by BCAD, there appears to be adequate mitigation to offset project impacts, therefore there would not be any effect on the cumulative impact determination in the FEIS.

4.2 BASELINE FOR INCREMENTAL INCREASES IN CUMULATIVE EFFECTS

As noted in Section 2, *Affected Environment*, of this Written Re-evaluation, the FEIS *Affected Environment* chapter provided a description of the existing environmental conditions in the vicinity of FLL. The FAA has determined in this Written Re-evaluation that the FEIS baseline data is still relevant and reasonably representative of existing conditions because conditions have not changed substantially.

Broward County is a highly developed urban area. Recent population growth trends suggest that the population of Broward County will increase by 600,000 persons by 2020 (the county has a current population of 1.7 million persons). The county is almost completely built out, and very little vacant developable land is available.

The only good option for accommodating future growth is to redevelop (at higher densities) land that is currently underutilized.[81]

Based on the urban status of Broward County, it can be reasonably determined that the current existing environment at and in the vicinity of FLL can serve as a baseline for comparison of the incremental increases in adverse effects that could potentially result from implementation of the Proposed Changes to the Previously Approved Action combined with other past present and foreseeable future actions.

4.3 CUMULATIVE IMPACT COMPARISON

Categories for Which There are No Significant Environmental Impacts

The FEIS disclosed the environmental categories where *no significant environmental impacts would occur* due to the proposed runway expansion and associated airport projects. These environmental categories included:

- Historic, Architectural, Archeological, and Cultural Resources
- Section 4(f) Properties [Recodified as 49 U.S.C. 303(c)][82]
- Section 6(f) Properties
- Wild and Scenic Rivers
- Farmlands

Based on the FAA's analysis in the Written Re-Evaluation there are no impacts associated with these resource categories for the Proposed Changes to the Previously Approved Action. Because there are no impacts, there would also be no cumulative effects associated with these resource categories for the Proposed Changes to the Previously Approved Action when combined with past, present, and reasonably foreseeable future projects. *Therefore, there is no change in the 2008 FEIS conclusion of no significant cumulative impacts with regard to these categories.*

Categories for Which There Are Potential Environmental Impacts

The FEIS cumulative impact analysis disclosed only those environmental categories *where potential impacts could occur* with the proposed runway expansion and associated airport projects in combination with past, present, and reasonably foreseeable future actions at FLL, the Port, and within the FLL environs. Those categories were:

- Air Quality
- Noise
- Compatible Land Use
- Water Quality

---

[81] *State Road 7/U.S. 441 Corridor Redevelopment*, Broward County, Florida. Urban Land Institute, March 2004.

[82] Impacts to identified 4(f) resources (West Lake Park) will be temporary not permanent. The proposed temporary slurry pipe would extend over a portion of West Lake Park north of the Dania Cut-Off Canal and be limited to the construction period. This portion of West Lake Park is not accessible to the public.

- Wetlands
- Floodplains
- Coastal Resources
- Hazardous Waste
- Fish, Wildlife, and Plants and Essential Fish Habitat
- Solid Waste
- Socioeconomic Impacts, Environmental Justice Issues, and Children's Health and Safety Issues;
- Secondary (Induced) Impacts
- Light Emissions and Visual Impacts
- Natural Resources and Energy Supply
- Construction Impacts

- The FAA determined in this Written Re-Evaluation that there are *no changes in environmental impacts* with the Proposed Changes to the Previously Approved Action for the following environmental categories: hazardous waste, secondary (induced) impacts, socioeconomic impacts, environmental justice issues, and children's health and safety issues. Because there are no changes in environmental impacts, there are also be no cumulative effect associated with these resource categories for the Proposed Changes to the Previously Approved Action when combined with past, present, and reasonably foreseeable future projects. *Therefore, there is no change in the 2008 FEIS conclusion of no significant cumulative impacts with regard to hazardous waste, secondary (induced) impacts, socioeconomic impacts, environmental justice issues, and children's health and safety issues.*

- The FAA determined in this Written Re-Evaluation that there are *no significant changes in environmental impacts* with the Proposed Changes to the Previously Approved Action for the following environmental categories: air, noise, compatible land use, water quality, wetlands, coastal resources, fish, wildlife, and plants, light emissions and visual impacts, natural resources and energy supply. For these categories, additional environmental impacts due to the Proposed Change to the Previously approved Action were minor or insignificant. All mitigation requirements that were conditions of the prior approval have, or will be, met with the Proposed Changes to the Previously Approved Action. Additionally, it is reasonable to assume that all permitting and mitigation requirements have been or will be met for past present and reasonably future actions. Therefore, there would be no cumulative effect associated with these resource categories for the Proposed Changes to the Previously Approved Action when combined with past, present, and reasonably foreseeable future projects. *Therefore, there is no change in the 2008 FEIS conclusion of no significant cumulative impacts with regard to air, noise, compatible land use, water quality, wetlands, coastal resources, fish, wildlife, and plants, light emissions and visual impacts, natural resources and energy supply.*

* * * * *

Cumulative effects are not expected to be substantially different from those disclosed in the 2008 FEIS. Because the additional impacts are minor, and mitigation is provided, it is reasonable to expect that the Previously Approved Project with the Proposed Changes combined with other identified actions, would not result in significant cumulative effects. All of the identified actions would be required to comply with regulatory requirements, and mitigation provided in accordance with local, state, and Federal regulations.

THIS PAGE INTENTIONALLY LEFT BLANK

5.0 CONCLUSION

Based on the above analysis the proposed ALP changes conform to plans for which a prior EIS has been filed and there are no substantial changes in the proposed action that are relevant to environmental concerns; data and analyses contained in the 2008 FEIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and pertinent conditions and requirements of the prior approval have, or will be met in the current action."

Therefore, as discussed above and in accordance with FAA Order 1050.1E, Policies and Procedures for Assessing Environmental Impacts, and FAA Order 5050.4B, Airport Environmental Handbook, the preparation of a new EIS is not necessary.

THIS PAGE INTENTIONALLY LEFT BLANK

Department of Transportation

Federal Aviation Administration
Record of Decision and Order

This document is prepared pursuant to FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, Paragraphs 515 and 516, and 5050.4B, *National Environmental Policy Act Implementing Instructions for Airport Actions*, Paragraph 1401.

After careful and thorough consideration of the facts contained in the Written Re-evaluation, the 2008 Final Environmental Impact Statement, and the 2008 Record of Decision for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects at the Fort Lauderdale-Hollywood International Airport (FLL), the undersigned makes the following findings:

(1) The proposed action conforms to plans or projects for which a prior EIS has been filed and there are no substantial changes in the proposed action that are relevant to environmental concerns.

The requested action under consideration is the FAA's approval to amend the Airport Layout Plan (ALP), and associated determinations. FAA approval of an ALP environmental determinations and sponsor assurances and certifications is required as conditions of eligibility for grants of federal funding for the proposed project, and determinations under other environmental laws, regulations, and executive orders discussed in the 2008 FEIS. In evaluating the Airport Sponsor's request for this federal action, the FAA concluded that the FEIS contained evidence that the FAA had adequately discharged its obligations under NEPA. The proposed changes that are the subject of this written reevaluation conforms to plans for which the prior FEIS was filed, and therefore, there are no substantial changes in the proposed action that are relevant to environmental concerns.

(2) Data and analyses contained in the previous EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impact.

The FAA determined in its 2008 ROD that the 2008 FEIS contained adequate evidence that the FAA had discharged its obligations under NEPA. The FAA has examined the Proposed Changes to the Previously Approved Action and the information available at the time of the FEIS and ROD. Based on that review, as documented in this Written Re-evaluation, data and analyses contained in the FEIS and conclusions and determinations contained in the ROD remain substantially valid. The FEIS continues to provide adequate, accurate, and valid information and analyses to support the pending agency actions.

(3) All pertinent conditions and requirements of the prior approval have, or will be, met in the current action.

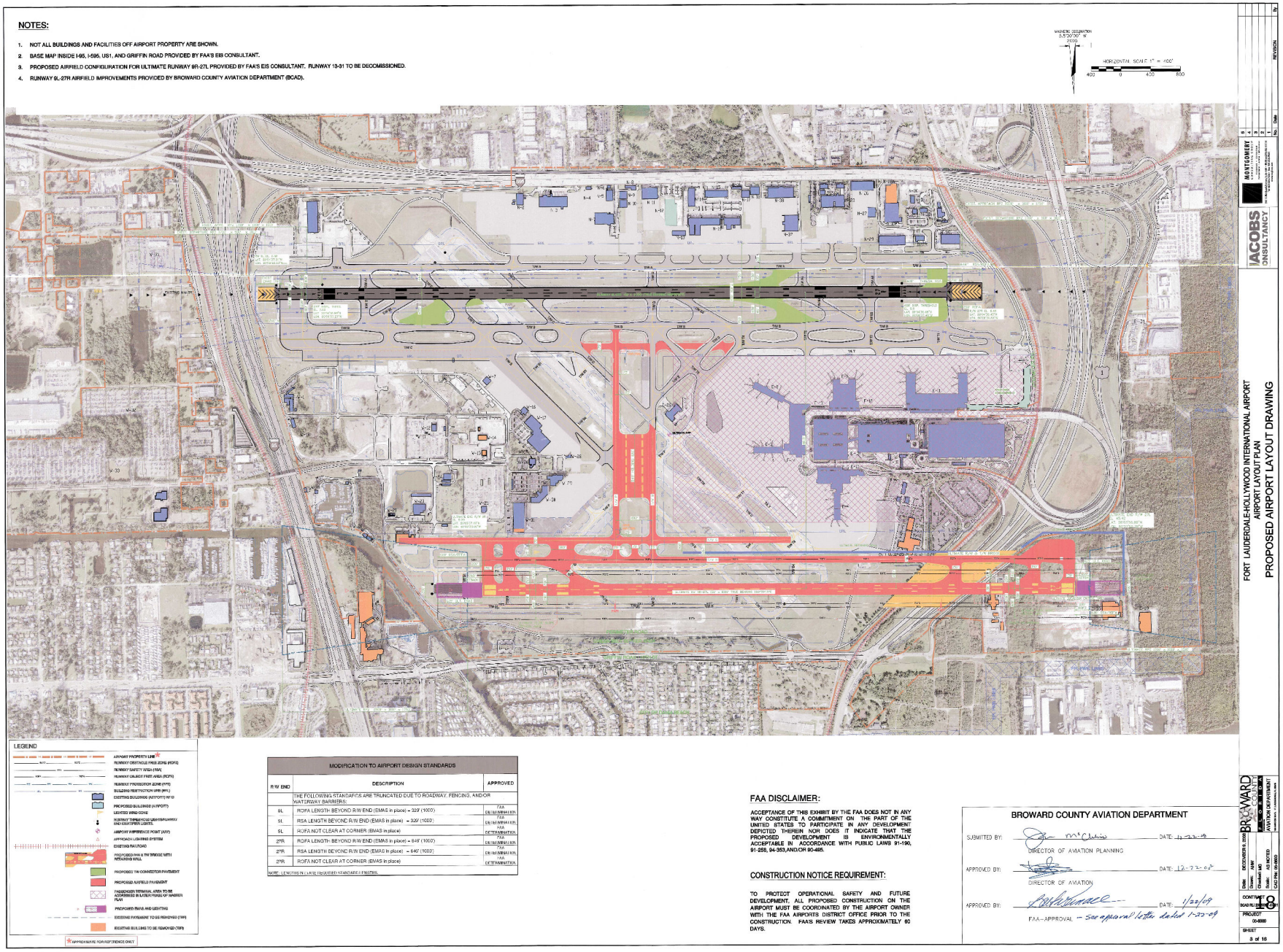
The Previously Approved Action that was the subject of the FAA's 2008 ROD was approved with certain conditions, including implementation of mitigation measures outlined in the ROD to address unavoidable environmental consequences of the FAA's decision. The FAA has reviewed the status of the Airport Sponsor's compliance with the conditions of approval associated with the runway expansion project and finds that the Airport Sponsor is in compliance with them.

Based on the foregoing information, the undersigned finds that the Proposed Changes to the Previously Approved Project does not represent significant new information that is relevant to environmental concerns. Furthermore, the undersigned finds that the 2008 FEIS adequately reflects the environmental consequences associated with the runway expansion project and that the data and analyses contained in the FEIS therefore remain substantially valid, applicable, and accurate. Accordingly, under the authority delegated to me by the Administrator of the FAA, I conclude that there is no requirement to complete a new or supplemental EIS to support this ROD.

This decision is taken pursuant to 49 U.S.C. §§ 40101 et seq., and constitutes an order of the Administrator, which is subject to review by the Courts of Appeal of the United States in accordance with the provisions of 49 U.S.C. § 46110.

Douglas R. Murphy **DATE** 7-15-11

Douglas R. Murphy
Regional Administrator, Southern Region



Written Re-Evaluation of the Final EIS
Fort Lauderdale-Hollywood International Airport

6/1/2011 Prepared by Landrum & Brown
Filename: Y:\RLL\Runway Geometry Update\
E-L&B Work Product\2-GIS\
Ex1_2008 Approved Airport Layout Plan.mxd

2008 Approved Airport Layout Plan

Exhibit: 1