



Application for  
**FLORIDA AIRPORTS COUNCIL**  
**2011 ENVIRONMENTAL AWARD**

**WETLAND MITIGATION - WEST LAKE PARK**

**Fort Lauderdale - Hollywood International Airport**

**Broward County, Florida**

**June 2011**





**AVIATION DEPARTMENT - Fort Lauderdale/Hollywood International Airport**  
100 Aviation Boulevard • Fort Lauderdale, Florida 33315 • 954-359-6100

June 15, 2011

Florida Airports Council  
250 John Knox Road, Suite 2  
Tallahassee, Florida 32303

RE: 2011 Florida Airports Council Environmental Award  
West Lake Park Wetland Mitigation  
Fort Lauderdale-Hollywood International Airport, Broward County, Florida

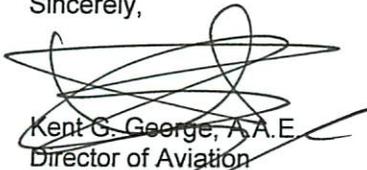
Dear Council Members,

The Broward County Aviation Department (BCAD) is pleased to submit our application for the 2011 Florida Airports Council (FAC) Environmental Award for your review and consideration. As one of Florida's largest commercial airports and a critical member of the nation's aviation infrastructure, we cannot forget our obligation as stewards of Broward County's unique environmental resources. BCAD is very proud of the tremendous measures which we have taken to offset any environmental impacts associated with the development of our proposed south runway 9R/27L by helping to restore one of South Florida's largest remaining mangrove ecosystems. Working closely with both the regulatory and environmental communities, BCAD has met the challenges of constantly changing local, state and federal mitigation issues well in advance of our proposed construction. Recognizing this project's potential impact on future aviation development throughout the state, BCAD sought to strike a balance between the environmental benefit and financial viability of our project. As such, creative, cost effective solutions were incorporated into the project and the long term regional and local benefits of the mitigation program were considered during project development. As a result, Broward County has received inquiries from regulators and international interests regarding our unique cribbing design which minimized both its footprint and impacts to endangered seagrass beds. Further, the mitigation area, which is open to the public for recreational use, is being utilized by the University of Florida in its Master Naturalist training classes.

Should you have any questions regarding any of the information contained within this application package, please feel free to contact BCAD's Environmental Manager, Michael Pacitto, at 954-359-6103.

We look forward to your review and consideration of our application.

Sincerely,



Kent G. George, A.A.E.  
Director of Aviation

C: Ismael Bonilla, Deputy Director, Aviation  
Angela Newland, Assistant Director – Airport Development, Aviation  
James McCluskie, Director of Planning, Aviation  
Michael Pacitto, Environmental Manager, Aviation

## **Contents**

Introduction

Project Description

Meeting the Criteria

Project Location Map

Project Photographs

Letters of Support



## INTRODUCTION

The Fort Lauderdale-Hollywood International Airport (FLL) is proposing to expand its south runway (Runway 9R/27L) to accommodate current and future air travel demand. To meet the requirements of the National Environmental Policy Act (NEPA), the Federal Aviation Administration (FAA) and Broward County (the local sponsor) prepared an Environmental Impact Statement (EIS). The purpose of the EIS was to evaluate the existing environmental conditions and potential impacts to those conditions as a result of the project. The EIS was completed in June 2008 and the FAA Record of Decision (ROD) was signed in December 2008.

FLL's south runway project contains the following key elements:

- Expand Runway 9R/27L to an 8,000-foot by 150-foot elevated runway with Engineering Materials Arresting System (EMAS). This runway will extend over US Highway 1 and the Florida East Coast (FEC) Railway.
- Close and decommission of Runway 13/31.
- Construct a new, full length taxiway 75 feet wide on the north side of Runway 9R/27L with a separation of 400 feet.
- Construct an outer dual parallel taxiway that would be separate from the proposed north parallel taxiway by 276 feet.
- Construct an Instrument Landing System (ILS) for landings on Runway 9R and 27L.
- Terminal Redevelopment.
- Close or relocate a portion of Perimeter Road.
- Relocate the Airport Surveillance Radar (ASR-9).

The EIS and design processes focused on efforts to eliminate or reduce direct impacts to wetlands to the extent practicable. Despite these efforts, approximately 17 acres of direct impacts will result from fill, erosion, sedimentation, and the clearing of vegetation associated with the development of Runway 9R/27L. In addition, approximately 39 acres of secondary impacts will result from the project. To offset these impacts, the Broward County Aviation Department (BCAD) has performed upfront wetland mitigation at West Lake Park. West Lake Park is located at 751 Sheridan Street, approximately 2 miles south of FLL. The cost of the mitigation including design, permitting, construction and monitoring is approximately \$10,000,000. Design and permitting were performed by Miller Legg, and construction services were provided by ATL Diversified Industries. Design of the project commenced in 2000; permitting was completed in 2004; and construction will reach substantial completion in July 2011. This wetland mitigation program is the subject of this application for award.

## **PROJECT DESCRIPTION**

In 1998, West Lake Park was identified by the Broward County Board of County Commissioners (Board) as the preferred mitigation area for FLL due to its close proximity to the proposed expansion project and the need for improvements under the Park and Recreation Division's Master Mitigation Plan. A Broward County treasure, West Lake Park is the largest remaining mangrove ecosystem in the 85-mile, highly developed urban coastal zone from Miami Beach to West Palm Beach. It encompasses more than 1,500 acres of diversified estuarine habitat including mangroves, mudflats, tidal pools, flushing channels, upland hammocks, and a salt marsh. Approximately 123 different bird species have been seen at West Lake (including 20 that are Rare, Threatened, or Endangered in the State of Florida), 10 animal species, over 80 forms of plant life, and 86 species of fish including the snook (a species of special concern in the State of Florida). Many of the fish species start their lives in the West Lake mangroves and ultimately swim into the ocean to become part of a multi-million dollar sports fishing industry. For these reasons, the mangrove ecosystem of West Lake contributes directly to the aquatic health of Broward's coastal community. West Lake also houses the Ann Kolbe Nature Center which hosts exhibits and educational classes for visitors, including local school children, thus serving to increase environmental awareness and stewardship.

Construction of the Airport's wetland program, a joint project between the Parks and Recreation Division and BCAD, covering 34.1 acres of improvements south of Sheridan Street immediately west of the Intracoastal Waterway, began in April 2010. The project incorporated some very unique concepts such as upfront mitigation, and ecosystem restoration instead of simple mitigation. To the pleasure of the regulatory agencies which include the South Florida Water Management District, the United States Army Corps of Engineers, and the Broward County Office of Environmental Protection and Growth Management, FLL's wetland mitigation activities have been substantially completed well in advance of the proposed airport expansion impacts. Unlike many isolated mitigation areas which offer limited wetland value, the Airport's mitigation project adds to the functionality of a proven natural resource damaged through historical dredging, attempted development and storm events. Key elements of the mitigation program include shoreline restoration and protection of existing mangroves; outparcel acquisition; removal of exotic vegetation; and creation of mangroves, flushing channels, mudflats and hammock areas.

The mitigation program incorporated unique design features and restoration techniques. Perhaps the most striking feature of the project is nearly one mile of protective riprap cribbing designed specifically to avoid impacts to endangered seagrass beds while providing erosion protection for existing mangrove habitat. Inquiries have been made from various regulatory agencies and groups expressing interest in this innovative crib structure which is easily seen as one passes down the intracoastal waterway. Given the abundant natural seed base located within the park, scrape down of non-native spoil islands allowing natural recruitment of mangroves proved to be an innovative and very cost effective strategy for successful mangrove mitigation. In fact, the Airport's mitigation area is already being utilized as an example of successful mangrove mitigation by the University of Florida in its Master Naturalist training classes. Photographs of the project are attached.

## MEETING THE CRITERIA

BCAD believes that its wetland mitigation project satisfies the criteria for selection for the 2011 FAC Environmental Award as described below.

- *Project or program utilizes or implements positive environmental practices within the state-wide Florida aviation system.*

The airport's wetland mitigation program was developed using numerous positive environmental practices which set the benchmark for coastal mitigation efforts in this state. Aside from the typical requirements of the NEPA process such as avoidance and minimization of wetland impacts, unique elements of the program included protective cribbing design which minimized impacts to seagrass beds and hardbottom communities. Placement of the cribbing also required special construction and barge anchoring techniques to avoid damage to the resources. A comprehensive approach to ecosystem restoration incorporated various habitat types, including transitional zones, which increase the habitat value in the mitigation areas. During the permitting process for its new runway, BCAD has worked very closely to educate the regulatory agencies and minimize concerns regarding perceived impacts associated with the operation of aircraft, particularly over natural areas. Further, by performing its mitigation in advance of any development impacts, BCAD was able to actually demonstrate to those agencies its commitment to a successful wetland mitigation program.

- *Project or program demonstrates a balance between environmental benefit and financial viability.*

Broward County made a conscious decision to fulfill FLL's mitigation requirements by investing in the natural resources within Broward County. Specifically, the mitigation was conducted in West Lake Park which is primarily situated within the cities of Dania Beach and Hollywood – two cities which historically expressed the greatest concern over FLL's proposed runway expansion project. By performing the mitigation within those communities, BCAD was able to demonstrate good will and its commitment to being a good neighbor. The additional cost of performing in-County mitigation was evaluated against the tremendous benefit received by our local environment, local businesses, area residents and park visitors. The increased benefit was found to far outweigh any additional costs; and the program was determined to be consistent with BCAD's commitment to sustainability, and to the natural resources and residents of Broward County.

- *Project addresses environmental issues of, local, regional or state-wide concern, providing increased environmental awareness and/or partnerships with entities outside of the aviation industries.*

While FLL's mitigation program satisfies the requirements of federal, state and local environmental agencies, it has also served to increase environmental awareness of Park patrons, area residents, and local students. As previously noted, approximately one mile of shoreline protective riprap cribbing lines the edge of the mangroves south of Sheridan Street. Not only has this very visible structure brought attention to the mangroves within West Lake, it been the object

of inquiries from environmental agencies and international interests. In addition, the University of Florida is currently utilizing the mitigation as part of its Master naturalist training classes.

- *Project must have been completed, constructed, or reached a meaningful state within the last 12 months.*

The construction of FLL's mitigation met substantial completion in June 2011.

**LOCATION MAP**

**FORT LAUDERDALE - HOLLYWOOD, FL**



# **Project Photographs**



April 25, 2011  
West Lake Park - Segment I  
BC Project No. 425-00  
BC Contract No. H0724814C1

Miller Legg Project No. 99-37503  
Contractor: ATL Diversified Industries  
Location: Looking Southwest - Overall





EXOTIC  
VEGETATION  
REQUIRING  
REMOVAL

UNPROTECTED  
ERODING SHORELINE



April 30, 2010  
West Lake Park - Segment 1  
BC Project No. 425-00  
BC Contract No. H0724814C1

Miller Legg Project No. 99-37503  
Contractor: ATL Diversified Industries  
Location: Looking West - 36





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West Lake Park - Segment I  
BC Project No. 425-00  
BC Contract No. H0724814C1

Miller Legg Project No. 99-37503  
Contractor: ATL Diversified Industries  
Location: Looking West - 36



04-25-11



April 30, 2010  
West Lake Park - Segment 1  
BC Project No. 425-00  
BC Contract No. H0724814C1

Miller Legg Project No. 99-37503  
Contractor: ATL Diversified Industries  
Location: Looking West - 33, 35





April 25, 2011  
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Miller Legg Project No. 99-37503  
Contractor: ATL Diversified Industries  
Location: Looking West - 33, 35





AREAS DEGRADED BY  
EXOTIC VEGETATION,  
POOR HYDROLOGY



April 30, 2010  
West Lake Park - Segment I  
BC Project No. 425-00  
BC Contract No. H0724814C1

Miller Legg Project No. 99-37503  
Contractor: ATL Diversified Industries  
Location: Looking West - 22, 24, 25,  
26, 40



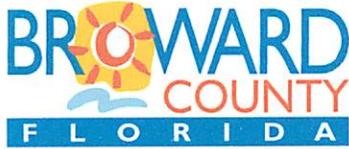


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Location: Looking West - 22, 24, 25,  
26, 40



# **Letters of Project Support**



Environmental Protection and Growth Management Department  
115 S. Andrews Avenue, Room 329 • Fort Lauderdale, Florida 33301 • 954-357-6612 • FAX 954-357-8655

June 13, 2011

Kent G. George, Director Aviation  
Broward County Aviation Department  
Fort Lauderdale-Hollywood international Airport  
100 Aviation Boulevard  
Fort Lauderdale, Florida 33315

RE: Letter of Project Support  
Airport Wetland Mitigation Program – West Lake Park  
Fort Lauderdale- Hollywood International Airport  
Broward County, Florida

Dear Kent:

Please accept this letter of support for the Fort Lauderdale –Hollywood International Airport’s (FLL) Wetland Mitigation program recently implemented at West Lake Park located in Hollywood, Florida. The comprehensive and creative wetland mitigation efforts embodied within this program represent the culmination of many years of careful planning, design, permitting and construction activities required to offset unavoidable impacts associated with the development of FLL’s new south runway project. The wetland improvements conducted within this vibrant South Florida coastal treasure are a reflection on FLL’s commitment not only to meet its mitigation requirements, but to improve the quality of the unique natural resources within our County, and the lives that those resources impact on a daily basis.

Thank you for your efforts on this outstanding project.

Sincerely,

A handwritten signature in cursive script that reads "Cynthia S. Chambers".

Cynthia S. Chambers  
Director

cc: Eric Myers, Natural Resources Planning and Management Division



June 10, 2011

Michael P. Pacitto, P.G.  
Aviation Environmental Compliance Manager  
Broward County Aviation Department  
Fort Lauderdale-Hollywood International Airport  
100 Aviation Boulevard, Fort Lauderdale, Florida 33315

Subject: West Lake Park mitigation project associated with wetland impacts at Ft. Lauderdale-Hollywood International Airport (FLL)

Dear Mr. Pacitto:

First, to introduce myself, I currently serve and have served since 2005 on the South Florida Regional Planning Council as an appointee of Florida governors Bush and Crist, and held the position of Council chair in 2009. In addition, my company has an office in Hollywood and has worked on several major projects in Broward County. Through these roles, I am well acquainted with the West Lake Park restoration project.

Therefore, it is with great pleasure that I strongly endorse the involvement of the Broward County Aviation Department (BCAD) with creation and implementation of the extensive environmental restoration project presently underway at West Lake Park. BCAD has had a key role from the beginning of this superb project through funding of the design and permitting stages. This showed remarkable and commendable foresight, to allocate funds ahead for unavoidable wetland impacts that could result from future improvements at FLL. It also demonstrates exceptional ability to work cooperatively with their public partners—Port Everglades and the Broward County Parks Department—in that endeavor.

Since that time, BCAD has completed the Environmental Impact Statement for the south runway extension at FLL, and determined that this project involves unavoidable impacts to approximately 15 acres of low-quality wetlands. To address these impacts as part of the environmental resource permitting process, BCAD has worked with West Lake Park to develop a wetland mitigation project within the overall restoration plan that applies specifically to offsetting these impacts at FLL. While permitting for the runway extension is still in progress, implementation of the mitigation has already begun, again showing exceptional forethought and planning.

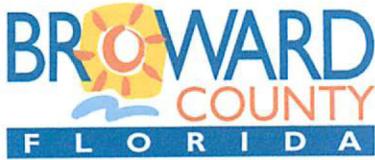
I feel strongly that BCAD is a worthy candidate to receive recognition by the Florida Airports Council for this well conceived and implemented program to restore and enhance sensitive and increasingly rare wetland habitats within Broward County while addressing critical needs for airport capacity improvements. Please do not hesitate to contact me if you need any further information.

Sincerely,



(Sandra Walters Consultants, Inc.)

Sandra Walters  
President



PARKS AND RECREATION • Administrative Offices  
950 N.W. 38<sup>th</sup> St. • Oakland Park, FL 33309-5982 • 954-357-8100 • TTY 954-537-2844 • FAX 954-537-2849

*Winner of the National Gold Medal Award for Excellence in Park and Recreation Management  
Accredited by the Commission for Accreditation of Parks and Recreation Agencies (CAPRA)*

June 10, 2011

Kent George, Director  
Broward County Aviation Department  
100 Aviation Blvd.  
Fort Lauderdale, FL 33315

Dear Kent:

I'd like to take this opportunity to thank you for your support of and participation in the West Lake mitigation program. Aviation's contributions to the enhancement of this valuable resource have been immense and are helping the Parks and Recreation Division realize our long-range goal of optimizing the park's diverse habitat while enabling the public to utilize and appreciate what we have here.

We appreciate your fiscally prudent support of the natural recruitment of mangroves, a method that has proven successful in the past and which saves a considerable amount of time, labor, and money when compared to planting them. You were also supportive of creating a diverse habitat to include mangroves, mud flats, and upland hammocks, which is ecologically far more valuable than mangroves alone. We thank you for sharing that vision, as well.

In addition, the new mangroves being created will provide an expanded nursery for juvenile fish species that will grow and eventually enter the open waters as adult fish, benefiting the local sport fishing industry.

Finally, you have given us the opportunity to offer these newly-created resources as an educational tool to benefit Master Naturalist, wetlands restoration, and other training groups to study our system and even imitate what we have accomplished here.

I thank you, the Parks and Recreation Division thanks you, and all the present and future inhabitants of West Lake Park thank you.

Sincerely,

A handwritten signature in blue ink that reads "Dan West".

Dan West, Director  
Parks and Recreation Division

DW/PY

Broward County Board of County Commissioners  
Sue Gunzburger • Dale V.C. Holness • Kristin Jacobs • Chip LaMarca • Ilene Lieberman • Stacy Ritter • John E. Rodstrom, Jr. • Barbara Sharief • Lois Wexler

[www.broward.org/parks](http://www.broward.org/parks) • [www.facebook.com/browardcountyparks](http://www.facebook.com/browardcountyparks)