



## factsfigures

- Project:** New Terminal  
**Location:** Lynden Pindling International Airport  
 Nassau, The Bahamas  
**Size:** 247,000 sq. ft.  
**Cost:** \$190.8 million  
**Construction:** July 2009 to Feb. 2011  
**Airport Owner:** Bahamian Government  
**Airport Operator:** Nassau Airport Development  
 Company (owned by Bahamian Government)  
**Airport/Project Management:**  
 Vancouver Airport Services  
**Related Projects:** Expansion of existing parking  
 facilities, roadwork & new aircraft apron  
**Construction Contractor for Terminal:**  
 Ledcor Construction, with Woslee Construction  
**Site Civil Works General Contractor:**  
 Ranger Construction  
**Prime Consultants & Architects:**  
 Stantec Consulting Int'l Ltd.  
**Structural Engineer:** Bush Bohlman & Partners  
**Cost Consultant:** Cheriton Management  
**Signage:** Lower Case Productions  
**Specifications:** Construction Spex  
**Code Consultant:** GBA Canada  
**Wind Consultant:** RWDI Ltd.  
**Hardware:** Assa Abloy Conada  
**Envelope Consultant:** Morrison Hershfield  
**Baggage Handling:** Glidepath  
**Local Glidepath Subcontractors:** Pilot; BGC Ltd.  
**Boarding Bridges:** ThyssenKrupp Airport Systems  
**Informational Technology:**  
 Air-Transport IT Services  
**Parking Management Software:**  
 iParcProfessional  
**Stanchions:** 300 Series Rectra-belt, by Visiontron
- Local Consultants to Stantec**  
**Architect:** Alexiou & Associates Architects  
**Structural Engineer:** George Cox & Company  
**Mechanical Engineer:** Graphite Engineering Ltd.  
**Electrical Engineer:**  
 Engineering Solutions & Consulting  
**Civil Engineer:** Caribbean Civil Group  
**Landscape Architect:** Terrain



# Nassau Airport Opens New U.S. Departures Terminal

By Rebecca Kanable

The largest airport in The Bahamas, Lynden Pindling International Airport (LPIA) in Nassau, is becoming a source of national pride. The country's leader said so himself in February, at the grand opening of the airport's new 247,000-square-foot U.S. departures terminal.

"Essentially, we are transforming and building at LPIA a new airport with an enhanced passenger and visitor experience for Bahamians and visitors alike," said Prime Minister Hubert Ingraham.

The grand opening celebration marked the on-time, under-budget completion of the first of three linked terminals in a \$409.5 million airport redevelopment project, which is the largest government capital project in the history of The Bahamas.

The modern, eco-friendly terminal not only brings a new look to the airport, it also provides a new outlook to the Bahamian people. With a largely tourism-based economy, local residents appreciate the importance of having an airport that provides a positive impression of the country, explain officials.

Previously, the government subsidized the airport; now it receives revenue from the government-owned airport. Nassau Airport Development Company (NAD), a Bahamian company owned by the government of The Bahamas, took over the day-to-day operations at LPIA in April 2007, when Vancouver Airport Services (YVRAS) signed a 10-year contract to develop, operate and manage the airport through NAD. YVRAS, which is jointly owned by the Vancouver Airport Authority and Citi Infrastructure Investors, operates and/or invests in 19 airports on three continents.

Although the government owns NAD, it is a self-sustaining commercial entity that receives no government guarantees or grants. As such, NAD is overseeing the airport redevelopment project.

NAD president and CEO, Stewart Steeves, says that the project will bring airport services and amenities up to a "world-class standard" and prepare the airport for future growth.

In 2008, 3.2 million passengers traveled through LPIA. By 2020, the newly expanded facilities are expected to accommodate 5.2 million passengers.

According to Steeves, both logistics and traffic patterns propelled the U.S. departures terminal to the front of the project. With the U.S. market accounting for about 80% of the airport's outbound passengers, it was a logical priority, he explains. It also, however, made sense to begin the three-stage project by building the new U.S. departures terminal next to the 19-year-old U.S. terminal. In Stage 2, the old terminal will be "selectively demolished" and a new international arrivals terminal will be built in its place. When that's done, the old international arrivals terminal will be demolished to make way for a new domestic/international departures and domestic arrivals terminal. All three terminals will eventually be linked.

In addition to the new \$190.8 million U.S. departures terminal, Stage 1 included the construction of new roadways, expansion of existing parking facilities and addition of about 1 million square feet of asphalt apron. While the Bahamian government contributed \$50 million and 16 private investors and lenders provided capital to launch Stage 1, passenger facility charges are expected to fund the \$409.5 million redevelopment effort.

Financing is comprised of a \$153 million seven-year senior-secured revolving credit, a \$42 million senior secured bond and a \$70 million subordinated participating debt facility. NAD received the Latin American Project Board Deal of the Year award for 2009 from Project Finance Magazine for securing the largest debt financing.

Construction of Stage 1 began in July 2009, with Ledcor Construction Limited as the principal general contractor for the terminal building in a joint venture with Woslee Construction, a Bahamian company. Ranger Construction was the general contractor for the site civil works.

### Bahamian by Design

Stantec Consulting International served as the principal design and architectural firm in partnership with Alexiou and Associates, a Bahamian firm.

Stantec executive principal Stanis Smith explains that the government's interest in making the airport a source of national pride was compatible with the standard approaches of YVRAS and Stantec. From





Stanis Smith

a design standpoint, Stantec strives to “very strongly brand airports with a sense of place,” he elaborates.

At LPIA, the natural beauty of The Bahamas inspired the look and feel of the U.S. departures terminal, Smith notes. The terminal roof was engineered to mirror the rippling of sand and waves; beach-colored limestone was combined with bright pastel colors to create a distinctly Bahamian feel; and natural textures, fabrics and materials were favored.

“As the largest airport in The Bahamas, the Nassau airport is the welcome experience — an introduction to The Bahamas,” Smith relates.

Landscaped gardens at the ends of the terminals and between the terminals are an integral part of the design. Three patios in the holding areas provide a place for passengers to enjoy an outdoor meal or drink before their flight.

NAD partnered with the National Art Gallery of The Bahamas to ensure that artwork by Bahamian artists permeates the new terminal. Smith points to two Junkanoo dancers in traditional dress as one of the most eye-catching pieces on display.

Travelers can also sample Bahamian culture in the expanded concession offerings. The new terminal has a 170-seat restaurant and bar, three food courts, a coffee shop, three newsstands/bookstores, eight retail shops, two retail kiosks, a retail cart, a common-use lounge, two full bars and a duty-free store.

Retail merchandise includes locally crafted straw products, weavings, soaps and upscale perfumes.

Making the new facility into a unique gateway was a constant focus, relates Smith. “We really wanted to make this terminal something that people will remember and associate with The Bahamas,” he explains. “We want them to feel like this terminal could be nowhere else but The Bahamas.”

Designers also worked to ensure that passengers have a stress-free travel experience. As such, the new terminal was designed to be barrier-free and easier to get into and out of. Way finding is intuitive, and the space is more free-flowing, reports Smith.

In the old U.S. departures terminal, passengers waited in a common hold room until their flights were called; then they walked out the departure pier.

Today, Steeves contrasts, “You can stay in the retail area or the food and beverage area, or you can wait by your gate. It’s really much more flexible and efficient.”

**Island-friendly**

While aesthetics were important to the Bahamian government, it also wanted the terminal’s design and construction to meet high environmental standards.

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Steeves and Smith give examples of how the team accomplished that goal:

- Deep roof overhangs keep high-level glass in shadow to minimize heat-gain.
- A light-colored roof reflects heat.
- Rainwater collected on the roof is used to flush toilets.
- Wells drilled 400 feet deep capture ground water and cycle it through chillers and heat exchangers.

Automated system controls reduce unnecessary usage. The lighting system, for example, automatically responds to natural ambient light.

In addition, less than 50% of the terminal's exterior walls include glass. This reduces the amount of heat entering the building, while still providing views of the tarmac, explains Smith. Stantec rejected what it calls the traditional "glass box" approach to terminal design, in which most of the building is clad in glass, to better suit the Bahamian climate. The exterior is clad in a combination of windows and solid panels that are brightly colored in sand and sky hues to capture the look of The Bahamas.

Conditioned air comes from the floor through high-volume, low-velocity diffusers disguised in planters, tables and art display

cabinets. This strategy saves considerable energy because only the space that is occupied by people is conditioned, rather than the entire volume of the building, Smith relates.

"When we put intelligent features into our designs that reduce the energy consumption of a building, everyone benefits," he says.

### Inside the Terminal

In addition to the building being energy-efficient, systems within the building were designed to be efficient for users.

Glidepath was awarded a \$21 million contract to design, build and install a new fully integrated baggage handling, sortation and explosive detection system. In Stage 1, Glidepath added a 55-counter check-in with a 1,800 bag-per-hour inline explosive detection system, bag-weight imaging system (BWIS) and an automated baggage sortation with three large makeup carousels totaling 3,500 linear feet and more than 300 drives.

According to Glidepath vice president of operations Greg Wheeler, very few airports have BWIS capabilities. The system weighs and takes a picture of each checked bag at LPIA. The application, notes Wheeler, is starting to become a requirement for bags entering the United States.



From behind the ticket counters, the system is a standard integrated baggage handling system, he adds.

The new terminal's Airport Operational Database (AODB) and flight information display system (FIDS) were provided by Air-Transport IT Services, with Bahamian company Capitol City Computers installing 75 of the dynamic displays.

Late in Stage 1, AirIT's EASE common-use airline check-in system was added to 21 gate positions for nine scheduled carriers and to check-in counters for charter operators. In order to get the airlines up and running, AirIT implemented the system in six weeks, reports AirIT president and COO Chris Keller.

EASE common-use technology allows any airline to use airport hardware at any gate position to operate the airline's own dedicated application on the airport-provided network infrastructure. Handling more airlines and more operations in less facility space fits the airport's goal of being environmentally responsible.

When information is entered in the check-in system, the AODB and FIDS are updated automatically. Such advantages, notes Keller, give the airport a competitive advantage in attracting airlines.

"It allows us to accommodate off-schedule aircraft movements or irregular operations much more flexibly than we could before," comments Steeves.

In addition to EASE, the airport uses AirIT's local departure control system for charter airlines that do not have their own application.

New passenger boarding bridges are also increasing efficiency by allowing the airport to accommodate aircraft of different sizes, Steeves says. Five apron-drive passenger boarding bridges from



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ThyssenKrupp Airport Systems were added at the new terminal. Three positions are ready for more to be added in the future.

### Challenges Overcome

Managing timely delivery of materials to the island wasn't easy, recalls Steeves. When Bahamian materials were not available, alternatives were imported from nearby southern U.S. states to keep shipping costs down whenever possible, adds Smith. In addition, 35 local Bahamian firms partnered with foreign contractors and consultants.

The design team faced challenges associated with the varying age and condition of existing facilities. While some were new, others were 50 years or older and had outlived their useful lives. Stantec's strategy was to save what could be saved, including part of the U.S. departures terminal, and replace the rest.

Despite the challenges, Smith says, "The end result is something that all of us are proud of."

When complete, the three linked terminals will total more than 572,000 square feet. Airside, there will be 16 bridged gates plus additional ground loading gates. Stage 2 of the redevelopment is expected to open in 2012; Stage 3 is slated for 2013.



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## LPIA Upgrades its Parking Revenue Control

As part of a \$409.5 million redevelopment project linking three terminals, Lynden Pindling International Airport (LPIA) in Nassau is expanding its parking facilities and upgrading its parking revenue control equipment.

After all three stages of the project are complete, there will be three public lots (one short-term and two extended stay) with more than 2,000 total parking spaces. Employees will also have two lots.

The airport's latest contract with Amano McGann for parking revenue control equipment continues a decade-long relationship. Twenty-four lanes of new parking revenue control equipment are being installed in various phases of the redevelopment. To accommodate left- and right-hand drive vehicles, all parking revenue control equipment is being set up on both sides.

### The Commercial Side

New enhancements will also help LPIA control commercial ground transportation.

Scott Hill, Amano McGann vice president of distributor sales, reports that more U.S. airports are starting to look at the revenue stream that can be derived from commercial ground transportation. While many continue to charge a flat user's fee to commercial ground transportation companies such as private limousine services, hotel shuttle buses and taxis, some airports are beginning to charge per trip, Hill relates. Customized revenue systems like Amano McGann's make that possible by using radio frequency identification tags associated with automated vehicle identification (AVI) systems to track every vehicle that goes into and out of a terminal area or holding lot.

If commercial vehicles are only permitted to park in front of the terminal for 10 minutes, and a shuttle bus is parked there longer, the airport can notify the company with a warning or charge an additional fee. If the airport wants to limit the number of taxis in front of the terminal, waiting taxis can park in a remote lot. When one taxi leaves the terminal, another can be notified to drive up.

"The airport wants to eliminate having too many vehicles at the curb at any one time, yet keep the taxis and shuttle buses flowing for customer convenience," explains Gregg Smith, senior sales executive with Amano McGann.

When combined with an electronic variable message sign, the company's AVI system also can be used to control traffic.

### Enter Here

New entry stations are among the equipment being installed. The AMG-2570 Series Entry Stations add access cards and credit card functionality, such as ticket in/credit card out, and credit card in/credit card out when used with AMG-4570 Series Exit Stations.

The airport operator's BizPark program, designed to provide hassle-free parking with easy access to terminals, lets employees and frequent fliers pay for parking up front and replenish their proximity card on a regular basis.

"We can associate a proximity card or AVI tag with a customer's account," Hill says. "Customers can use their credit cards at Proximity Reader Access Terminals going in and out. They don't need to take a ticket coming in and they don't need to stop at a cashier on the way out."

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