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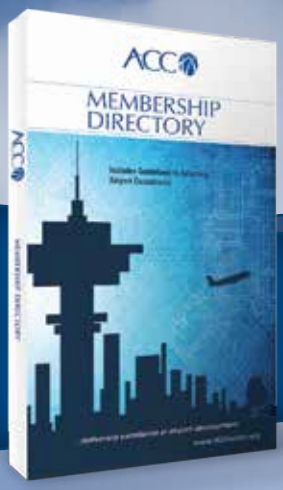

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Good Grief! It's Hangar With an "a"

One of my recent Google Alerts included a newspaper article about an aviation company that received a grant to help fund its new corporate office complex. Part of the project was going to include a "hanger." Yes, hanger with an "e" instead of an "a."

Initially, I was incredulous. How could a journalist (and editor and proofreader) be so sloppy?

Then I considered that perhaps the writer et al. have never even seen an aviation hangar. Maybe I'm just more sensitive to words that are indigenous to aviation than the general public would be. Could it be that we have an inflated view of our industry and expect the world to naturally revolve around us? Is it really the responsibility of others to know and understand who we are and what we do?

Maybe we need to look within and examine our efforts to educate and inform the public. After all, it is called public outreach, not public inreach. Save for announcements about new air service, the length of security lines and aircraft incidents, the public may not be getting as much information about what's going on at airports as they should be. Or perhaps what we're putting out there isn't in a format they can easily find.

Educating the public is a never-ending task, and efforts should involve every platform available. Further, we should continuously search for better ways to reach our neighbors and public at large.

PAUL BOWERS, PUBLISHER

Our IT story from Williston, ND, (Page 34) reminded me that there are still creative new ways to educate our communities. Williston is breaking ground on a new airport and decided that the current airport website was not ideal for communication purposes. Using the existing website would have been convenient for the airport staff, but it wouldn't have the necessary impact within the community.

This new airport is a big deal. It's not a remodeling, nor a new terminal at the existing airport. It's a brand new airport, Williston Basin International Airport (XWA). The project website, xwaproject.com, is designed to provide updates, answer frequently asked questions and offer a portal for vendors to review the bidding process—information that is easy for the community to obtain and easy for media to report on. Seems like Williston is on to something good.

Cheers, Paul

Illinois County Cuts Ribbon on New Terminal & Renames Airport to Honor Veterans

BY ROBERT NORDSTROM

After 10 years of planning and negotiating and building, Williamson County Airport Authority recently cut the ribbon on its new terminal. To honor local veterans, it changed the name of the entire facility from Williamson County Regional Airport to Veterans Airport of Southern Illinois (MWA) and named the terminal after a local World War II flying ace and former airport authority chair. Fittingly, MWA dedicated the new Captain Robert W. Duncan Airline Terminal on Veterans Day (2016).

The new terminal was sorely needed, informs Airport Director Doug Kimmel. "When I started at the airport in 1998, it was apparent to me that the terminal had design flaws," he reflects. "There wasn't a right angle in the entire building…and everything happened through one set of doors."

DOUG KIMMEL

The access challenges were tolerable with light passenger traffic; but when large charter groups began constantly crossing paths with rental car customers and airport administration staff, it became clear that the building simply didn't work. "People ended up out on the sidewalk and street just trying to get into and through the building," recalls Kimmel.

From an aesthetic standpoint, the terminal was also a clear reflection of the year it was built: 1972.

Beyond design flaws and dated interior elements, the building's structural components were failing, adds Kimmel. Officials determined that renovating and expanding the old terminal would be throwing good money after bad, and embraced the idea of building a new terminal.

"It all came to a head in 2006, when we opened discussions with Allegiant Air about offering flights twice a week to and from Las Vegas," Kimmel explains.

Faced with the prospect of increased passenger volume on the MD-80s the new service would bring in, airport officials began preparations for the new terminal in earnest. "We didn't even have parking space for the 100+ passengers who would arrive [on each flight]," Kimmel recalls.

Today, after 10 years of ups and downs during planning, design and construction, the Williamson County Airport Authority is proud of the larger, better-equipped terminal it built directly adjacent to the old one. The new $14 million, 23,000-square-foot facility provides the community and travelers with the services and amenities they deserve, Kimmel notes.

BERNARD PAUL

"We feel great satisfaction at the completion of this beautiful terminal structure," says Airport Authority Chairman

Bernard Paul. “It will mean so much in shaping the careers and futures of the people of southern Illinois.”

Unlike the previous 17,000-square-foot terminal, the new facility was built with expansion capabilities. According to airport personnel, the old building will be torn down by January 2017.

Solutions Beget Problems

Symbolically, the road leading to MWA’s new terminal was long and winding, with many potholes along the way.

Back in 2006 and 2007, with increased Allegiant service looming, airport officials began devising immediate solutions for the terminal’s structural deficiencies. To address capacity constraints for departing passengers, MWA created a temporary holdroom by placing a doublewide modular trailer on the ramp. Although it provided much-needed space, the trailer was not considered as an acceptable long-term solution. “It couldn’t have been more embarrassing for the airport and community when welcoming travelers to the airport and region for the first time,” recalls Kimmel.

Baggage claim—a small hallway with a single rollup door—presented similar challenges. When more than 100 passengers were trying to retrieve their luggage, it created a logistical nightmare, not to mention fire code violations, he explains.

The airport solved this problem by moving the baggage claim area to the front side of the building, where a brick wall separates landside passengers from the secure ramp area. Several rollup doors were cut into the brick wall to create an area outside the building for baggage pickup.

This solution, however, created another logistical problem: Congestion in the baggage claim area impeded traffic from passengers trying to enter the terminal. Nevertheless, the airport had no other good options at the time.

VETERANS AIRPORT of SOUTHERN ILLINOIS

FACTS&FIGURES

Project: New Terminal

Location: Veterans Airport of Southern Illinois

Cost: $14 million

Funding: Airport Improvement Program (68%); airport (32%)

Prime Consultant—Architecture & Engineering: RS&H

Site Engineering: Clarida & Ziegler Engineering Co.

Architecture Consultant: Baysinger Architects

General Contractor: Poettker Construction

Electrical: Brown Electric

Plumbing & Mechanical: SIPC

Site Development: Ramsey Excavating

Storefront Glass: Marion Glass & Mirror

Zinc Roofing & Exterior Panels: Rheinzink

Great Hall Ceiling System: Lamboo

Holdroom Seating: Arconas

Landside Public Seating & Office Furniture: Resource One

Translucent Panels: 3Form

Of Note: After 10 years of challenges & setbacks, officials renamed airport to honor local service members & dedicated new terminal on Veterans Day.

The operations center and administration offices are now located on the second floor, away from general passenger traffic.

Faced with mounting capacity issues, the authority board initiated discussions about finding a long-term solution and eventually hired RS&H to initiate a terminal area improvement planning study.

In late 2007, Allegiant officially debuted its new service from MWA to Las Vegas, complete with corporate representatives and a casino showgirl. New baggage claim doors were in place, and the temporary holdroom stood ready on the ramp.

Then Kimmel got a phone call.

The call came from an official in Allegiant's planning department, who told him that the airline was freezing new operations due to fuel costs and economic trends moving into 2008. "It was literally two weeks after the announcement," Kimmel states incredulously. "They had even begun selling tickets."

But just as solutions sometimes beget problems, problems sometimes beget opportunities. Allegiant had opened the door regarding plans for a new terminal, and airport

officials were not about to allow that door to slam shut. RS&H continued working on the planning study, and airport officials began talking to the FAA about the deficiencies in its existing terminal, using the Allegiant example as a case in point. Even without the anticipated additional traffic, MWA could not adequately handle its current commuter service when servicing large charter operations for athletic teams from nearby Southern Illinois University, notes Kimmel.

"We explained our situation and circumstances to the FAA: If not now, five or 10 years from now, we were going to have to address these issues," he relates. "The FAA agreed, encouraging us to move ahead with the planning study. That's what we did as we moved through 2008."

Eye on the Prize

Though seeds for a new terminal had been planted and ideas were sprouting, a few weeds popped up as well. In 2007, RegionsAir, which provided local service to St. Louis, experienced a significant decrease in traffic and eventually went out of business. As a result, MWA's annual enplanements dropped below 10,000—the magic number needed to qualify for federal entitlement funds. Without Airport Improvement Program (AIP) funding from the FAA, the terminal project was dead. Nevertheless, the airport authority authorized RS&H to move forward with the terminal study.

Great Lakes Airlines offered air services throughout 2008 and most of 2009 under a Department of Transportation contract, but was unable to move enplanements above 10,000 per year. RS&H continued the planning study and also completed a financial plan study to estimate costs for the new terminal. Although the FAA responded favorably, it wasn't willing to pay for the project, explains Kimmel.

Finally, in late 2009, Cape Air replaced Great Lakes at the airport, and by the end of 2010 pushed annual enplanements above the 10,000 mark. "Cape Air came on strong with more flights per day and lower airfares," Kimmel reports. "The market really responded."

Once again eligible for FAA funding, the airport began the terminal design phase in 2012 and eventually decided to build a new terminal on the west side of the existing terminal so operations could continue with minimal interruptions. In early 2013, the FAA approved the design and agreed to provide AIP funding at 75.65% for 95% of the building's cost. In the end, FAA paid for 68% of the $14 million total cost, and the airport funded 32%.

Throughout several years of terminal planning and design work, airport officials made a concerted effort to keep the FAA apprised of study results and elicit its

feedback. Tony Molinero, FAA spokesperson for the Great Lakes Region, commends MWA for taking such an interactive approach. "When any airport is looking to undertake a big project, it's always good to talk to the FAA right away," says Molinero. "It gives FAA officials a better understanding of what the airport is trying to accomplish. That helps when we have to make decisions on discretionary monies in the future. Our best relationships are with airport management with whom we are talking all the time."


TONY MOLINERO

Persistence Pays Off

Although the airport broke ground for the new terminal in October 2014, most of the construction work didn't begin until March 2015 because of winter weather.

For funding reasons, planners divided the project into two phases. The first phase encompassed all site work, including roadways and parking, the steel building structure and its exterior skin. During Phase Two, crews completed the building's interior and various systems.

Features of the new terminal include:

- realigned and improved roadways and parking;
- curbside canopy system to protect travelers from inclement weather;
- integrated airline and TSA areas;
- 100-seat holdroom to accommodate large charter groups;
- new restrooms;
- direct access from rental car offices to ready rental parking spaces;
- 216 additional vehicle parking spaces;
- new baggage chute system with room for baggage carousel in the future;
- airport administration offices and operations center on second floor;
- more efficient and sustainable energy systems;
- enhanced security, paging and surveillance systems;
- and the ability to expand easily in the future.

Travelers enter the new terminal through center doors into a two-story great hall area with a barrel-vaulted ceiling. Ticketing is located on one side and baggage claim on the other. Departing passengers move through an open meet-and-greet area to the TSA screening checkpoint and into a 100-seat holdroom. Large expanses of glass wash interior spaces with light, and a spiral staircase and elevator lead to the second floor, which houses administrative offices, a boardroom, break room and an observation area that overlooks the tarmac.

RS&H created the ceiling/roof structure in the great hall area with a steel and glulam bamboo timber system manufactured by Lamboo. "We were pleased to find a strong and sustainable product," notes architect Andrew Nelson. "The system allows for large spans using economical pieces of lumber and steel. It worked very well in helping us create the expansive arch in the great hall."


ANDREW NELSON

The open area helps create a distinctive feel in the new facility, adds Mark Wilcer, project manager and senior aviation architect with RS&H. "The terminal harkens back to the great halls found in some of the old train stations that used to be at the center of our nation's transportation system," he remarks.


MARK WILCER

Given the previous problems with pedestrian traffic in the old terminal, creating efficient flow throughout the building was a key priority. Additional entrances/exits were added on each side of the building to eliminate congestion in the center of the building. Now, travelers can retrieve their bags and exit directly to the parking lot or rental car area.

Designers drew inspiration from the region's numerous lakes and other natural features when conceiving various interior elements. They selected light and dark shades of flooring tile that suggest the boundary between shore and water to help demarcate landside and airside areas. Translucent panels that shield the TSA screening checkpoint and other perimeter areas throughout the terminal are adorned with embedded leaves and grass.

"These warm materials link the interior to nature and the landscape," Nelson explains.

For the building exterior, architects paired large expanses of glass with precast concrete panels. The roof system and select outside panels are clad in a zinc material that will develop varied hues of patina as it ages.

Planning for Tomorrow

According to Kimmel any new terminal should accommodate an airport's needs for at least 25 years. "This building will accommodate us for at least 50 years," he adds emphatically. "Unlike the old terminal, it can be expanded on the east and the west. It's a modern building that looks good from the highway and is now an element in our region's landscape."

Given the extended timeline of MWA's project, Kimmel credits the FAA for its support throughout the long, sometimes painful, planning, design and building process.

"I have come to understand that oftentimes airports are a little too quick on the draw and want to forge ahead politically by going to their federal legislators (for funding assistance)," he reflects. "That's not a fair way to handle business with an organization charged with managing a complex system of airports and airport projects. I think the FAA was appreciative that we provided information over time on each aspect of the project."


The new terminal was 10 years in the making.

When MWA did approach legislators for help, it was able to let them know that airport officials had already vetted plans with the FAA, he adds.

In the end, the project created more than 200 jobs and $21 million of economic impact in the area. U.S. Senator Dick Durbin, who championed the terminal program for the airport, reflects positively on its results. "Having access to reliable air service is essential to growing businesses that create jobs in Illinois," says the legislator. "In addition to supporting good-paying, local construction jobs…this project is a prime example of how federal dollars can be used to fill critical gaps in essential infrastructure."

An LED light array allows the airport to vary the colors displayed on the tower to show support for local teams, holiday spirit, etc.

San Francisco Int'l Makes a Design Statement With New Control Tower

BY JODI RICHARDS

At 221 feet tall, the new air traffic control tower at San Francisco International (SFO) was designed to be functional and create a new visual landmark. Occupying prime real estate between terminals 1 and 2, the tower features nearly 150 vertical feet of glass and an LED light array to provide the iconic look that airport officials desired. At the same time, the tower and base building incorporate sustainability features and cutting-edge seismic technology designed to meet the needs of the airport and FAA well into future.


MARK COSTANZO

Construction of the new tower began in June 2012, and the facility went into service mid-October 2016. "We wanted to make sure it was a tower that was functional for the FAA, and that they can operate effectively for the next generation," says SFO Project Manager Mark Costanzo.

Concurrently, it was important that the structure fit with the architecture of existing airport buildings. "We worked hard to make the tower a landmark structure that would be a beacon and an icon for San Francisco for years to come," he explains.

Not only is the design of the new tower noteworthy, the process used to create it is significant as well. This was the first time FAA granted an airport the authority to design and construct an air traffic control tower.

Ian Gregor, public affairs manager for FAA's Pacific Division, explains that most control towers are stand-alone projects that the FAA designs and supervises; but SFO's tower project had unique circumstances that led the agency to agree to a different method. "The SFO tower project is unique in that it was being integrated into the existing terminal structure, which the airport owns and maintains," explains Gregor. "Additionally, portions of the base building serve as passenger conduits between terminals 1 and 2. Finally, the design required approval by the city's Civic Design Commission, and airport personnel are more familiar than FAA engineers with its requirements and preferences."

Unorthodox Location

SFO's striking new facility replaces its former tower, which operated atop of Terminal 2 and sustained damages during the 1989 Loma Prieta earthquake that left its structural system not "up to par," explains Costanzo. After researching various options, FAA and SFO officials determined that retrofitting the damaged tower would be too expensive and decided to build new.


DOUG YAKEL

A siting study that considered the entire airport property identified Courtyard 2, between terminals 1 and 2, as the ideal location for the new tower. While many airports prefer to locate their towers far from the terminal areas, the best location for SFO's new tower was "smack in the middle of all the terminals," explains SFO Public Information Officer Doug Yakel, because the airport is so space-constrained. Although SFO serves more than 50 million passengers annually, it only has about 2,200 acres of developed land, he notes.

In a similar vein, most control towers at U.S. airports are strictly utilitarian—focusing on function rather than design. But SFO wanted its new air traffic control facility to excel on both fronts. "Knowing that the tower would be situated in the midst of all of these facilities we've been working so hard to renovate, we really wanted something that would not only meet the functional needs of the FAA, but meet our own design aesthetics," Yakel remarks.

The International Terminal has served as the airport's "public face" since it opened in 2000, he continues. "We viewed this new tower as

SFO San Francisco International Airport

FACTS&FIGURES

Project: Air Traffic Control Tower

Location: San Francisco Int'l Airport

Associated Elements: Base building & pedestrian connectors

Tower Owner/Occupant: FAA

Cost to Airport: $60 million (design & construction of terminal connectors, tower façade, LED light array)

Cost to FAA: $80 million (design & construction of tower)

Design Architect: HNTB

Architect of Record: Fentress Architects

Mechanical, Electrical, Civil Designer: AECOM

Structural Designer: Walter P. Moore

Construction: Hensel Phelps

Industry First: FAA allowed airport to design & build the tower

Noteworthy Design Elements: 147-foot glass panel on tower facade; color-changing LED light array; tallest vertical post-tensioned concrete structure in the U.S.; seismic system that allows building to sway up to 6 ft. during earthquakes; tuned mass damper system to building & reduce movement in cab; pedestrian walkways that connect terminals & allow visitors to view tower through glass ceiling

Visitors can view the new tower through a glass pedestrian walkway that connects terminals 1 and 2.

an opportunity to establish a landmark at our airport that would really come to signify SFO to our region and hopefully to travelers around the world."

The airport hired HNTB as the master architect for its Terminal 1 redevelopment program, as well as the adjacent control tower and integrated facility (the base building below the control tower). The firm developed a 45% design document, which was then completed by Fentress Architects, explains HNTB Project Manager Paul Kim. Hensel Phelps provided construction management oversight.

PAUL KIM

Kim says airport officials were looking for an elegant and graceful tower design, rather than "just a lollipop on a stick" as is often the case.

The finishes and materials specified for the three-story base building and 221-foot tower feature a neutral color palette to help tie the two terminals together. Responding to the airport's desire for an iconic building, designers adorned the landside façade with a special glazing system, a glass panel that stretches nearly 150 feet tall and an LED light array.

During the day, the glass reflects sunlight; at night, it is illuminated by programmable, color-changing LED lights. The airport can show its support for various sports teams, holidays and special events by displaying the appropriate colors. "It's a really neat system and it shows how beautiful the building is when you see those lights," Costanzo notes.

"This is a new symbol for the airport and a real beacon—not so much for airplanes as it is for the public to see and know

San Francisco Airport," adds Curt Fentress, president and CEO of Fentress Architects. "It's very dramatic, somewhat futuristic, and it's a refreshing piece of architecture." The overall form is reminiscent of the torches that used to guide ships into San Francisco, he continues. "It's a real landmark for the airport."


CURT FENTRESS

Inside the Tower

SFO's former tower, which was built in the '70s and began operating in 1983, had deficits beyond its seismic shortcomings toward the end of its life. Elements such as narrow hallways and the need to take two separate elevators to reach the cab also dated the facility.

The new tower features wide stairways and two exit stairwells from the cab for evacuation purposes. In addition, the FAA outfitted it with upgraded electronic and technological systems. The 650-square-foot cab provides controllers with more workspace and a 235-degree unobstructed view of the airfield. An offset cab allows for better sightlines and an improved operating layout. Moving vertical circulation components out of the middle of the cab allowed for more efficient use of the facility's limited space, Kim remarks.

FAA officials note that new air traffic control equipment in the controller work area includes a state-of-the-art ground radar system and touch-screen displays for weather and airfield status information. By the end of the year, the ground radar will link to SFO's runway status lights, which tell pilots when it is unsafe to enter a runway or to take off.

"It's built to last and carry us into the future," Costanzo reflects. "Where the previous one we just barely had enough to keep it operational."

At the base of the tower is a three-story, 44,000-square-foot building with FAA offices, computer equipment and a backup generator. The base building also includes walkways that connect terminals 1 and 2, pre- and post-security. The pre-security walkway offers a view of the tower above through a glass roof. "It gives the public the opportunity to enjoy the tower, even if they're not going inside of it," Yakel notes.

Seismic & Sustainability Standards

Ensuring that the new facility could withstand extreme seismic activity in the future was a high priority for the airport and the FAA. The tower employs a vertical post-tensioned system, with steel cables imbedded in the core to provide additional strength. The

Advanced systems help reduce the effects of building sway at the top of the 221-foot tower.

structure is designed to allow the tower to remain upright and fully operational after an earthquake, explains Kim.

"It's performance-based, where it can sway up to 6 feet at the top level," Costanzo adds. The cutting-edge system enables the tower to meet current seismic standards—up to an 8.0 earthquake—and is the tallest vertical post-tensioned concrete structure in the United States.

Fentress says the use of vertically post-tensioned cables is a unique, economical solution that provides high performance.

"Mucky clay" soil at the building site provided extra design challenges, he adds. To mitigate the risk of liquefaction after an earthquake, engineers added a large base slab to the foundation. If liquid rises from underneath the building, the slab displaces the soil to prevent the building from swaying or settling.

For the comfort of controllers and other building occupants, the structure includes a tuned mass damper system that balances the building and reduces movement—and thus motion sickness—at the top. Giant 35,000-pound weights outfitted with springs are positioned on all four sides of the tower to counteract wind and slow any movement of the structure so the cab operators do not feel motion, explains Costanzo.

As with all construction projects at SFO, environmental sustainability played a major role in the design of the new tower, Yakel says. In recognition of such efforts, the project achieved gold certification in Leadership in Energy and Environmental Design from the U.S. Green Building Council.

Elements that contribute to the facility's eco-performance include: photovoltaic panels; leveraging natural daylight in the offices and public lobby; a roof garden; low-flow plumbing fixtures; energy-efficient heating, ventilation and cooling systems; programmable LED lighting; charging stations for electric vehicles; and the use of sustainably produced interior finish materials.

Delivery Details

Success of the project relied heavily on partnership among SFO, FAA and a host of contractors and consultants, Costanzo notes. Formal partnering sessions, held monthly, brought all team members together to discuss progress and successes. They also provided a forum for participants to raise problems before they became major issues that would cost time and money.

The project demonstrates "the importance of being flexible, letting go of egos and adapting to working closely with an outside agency on a project that benefits us both," reflects Gregor.

Funding was also a partnership: FAA funded the tower portion, for about $80 million. SFO contributed $60 million for the building's façade, exterior LED light array and pedestrian connectors between terminals 1 and 2.

Because the tower was erected between the two busy terminals, the airport routed landside passengers out of Terminal 2, onto a sidewalk and then into Terminal 1 to ensure safety during construction, Costanzo reports. Keeping signage current and accurate was critical for reducing confusion; but the airport also added windows into the jobsite so travelers could watch as construction progressed.

The procurement method on the project was a learning curve for FAA, Costanzo notes. While SFO has found "tremendous success" with the design-build method, it's not a process the FAA typically uses. "This was something new for the FAA," he comments.

To ensure comfort with the process, one of the agency's resident engineers served on SFO's construction management team and was involved with every decision, Costanzo relates. While the airport oversaw the project, SFO wanted to fully include FAA throughout the process. "They inherit this building, and they're going to be operating out of it," he explains. "We wanted to make sure they were happy with everything they got."

As to whether FAA will consider this arrangement at other airports, Gregor says the agency is "flexible…and would adopt the method that best suits the individual circumstances."

Costanzo predicts the strategy will become more common: "I think based on the success of this, you're going to see this type of approach taken at other airports around the U.S."

Demolition of SFO's old control tower is expected to begin early January 2017 and last about six months.

HONOLULU INT'L USES TACO WAGONS TO BRING HOT FOOD TO CUSTOMERS IN GATEHOLD AREAS

BY VICTORIA SOUKUP

Capitalizing on a popular streetside trend, two Hawaiian airports are using small battery-powered versions of the food trucks that have taken many North American cities by storm in the last few years.

Two food wagons, decked out in fun Hawaiian-style motifs, have been traveling Honolulu International Airport (HNL) since summer. The festive vehicles serve hot, made-to-order tacos from the back in addition to selling a variety of pre-made sandwiches, salads, snacks and beverages. The Wiki Wiki Wagon services the EWA Concourse, and the E Komo Mai Wagon travels the Diamond Head Concourse.

The Wiki Wiki Wagon at Kahului Airport on Maui carries only cold pre-made options.

Airport and concessionaire officials say the wagons provide a new way to reach passengers who like to get to their gate and stay there. Customers report that the mobile concessions are a fun way to get something to eat—without losing their holdroom seat.

"We want our passengers to feel comfortable and relaxed, and a big part of that is making sure they have great dining options to choose from no matter where they are in the airport," says Ross Higashi, Deputy Director, Hawaii Department of Transportation - Airports Division. "HMSHost's new mobile wagons at HNL meet that demand by providing a handheld meal that is customizable, fast and hot."

ROSS HIGASHI

A Moveable Feast

Each day, HNL's wagons travel between gates, focusing on areas with high concentrations of departing passengers. The vehicles also sometimes service gates where long flights are arriving, to provide passengers with hand-held meals or snacks they can eat while walking toward the baggage claim area.

HMSHost, which also holds contracts for more traditional fixed concessions at HNL, launched the taco wagons to reach passengers who feel most comfortable sticking close to the gate when waiting for their flights.

"There are different types of travelers out there," says Jeff Steelman, Vice President - Culinary for HMSHost Corporation. "Some like

FACTS&FIGURES

Project: Food Wagons

Locations: Honolulu Int'l Airport; Kahului Airport

Offerings: Hot tacos; pre-made sandwiches, salads & snacks; beverages at Honolulu Int'l; cold products at Kahului Airport

Concessionaire: HMSHost

Vehicle Mfr: eTuk

Interior Features: Rocky Mountain Inventioneering

Primary Benefit: Bringing food options to passengers who prefer to remain at their gates

Launch Dates: May 2016 at Honolulu Int'l; July 2016 at Kahului Airport

Sales: Not disclosed, but above expectations


JEFF STEELMAN

to have a cocktail, others want a sandwich and others want a sit-down meal. And then there are the travelers who want to get to their gate as fast as possible, get a seat and stay there even when the plane isn't even there. We have to cater to those passengers and give them what they want to eat, where they want to eat it. It's all about getting hot food to that traveler. And it's a lot of fun."

The mini food truck idea was a natural extension of the bicycle carts and food wagons HMSHost operates at Chicago O'Hare and Nashville International. HNL, however, was the concessionaire's first foray into using self-contained cooking units for offering hot food.


JAMES SCHMITZ

"We really felt that this was the way to go," explains James Schmitz, Vice President of Innovation for HMSHost. "You see a lot of this type of food delivery innovation in Europe, and that's where we got the idea. Sometimes, there are high saturations of passengers but not enough food and beverage offerings for them. The taco wagons are another option for the traveler."

Plug & Serve

HMSHost worked with eTuk USA and Rocky Mountain Inventioneering, both out of Denver, to create the unique food wagons. The vehicles use battery-supplied power for cooking, driving and refrigeration and are charged in traditional 220-volt outlets each night. A 110-volt inverter in each vehicle converts DC voltage into AC voltage to run the onboard equipment.

When fully charged, the refrigeration, point-of-sale system and grill can operate for 17 to 18 hours without needing a recharge. Operators supplement the power for on-board refrigeration by plugging the wagons into terminal wall units during stops.

The vehicles were manufactured by eTuck; Rocky Mountain Inventioneering provided and installed interior features such as refrigeration units and ice baths.

Cleaning and food safety measures for the food wagons are the same as those required in commercial kitchens, notes Schmitz. Operators are trained to observe standard food temperature requirements and follow "clean-as-you-go" operational rules. Each vehicle is equipped with cleaning items and a self-contained hand washing station. To date, no health or sanitation problems have been reported, notes Schmitz.

Meat is cooked in the airport kitchen and kept in warmers; tortillas are grilled on the panini-style cooking units in the back of each wagon. Tacos are made to order with barbecue chicken or Kalua pork. Additional choices include rice, slaw, onions, plum sauce and sesame seeds. Cold pre-made offerings include turkey and cheese sandwiches on multigrain bread; ham and cheddar on ciabatta; Caesar and Greek salads; fruit cups and yogurt parfaits. Items are regularly replenished on each cart.

Two workers operate each wagon—one cooking and serving; the other handling cash and credit card transactions.

Initial Sales Targets Surpassed

Although HMSHost declined to release sales figures for the wagons, personnel note that the mobile concessions have exceeded the company's sales targets. In addition, Schmitz says it was easy working with HNL on the project and describes the approval process as "seamless."

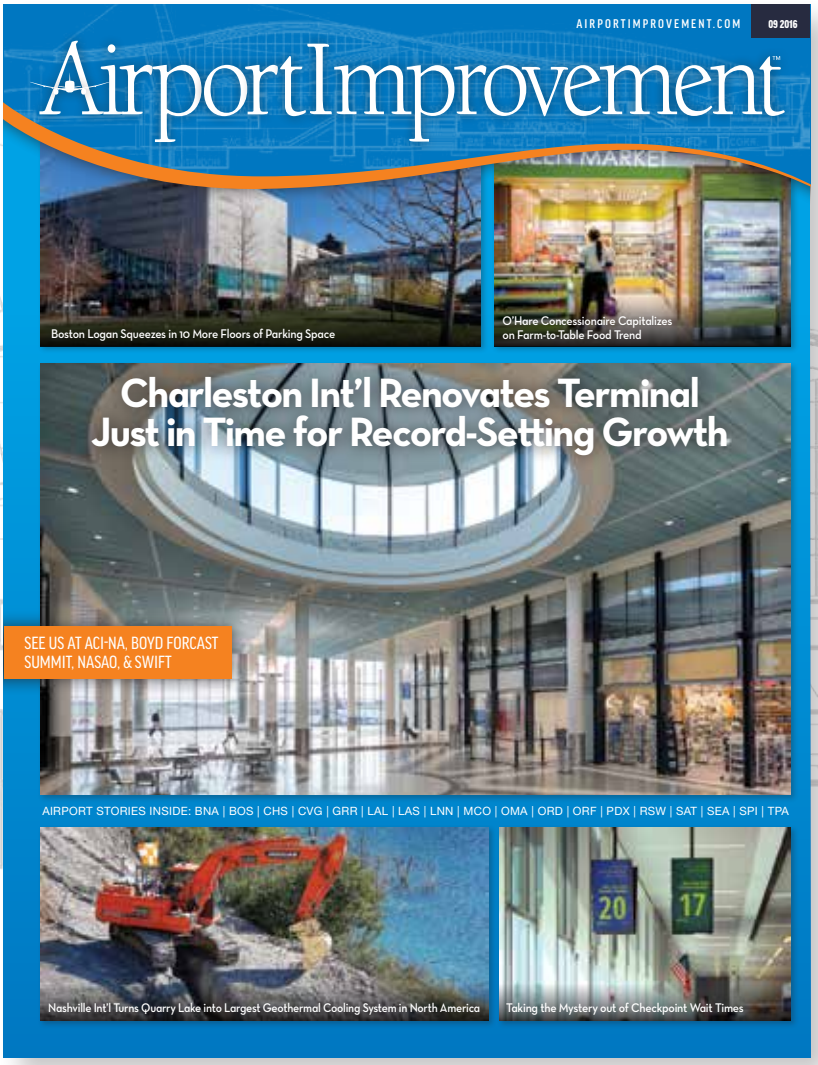
HNL's Higashi reports that he's heard nothing but favorable comments about the food wagons and says the novel vehicles help provide passengers with quality service. "The wagons can move from gate to gate wherever there are passengers waiting for their planes. So if a gate is empty, they will just move to another gate," he says.

Higashi notes that the aesthetics of the wagons—upbeat island décor and a focus on local ingredients—add extra appeal for passengers. "We like to think of the wagons as miniature versions of the food trucks from Hawaii's North Shore," he relates. "It is something we are proud to have available to the millions of passengers who visit Honolulu International Airport every year." (HNL averages 20 million annual enplanements and deplanements.)

Schmitz notes that the wagons encourage interaction between travelers and the workers who operate the vehicles. "We wanted the offering to be something exciting to the consumer; we wanted the format to be fun," he explains. "We didn't just want to put a golf cart out there. That would have gotten boring. What we wanted to do was put out something that was exciting visually that really got the customer's attention with an exciting menu. We wanted something that would jump out. And customers like it. They love the entertainment value that it provides as well as the convenience."

Airport Projects Profiled Here

Featuring Airports, Their Consultants & Suppliers

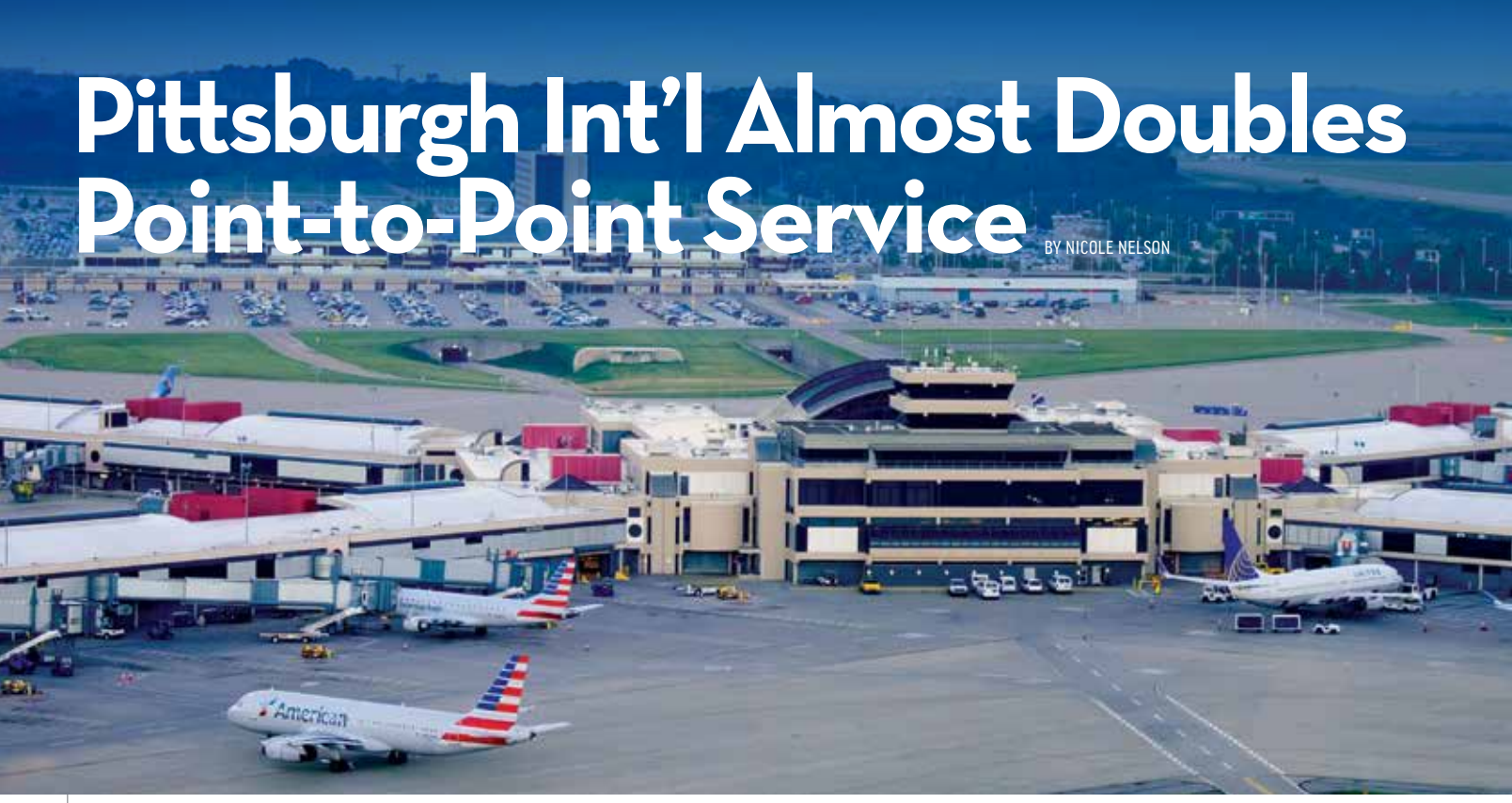


AirportImprovement.com

The Show & Tell of Airport Project Work

Pittsburgh Int'l Almost Doubles Point-to-Point Service

BY NICOLE NELSON



When Christina Cassotis arrived at Pittsburgh International Airport (PIT) in January 2015, the Midwestern airport was a lean and scrappy version of the once-bustling US Airways hub it used to be. With only 37 nonstop destinations on the airport's flight information boards, Cassotis was determined to make her mark.

CHRISTINA CASSOTIS

Using a collaborative approach, the new Allegheny County Airport Authority CEO and airport team have nearly doubled the amount of cities PIT serves with nonstop service in just two years. The growing airport now boasts 67 nonstop routes in operation or planned to debut in 2017.

With its new strategy, the airport has seen gains that include Southwest Airlines adding service to Los Angeles International, Lambert-St. Louis International and Dallas Love Field; Allegiant Air expanding to nine markets; and OneJet expanding to seven. In addition, Southern Airways is filling nine markets with federal subsidy via the Essential Air Service program, and several new carriers have come on board: Frontier Airlines with five markets and Porter Airlines with service to Toronto City Airport.

Looking ahead, WOW air and Condor Airlines plan to start service to Reykjavik and Frankfurt, respectively, in June 2017.

Market Pursuit

Cassotis says the airport has won new routes, both big and small, by using a dedicated approach to serve the specific needs of the local marketplace. Recent successes include the addition of twice daily service to Harrisburg, PA, by Southern; the announcement of Condor's twice weekly seasonal service to Frankfurt, Germany; and the promise of desperately desired year-round transatlantic service via Reykjavik, Iceland, by WOW.

"Every single route is a really big win," she remarks, highlighting new service to Harrisburg on nine-seat regional jets as a prime example. The new in-state service is significant because it carries government officials and attorneys to and from the state capital. Previously, Pittsburgh was one of the largest cities in the country without air service to its state capital. "That was a big deal, and it mattered to a very, very important segment of our community," explains Cassotis.

New international flights by Condor and WOW are also noteworthy—especially year-round service by WOW into continental Europe.

To help identify the right markets to target, PIT performed a rigorous review of community needs for business and leisure travel. Cassotis and her team analyzed a wide variety of factors, including the ancestral heritage of area residents and previous travel patterns during the airport's hub days. They also investigated demand on a market-by-market basis, taking into consideration which

PITTSBURGH
INTERNATIONAL AIRPORT

FACTS&FIGURES

Project: Air Service Development

Location: Pittsburgh Int'l Airport

Primary Objectives: Add new routes & carriers specifically tailored to local market; switch orientation from hub to O&D

Strategy: Research area's business & leisure travel needs; promote Pittsburgh's renaissance; leverage Essential Air Service Program; modify facilities to accommodate direct vs. connecting passengers

Results: Airport has expanded from 37 nonstop destinations to 67 in 2 years

Share-use Tech Platform: AirIT

routes made the most sense for each particular airline given its existing network, fleet strategies, aircraft orders and options.

"We have a good market that is growing, expanding and diversifying," Cassotis observes, noting the authority-wide effort to secure new service. "There is so much pent up demand that as new service comes in, it gets used. We go after that service strategically and proactively and consistently, and we do it in a very targeted fashion. When we are talking to certain airlines, we are talking to them very specifically about why we are a good fit."

The approach has proven successful, as evidenced by new service to Los Angeles International by Southwest, and OneJet adding flights to Cincinnati/Northern Kentucky International Airport and Bradley International in Hartford, CT, as well as service to Milwaukee, Indianapolis, Louisville, Albany and Richmond.

"The OneJet service is making a very big difference to a lot of our businesses here that are trying to get to other medium-sized markets like Louisville and Indianapolis and Milwaukee and Hartford," says Cassotis, noting that such routes have steadily increased since May 2015. "To be able to take a 45-minute direct flight instead of connecting actually makes a big difference in their ability to operate efficiently as a business."

PIT officials note that Southwest currently offers the most destinations from the airport, and American carries the most passengers. Cassotis describes Pittsburgh as a really solid origination and destination (O&D) market. "Nobody has the majority share; we are not looking to become a connecting hub again," she specifies. "We are looking to take care of the needs of the O&D demand for this region."

Exemplary Efforts


JEFFERY HARTZ

Jeffrey Hartz, senior air service consultant at Mead & Hunt, is impressed with PIT's strategies and results. Hartz says that throughout his 13-year tenure in air service development, he's never seen such high levels of involvement with small communities and the regional airlines that serve them.

Airport officials have focused on the specific transportation needs of Pittsburghers and Pennsylvanians in part by leveraging information from PIT Connector, a statewide study on the feasibility of connecting intrastate communities to Pittsburgh. The comprehensive research effort included detailed analysis, community meetings and discussions among key groups within Pennsylvania. The airport team complemented information gleaned from PIT Connector with follow-up Essential Air Service (EAS) studies in neighboring states.

Under airport leadership, the Mead & Hunt team has assisted PIT in establishing new EAS markets. The newest addition—service by Southern Airways to Morgantown Municipal in West Virginia—is scheduled to debut in December 2016. Southern also serves Harrisburg, PA, a non-EAS market.

"This Southern Airways service is important to the communities, and it is important to the state to re-tie in these communities," comments Hartz. "The efforts and expense that go into coordinating between the EAS communities, the carrier, and Pittsburgh is something that I have certainly never seen before."

Hartz tips his hat to the leadership at PIT for pursuing and acquiring Southern Airways service to Chautauqua County/Jamestown Airport in New York, Hagerstown Regional in Maryland, and small airports in six Pennsylvania cities: Lancaster, Altoona, Bradford, Franklin, DuBois and Johnstown.

"One of the unique things about this situation has been the authority's involvement and their coordination and communication efforts with the Essential Air Service communities themselves," says Hartz, noting that PIT holds quarterly meetings for all stakeholders to coordinate marketing efforts. "When there are issues, we work collectively together to resolve them.

"The great programs and great effort that PIT is putting forward show the importance they see in not only Pittsburgh, but the whole state of Pennsylvania and the whole region, to have better air service and better connectivity for those communities. It has been a great success."

Associated Facility Changes

To accommodate PIT's wide array of new domestic and international flights, the authority has modified facilities throughout the airport.

"Bathroom upgrades and that kind of stuff are what you do as an airport as you age, but we really have been focused on the changes that serve the O&D passenger," Cassotis explains. "There is a long list of things that we certainly have to get to, but rehabbing gates at the end of a terminal that aren't used is not going to be at the top of the list."

No longer a hub, PIT simply does not use all of its 75 gates, she notes.

A variety of changes were specifically designed to recalibrate the airport's flow for O&D rather than hub traffic. Previously, almost 90% of the international travelers passing through the Federal Inspection Station were connecting passengers who arrived airside, needed to re-clear security, and then went to other gates. The small amount of O&D passengers, on the other hand, were also required to re-clear TSA just to leave the airport, because they had to pass through the airside terminal.

That ratio flipped when the hub left. Most international arrivals are now people heading home to Pittsburgh, with no need to connect elsewhere.

"With the hub gone, we had to figure out a system by which we didn't have people coming off a flight from Cancun or Paris or the Dominican Republic lining up to take off their belt and shoes just to get to the parking garage," Cassotis relates. "We have a temporary solution that is working and does not require passengers who are headed into Pittsburgh or out of the airport to re-clear TSA."

The airport knocked down a few walls and instituted a new system that gets passengers to the landside terminal without entering any sterile areas that would require screening.

The airport also upgraded its baggage claim area in light of the new concentration of O&D passengers. "(Baggage Claim) was looking a little sorry and dingy," Cassotis acknowledges. "We re-carpeted and painted and took down half walls to give it a much more open and a 'you-have-arrived' feel."

A martini bar and Starbucks location near the baggage claim carousels perform very well with PIT's robust meeter and greeter population, she notes. However, the vast majority of concession purchases are made in the airport's center core.

The highest concentration and widest array of retail and food/beverage options are located in the center core, while lesser amounts of commercial activity occur at the ends of the concourses.

According to Cassotis, the airport authority is putting more emphasis on adding the right international brands and bringing in locally based companies, iconic Pittsburgh institutions and well-known products from the area.

The new approach is apparently resonating with customers. "We have a fantastic retail program," she reports, noting that PIT ranks in the Top 10 in per-passenger concession revenue among all U.S airports. "People shop here and they spend money. There is more to do on food and beverage, but retail is definitely strong."

PIT has also invested heavily in passenger processing systems to accommodate its influx of new carriers serving the O&D market. "We are definitely investing in technology," Cassotis reports, noting the need for more shared-use systems. "We have a long way to go there, but we are doing more and more shared-use gates, ticket counters, etc. so that we have flexibility with the carriers."

The airport uses AirIT's EASE™ platform to facilitate sharing of gate and ticket counter resources. The system supports PIT's air service development efforts, because it eliminates unnecessary costs for air carriers to enter the market, notes Chris Keller, company president and chief operating officer.

"What Pittsburgh has done is provide the infrastructure, so all the airlines have to do is bring aircraft and passengers," Keller explains. "Our virtualized application operates on Pittsburgh-provided servers, and the airlines operate and process passengers in their own native application. The airlines continue to operate just as they do if they were in their own hub airport."


CHRIS KELLER

Future Plans

Looking ahead, Cassotis reports that PIT is focusing on innovation. "This community, as a whole, has been incredibly entrepreneurial and innovative in its history," she explains, citing Westinghouse, Carnegie Mellon and a growing number of up-and-coming high-tech firms as examples. Google and Uber, for example, both have massive presences in the city.

"We want to make sure that innovation is reflected right when you get off the plane or as you come into the terminal from your car, an Uber or a taxi," she continues. "We are really focused on enabling digital and technological solutions, as well as the customer service needs of today and tomorrow. We want the space and our programs to reflect that."

Long Beach Airport Modifies Layout to Improve Airfield Safety

BY JODI RICHARDS

long beach airport

FACTS&FIGURES

Project: Improving Airfield Safety

Location: Long Beach (CA) Airport

Project Consultants: HNTB Corp.; Jacobsen Daniels; Kimley-Horn

Runway Guard Lights: ADB Safegate

Directional & Airfield Signs: Lumacurve

Strategy: Simplify airfield configuration by decommissioning 2 north/south runways (already complete); reconstructing & redesigning east/west runways; converting former north/south runways into taxiways (in process)

Associated Efforts: Improving airfield marking, lighting & signage; education campaign for pilots, tenants & air traffic controllers

With a notoriously vexing airfield configuration, Long Beach Airport (LGB) in southern California is leading the charge for an FAA initiative to reduce runway incursions throughout the United States.

The Runway Incursion Mitigation (RIM) Program, announced in June 2015, is designed to identify risk factors that could contribute to runway incursions and develop strategies to help mitigate those risks. Given its history of challenges with such issues, LGB is ahead of the game in terms of identifying its particular risks, developing an action plan to address them and implementing solutions to improve safety for users and airfield partners.

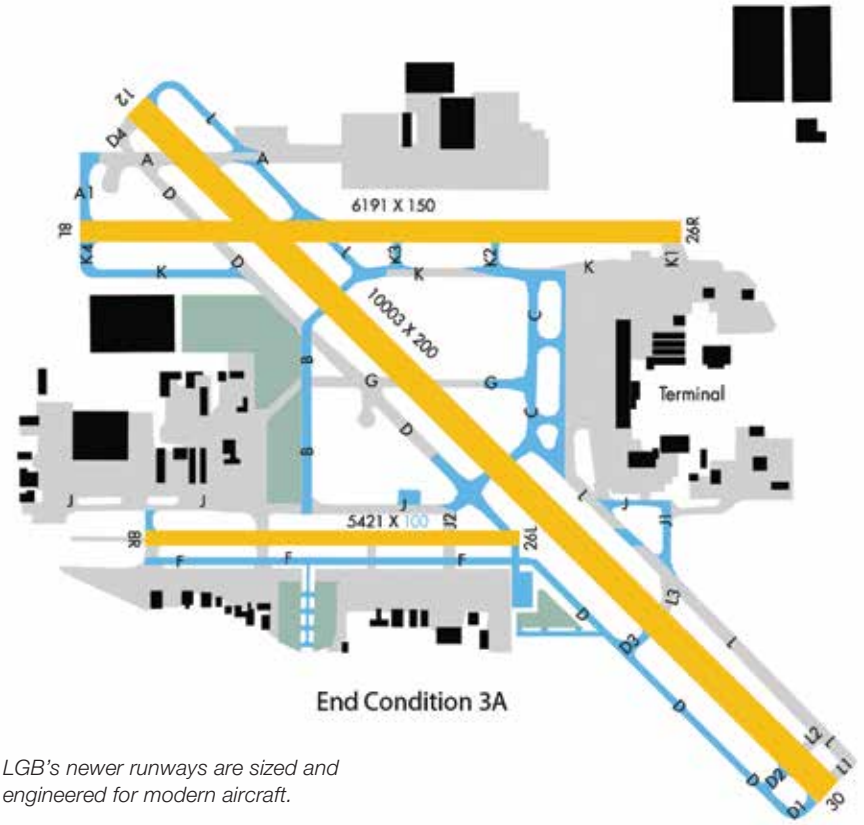
"This is moving us closer to having a safer environment for the airport community," says Airport Director Jess Romo, A.A.E.

LGB gained the kind of notoriety no airport wants in a 2002 FAA study of runway incursions. "We were identified, unfortunately, as being fifth in the nation, with 25 recorded runway incursions during that time [1997 to 2000]," recalls Fred Peña, facilities and maintenance manager at LGB.


JESS ROMO


FRED PEÑA

In 2007, another FAA report drew attention to the complexity of LGB's airfield—a leading



LGB's newer runways are sized and engineered for modern aircraft.

cause of runway incursions and vehicle/pedestrian deviations. "It was a fairly large safety issue," Peña acknowledges.

As a result, the city council authorized LGB to apply for Airport Improvement Program funds in 2011. The grant money secured later that year was used to conduct an airfield geometry study and airport strategic plan study. Together, the projects were designed to evaluate the existing airfield geometry; provide alternatives for safety, operational and financial benefits; and reduce risk at LGB.

At the time, LGB had five active runways: two east/west parallels (7L-25R and 7R-25L); a primary diagonal northwest/southeast (12-30); and two north/south parallels (16L-34R and 16R-34L). From a bird's-eye view, the airfield configuration resembles a tic-tac-toe board. The parallel lines that form the board are runways, but they are also bisected by a diagonal from the top left corner to the lower right corner, explains Peña. Along with the associated taxiways, "it created quite a complex airport," he remarks.

Simplifying the Design

LGB officials initiated an airfield geometry study to identify elements it could correct, explains Peña. HNTB Corp. responded to the airport's request for proposals regarding the project and was ultimately selected to lead the effort. In December 2011, Long Beach City Council authorized $1.1 million in planning and engineering services by HNTB.

Peña explains that LGB's complex airfield layout is largely due to the age of the airport, established in 1923.

"It wasn't an issue of people constructing this airfield in contravention of rules," agrees Project Manager David Rickerson, who began the study with HNTB and finished it as senior director at Kimley-Horn. It was simply that standards and the complexity of aircraft using the facility changed dramatically over time, he explains.

The 16-34 runways were the oldest and narrowest, at only 75 feet wide. "They really matched with the vintage of the aircraft that were flying back in the World War II era," Romo notes. As aircraft changed and grew larger, LGB's newer runways reflect that evolution—12-30 is more than 10,000 feet long and 200 feet wide.

Examples of confusing geometry at LGB include two locations where three runways intersect, with multiple taxiways also coming together in the same locations. These locations encompassed four of the airport's seven hotspots and accounted for the most of its recorded surface incidents and incursions over a 12-year period. Specific inconsistencies with FAA geometric criteria at these locations included wide expanses of pavement, more than three node intersections and other situational awareness factors.

Additional geometric criteria-related issues requiring consideration included dual use of Runway 7L-25R, 16L-34R and 16R-34L pavements for taxiing, runway/taxiway intersection configuration, aircraft crossings in the high-energy portion of runways and direct access from aircraft ramps onto runways.

Peña explains that the geometry study took an in-depth look at the layout of the runways and taxiways, while also incorporating the latest FAA standards in terms of taxiway and runway crossings, paint, signage and markings. "There were quite a few pieces to the study, but in the end, it was to make the airport safer by adjusting some of the configurations of the taxiways and runways," he says.

Employing geometry criteria set forth in Advisory Circular 150/5300-13A and industry best practices, the team began the study with a close look at the runway and taxiway system and the identified "hotspots," adds Rickerson. Four hotspots involved the intersection of three runways and multiple taxiways, while one was not a specific location, but rather an "overall discussion of the complexity of the runway/taxiway system at Long Beach," he explains.

Using incident databases, including the self-reporting Aviation Safety Reporting System database, the team mapped 12 years of incursions and incidents to identify trends and contributing factors regarding the events. "That was what we used to begin the process of focusing in

on what the contributing factors were and how the geometry of the airfield contributed to that," he relates.

Risk Assessment

Along with very detailed analysis, consultants also performed a more informal safety risk assessment. During that phase, team members looked at the entire airfield on an intersection-by-intersection basis and cataloged the number of different operations that could occur, Rickerson explains. Using the history of incidents, they further classified the severity and likelihood of various scenarios and used a safety risk matrix system to prioritize the areas on the airfield that needed immediate attention.

"It wasn't that any area on the airfield did *not* need to be addressed," says Rickerson, "but we wanted to focus on areas that had the highest likelihood and the greatest potential for severity of incident." The safety risk process was key in instituting a risk-based decision process for mitigating issues, assessing the alternatives that were developed and prioritizing the sequence of mitigation efforts to address those areas having the highest potential for incidents and incursions first, he adds.

Knowing that FAA funding is limited, the risk-based approach to prioritizing projects will allow LGB to get the most out of its investment—both safety- and dollar-wise, explains Justin Bychek, senior aviation planner with HNTB. "By using this safety risk assessment, we were able to prioritize and convey what positive safety impact we would have for each alternative, and compare that to delay, capacity and travel time analytics that you'd typically look at for a capacity project," he says. "Not only does it improve safety, but it modernizes the airfield, prioritizes reconstruction based on most pressing need and maintains the operational efficiency of the airfield."


JUSTIN BYCHEK

It was important to preserve the airport's overall efficiency, Bychek adds. "We took a holistic approach to make sure that any improvements we were recommending would not have a detrimental impact to the airport's capacity," he says. "We're looking at not only today's activity level, but making sure we're not compromising that in the future."

Developing a Plan

Following the study, consultants presented five possible options to the airport. With approval from Long Beach City Council, LGB officials elected to improve the airfield configuration through a plan

that would close two of the airport's parallel runways, shorten one of its secondary runways and realign select taxiways.

Final FAA approval of LGB's updated Airport Layout Plan (with new airfield improvement recommendations) was expected by the end of 2016.

To immediately enhance airfield safety, LGB formally decommissioned its north/south 16-34 runways in spring 2016. Although planners evaluated options to keep the runways open, they ultimately recommended closing them, because the 16-34 runways were major contributors to the overall complex airfield geometry and the specific incidents and incursions that were occurring, explains Rickerson.

Removing the two runways from the equation reduces runway intersections from seven to just one, Bychek adds.

Since closing the two north/south runways, LGB has seen a definite improvement in airfield safety, Peña reports. Specifically, there is less pilot and vehicle driver confusion, and air traffic controllers are finding it easier to manage operations.

"When the runways were still there, they [FAA controllers] had to issue both a 'hold short' and then a 'crossing clearance' for each of those intersections," he explains. "Now they don't have to deal with that."

Closing the runways has not restricted operations, emphasizes Peña. The north/south runways were not as active as LGB's' other options because prevailing winds at the airport favor the east/west runways and diagonal runways more than 95% of the time, he explains. Additionally, the north/south runways were out of service before the decommissioning due to poor pavement conditions. While airport users rarely like to see runways shut down, Peña reports that most operators at LGB understood and accepted the airport's efforts to create a safer operating environment.

Fewer movement areas will also allow LGB to better leverage its funds—whether federal or otherwise—to get more "bang for our buck" regarding infrastructure projects, Romo notes. From an ongoing cost perspective, the airport now has two less runways to maintain and light, adds Peña.

With the benefits of initial changes accruing, LGB officials are looking ahead to their next significant projects: reconstructing Runway 7R-25L and redesigning runways 7R-25L and 7L-25R to 8R-26L and 8L-26R. Work on that phase is slated to begin in 2017, at a cost of approximately $14 million. Additionally, the two former north/south runways will be converted into compliant taxiways to better conform with current FAA design standards, Peña adds.

Improvements Underway Coast to Coast

On the heels of its recently completed runway safety area improvement program, FAA plans to further reduce runway incursions by working with airports on risk-based decision-making.

Specific risk factors that contribute to runway incursions run the gamut from unclear taxiway markings or airport signage to more complex issues such as runway or taxiway layout, note FAA personnel. Risk-based decision-making builds on safety management principles by using a consistent approach to proactively address emerging safety risks.

The FAA has collected and reviewed data to identify specific areas of airports with risk factors that could contribute to a runway incursion and has developed a preliminary inventory of locations where runway incursions have occurred. Further, it plans to work with airport sponsors to develop strategies to mitigate runway incursions at these locations.

Eight airports will receive a combined $11 million in Airport Improvement Program (AIP) funds in fiscal year 2017 to begin mitigation efforts via FAA's Runway Incursion Mitigation Program. According to the Administration, airport sponsors can use AIP funds to study alternatives for reducing runway incursions or to fund projects that will address unclear taxiway markings, lighting/signage or taxiway layout concerns to mitigate the risk of runway incursions.

Four of the eight airports scheduled to receive funding have already identified specifics projects:

- Waco Regional in Texas will receive $6.4 million to realign a taxiway.
- Chicago's Midway International Airport will use a $600,000 grant for installing runway guard lights at a runway/taxiway intersection.
- A grant for $16,000 will be awarded to Philadelphia International Airport to design taxiway modifications.
- Cleveland International Airport will receive $2.3 million to reconfigure several taxiways to eliminate the risk of incursions.

Four other airports will receive funding for Runway Incursion Mitigation Program studies. The amounts vary based on airport size and the complexity of their risk factors.

- Addison Airport, near Dallas, is set to receive about $43,600.
- Lone Star Executive Airport, also in Texas, will receive close to $19,700.
- San Jose International Airport in California, is scheduled to receive nearly $1.5 million.
- Scholes International Airport in Galveston, TX, is slated for roughly $11,700.

Coordination

The airfield geometry study and subsequent recommendations for airfield modifications were performed in close concert with all the airport's stakeholders, Peña notes. Airport staff and HNTB made it a priority to communicate with FAA, air traffic control, airfield users, tenants, flight schools and pilot/aviation organizations—both local and national. Extensive public outreach, including stakeholder and technical working group meetings with various tenants and airport users, were mainstays, he explains.

"It was a really inclusive process that allowed everyone to participate in investigation and alternatives and ultimately in recommendations," Bychek relates.

Even during the research phase, briefings were held to discuss what the study would explore, and meetings were convened to gather feedback from tenants and airport users about their experiences and concerns

According to Rickerson, the value of stakeholder involvement and transparency of the entire process cannot be understated. "You're going into issues that are going to be inherently controversial," he explains, noting that it is critical to involve diverse airport interests and provide details, documentation and the rationale behind decisions.

Bychek says that it was important to ensure that no tenant or stakeholder was "left behind"—by the end results of the airport layout plan or the process that led to them. Removing two of LGB's five runways caused some initial concern about operations in certain weather/wind conditions, he acknowledges. "We went

through a robust technical analysis with those stakeholders to show that, actually, [the airport] will be more than capable of operating…in fact, [the changes] will not only enhance safety, but reduce taxi times and reduce delay times as well."

While some stakeholders might disagree with individual changes, as a whole the group accepted the overall plan because it was a thorough process, Bychek reports.

"It is a partnership, and everybody feels they had a stake in the final outcome," adds Peña.

Comprehensive Strategy

Beyond airfield geometry, the study took a holistic look at the airfield, notes Bychek. Other key elements were pilot education, pavement markings and signage/lighting.

Improving airfield geometry isn't the only way to bump up airfield safety—that's a misconception, he emphasizes. As such, Bychek encourages airports to address "low-hanging fruit" such as lighting, communication with air traffic control, etc. in addition to focusing on runway/taxiway configuration. "When you put all those pieces together, that's going to be the best result in increasing safety on the airfield. Don't just look at it in a vacuum," he advises.

As part of LGB's ongoing efforts to improve airfield safety, the airport added directional signs and markings and installed runway guard lights—both above ground and in-pavement. Education is also a continuous effort for airport users, Peña notes, with regular meetings and open communication with tenants and airport users.

"Any time you [make airfield changes], it really is incumbent upon the airport along with the FAA to do a lot of outreach," notes Romo. "They need to be made aware of what's happening and why it's happening."

As LGB's efforts to improve airfield safety continue to take shape, airport officials are realizing an unexpected benefit: The land previously occupied by runway protection zones and object-free areas for the decommissioned runways will eventually be available for other uses. According to Romo, the search for ways to develop select parcels for revenue-generating purposes is already underway.

Sloulin Field Launches Website to Promote, Chronicle Construction of New Airport

BY KRISTIN VANDERHEY SHAW

When Steve Kjergaard accepted the position as director at Sloulin Field International Airport (ISN) six years ago, he thought it would be a static, solid three-year experience without much fanfare. Boy was he wrong. Shortly after he arrived at the North Dakota facility, an oil boom struck and flooded the area with geologists, oil field workers and contractors. Hotel rooms and rental cars became scarce, and traffic at ISN ballooned.

STEVE KLERGAARD

"One of my first meetings was with the mayor and commissioner of the city to talk about moving the airport," Kjergaard remembers.

Soon, plans were underway to build a new, larger facility: Williston Basin International Airport (XWA), about five miles northwest of ISN. Construction for the $265 million project began in October 2016; completion is expected in late 2018 or early 2019.

In conjunction with construction of the new airport, ISN also built and launched a website (xwaproject.com) to provide updates about the project, answer frequently asked questions and offer a portal for vendors to review the bidding process.

"The state has done a few project websites, and it seemed to be beneficial to both the staff and the public," explains Kjergaard. "When you can tell the public that there is a website with all of the answers they need, they have a better response to the project itself."

The airport contracted DAWA Solutions Group to build the website's framework for $10,000, and the ISN team filled it in with content. (DAWA has been the city's vendor of choice for years, providing multiple websites for various aspects of local government, parks and recreation, and the chamber of commerce.) Because the new airport website is built on a content management platform, airport and city staff can modify its content at any time—which saves time and money.

In September, the website was attracting 600 visitors and more than 1,000 pageviews per week.

Another Airport?

One of the website's primary purposes is to explain why a new airport is needed.

Because ISN is located in the center of the Bakken Shale Formation (the largest continuous oil reserve ever assessed by the U.S. Geological Survey), its infrastructure and resources

were stretched paper thin when the area's most recent oil boom was in full swing. Between 2011 and 2014, airline enplanements quadrupled from almost 28,000 to 119,000.

To cope with the rapidly expanding traffic, ISN purchased a doublewide classroom trailer and placed it on the ramp as a temporary holdroom. At the same time, airport officials started assessing longer-term options.


KYLE WANNER

"Space is essential right now," explains Kyle Wanner, director of the North Dakota Aeronautics Commission. Specific deficiencies at ISN include:

- terminal building is too small for current and future passenger traffic
- room for just one TSA lane
- limited bathroom facilities (two small bathrooms on the secure side; one two-stall bathroom before the security checkpoint)
- undersized baggage claim (about 10 to 12 square feet)
- not enough primary parking

The terminal's various shortcomings make it difficult to accommodate 50-seat jets, says Wanner. "From a service standpoint, accessibility in and out of that terminal is important," he adds.

Although the oil boom has slowed, traffic at ISN is still well above its historic averages.

"The numbers have come down a bit, but it's still significantly higher than in the past," he notes.

The website for the new airport details airside deficiencies at the existing airport. For example, ISN's airfield does not meet FAA design standards for many aircraft currently using it—primarily Delta and United airliners, but also large corporate jets. The slope of the existing runway is too steep (and would require extensive work to correct); the taxiway is too close to the runway; and the pavement strength is not designed for current and projected use.

Wanner adds that ISN's runway protection zone has buildings and active roadways within it, and landfill and wetlands within five miles pose potential wildlife issues.

Given all the airside and landside issues, it made more sense to build a new airport (XWA) than to renovate the existing one (ISN), he summarizes.

Truth & Transparency


BRENT BOGAR

Brent Bogar, community and contract liaison for the new airport project, considers the XWA website a key communication tool. After serving as Williston's airport commissioner from 2007 to 2013 and helping launch the new airport initiative,

WILLISTON BASIN
INTERNATIONAL AIRPORT

FACTS&FIGURES

Project: Website for New Airport

Future Location: Williston Basin (ND) Int'l Airport

Current Location: Sloulin Field Int'l Airport

Avg. Website Traffic: 600 visitors & 1,000+ pageviews/week

Lead Consultant: Jadestone Consulting

Website Design: DAWA Solutions Group

Website Construction: 1 month

Cost: Under $10,000 to build framework for site; $5,000 for consulting

Primary Objectives: Inform community members about need for new airport; update public about progress of project

Bogar relocated but has continued to work on the project as a consultant for the city.

"I think with a project of this magnitude, having a central place to communicate and share information is critical, and the site gives us that opportunity," says Bogar, now chief executive of Jadestone Consulting. "There is a lot of downtime when the public doesn't see action happening, but they can go to the site and see that it's in design phase, or we're waiting on some assessment, etc. Having the site answers a lot of questions even when it seems progress isn't being made."

Wanner agrees, noting that the website helps keep community members up to date. "Truth and transparency are very important," he emphasizes. "We wanted to make sure that the public could get facts and not rumors. When they don't have the information they need, they can get information directly from the site.

Artist renderings posted on the website helped engender support for the construction project.

"When you build a new airport, there are a lot of steps," he continues. "People can see exactly where we are in the process, which saves us time in being able to effectively communicate the message. The site also shows that the project is happening; it's real. When you have a site, it offers that assurance that we are moving forward."

As community liaison, Bogar tracks online reactions. So far, public response has been very positive, he reports. Posting a link to the website on Facebook proved particularly helpful.

"People were starving for a place to have their questions answered," he explains. "I was pleasantly surprised about the traffic we received when it opened and continue to receive. For a project this size, the traffic has been very consistent. When there is new information, that traffic peaks."

Kjergaard credits the website for helping engender support for the new airport—and even converting the few community members who initially opposed the project. Information posted on the website explained why the new airport was needed and helped change their minds, he explains.

"Once you give people visual information, it seems to help them understand," observes Kjergaard. "We thought it was a great access point for people to learn."

In retrospect, Bogar says that posting even more details up front would have been helpful. If he could do it all again, he would flesh out as much content as possible before launching the site. Offering community members more opportunities to learn about the website, via social media or public outreach events, would

also have been helpful, he adds. For airports considering similar efforts, Bogar suggests holding an open house to gather initial feedback about usability and desired content.

"We met a lot of those needs since we launched the site, but we could have done that up front and fleshed out FAQs [frequently asked questions] more quickly," he reflects. "We did reach out and talked to various people in the city and private citizens involved with the airport, like pilots and FBO staff, and that was a good start."

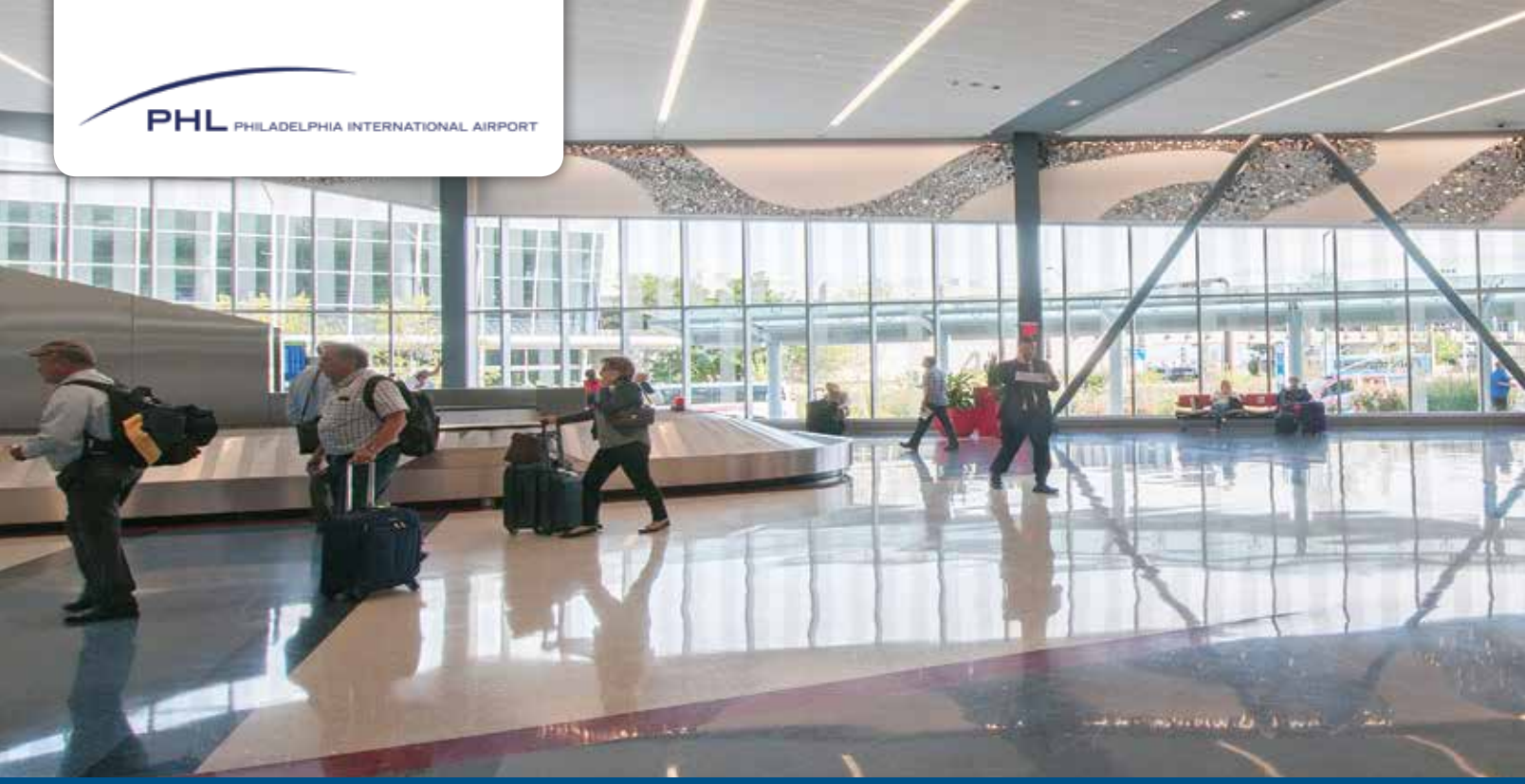
In 2019, the project website will be replaced with a new site to herald the arrival of XWA. In the meantime, Kjergaard says the current site has made his job a lot easier.

"Before the site was live, we'd get a call once a week about 'How can I bid on this' or 'What's going on with this?' (Now,) if the public has questions about anything, they can go directly to the FAQ section."

As the new airport continues to evolve, so will its website. Next, the team plans to add more pictures and live web cams that will broadcast video from the construction site. "We want to keep people informed as much as possible," says Kjergaard, noting that he wants everyone to feel the progress.

The larger, new airport is expected to be complete in late 2018 or early 2019.

"This is a once-in-a-lifetime project for a community," he says. "We have to build a facility for the future, not just for today. You never know how big to build, but you want to build big enough so you don't have to build again. This site allows the Williston area to build the future with us."



Philadelphia Int'l Enhances Safety & Sustainability

FACTS&FIGURES

Project: New Baggage Claim Facility

Location: Philadelphia Int'l Airport

Terminal: F

Owner: City of Philadelphia

Building Size: 31,500 sq. ft.

Project Components: 400 ft. of baggage conveyor belts; 9,000 sq. ft. of alterations to existing pedestrian bridge

Electrical Engineers: Arora Engineers

Design: The Sheward Partnership

Architectural Design & Sustainability Consulting: The Sheward Partnership

Project Manager: American Airlines

Lead Contractor: Skanska USA

Consultant: Burns & McDonnell

Baggage Handling System Design: URS

Baggage System Subcontractor: Diversified Conveyors

System Equipment & Installation: DCI

Baggage Claim Mfr: Vanderlande

Electrical Subcontractor: EJ Electric

Motor Supplier: SEW Eurodrive Helical Gear Motors

A new $35 million baggage claim building at Philadelphia International (PHL) isn't just the final phase of the airport's $161 million Terminal F expansion; it's also a concrete example of how PHL is re-sculpting its facilities to adjust to changing market conditions.

Back in 2001, when Terminal F originally opened, US Airways flew daily Express flights on Dash 8s into the new facility. Today, nearly 17% of PHL's 31.4 million annual passengers begin or end in Terminal F, and 90-seat jets have largely displaced smaller turboprops at PHL's gates.

Seeing such changes emerging, the airport started working on designs for a new baggage claim building in 2011; and in September 2016, construction was complete.

The resulting two-story, 34,000-square-foot LEEDS Gold certified baggage claim facility is the ice cream on top of the pie that has been baking for several years.

Before recent renovations, the baggage claim area was near the ticket counter on the departures road, which was counterintuitive to what travelers typically expect. The location made it difficult for passengers to connect with friends and family who were picking them up, because they had to cross five lanes of traffic to get to the arrivals road after collecting their luggage.

The arrangement was unpopular with passengers and carriers alike. "All of the other terminals at PHL have the bag claim facilities on the other side of the roadway and have an overhead pedestrian walkway," notes Suzanne Boda, senior vice president of hubs and gateways for American Airlines. "The setup at Terminal F was a safety issue first—customers were walking across the roadway. On peak travel days, that would result in a very congested area."

To remedy the situation, PHL located its new, more modern baggage facility in existing space on the arrivals road.

Phased Approach

In addition to improving the baggage claim process, PHL aided customer flow with two other major projects: an increased-capacity security checkpoint (expanded from two to four lanes) and a new sterile walkway from Terminal E to Terminal F. Previously, passengers could pass between terminals A through E; but to enter Terminal F, they had to exit past one security checkpoint and enter through another.

by Moving Baggage Claim Facility

BY KRISTIN VANDERHEY SHAW

"Passengers could not walk to and from Terminal F to the other terminals prior to the sterile E-F walkway opening, but they could take a shuttle bus from the secure side to get between Terminal F and Terminals A and C," says Cameron. "That being said, the sterile E-F walkway is very convenient for accessing all terminals and gates from the secure side without having to go through security screening a second time."

Other primary elements of the overall Terminal F project included significant expansion to concessions and gatehold areas, and a larger, more aesthetically pleasing bus port.

Schedules for the various construction projects were very detailed, and work was completed in phases to minimize disruption, explains Boda. "We had to shut down specific areas while we were working on them and then open up other areas," she says. "We added wayfinding signs in the terminal to help our customers, and provided extra staff to direct travelers if they had questions."

CHELLIE CAMERON

Airport CEO Chellie Cameron notes that signage was an ongoing source of confusion with the previous terminal. "It's difficult to set up signage and point passengers to the right place when six terminals are on one roadway and one is on the other," says Cameron. "This project put the baggage claim building in the right place, and now we can sign the airport properly. We used as much land as we could to put the baggage claim in the right place. We were fortunate to have an open field available, and now there is a new facility there."

The lead contractor, Skanska USA, worked closely with the design team at The Sheward Partnership to create a plan for the new baggage facility and keep it on track. Dwight Pullen, senior vice president for Skanska USA, notes that the team created a robust maintenance and traffic plan.

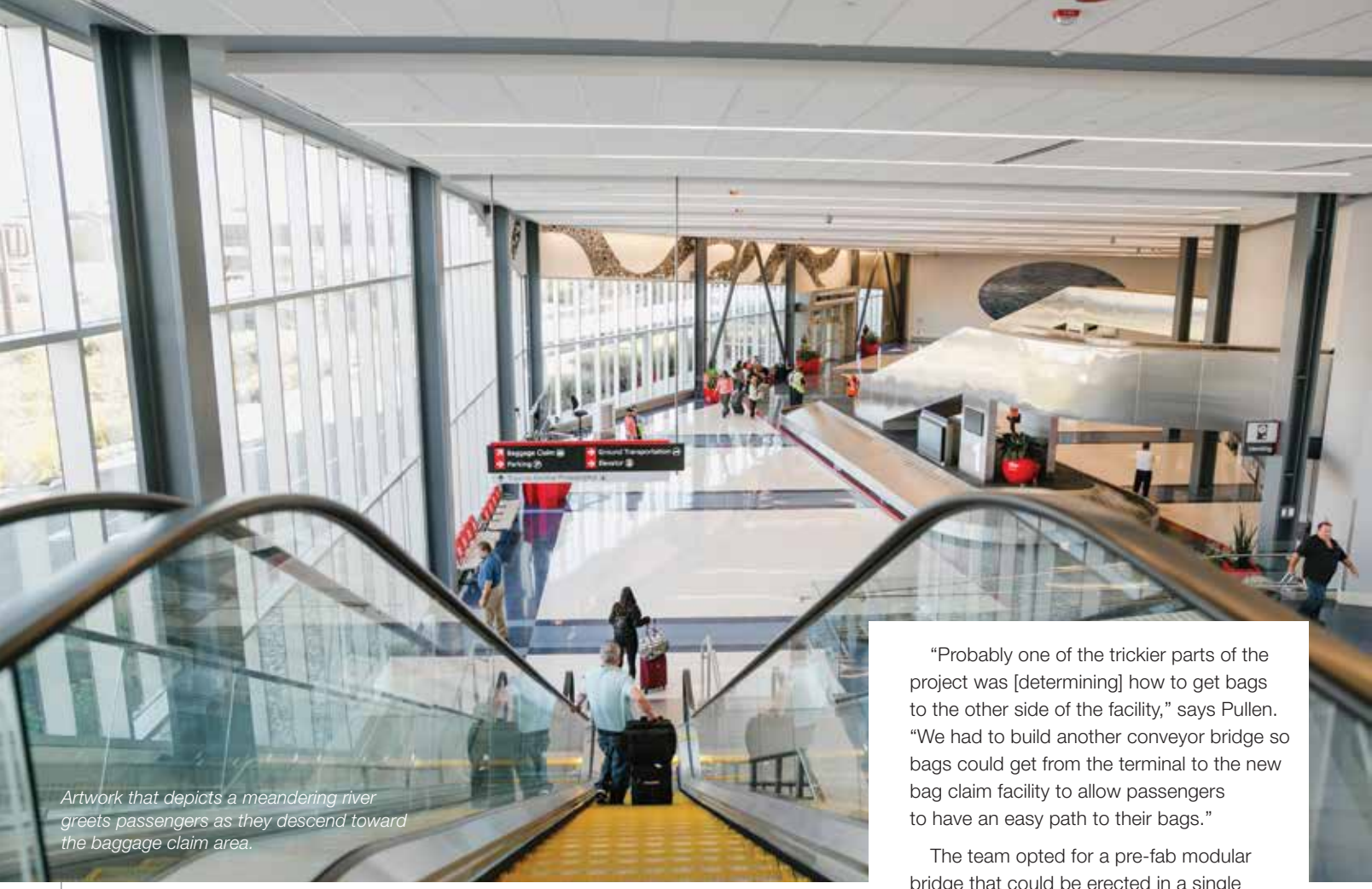
DWIGHT PULLEN

"You have to be able to maintain existing traffic on any project like this," Pullen emphasizes. "One of the things we had to do was build the new roadway alongside the old one and use cones to redirect. We did a lot of the roadway work at night, one lane at a time. Anytime we did anything that would affect the operations, we notified Burns & McDonnell to work with the airlines."

Lead Designer Michael Sheward of The Sheward Partnership agrees that the team communicated effectively. "Given the numerous project stakeholders, it was paramount that we had open communication to all end users and project participants," he says. "Weekly meetings with the construction manager, general contractor, airlines and the Division of Aviation were instrumental in completing this project on schedule."

Challenges

In addition to the usual difficulties associated with managing a construction project amid a busy airport, PHL's project faced a few unique challenges as well. Among them was constructing an over-roadway baggage conveyor belt. With space and time at a premium, the team had to devise a creative solution.



Artwork that depicts a meandering river greets passengers as they descend toward the baggage claim area.

"Probably one of the trickier parts of the project was [determining] how to get bags to the other side of the facility," says Pullen. "We had to build another conveyor bridge so bags could get from the terminal to the new bag claim facility to allow passengers to have an easy path to their bags."

The team opted for a pre-fab modular bridge that could be erected in a single night.

Before crews could install the conveyor belt, electrical specialists at Arora Engineers had to figure out how to remove the underground feeders that relayed power to the existing electrical equipment and exterior light poles.

"The new building is sitting on an existing site, which had a power transformer, light poles, manholes and handholes scattered under [its] footprint," says company president and CEO Manik Arora. "This equipment and the associated underground utilities were required to be removed or relocated before the foundation of the new building could be built. A subcontractor assisted the team by locating and mapping existing utility infrastructure using underground detection equipment. This information, along with data from the airport, was used to accurately remove or relocate the underground utilities for our project."

In addition to acting as the electrical consultant, Arora Engineers also designed the building's mechanical, electrical, plumbing, fire/life safety and special systems. "Utilizing Revit building information modeling software was very beneficial as

Beautifying Baggage Claim

When you think of a baggage claim area, do you picture calming, evocative art? Officials at Philadelphia International (PHL) did, and their vision is now evident in the airport's new Terminal F facility.

A large-scale piece that would provide a "sense of place" was part of PHL's early plans for the new baggage claim building, and it partnered with the Philadelphia Redevelopment Authority to find the right local artist to produce it. (Philadelphia was the first U.S. city to require public projects to spend at least 1% of their total construction costs on original, site-specific art. Percent for Art, a program pioneered by the Redevelopment Authority in 1959, was subsequently duplicated by other cities throughout the country.)

The airport and Redevelopment Authority held a competition for local artists, and the artwork that was ultimately commissioned was incorporated directly into the project design. Three Views of the River, by Philadelphia artist Stacy Levy, now spans the length of the building.

The surface of a 30-foot-wide lenticular circle in Levy's installation mimics the Delaware River, which is often visible from aircraft descending into PHL. Above the baggage building's doors, a stainless-steel river meanders across the inside of the entrance; and a stone map depicts a historical view of rivers that are now culverted underground, along with the rivers and streams above them.

At the building's grand opening, Airport CEO Chellie Cameron was drawn to the circular portrait of the river. She also noticed the excitement that the work generated among airport visitors. "The artist was so happy that people were 'getting it,'" she observes. "They could see the vision too."

we designed the building's support infrastructure," says Arora. "The automated workflows within Revit minimized coordination errors and allowed for better decision-making and analysis in the design, and ultimately, a better project."

Ultimately, the airport, airline and project partners were satisfied with the way challenges were addressed and resolved. "When you have a good team, typically you can get in a room and resolve it," Pullen reflects. "I felt the conveyor bridge was a challenge, but we figured it out."

Creative Partnerships

A Pennsylvania state law dating back to the early 20th century posed another unique challenge for the project. The Separations Act requires public owners building new facilities to use a multiple-

Crews installed a pre-fab modular bridge for the baggage conveyor in one night.

prime project delivery system, which, by definition, precludes the use of a general contractor. The law further requires that each of prime construction contracts be competitively bid. Barring a limited number of exceptions, all of Pennsylvania's public projects since 1913 have been constructed using a multiple-prime delivery system. In a nutshell, the Separations Act compels the owners of public facilities to act as their own general contractor.

American Airlines, which operates more than 200 daily departures from Terminal F, managed construction for PHL's baggage claim building project. (Technically, it was US Airways during initial conversations, and then US Airways merged with American.)

"American ran the competitive bid process," explains Cameron. "We are permitted to enter into an agreement with the user at the airport (American) to allow them to manage the construction on our behalf. It's still owned by the airport, and airport bonds were used; but because of the operational complexity, it made sense for American to manage the project."

Skanska USA's Pullen notes that the Separations Act complicates matters by requiring four contractors for any major project. "You can't run a Terminal Building project with four general contractors," he points out. "In this case, American Airlines was the contract holder, Burns & McDonnell was program manager and The Sheward Partnership was the designer. It's a unique way for the airport to get terminals and concourses done."

Green Gold

If the new baggage building was the ice cream on top of the overall Terminal F expansion, then achieving sustainable

design certification was the cherry on top of the ice cream. The new baggage facility received gold certification for Leadership in Energy and Environmental Design (LEED) by receiving high marks for innovation, water efficiency and indoor environmental quality.

"The city has a goal that all new facilities are built to LEED silver status, and we were aiming for that," says Cameron. "We always try to push it a little more, and we were very fortunate that we could ultimately achieve LEED gold status."

Because the new baggage claim facility was built on a greenfield site, the team had opportunities to create from scratch. By incorporating the new building into the existing airport campus, designers from The Sheward Partnership prevented sprawl and associated habitat loss. The siting choice also leverages existing transportation systems and utility services. An erosion and sedimentation control plan helped minimize soil erosion, waterway sedimentation and dust generation during construction.

To protect the adjacent Delaware River from pollutants in stormwater runoff from the new baggage claim building, designers specified pervious paving (porous concrete that recharges groundwater) and two rain gardens (shallow, vegetated depressions that absorb stormwater runoff). Stormwater is also treated and filtered on-site.

"Green" elements in the building itself include Improved insulation in walls and roofing; high-performance glazing; high-efficiency heating, cooling, and ventilation equipment; light-colored roofing; and energy-efficient lighting and controls. The airport expects a 20% reduction in energy costs because of these improvements.

"There are always challenges when dealing with construction projects of this size and scope," comments Boda. "The one good thing was that it was a greenfield site and we were able to take that from nothing to this absolutely gorgeous building."

Happy Customers

When reflecting on the project, Sheward is pleased with the results. "Good, strong sustainable design is affordable and can add to the airline passenger experience," he says. "Most airport baggage claim facilities are sunken below departure roadways, resulting in dark spaces with dim views of the arrivals roadway and no connection to green spaces and natural daylight.'

In contrast, he describes PHL's new facility as bright and exciting, with a strong connection to nature. The design and appearance of the new building was important, because Baggage Claim creates one of the first impressions of Philadelphia for arriving passengers, adds Sheward.

A large-scale art installation that sparkles through the glass panes of the new building adds extra aesthetic appeal. (See sidebar on Page 41 for more details.)

Boda agrees with Sheward about the importance of art and other design elements—especially when combined with improvements in efficiency and safety. "The new facility provides our customers with a much better experience overall," she summarizes.

Rockford Int'l Builds Mega Maintenance Facility Despite Freeze on State Funds

BY MIKE SCHWANZ

FACTS&FIGURES

Project: New Maintenance Facility

Location: Chicago Rockford Int'l Airport

Cost: $40 million ($1 million under budget)

Funding: Airport $3 million; Winnebago County $8 million; city of Rockford $5 million; federal government $10 million; state of Illinois: $15 million

Gap Funding: Alpine Bank; Blackhawk Bank; Byron Bank; Northwest Bank; Rockford Bank & Trust

Size: 203,000 sq. ft. (2 adjoining hangars)

Operator: AAR Corp.

Lease Agreement: $400,000 annually

Construction: Approx. 14 months (June 2015-Aug. 2016)

Engineering: Crawford, Murphy & Tilly

Technical Consultant: Nelson Spohnheimer

Architecture: Larson & Darby Group

Building Supplier & Contractor: Rubb Building Systems

Construction Manager: Scandroli Construction

Hangar Doors: Assa Abloy Megadoors

Hangar Floor: Ductilcrete

Fabric Walls: Thermohall

Competitive Advantages: Central geographic location; large enough to handle 2 Boeing 747-800s simultaneously; ready labor supply from aviation maintenance program at local community college; only U.S. maintenance facility able to handle A380s

Located about 70 miles northwest of O'Hare International, Chicago Rockford International Airport (RFD) is often obscured in the shadow of its busier, better-known neighbor. This fall, however, RFD enjoyed a significant moment in the sun, when it opened one of the largest maintenance, repair and overhaul (MRO) facilities in the world.

RFD's new 203,000-square-foot structure has enough room to accommodate two Boeing 747-800s or two Airbus A380s at the same time, and is expected to operate 24 hours per day.

AAR Corp., based in nearby Wood Dale, IL, is leasing the facility for $400,000 per year. The company plans to offer everything from heavy maintenance to cabin modifications/in-flight entertainment upgrades. According to an AAR spokesperson, the new mega-facility at RFD is the only MRO in the United States that can handle Airbus A380s.

Getting the huge two-hangar structure built was a formidable challenge, acknowledges Jeff Polsean, economic development manager for the Greater Rockford Airport Authority. "Cargo operations are important to us, and we are always looking to increase that part of our business," Polsean says. "We thought that building a new MRO facility that could work on jumbo aircraft—especially large cargo planes—would attract more business.

JEFF POLSEAN

"There were no wide-body repair facilities in the country, [so] we went to AAR to get their input on what they needed," he explains. "They told us they needed hangars big enough to house jumbo jets, and a good supply of qualified mechanics."

The Rockford area appealed to AAR for several reasons, explains Polsean: "Our central location makes it very easy for clients to bring their aircraft in for repair jobs; and Rockford is the seventh-largest aerospace supplier in the country for aircraft parts. We touch just about every aircraft flying in one way or another."

Several tier-one suppliers such as Woodward, United Technologies Corp., BE-Aerospace Systems and GE Aviation all have facilities near RFD.

"We also have a highly trained workforce, and access to a robust warehouse and distribution network," Polsean adds.

RFD's existing airfield, complete with a 10,000-foot runway and ample holding areas, was also a selling point for a facility designed to service jumbo jets. "UPS usually lands at night, and there can be 10 or 15 planes on the ground," reports Polsean. "During the Christmas period, we can have as many as 30 planes parked. And because we have a huge infield (about 900 acres), we can add more aprons if necessary, to accommodate increased traffic."

Having a steady stream of highly trained workers readily available was a critical factor for AAR, Polsean emphasizes. "Rock Valley College here in Rockford just opened a new multi-million-dollar Aviation Education Center, covering 40,000 square feet. It will offer an 18-month certification program for airplane mechanics. It is located right on airport

New Maintenance Facility Attracts Additional Cargo Business

Last year, Chicago Rockford International Airport (RFD) was the 25th busiest U.S. airport by cargo volume. This year, RFD officials fully expect to crack the top 20, thanks to the new maintenance, repair and overhaul (MRO) facility that recently opened on the airfield and the associated cargo business it is attracting.

Since 1994, RFD has been home to the second-largest UPS hub in the country. The 586,000-square-foot sorting facility averages about 26 flights per day, and accounted for the lion's share of 118,000+ metric tons of cargo the airport handled in 2015. Now, the local mainstay has a new neighbor to the east.

In fall, RFD began leasing a 72,000-square-foot warehouse with more than 20 truck docks to ABX Air, an international freight company based in Ohio. ABX began daily flights into RFD in early September, and Ken Ryan, director of business development and cargo for the airport, expects a "very quick progression of cargo activity."

Airport Director Mike Dunn notes that readily available warehouse space and the new MRO both helped seal the deal with RFD's new cargo carrier. The recent departure of a pharmaceutical packaging firm freed up warehouse space just in time for ABX to move in.

Pinnacle Logistics, the firm providing ground services for ABX, planned to hire at least 50 people, and Dunn reports that the airport will also likely add staff members to support the new cargo operations.

property. AAR told us they needed 120 to 150 mechanics a year, so there was a built-in pipeline to supply labor."

Challenge Accepted

After AAR agreed to lease the new facility once it was built, the hard part began for the airport authority—funding and constructing it.

Michael Dunn, RFD's executive director, led a team of airport officials in assembling a coalition of stakeholders that included the city of Rockford, Winnebago County, the airport authority and various state and federal entities. The budget was eventually set for $41 million, with various coalition stakeholders contributing (see Page 44 for the specific breakdown).

Crawford, Murphy & Tilly, RFD's long-time engineering firm, helped select the site for the new facility.


BRIAN WELKER

"Our firm has been working with the airport on many projects since the late 1970s," says Brian Welker, a vice president with the company. In the early 1990s, for instance, the firm helped plan the large UPS cargo building and supporting infrastructure at the airport.

"For this project, we were involved from the beginning," Welker says. "Crawford, Murphy & Tilly worked closely with the airport team [to determine] how the MRO would fit in, what infrastructure would be needed, environmental requirements and even budgeting."

Engineers identified a midfield area with two older cargo buildings formerly occupied by Airborne Express and BAX as the ideal location for the airport's new MRO. "The required airside infrastructure was already there," explains Welker.


Existing parking areas for heavy aircraft saved millions of dollars in development costs.

"There was parking for heavier aircraft; we did not need to spend several million dollars on infrastructure. We really only had to plan landside improvements and utility enhancements, such as a new parking lot for 400 cars, located outside the airport security fence."

A nearby city well provided ready access to water for fire protection and other services. "Based on flow rates and pressures, we did not have to construct a water storage tank, so that saved money," notes Welker.

As is often the case with ambitious projects such as this, there were unexpected obstacles. "The FAA was worried about signal interference from the new building impacting existing navigational aids," Welker explains. "At one point, it was suggested that the airport would have to rotate the entire building seven to 10 degrees, which would have

The pre-engineered structures include hot-dip galvanized steel frames covered with two-inch-thick insulated fabric.

added several million dollars to the project, and impacted the aggressive project schedule."

Given the tone of initial discussions, the airport and Crawford, Murphy & Tilly retained Nelson Spohnheimer, a retired FAA technical operations specialist who prepared a technical report that helped address the FAA's concerns. "The technical documentation provided a baseline level of comfort to the FAA that the chances of signal interference would be low," says Welker. "This allowed construction to proceed per the original plan."

The biggest challenge to the project, however, was financial, relates Polsean. "High-ranking politicians in the state of Illinois have been bickering about the state budget for years," he explains. "Because no state budget had been approved, the $15 million slotted as the state's share for the MRO project was frozen and unavailable."

Undaunted, RFD officials convinced five local banks to extend $17 million of credit to keep the project on track. "We were very fortunate that the banks had the foresight to see how the new MRO would help the economy of the entire region for many years to come," says Polsean.

Once the project received the green light from various government agencies, RFD signed a contract with Rubb Building Systems, a company based in Maine that specializes in large, prefabricated hangars.


CHUCK AUGER

"Building this new MRO was one of our biggest challenges, due to its sheer size," says Rubb's marketing manager, Chuck Auger. "This is the largest building we have ever built. Each of the two hangars is larger than a football field: 300 feet wide, 300 feet long and 100 feet high."

To support the effort, Rubb's project manager moved to Illinois for the duration of construction. "He had a crew of five to eight guys, and enlisted other local contractors as needed," adds Auger.

Specialized Components & Materials

Kathleen Cantillon, AAR's vice president for strategic communications, emphasizes that the new MRO was designed to service next-generation aircraft. The main structure consists of two membrane-clad hangars that are connected and insulated. Each structure has give-panel, vertical–lift Assa Abloy Megadoors with pivoting mullions, which accommodate even the world's largest aircraft.

"The doors will open and close very quickly, and the cost of door operations are the lowest in the market, thereby saving the customer a lot of money in the long run," notes Auger. "Above all, this MRO design is not about housing aircraft, but quickly servicing planes and getting them back in the air."

The facility's hot-dip galvanized steel frame is clad with 2-inch-thick Thermohall insulated fabric, which was selected for its low maintenance requirements. "One of the advantages of a fabric building is that it can be easily repaired," says Auger. "If a forklift driver makes a mistake and rips a hole in it, it can be repaired in a couple of hours."

The two hangars include 1,000 tons of steel, 52,000 bolts and 120 rolls of PVC cover. Overall, the dual hangars are among the largest pre-engineered structures of their kind in the world. The hangar floor is a special concrete mix called Ductilcrete, specified for its strength and load-bearing performance.

Throughout construction, crews were plagued with one constant problem—the wind. "It can get pretty windy in Rockford, and when a crane is up 100 feet in the air trying to roll a tarp, it can be challenging. The fabric becomes like a big sail. There were some days in which we simply could not safely use the crane," Auger reports.

Overall, though, he was satisfied—and surprised—at how smoothly the project went. The entire facility was erected in about 14 months, with crews finishing in August 2016—on schedule and under budget.

"This whole project emphasizes how terrific things can happen when people commit to working together for the common good," reflects Auger. "All the stakeholders (Rockford Airport Authority, the county, city, local media, Rubb, banks, local businesses and subcontractors) all saw how positive this project would be for the region. We *all* made it happen."

AAR Sets Up Shop

With the huge facility ramping up operations, Polsean foresees many long-term benefits in the future. "This new MRO will be an economic boost not only for our airport, but for the entire greater Rockford region," Polsean predicts. "The new building itself will create 500 jobs, and perhaps as many as 1,000. And other aerospace-related companies in the Rockford area will no doubt get more business from AAR to service this new MRO."

By late November, AAR had completed a few jobs for existing customers at the new facility and was actively negotiating contracts with several other potential clients. "We really expect to ramp up our operations in early 2017 and will be hiring more and more people as new business comes in," reports Cantillon.

A job fair held with the Rock Valley College in mid-November yielded a plethora of resumes and applications from students hoping to work at the new MRO.

Laredo Int'l Leverages Bi-National to Support Mexican Cargo Ops

BY JENNIFER BRADLEY

FACTS&FIGURES

Project: Bi-National Federal Inspection Station

Location: Laredo (TX) Int'l Airport

Strategy: Co-locate Mexican Customs & U.S. Customs & Border Protection

Key Benefit: U.S. exports & goods from other countries routed through Laredo Int'l can be inspected prior to entering 8 Mexican airports

Cost: $200 million

Funding/Execution: 20-year Capital Improvement Program, divided into 4 increments

2014: 7 projects for $9.5 million

Key Elements: Fence replacement; chiller replacement; baggage system improvements; continuation of apron reconstruction & rehabilitation; security system upgrades; parking lot improvements

2015-20: 27 projects at $82.2 million

2020-25: 16 projects at $180.3 million

2025-35: 5 projects at $139.3 million

General Engineering Consultant: Lockwood, Andrews & Newnam

Airport Modernization Plan: Lockwood, Andrews & Newnam; Ricondo & Associates

In 2015, when overall U.S. foreign trade declined 5.6%, business was booming in Laredo, TX. In fact, trade was at a record high, and Laredo climbed to third in the nation—behind only Los Angeles and New York City.

Laredo International Airport (LRD) was in a prime position to facilitate and leverage the boom, because it had equipped itself for increased cargo business by building and opening the only bi-national federal inspection station (FIS) in the United Sates.

Completed in November 2012 and open for business in spring 2013, LRD's bi-national inspection station contains U.S. *and* Mexican Customs facilities. This allows U.S. exports such as auto parts, electronics and aerospace products to be inspected at LRD for expedited entry into airports at eight key Mexican cities: Chihuahua, San Luis Potosi, Queretaro, Guanajuato, Toluca, Guadalajara, Hermosillo and Ramos Arizpe.

LRD Operations Manager Guillermo Villalobos explains that the bi-national FIS not only fosters U.S. trade, but also encourages goods bound for Mexico from all over the world to be sent through the small Texas airport. Because cargo can clear Mexican Customs at LRD, it can be released at any of the eight approved airports for delivery without pause. This, in turn, helps companies decrease production delays by reducing the amount of time it takes to receive necessary parts, notes Villalobos.

GUILLERMO VILLALOBOS

Long-Term Initiative

To undertake such a large and unique project, LRD initiated a $200 million capital improvement plan for infrastructure and cargo growth, funded by the FAA. One of the plan's major portions occurred in 2014, with seven projects totaling $9.5 million. Key elements included replacing fences, improving the airport's baggage system, replacing the chiller, continuing in-process apron reconstruction

Customs Stations

and rehabilitation, upgrading security systems and improving parking facilities.

Villalobos considers the scope "pretty incredible" for a non-hub airport. While LRD greets about 110,000 passengers annually, cargo traffic spurred the need for a new terminal in 1998, extensive runway and taxiway work, and other infrastructure improvements.

Over the past 20 years, all three of LRD's runways have been reconstructed, with crews replacing pavement from the 1950s that was built for lighter aircraft. Another key component was extending Runway 17L by 1,500 feet, and more projects are in the works.

"Our infrastructure must be [improved] so that it can handle the type of cargo aircraft we see," he explains. The airport's previous pavement was only about 7 inches thick, because the airfield was originally built as a U.S. Air Force Base for use by much lighter aircraft during World War II, and then subsequently transferred to the city of Laredo in 1976.

Thanks to more recent improvements, the pavement now includes 17 inches of Portland cement concrete on 6 inches of bituminous base—much more suitable for the civilian aircraft using it. FedEx bases two Boeing 757s on site, and UPS an Airbus A300. In addition, Northern Air Cargo often flies two Boeing 737s into LRD from Alaska, and Everett's Air Cargo regularly operates two MD-80s.

With reconstruction of nearly all existing cargo apron complete, the next main projects are extending the runway and replacing the 1960s-era FAA control tower, which Villalobos reports has reached the end of its useful life. "We don't want to go into the future with it for the next 20 years, because air traffic is so important from a safety perspective," he notes.

Overall, the airport's cargo apron reconstruction plan includes 14 phases of work. Currently, teams are working on Phase

9. They also are reconstructing partial parallel Taxiway G to the primary runway and extending the Taxiway G to the north, creating a full length parallel taxiway. Chad Pennel, senior project manager at Lockwood, Andrews & Newnam reports that Phase 10—apron reconstruction on the west side—is also in the design phase. Once complete, the new apron will provide additional areas for cargo operations.


CHAD PENNEL

The Next Generation

Although aging infrastructure was the main reason for FAA's $200 million investment at LRD, the bi-national FIS station figures prominently into the airport's long-term strategies. Pennel says that the inspection station was a major consideration in preparing aeronautical forecasts for the Airport Modernization Plan, as it opened while the planning process was occurring. "We really had no idea what the impact of that facility was going to be on aircraft operations," he recalls. "Most of the time you can find a comparable situation, but that didn't exist."

The new inspection/clearance capabilities provide a great opportunity to bring economic growth to the Laredo area *and* improve foreign relations with the Mexican government, notes Villalobos. Having previously served as the FAA program manager to LRD, he knows firsthand about the importance of both. When Villabos retired from the federal agency, Jose L. Flores, the airport's former manager, offered him the top job at LRD.

The process of establishing a certified Mexican Customs station in a U.S. airport was no small task. "The idea was 10 years in the making," Villalobos explains. "Mexico had to pass a law to allow this to happen, and had to even amend their Constitution because it's a reciprocal service." Because there is also a U.S. Customs facility in Mexico to pre-inspect perishable products coming into the United States, a constitutional amendment was needed to allow U.S. weapons on Mexican soil at the Customs facility.

Flores and U.S. Representative Henry Cuellar were instrumental in making it all happen, emphasizes Villalobos.

Currently, LRD is the only airport on the country's southern border with 24/7 U.S. Customs, and it's the only non-hub U.S. airport with round-the-clock Customs processing for air cargo,

notes Villalobos. As such, Representative Cuellar proudly refers to LRD as "NAFTA's cargo hub."

Villalobos expects activity at the new bi-nation FIS to increase as more businesses realize the facility's capabilities, and airport staff are accumulating operations data for analysis. "It's a pilot program for everybody," he remarks. "It takes time for companies to evaluate the process and reconfigure their operations to take advantage of the FIS."

Pennel agrees, noting that the full impact of the facility has yet to be realized. "It hasn't had time to develop and reach its full potential," he notes.

Consultant's View

Lockwood, Andrews & Newnam came on board as LRD's general engineering consultant in 2013, and the firm has been closely involved in bringing a string of construction and rehabilitation projects to fruition. Its personnel also help prepare overall development objectives for the FAA and provide specific cost estimating for the airport's extensive construction work.

"We really have tried to fine tune those," Pennel says. "You can only be so accurate when you're just starting a project." He agrees with Villalobos that funding had to be a priority for such extensive work, and felt it was important to get a good handle on the costs early on.

Originally designed for light military aircraft, airfield pavements were rebuilt for civilian aircraft carrying heavier loads of passengers and cargo.

Lockwood, Andrews & Newnam and Ricondo & Associates worked together to develop the Airport Modernization Plan. Main components included analyzing where and how cargo operations can be expanded and providing LRD ideas for future growth.

"Right now, they have two parallel runways and a crosswind runway," explains Pennel. "All their commercial traffic and terminal buildings are on the east side, and most cargo on the west."

Due to physical constraints, decommissioning the largely unused crosswind runway is one of the master plan's main priorities. Doing so will open land on the west side for future development.

In that mindset, the extension of a cargo road to allow access to land on the east side is another project currently in the hopper. "They've got existing aprons over there they can use as well," Pennel explains. "Then, they will have access; and it's just a matter of someone wanting to develop their facility when the time comes."

Lessons Learned

Securing the necessary funds for key improvements was a vital piece of LRD's long-term puzzle, notes Villalobos. Having a plan is essential, he adds, as is being aggressive in working with consultants to prepare specifications and deliver them on schedule. "That gets you ready with the FAA to be able to receive the grant," he explains. "Here in the Southwest Region, the FAA will issue grants only when you have bids in hand, not based on estimates alone."

Assembling bids and "having our ducks in a row" gave LRD a better chance of receiving discretionary funds, he comments.

Pennel agrees about the importance of having a long-term plan in place and maintaining good working relationships with all involved. "The last thing you want to do is develop an area for general aviation use, and then have big cargo developers want to build a facility at that same location," he relates. "Having those broad planning guidelines will really help as you go project by project, so you're not creating a situation that hinders future development either."

In general, Pennel encourages airport executives to look at the big picture—specifically how one project will impact other areas and/or create new issues.

Villalobos also highlights the importance of infrastructure, stressing that cargo business will be hampered if an airport's facilities are not up to par. "The 727s are very demanding from a pavement standpoint because of the landing gear configuration," he specifies. "If you want the activity, you really need to ensure the airport infrastructure is in a condition to handle it."

Strong airfield assets attract cargo business, but also improve safety and overall capacity, he emphasizes. On a larger scale, they preserve the economic prosperity of the airport in the community, he adds.

On a similar note, Villalobos says forecasting and knowing about various markets are also important components of the process. "We don't operate in a vacuum," he says. "We have data that strengthens the direction we want to go."

As a cargo-driven airport, LRD is playing an entirely new game than it did just one decade ago. Online business, international commerce and the increased speed of moving product have changed the way the facility must operate to stay competitive.

"I'm very satisfied with the results of the years of planning and all the blood, sweat and tears that were shed while going through this," Villalobos says. "It was not easy."

Looking back, he says that his cultural bond to the Hispanic community and previous experience at the FAA provided the right assistance for the FIS projects and other infrastructure improvements. "[The airport] needed a lot of tender loving care and it just blossomed," he reflects.

Looking forward, he's excited about what those improvements will mean for LRD and Laredo.

Kelowna Int'l Showcases Local Beauty & Products via Sense of Place Campaign

BY THOMAS J. SMITH

FACTS&FIGURES

Project: Sense of Place/Customer Service Program

Location: Kelowna (BC) Int'l Airport

Owner/Operator: City of Kelowna

Phase 1: Departures Lounge Redevelopment

Opened: July 2016

Designer: ZGF

Concession Tenants: Okanagan Estate Wine Cellar; Okanagan Style; WhiteSpot; Skyway Café & Wine Bar

Noteworthy Retail: Okanagan wines & fruits packaged in carry-on boxes & sold post-Security

Paid Sponsorships: Only gift items from businesses that belong to a group organized by the local tourism board can sell branded gift items in the departures lounge; participants can also buy ads on boarding bridges, electrical transmission boxes, etc.

Phase 2: Additional Concessions Development

Scheduled Debut: Late fall 2017

Designer: Kasian

Tenants: Subway; Tim Hortons; to-be-determined wine bar

With planners projecting that Kelowna International (YLW) will serve 2 million passengers by 2020, the British Columbia airport is embarking on programs to prepare its facilities and customer service practices for future demand.

Currently, YLW handles 1.6 million passengers a year, with eight carriers and charter operators offering 66 daily flights.

Elements of the wide-reaching improvement initiative include:

- expanding the check-in area and outbound luggage facility;
- expanding the aircraft parking apron;
- developing a service plaza with a gas station, car wash and convenience store on the approach to the airport;
- developing the departures lounge;
- launching a customer service program for all airport employees.

The city-owned airport has already completed the apron expansion and is now working on interior projects. YLW officials identify the two-year departures lounge redevelopment project as the key element in enhancing the customer experience.


SAM SAMADDAR

As retail outlets surrounding the central seating area are renovated, the space continues to be infused with a "sense of place," explains Airport Director Sam Samaddar.

Understanding YLW's homegrown sense of place requires some knowledge of the Kelowna area, a popular tourist spot in the heart of Okanagan Valley. The south central British Columbia region enjoys a semi-arid climate and is dotted with lakes, including Lake Okanagan, which stretches for 84 miles. It is a four-season tourist destination, with hiking, biking, water sports and five world-class ski resorts that feature "champagne" powder. The area is also an agricultural destination, with many wineries and a large

Authentic local art (left) and regional products are central to YLW's sense of place initiative.

variety of fruit orchards to tour. Samaddar estimates that fully 70% of YLW's passengers are tourists.

"The sense of place showcases what the area is all about," he explains. "It features a sense of the community. It is responsive to the community, and we are responsible to the community.

"These programs are in alignment with our businesses and supporting our business community to make the region even better. We are not an isolated entity that brings passengers in and drops them at the curb. We are very much engaged in the broader community and the passenger experience."

Okanagan Style

The foundation of YLW's sense of place program is built on regional agricultural products, the local art community and area resorts. And all these are featured, or will be featured, in the airport's renovated departures lounge.

The first phase, which opened in summer 2016, is anchored by the Okanagan Style store, which sells seasonal fruits, area artwork and branded giftware from local resorts. ZGF, an architectural firm from Portland, OR, helped YLW refine the space with an open design, based on behavior economics.

The first phase also includes WhiteSpot, an 85-year-old hamburger outlet popular throughout the province, Okanagan Estate Wine Cellar and Skyway Café and Wine bar.

The second phase is currently being designed by Kasian, a Vancouver firm, and is scheduled to open in late fall 2017. It will include a Subway sandwich shop, Tim Hortons and a second bar featuring wines, craft beers and spirits produced in the Okanagan Valley.

The airport worked closely with its master concessionaire to develop local brands and themes. "At the center of that theme is creating a sense of place in terms of what this region offers to the traveler and what locals can be very proud of in terms of showcasing the region," explains Samaddar.

The emphasis on sense of place was first introduced in the international arrivals area eight years ago, with heavy use of Ponderosa Pine, sustainable building materials and geothermal heating/cooling to set the regional tone. The arrivals hall features a "rammed-earth wall," which crews created by tapping various layers of engineered concrete into place. Each layer represents a different color common to the geography of the valley. A list of all the hamlets, villages and towns of the valley is featured on another.

With the support from regional wineries, the airport hosts free tasting events in the arrivals area during the Spring and Fall Okanagan Wine Festivals.

Farm-to-Flight

Building on the popularity of carry-on-board packages of Okanagan wines sold post-Security in the departures lounge, YLW introduced its Farm-to-Flight program featuring local fruits last July.

"The idea came to me from the Maritimes, where you can buy lobsters and carry them on board as you travel home," relates Samaddar. "If you can do lobster, why can't you do fruit?"

The airport worked with its consultants and an established local distributor who was already buying fruit from local orchards to create a similar program. The team developed special boxes that would safely transport seasonal fruit and fit under aircraft seats. The colorful travel boxes feature images of the Okanagan Valley and the phrase "Farm to Flight," which the airport has copyrighted.

Local fruits and wines specifically packaged to fit under aircraft seats are sold after the security checkpoint.

The fruit boxes are sold in the Okanagan Style store as a last-minute purchase to share memories of the area. Because the store is located behind the security checkpoint, passengers don't need to worry about CATSA (Canadian Air Transport Security Authority) confiscating their fruit.

Travelers can carry the specially designed boxes onto any domestic Canadian flight, but some U.S. states restrict passengers from importing foreign fruits. The store provides customers with a list of specific restrictions.

The airlines are "fully accepting of the program and realize it is promoting the region," reports Samaddar.

Artful Retail

In another effort to infuse sense of place, YLW began a local art program for airport retailers in summer 2015.

"We wanted authentic local art," emphasizes Samaddar. "What you see in stores across Canada are trinkets sold to represent Canada and our First Nations, but the products are made in China.

We partnered with the arts community to provide authentic art."

Products range from small artifacts that cost less than $10 to paintings and other fine artwork priced at $450 or more. The airport sells the goods on consignment for area artists, yet the process is transparent to airport customers. Artists are paid the full value for their pieces, and the vendor's profit is covered in a 30% markup. Each item includes the artist's biography and a description of his or her piece.

"This is a way of getting indigenous and non-indigenous art into the airport to represent the region," says Samaddar.

Exclusive Sponsorships & Service

YLW's marketing program includes a variety of paid sponsorship opportunities in and around the airport. The most prominent are for the Okanagan Bucketlist, a group of local ski resorts, golf clubs, spas and wineries organized by the local tourism board. Messages promoting Bucketlist businesses appear on YLW's loading bridges, banners and even wrap-around ads on green electrical transmission boxes.

As part of the sponsorship agreement, branded gift items, clothing and sporting goods that participants sell at their own locations are also sold in YLW's departures lounge. Only Okanagan Bucketlist participants can sell locally branded gift items at the airport, notes Samaddar.

The airport's overall sense of place program is part of a larger initiative still under development: YLW Spirit. Samaddar describes YLW's umbrella effort as a "one campus" customer service program that will involve all 1,400 employees of the airport, airlines and vendors. "No matter what you do, you are part of one campus to serve the passenger and enhance their experience here," he explains, noting that the program will recognize individual employees for exceptional service.

Once the program is implemented, Samaddar envisions that passengers traveling through YLW will feel like they're at a five-star resort. "We would greet them at the curb, take their bags, park their car and escort them to the ticket counter," he details.

The airport's cadre of 75 volunteer ambassadors figures prominently into the plan.

Airport personnel are currently writing the employee training manual to launch YLW Spirit, which is expected to officially roll out in about two years. "It will take a lot of work to shift the culture for the overall campus to get where we want to go," acknowledges Samaddar.

Beyond the involvement of architects, YLW has executed its sense of place program without assistance from an outside consultant or specialist. It did, however, take inspiration from other airports.

"We have studied a lot of airports and the one I have very high regard for is Portland International Airport," notes Samaddar. "The airport is very well integrated into their community. They have national brands, but they also very much carry local brands to promote the culture and what the region is all about when you arrive at that airport."

FACTS&FIGURES

Project: Runway & Taxiway Reconstruction

Location: Detroit Metropolitan Wayne County Airport

Specific Airfield Assets: Runway 4L-22R & Associated Taxiways

Cost: $110 million

Funding: FAA grant (20%); general airport revenue bonds (80%)

Project Management, Design & Construction Administration: RS&H

Grading, Safety Phasing & Sustainability/ Envision Administration: C&S Companies

Concrete & Asphalt Paving: Ajax Paving Industries

Excavation & Electrical Construction: Dan's Excavating

Electrical Design: Arora Engineers

Surveying: Alpine Engineering

Geotechnical Investigation & Quality Insurance Testing: CTI & Assoc.

Cost Estimating & Scheduling: McGuiness Unlimited

LIDAR Data Collection: Survey Solutions

Sustainability Consultant: ASTI Environmental

Airfield Markings: PK Contracting

Airfield Lighting Mfr: ADB Safegate

Of Note: Major runway & associated taxiways demolished & reconstructed under budget within a single 7-month construction season

Sustainability Accomplishments: Nearly 100% of potentially recyclable construction, demolition & land-clearing materials was diverted from landfills; 75% of water used onsite was repurposed; project received Envision Silver Award from the Institute for Sustainable Infrastructure

Detroit Metro Fast Tracks Reconstruction of Major Runway & Associated Taxiways

BY ROBERT NORDSTROM

Detroit Metropolitan Wayne County Airport (DTW) recently completed the reconstruction of one of its primary arrivals runways, 4L-22R, and several associated taxiways. Major construction began in April 2016, and the runway reopened just seven months later in early November.

DTW Senior Project Manager Theresa Samosiuk notes that the $110 million undertaking was blessed with good weather and an excellent team, with both helping the project come in under budget and ahead of schedule.

"Our airfield infrastructure is critical in providing safe and efficient operations here in Detroit," says Tom McCarthy, vice president of facilities, design and construction for the airport. "We had tremendous support from our partners, and our team worked very hard to complete this project in an innovative and efficient manner. Our strong partnership with officials at our local FAA Airport District Office was instrumental in the project's success."


TOM McCARTHY

Challenging Project

Constructed between 2000 and 2001, the surfaces of the existing runway and taxiway pavements were rapidly deteriorating due to alkali silica reactivity, a well-documented condition experienced by many roadway and airfield pavements constructed during that time period, informs Samosiuk.


THERESA SAMOSIUK

New airfield pavement and LED lighting were unveiled in November.

"Between 2014 and 2015, we performed nearly $5 million in runway repairs," she elaborates. "Temporary repairs like that are not cost-effective or sustainable."

Design and reconstruction work for the project required aggressive scheduling. The airport awarded RS&H the engineering and design contract in 2014, with the requirement that the 10,000-foot runway and associated taxiways would be reconstructed during a single construction season in 2016.

Easier Said Than Done

Pavement reconstruction included Runway 4L-22R; Taxiway A and seven connectors; the end-around Taxiway Q, which added another 5,000 feet; and a small portion of Taxiway V. (A small paving project on Taxiway R is scheduled for 2017.) Crews removed the existing Portland cement concrete that was deteriorating and replaced it with 18.5 inches of similar new material. They also rebuilt the bituminous shoulders and installed new stormwater and underdrain systems. High-intensity LED runway edge lights were added along with standard LED runway centerline and touchdown lights. Crews also upgraded taxiway edge lighting, centerline lighting and signage with LED fixtures.

All told, the project required 600,000 cubic yards of excavation, 445,000 square yards of Portland cement concrete, 220,000 tons of asphalt and 150,000 linear feet of 6-inch underdrain.

Given its large scope, timing was no small factor for the project. Contractors had to complete the project within the April to November 2016 construction season to ensure that the west side of the airfield could resume operations for the winter season. If this did not happen, Samosiuk explains, DTW would be limited to using just three parallel runways (two runways during snow removal events), which would constrain airfield operations.

Preparation & Execution

For a project of this magnitude, on such a tight schedule, it was critical for contractors to have easy access to the work site. Because the runway sits on the far west side of the airfield, contractors were able to isolate the site from active airfield areas by installing three miles of temporary 10-foot security fencing during an enabling project in 2015. Securing the work area as a landside project facilitated access and reduced security and insurance requirements for contractors. During peak construction periods, more than 300 workers were on site at a time, Samosiuk informs.

"The fence was a huge help in getting this done as quickly as we did," she notes. "I heard some contractors say that a project of this size might have taken two or three years to complete if they had to deal with all the security requirements related to performing construction on an active airfield."

The result was an extra-busy worksite, with concrete demolition in one area, underdrain installation in another, and asphalt and concrete placement elsewhere—all occurring simultaneously. "At the beginning of construction, you could drive from one end of the project to the other—about three miles—and it seemed like there was activity on every square foot of space," recalls Samosiuk. "It's just not what you typically see with airfield reconstruction projects, where you're generally limited in space and what you're able to do. It was very exciting."

Crews installed 445,000 square yards of Portland cement concrete and 220,000 tons of asphalt.

PAT FRAME

The initial design called for demolishing and removing the surface pavement, milling off the top 3 inches of asphalt base material, and then replacing all materials in kind: 3 inches of asphalt topped with 17 inches of Portland cement concrete. The design team evaluated the condition of the existing bituminous base material and deemed it to be in good condition. The initial assumption was that demolition would not damage the underlying base, informs Pat Frame, Michigan aviation leader for RS&H.

Nevertheless, engineers used a falling weight deflectometer to verify the condition of the base material after concrete demolition. While engineers expected the resilient modulus of the bituminous base to be 400,000 psi, readings came in at 150,000 psi—significantly lower and outside FAA design requirements. "To remain on schedule, we had to quickly modify our pavement structure to provide adequate support for the design fleet," recalls Frame.

Contractors consequently increased the amount of material milled from the base course and made up the difference by increasing the amount of Portland cement concrete they poured on top. "We went from a 17-inch concrete section to an 18.5-inch section," Frame specifies. "We did that throughout the entire runway and taxiway system."

Setting up two batch plants and a concrete crusher on site helped the contractor keep pace with production needs.

What to do with the old concrete, which was laden with alkali silica reactivity, proved to be a significant issue, Samosiuk notes. "We wanted it off our property," she adds emphatically. "We didn't want to reuse it on the shoulders, so we worked with the contractor to find another solution."

The airport limited onsite crushing to the quantities committed to other projects in the area, and the contractor removed the remaining concrete materials to its local yard a few miles off airport property.

New Configuration

DTW's new runway and taxiways were designed to accommodate the Airbus A340-600, per FAA runway design code D-V and taxiway design group 6.

"All of the geometric aspects of the runway and taxiway system were modified to meet current FAA design standards," says Frame. "This affected the pavement intersections and the width of the paved shoulders. The new design standards provide for a more economical geometry for the newer aircraft."

In addition, the geometry of existing high-speed exit taxiways did not meet current FAA geometric requirements. Because the taxiways required full reconstruction, the design shifted the location of the taxiways, replacing the 45-degree connectors with full 30-degree high-speed exits.

"This reconfiguration allows airlines to land more planes, increasing the capacity of the runway and making operations more efficient," Samosiuk explains. "It also translates into fuel savings, as aircraft are able to get off the runway more quickly."

Award-Winning Project

Wayne County Airport Authority demonstrated its ongoing commitment to sustainability many ways during DTW's recently completed airfield project. Various measures focused on reducing lifecycle costs, increasing contractor efficiencies, decreasing emissions and fuel consumption, and diverting materials from landfills. In addition, team members scheduled truck hauling during the night to reduce road congestion during peak daytime hours.

The extra efforts extended by the project team paid off. In September 2016, the authority proudly accepted the Envision Silver Award from the Institute for Sustainable Infrastructure, which recognizes sustainable infrastructure based on its full range of environmental, social and economic impacts. The runway project is the 19th project in the country to receive an Envision rating.

C&S Companies led the sustainability efforts and managed the process for Envision recognition. Personnel began with a sustainability charrette that involved a cross-section of airport authority representatives and the project team to establish priorities, challenges and opportunities specific to the airport and the project at hand. Attendees evaluated potential strategies to generate recommendations that would provide value to the project and also prove feasible to implement.

Even though FAA does not fund high-intensity LED runway edge lighting, DTW opted to install them throughout the project to save energy, reduce maintenance costs and reduce disruptions to tenant operations.


NICK RYAN

Executives from the project's electrical engineer praise the authority's decision to move forward with the LED installation. "Not many airports have full LED installations on runways," notes Nick Ryan, vice president at Arora Engineers.

In total, crews installed more than 1,300 LED lights and 72 miles of airfield lighting cable on the runway and taxiways in seven months. "Having it as a landside project was key to getting it done on schedule," says Ryan, echoing Samosiuk's sentiment.

For environmental purposes, DTW required the concrete and asphalt contractor to track all materials and waste generated, and submit monthly reports to the airport and engineer. Ajax Paving exceeded the initial target of 85%, and diverted nearly 100% of potentially recyclable construction, demolition and land-clearing materials from landfills. When all was said and done, nearly 3.3 million tons of material was recycled/reused offsite, and almost 3.5 million tons was recycled/reused onsite.

In addition, approximately 75% of the water used on the project (nearly 11 million gallons) was drawn and repurposed by pumping stormwater from collected reserves.


BOB KOLLER

Bob Koller, department manager of aviation for C&S' Great Lakes Region, reflects on theses accomplishments: "It's big. We calculated that 99.8 percent of all materials were diverted from landfills. Most of the soils remained onsite, but other materials such as concrete and asphalt pavements were removed to a recycling yard for use on

other projects. Rather than using potable water from local water sources, the contractor hooked up to an airport pump station, using stormwater for dust control and base course compaction. The fire hydrant at the end of the runway was tapped for the potable water needed for the new concrete materials."

DTW is only the second airfield project and third airport project to receive an Envision award, notes Koller.

In addition to recognition for its sustainability efforts, the airport authority also received an Award of Excellence from the Michigan Concrete Association and an Award of Merit from the Asphalt Pavement Association of Michigan for the outstanding quality of the concrete and asphalt placed during the project.

Planning & Teamwork

"It all comes down to planning, teamwork and creativity," reflects Samosiuk. "With a great team, willing to work together, you can accomplish anything."

FAA Airport Improvement Program discretionary grants paid for 20% of the project's cost, and general airport revenue bonds funded the remaining 80%.

DTW also applied for and received an FAA cold weather construction provision, which allows airports with short construction seasons to submit project reimbursement requests prior to the execution of AIP discretionary grants.

"Typically, FAA grants are awarded late summer. With our climate, it is impossible to complete a large project that late in the season," explains Samosiuk. "Receiving permission to proceed with construction before receiving the grant money allowed us to begin the project in April and maximize our construction season."

DTW was one of the first airports to apply for the provision, during another project a few years ago.

Samosiuk praises the project team—contractors, consultants, municipal partners and the airport authority—for all the thought and effort that made the project a huge success.

"Project managers sometimes spend a lot of time focused more on the project challenges, rather than the opportunities," she reflects. "I believe we really went above and beyond the typical planning for a project like this. We planned for a one-year construction and had contingency plans for situations beyond our control. Between the runway and taxiways, we reconstructed over six and a half miles of airfield pavement. Fortunately, we didn't have to implement any of those backup plans."

Now is an Ideal Time to Support Inclusion

KRYSTAL J. BRUMFIELD

Krystal J. Brumfield is president and CEO of the Airport Minority Advisory Council, a non-profit organization dedicated to promoting the inclusion of minorities and women in the multi-billion dollar aviation industry. Specifically, it advocates for the participation of minority-owned, women-owned and disadvantaged business enterprises in airport contracting.

More than 30 years ago, Congress recognized the importance of equity and inclusion in airport contracting by enacting legislation to facilitate participation by Disadvantaged Business Enterprises (DBEs). In 1987, it added a separate, similar program focused on Airport Concession Disadvantaged Business Enterprises (ACDBEs). As a result, thousands of small, minority- and women-owned businesses have been able to compete on a level playing field with larger, more established contractors.

A lot has changed in 30 years, but the fundamental value of diversity in airport contracting has not. The DBE programs help redress past and ongoing discrimination on the basis of gender, race or ethnic background. Moreover, participating employers create thousands of jobs and millions of dollars in economic value for marginalized communities.

The way our country funds airport improvement has, however, changed drastically over the years. When the DBE program was first enacted, Airport Improvement Program (AIP) funds were the main source of federal support for airport development. Then, in 1990, Congress authorized certain airports to collect passenger facility charges (PFCs) to supplement their AIP funding. As time passed, PFCs often remained fixed, causing heated debate for years.

The current $4.50 PFC cap has become a hot-button issue in part because PFC revenues have displaced AIP funds as the primary source of funding for airport capital projects. This trend carries significant consequences for DBEs, because the PFC statute does not include participation goals for minority- and women-owned businesses or other disadvantaged groups. As a result, DBE participation for AIP-funded contracts is approximately 21.2%, but only 12.4% for contracts funded by PFCs. This discrepancy amounts to millions of lost job-hours and revenue for DBEs, and does not fulfill Congress' intent to promote equity and inclusion.

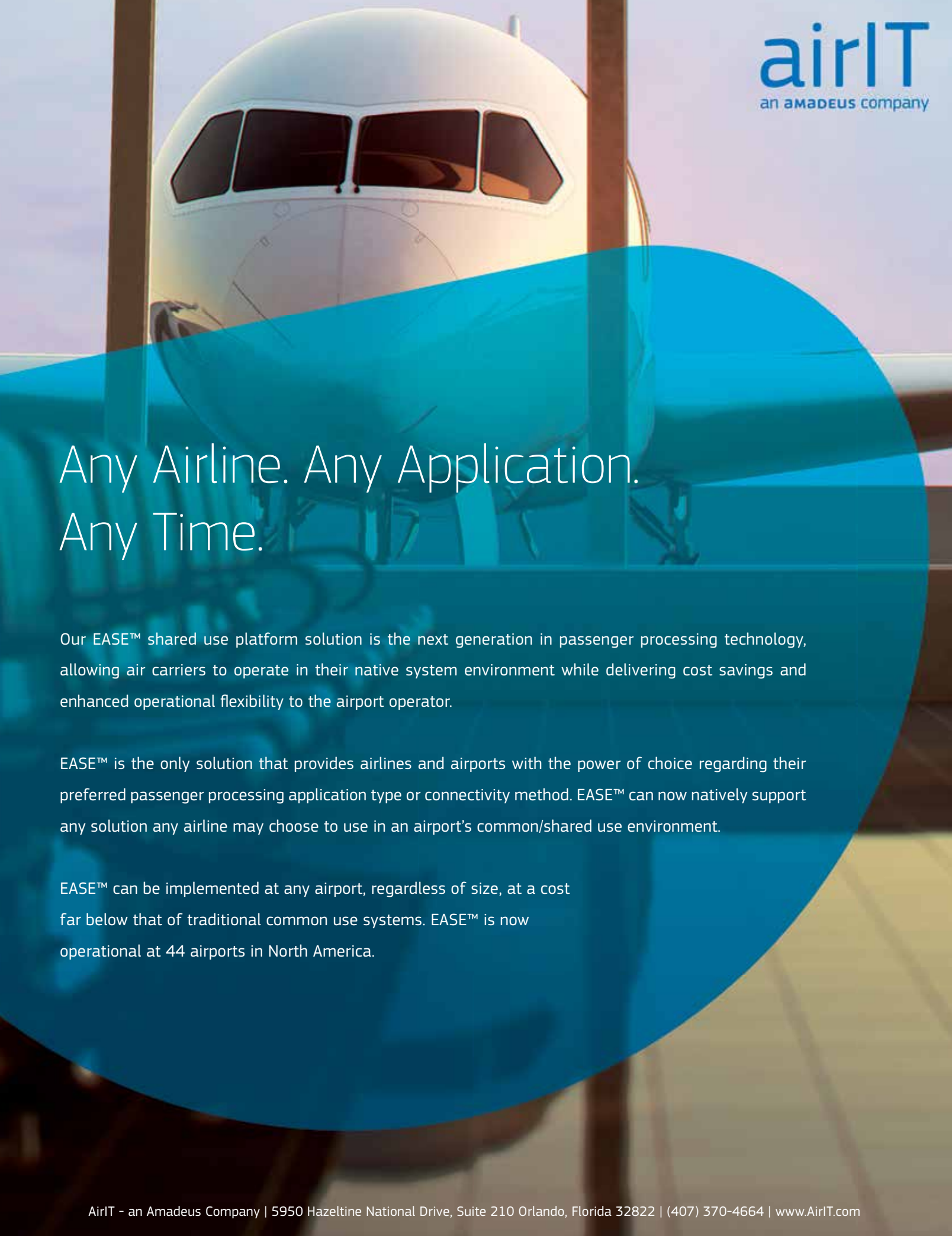
These effects have been compounded by the fact that airport DBEs and ACDBEs are held to more restrictive size standards than other federal small business programs. Other programs generally use revenue classifications established by the U.S. Small Business Administration (SBA). However, airport and other transportation programs use a standard that is sometimes 35% lower. Not only does this different standard amount to manifestly unfair treatment of minority- and women-owned businesses in the airport sector, it also prevents them from realizing economies of scale by subcontracting with other firms.

As the incoming president and CEO of the Airport Minority Advisory Council (AMAC), I am committed to ensuring that equity and inclusion remain at the forefront of the policy agenda for the airport/aviation industry. We must meet the challenges posed by changes in business models and funding streams with adaptability and innovative thinking to ensure that these values remain as strong 30 years from now as they are today.

I am pleased that AMAC has led a spirited advocacy campaign to modernize the PFC statute and the small business size standards for transportation programs. Specifically, we have urged the inclusion of participation goals for minority- and women-owned businesses in the PFC program, to provide parity with the requirements under AIP—particularly in connection with any increase in the PFC cap. In addition, we have encouraged Congress to conform the size standard for airport DBEs and ACDBEs to the definition SBA uses. These initiatives would go a long way toward preserving congressional intent regarding diversity in airport contracting, and open up important new opportunities.

While these initiatives have been part of AMAC's policy agenda for several years, a new session of Congress and new administration present unique opportunities to advance them over the finish line. In particular, President-elect Donald Trump has frequently lamented the state of our country's "third world" airports, and has pledged to commit substantial resources to infrastructure development and renewal. Amendments to the PFC program and size standard could fit into a broader infrastructure proposal, helping ensure that airports continue to benefit from the experience and expertise of minority- and women-owned businesses. The FAA reauthorization due in September 2017 could offer another opportunity to make these much-needed policy changes.

AMAC is proud of its long history working with the industry to advance diversity in airport contracting. Together, we have evolved and adapted to meet the changing needs of the aviation business. The evolution of the DBE and ACDBE programs is a natural part of this progression, and an important step to ensure equity and inclusion in our industry. We look forward to continuing working with all of you to uphold these core values now and in the future.



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