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Terminal 4 at JFK Prepares for New Anchor Tenant With $1.4 Billion Expansion/Redevelopment

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AIRPORT IMPROVEMENT published bi-monthly by Chapel Road Communications LLC, 3780 Chapel Road, Brookfield, WI 53045. All statements, including product claims, are those of the person or organization making the statement or claim. The publisher does not adopt any such statement or claim as its own and any such statement or claim does not necessarily reflect the opinion of the publisher. Printed in the USA. POSTMASTER: Send address changes to AIRPORT IMPROVEMENT to 3780 Chapel Road, Brookfield, WI 53045.

So What?

When I hear about new advances in IT, my typical response is "So what?". New technology comes out on a daily basis. A steady stream of new iPhones, Facebook pages and web streaming propositions has made us numb to what is truly new and helpful. What's new may not always be relevant to what *my* needs are. Hence, I subject them to the "So what?" test. If they don't provide something I really need, or allow me to do something much faster, I'll pass.

So when I tell you that *Airport Improvement* has a new and improved digital platform for reading issues of the magazine, I understand if your first thought is "So what?" It's only fair for you to ask.

After evaluating many digital magazine formats, we found one that will make your reading easier than ever. My own perspective is that you should be able to get whatever you need with the fewest clicks possible. We all have limited time and interest, and I don't want to test anyone's limits.

Our new digital issue is available at http://digital.airportimprovement.com. It has all the same content as our print issue, plus added features. You can download it from any device: PC or Mac; iPhone or Android. And it doesn't require you to fill out any forms or plant cookies on your devices. The navigation is intuitive, with words and pictures that are easy to see. The digital issue can also be saved in a PDF file for off-line reading.

On a separate, but related, issue: This issue marks our five-year anniversary. It seems like only yesterday that we were rolling out our first issue at the AAAE Annual Meeting in New Orleans.

It has been a wonderful ride and a real honor to publish in our airport industry. Many thanks are in order, from our readers at airports and consulting firms, to our terrific advertisers and excellent team of writers, artists, web and production specialists and salespeople. Like the stories and the projects they present to you, this is truly a collaborative effort.

Thank You and Cheers!

Paul

Reno-Tahoe International Airport

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Project: Project: Terminal Expansion & Renovation

Location: Reno-Tahoe Int'l Airport

Key Elements: Security checkpoint consolidation; baggage claim renovation/redesign; relocation of concessions

Cost: $29.3 million

Funding: $11.5 million passenger facility charges; $16.3 million subordinate revenue notes; $1.5 million misc. sources

Grand Opening: March 2013

Owner's Representative/Program Manager: Atkins North America

Architect of Record: Gresham, Smith and Partners

General Contractor: Q & D Construction

HVAC: Fleet Heating & Air; J.W. McClenahan Co.

Plumbing: RHP Mechanical Systems

Electrical: Nelson Electric Co.

Electrical Consultant: PK Electrical

Structural Steel: Reno Iron Works Co.

Mechanical Engineering Consultant: Petty & Associates

Civil Engineering Consultant: Wood Rodgers

Low Voltage Contractor: RFI Communications & Security Systems

Food & Beverage Mgm't: SSP

Retail Operations: The Paradies Shops

Of Note: Recent renovations were the last of three major airport improvement projects totaling $100 million

Reno-Tahoe Int'l Finishes Final Phase

Officials at Reno-Tahoe International Airport (RNO) are wearing smiles these days. They're happy because the airport's Gateway Project, a $29 million terminal renovation initiative, is open to the flying public and Reno community — a month ahead of schedule.

The Gateway Project is the last of three back-to-back improvement projects totaling nearly $100 million. The first began in 2008 and included a $63 million check-in area, infrastructure improvements and a new inline baggage system. It was followed by a $6.5 million baggage claim redesign to match the look and feel of the new check-in area.

The Gateway Project, which began in November 2011, tops off the previous infrastructure and facilities improvements with a new security checkpoint, new concessions and a 40-foot terminal bump-out. The new square footage features a restaurant that overlooks the tarmac and the mountains beyond RNO.

In designing the renovations, airport officials sought to include "everything that is special and good about northern Nevada," explains President/Chief Executive Officer Krys Bart.

"From Security to our restaurants and stores, the entire look and feel of the airport reflects our community and region," adds Brian Kulpin, the airport's vice president of marketing and public affairs. "It's taken our airport to a whole new level in terms of welcoming and sending travelers off in the Reno-Tahoe region."


Krys **Bart**


Brian **Kulpin**

9/11 Changed Everything

Bart summarizes the impetus behind the renovations in one word: security.

RNO's original terminal was built in 1960, just in time for the Squaw Valley Olympics, with two security checkpoints — one in each of its two concourses. With the introduction of new post-9/11 security technologies, the airport found itself in a real estate crunch.

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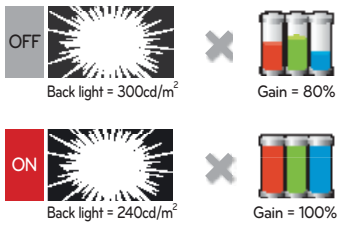

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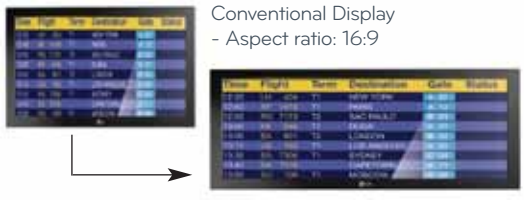

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Printed in the USA. April 2013 FLY_StretchScreen_041326_PR

of $100 Million in Terminal Renovations

By Robert **Nordstrom**

"It was clear," Bart recalls. "We couldn't fit the AITs (advanced imaging technology) into our checkpoint configuration. We wanted the AITs because they are much more customer service oriented, particularly for the elderly or those with special needs. But we just didn't have the space — no queuing space, no post-security space to put your shoes back on. It was extremely constrained."

Airport officials initially delayed installing new security equipment to focus on expanding the checkpoint areas; but they soon concluded that expanding the checkpoint areas was not feasible. The ultimate solution, consolidating the two checkpoints into a single checkpoint, required expanding the entire terminal.

It was a "knee-bone-connected-to-the-thigh-bone" kind of problem: To create security checkpoint space, RNO had to free up space in the first-floor food court area. That, in turn, created the need for a new home for food concessions.

Phase 2 of the project, which began in April 2012, combined the airport's previous two security checkpoints on the second floor into a central checkpoint on the first floor. The new checkpoint, which can screen more than 1,300 people per hour, includes seven lanes, three AITs and more space for travelers.

Q & D Construction navigated the challenges of keeping the airport operational while gutting the middle of the terminal, building it out 40 feet and raising the roof 16 to 18 feet. "It was very complex dealing with two or three generations of construction work dating back to the 1960s," notes Tim Kretzschmar, senior vice president of Q & D Construction's Building Division.

Tim **Kretzschmar**

SSP projects food and beverage sales of about $12 million during the first full year of operations — nearly double the sales from several years ago.

The results, however, are proving very popular. "We had a security-driven-need that has ended up as an amazing customer service and retail opportunity for the airport," says Kulpin.

Phase 1

While security changes drove RNO's infrastructure improvements, construction began with installation of a new inline baggage system and Baggage Claim renovations in December 2011.

Crews removed carpet, reconstructed columns and installed new terrazzo flooring. To maintain baggage operations during the renovations, contractors completed work in phases behind construction walls throughout the first floor. Extensive signage directed passengers throughout the baggage claim area.

From the beginning of the Gateway Project, airport officials worked to infuse the look and feel of the Reno-Tahoe region throughout the terminal.

"We brought in wood and stone native to the region," reports Sean Bogart, project manager for architect of record Gresham, Smith & Partners. "Those design elements were extended throughout the first level as well as into the security checkpoint and concessions area on the second level."

Sean **Bogart**

Bart and other airport executives are enthusiastic about the terminal's new earth tone color palette, noting that is indicative of the nearby mountains. Terrazzo tile, suggestive of the Truckee River and the endangered lahontan cutthroat trout, snakes through the Baggage Claim area. Columns feature native rock, and lighting fixtures suggest the chalets and lodges prominent in the Tahoe area. A 10-foot sculpture of a skier serves as the airport's icon.

"Creating a sense of place was very important for us," Bart explains. "When you land here, you see ski runs from the runways and taxiways. You can literally leave your aircraft and be on a ski slope in an hour. Ponderosa pine, mountain scenery, clear mountain lakes — that's who we are."

To prepare for Phase 2 of the project, the airport opened the Mountain House Diner in April 2012. It provided food and beverage options pre-security on the first floor while the usual food court was closed during construction.

Concessions Overhaul

Travelers and RNO concessionaires alike have benefited from the airport's multimillion-dollar terminal renovations. Moving retail and food/beverage options behind the new security checkpoint allows travelers to shop and dine leisurely, without worrying about missing their flights because of long lines at Security.

Travelers are now greeted with food/beverage and retail offerings before moving onto the concourses.

The Paradies Shops, RNO's retail operations manager, developed a master storefront with a mountain lodge feel. Four retail concepts are included behind the High Mountain Market storefront: No Boundaries, Brighton, CNBC News and InMotion Electronics. PGA Tour Shop and Adventure News are located in the pre-security area.

"We have invested $1.2 million in this new retail presentation and project a 30% increase in gross sales," reports John Calvo, senior director of planning, design and construction for Paradies. "The airport did a great job allocating retail space for the needs of the passengers, and we designed it to match the aesthetic of the overall building, while staying true to the design of the national brand offerings."

The new food court offers a variety of options as travelers exit the new security checkpoint. SSP, which manages RNO's food and beverage operations, included an upscale dining choice

While most concessions have been relocated after the TSA checkpoint, a few are located pre-security.

with its flagship restaurant, Timber Ridge. Designed around the concept of great lodge dining, it features a circular bar, central fireplace and an 18-foot glass wall that provides customers with uninterrupted views of the tarmac and mountains.

Pat Murray, executive vice president of SSP, is confident that Timber Ridge will "knock everybody's socks off." Murray waxes poetic when describing the lodge-style concept: "It's a snowy day … you've got the expansive view of the mountains, the fireplace, a cocktail or glass of wine from our list of 50 wines."

Murray is optimistic about the revenue potential of Timber Ridge and the other RNO food and beverage concepts. SSP projects gross sales of approximately $12 million during the first full year of operations — nearly double the sales from several years ago.

Creating a Team

From the very beginning of the Gateway Project, airport officials realized that the scope and magnitude of $29 million in renovations would require extensive planning, coordination and communication. To that end, the airport hired Atkins North America as its owner's representative and program manager. It also selected Gresham, Smith and Partners as architect of record, and Q & D Construction as the general contractor.

"Because we knew this was going to be an extremely complex project, we used the construction manager at risk (CMAR) project delivery method," explains RNO's chief operating officer Dean Schultz. "Traditionally, projects such as this have used a design-bid process, whereby the airport hires a design team, which then puts out a package for contractors to bid on. With the CMAR approach, we brought the general contractor in very early in the design process to act as a partner in the development of the design and construction plans."

Dean **Schultz**

The CMAR approach was particularly effective as the team faced issues with the airport's 50-year-old building that couldn't be accounted for by looking at the original plans, explains Schultz. For example, planners had to shore up the terminal's foundations, because they didn't meet current building codes. "The CMAR approach allowed us to address issues and solutions to the construction process as we were designing the project, so we didn't have to react to problems in the field," he relates.

Linda Shields, program manager with Atkins North America, agrees that the complexity of the project made it well-suited for using the CMAR project delivery method, in that it allowed for full collaboration among the owner, designer and builder.

"(It) enhanced the quality of the work, optimized the schedule and controlled costs," Shields reflects.

Airport management made a concerted effort to engage stakeholders throughout the project — from the airlines to concessionaires. A communication plan was developed early to make sure the community was well-versed in the construction process, notes Kulpin.

The airport's Walk-a-Mile program trained all managers — including the CEO — to circulate throughout the terminal and lobby helping customers navigate the construction. "This was a great program for our entire team, because it reminded us what we are here for — customer service," Kulpin explains.

In addition to extending the life of its terminal for at least 30 more years, RNO's series of renovation projects also delivered an important ancillary benefit: a boost to the area's recession-racked economy. The Gateway Project alone created jobs for approximately 275 local construction workers.

"Our projects have helped keep the region's construction industry afloat," Kulpin proudly states.

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DFW is Launch Site for Tech-Driven Car Rental Company

By Kathy **Scott**

Dallas/Fort Worth International Airport (DFW) already had 10 rental car vendors serving its travelers, but officials welcomed NO. 11, Silvercar, in mid-January.

Ken **Buchanan**

"We can accommodate growth," says Ken Buchanan, executive vice president of Revenue Management at DFW. "There's always room for an engaged concessions team, and Silvercar was strategically aligned with our goals."

With initiatives such as free Wi-Fi and a new mobile app taking center stage at the airport, Buchanan sees Silvercar's smartphone-centric approach to car rentals as one more way DFW is leveraging wireless technology to service customers..

Speed and efficiency are at the core of the new strategy. While most customers arriving at DFW's Rental Car Center typically wait in line at various vendor counters, Silvercar customers walk directly out to the lot. That's because they can log into their Silvercar profiles via a smartphone before they arrive — even while riding the airport shuttle. Customers simply scan the bar code on any car's dashboard to unlock the door and pop open the trunk with a wireless signal.

Finding the right car is a non-issue, because Silvercar rents only one make and model: the Audi A4, in – you guessed it — silver.

"Using a single make and model eliminates any surprise," explains Silvercar Chief Executive Officer Luke Schneider. And that's a scenario familiar to rental customers at many airports.

Schneider, a mechanical engineer with an MBA from Carnegie Mellon University, served as chief technology officer of Zipcar before leading Silvercar.

The decision to select Audi as Silvercar's official "company car" was based on numerous factors. Form, function and perception were important considerations, explains Vice President of Business Development Todd Belveal. As such, all rentals include integrated Wi-Fi, a GPS navigation system, satellite radio and pairing for Bluetooth headsets.

Brand perception was key. Arriving at a meeting in a Mercedes — rented or otherwise — could send a negative message to current or potential customers, Belveal explains. "We want Silvercar drivers to feel, smart, inspired and confident, not sensitive to the fact that they are in a car that may be perceived as too luxurious," he elabo-

DFW

factsfigures

Project: New Rental Car Vendor

Location: Dallas/Fort Worth Int'l Airport

Concessionaire: Silvercar

Points of Difference: Company only rents silver Audi A4s; renters use smartphone app to check cars in & out

Facility: 1,000 sq. ft. of interior space; 1½-acre turnaround; new car wash

Buildout Cost: $1 million

Architect: PGAL

Designer: Red Earth Designs

Contractor: VCC

A barcode on the driver's side windshield allows Silvercar customers at DFW to unlock cars with their smartphones.

rates. "Audi, while definitely a brand in the premium sedan class, is defined more by utility and engineering."

Even the company's namesake silver color is strategic, notes Schneider: It's the No. 1 preferred color for car buyers.

Silver ≠ 2nd Place

Returning the silver Audis to DFW is also executed via the company's smartphone app. Upon entry, a video camera scans the car for damage. If the gas tank is not full, an average cost per gallon is calculated based on area gas prices and added to the rental charge with a $5 one-time convenience fee. With an introductory rate of $75 per weekday, the company is initially attacking the rest of the industry on pricing as well as technology.

To date, DFW is Silvercar's only airport location; but company officials indicate more will be opening soon. The Austin-based company also operates an outlet just outside Austin-Bergstrom International Airport in Texas. That operation, however, is a holdover from a location established for Austin's annual South by Southwest music festival.

At DFW, the company is shaking up a long-held industry-wide business model that has prompted most customers to view rental cars as a commodity with few distinctions across companies. By adding a vendor that overhauls the rental process with technology that is increasingly shaping all types of consumer behavior,

DFW reinforces its other tech-centric initiatives such as free in-terminal Wi-Fi. The airport further caters to smartphone-toting travelers with an app that provides flight information and tracking, parking availability updates and information about restaurants and other concessions.

Customers, it seems, are responding: More than 6,000 downloaded DFW's app during the first quarter of this year.

Outside data guides and validates the airport's moves. Concur Technologies ranks Dallas in the top 10 cities for business travelers, and a Google/Ipsos study – The Traveler's Road to Decision – indicates that more than half (57%) of all business travelers use a mobile device to access the Internet.

The number of travelers accessing airport info and services via smartphones seems destined to grow, as 1 million Androids are activated daily. Cisco data predicts that there will be more mobile devices on Earth than people before the end of the year.

While Buchanan acknowledges the revenue benefit of adding Silvercar, he also sees ancillary advantages in how the company is raising the bar for other vendors. "Partnering with a tech company helps create efficiencies in all areas," he says. "It helps all of us to get better."

Shiny & New

As part of its integration into DFW, Silvercar spent $1 million on the buildout of its facility. In addition to remodeling a 1½-acre turnaround and installing a new car wash, the company created a standout interior scheme for its 1,000-square-foot space.

The design does away with traditional rental car counters. Instead, it pulls aesthetic cues from the Audi A4 by integrating silver finish materials against black leather wall coverings and burl wood veneers.

An open seating area outfitted with leather furniture and iPads mounted on kiosks is another customer service feature that bucks the traditional model. The area also echoes the leather interiors of the company's fleet.

For many DFW travelers, however, the facility's most attractive feature is its lack of lines. "The customer wants to be empowered; they value speed for getting in and out," explains Buchanan. Silvercar, he explains, literally allows travelers to hold their own service experience in the palm of their hand.

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JFK's Terminal 4 Prepares for New Anchor Tenant With $1.4 Billion Expansion/Redevelopment

By Robert **Nordstrom**

factsfigures

Project: Terminal Expansion & Redevelopment – Phase 1

Location: John F. Kennedy Int'l Airport, Terminal 4

Key Elements: Inline baggage system; 9 new wide-body gates; consolidated security checkpoint; redeveloped post-security concessions; new baggage carousels; expanded Customs and Border Protection areas; indoor taxi stand; Terminal 3 demolition

Terminal Manager: JFK IAT

Anchor Tenant: Delta Air Lines

Cost: $1.2 billion

Funding: Tax-exempt public bonds; passenger facility charges; Delta-backed New York City tax-exempt public financing; TSA grant

Architect of Record: Skidmore, Owings & Merrill

Delta Sky Club Architect: Corgan Associates

Design Team: SOM/ARUP JV

General Contractors: Lend Lease; TBL Construction; Turner-Scalamandre JV

IT/Electrical: Unity Electric

Inline Baggage System: Vanderlande Industries

Electrical (inline baggage system): GMA Electrical Corp.

Millwright (inline baggage system): LMC Industrial Contractors

Controls Design (inline baggage system): Brock Solutions

Gearmotors: SEW EURODRIVE

Security Monitoring: Diebold

Next: Phase 2 will add 11 regional jet gates & 75,000 sq. ft. to Concourse B at an anticipated cost of nearly $200 million

This is the first installment of a two-part series about Phase 1 of the expansion and redevelopment of Terminal 4 at John F. Kennedy International Airport (JFK). This article covers infrastructure improvements; Part 2, in our next issue, will chronicle the addition of nine wide-body gates in Concourse B, the new Delta Sky Club, and the development of post-security concessions.

The redevelopment and expansion of Terminal 4 at John F. Kennedy International Airport (JFK) will include two major phases, span multiple years and cost an estimated $1.4 billion. The massive project will transition the facility from a fully common-use terminal to a common-use terminal with Delta Air Lines as its anchor airline tenant.

The $1.2 billion Phase 1 of the project, which was nearing completion in April, expands the terminal from 1.5 million to 2 million square feet, creates a centralized security checkpoint, reorganizes concessions post-security and adds nine wide-body gates, a new inline baggage system, indoor taxi dispatching area and baggage claim carousels. Phase 1 will also include the demolition of Terminal 3, Delta's previous home.

Phase 2 will follow soon, adding 11 regional jet gates and 75,000 more square feet in Concourse B.

Last year, Terminal 4 was home to about 30 international and domestic airlines and served nearly 11 million passengers. It is managed and operated by JFK IAT, the only private, non-airline company selected by the Port Authority of New York and New Jersey to operate a terminal at JFK.

Alain **Maca**

"This remarkable expansion represents a logical next step in realizing the long-term vision for our terminal," says JFK IAT President Alain Maca. "It enables JFK IAT to continue doing what we have been doing for more than 10 years: managing this landmark structure for nearly 30 airlines while at the same time facilitating changes and improvements that will enable the terminal to maximize the efficiency of its overall operation and boost its ability to serve the flying public."

A Look Back

Terminal 4 opened as a common-use terminal in May 2001. With up to 56 airlines, mostly international, working out of 16 gates over the past decade, JFK IAT relied on enplanements to pay down debt.

Janice **Holden**

Although the common-use model worked well for JFK IAT, management realized early on that having an anchor tenant could bring financial benefits in the long term, explains Janice Holden, JFK IAT's vice president of airline relations and corporate communications.

Four months after Terminal 4 opened, 9/11 changed everything.

"We had a very beautiful building architecturally with a massive departure hall and an expan-

Consolidating two separate security checkpoints into one centralized area helped Terminal 4 adjust to new norms after 9/11.

sive retail and food and beverage area, but everything was pre-security," relates Holden.

With security checkpoints at the entrances of Terminal 4's two concourses, Holden likens the original configuration to a train station, where passengers wait in a grand terminal until just before departure time, when they enter the concourse. "With the fortification of security after 9/11, people wanted to get through Security early," she recalls. "But after they got onto the concourse, few services were available."

In 2008, JFK IAT reopened discussions it had initiated with Delta earlier in the decade about moving the airline's operations into Terminal 4. With operations dispersed between Terminal 2 and an aging Terminal 3, Delta was interested in finding a new home.

In 2010, JFK IAT, the Schiphol Group (its parent company), the Port Authority of New York and New Jersey, and Delta Air Lines reached an agreement that would make the airline the anchor tenant of Terminal 4. The agreement also allowed JFK IAT to embark on a large-scale terminal expansion and redevelopment project that would ultimately benefit all of the stakeholders.

Jos Nijhuis, CEO of Schiphol Group, describes the project in terms of the company's mission: "Our added value as a leading airport operator is our ability to harmonize the processes needed to achieve a world-class travel experience for all passengers and serve the airlines in a cost-effective and flexible way."

First Things First

JFK IAT understood that Terminal 4 would need to undergo major infrastructure improvements in order to provide efficient, high-quality services to travelers and tenants. Installing an inline baggage screening and sorting system was consequently at the top of its to-do list.

"Right after 9/11, we had to install CTX baggage screening machines at the end of each row of Check-in," recalls Holden. "They were huge — the size of minivans. Fortunately, we had the luxury of a very large departure hall and had room for them. Even though the machines got smaller with the advent of the CT-80s, they remained on the floor and not where we wanted them to be. We knew early on that we wanted to install a modern high-tech system."

JFK IAT designated new extra large baggage carousels exclusively for domestic traffic to help ease travelers' final claim and international recheck processes.

Vanderlande Industries secured the contract to install the new system. The two-year installation, which it completed in April, includes 10 automated CTX-9800 high-speed screening machines integrated into nearly 15,000 linear feet of conveyor. Bags are fed into the system from nine rows of ticket counters, one curbside check-in and two bag recheck conveyors. From there, it is sorted and fed to Concourse A or B. The system is capable of handling 6,500 bags per hour. Four high-capacity baggage make-up units were also added.

Guy Scialdone, Vanderlande's project manager, describes the project's unique challenges: "Airport terminals like Terminal 4 generally aren't built with expansion in mind because the price of real estate is so high … so there's not a lot of space for staging and phasing the work. Our challenge was to install a completely new system to replace an existing system without impacting current operations."

Vanderlande President Ewout Cassee likens the feat to "performing open heart surgery on a patient while he's running a marathon."

Ewout **Cassee**

Under the terms of a seven-year $30.5 million contract with JFK IAT, Vanderlande Industries has stationed 32 permanent staff onsite to operate and maintain the system.

Consolidating Checkpoints

In keeping with the post-9/11 trend of moving airline lounges and concessions to the secure side of airports, JFK IAT redesigned passenger flow in Terminal 4. Two separate third floor security checkpoints were consolidated into a single, centralized checkpoint on the fourth floor.

The new consolidated security checkpoint includes 12 screening lanes and is expandable to 20. It also includes an exit lane and L3 Body Scanners, which are faster and considered less invasive than the terminal's previous equipment. Approximately 250 cameras provide surveillance throughout the area.


Shawn **Makinen**

To accommodate the new checkpoint, JFK IAT built a deck over an open area on the fourth floor that overlooks retail shops on the third floor, explains Shawn Makinen, the company's vice president of Aviation Planning and Facility Management. A steel infrastructure supporting a deck of prefabricated concrete created the necessary additional square footage.

New power and data lines were needed to operate the new TSA equipment, and escalators and elevators were installed to direct travelers down to food/beverage and retail concessions on the third floor.

"It was a major project," Makinen reflects. "There were the everyday challenges of redirecting passengers while maintaining a safe, clean and well-lit environment throughout construction. We had to relocate concessions on the third floor as construction on the deck proceeded. Airline offices had to be moved. It impacted just about every area of the terminal."


Stacey **Lora**

Since opening in March, the new checkpoint has garnered positive feedback, reports Stacey Lora, JFK IAT's vice president of security.

"The transition went well, and the new layout is a success," she emphasizes. "It helps with traffic flow and creates greater efficiencies. We work closely with TSA to improve throughput. Our customers are enjoying having the airline lounges and shops now located beyond the security checkpoint."

An indoor taxi stand was added to help protect travelers from harsh weather and unlicensed cab operators.

Improving Arrivals

The renovation and reconfiguration of Terminal 4's first-floor Arrivals Hall was made with travel-weary customers in mind, note JFK IAT personnel.

Two extra large baggage claim carousels dedicated exclusively to domestic traffic make it easier for travelers to recheck baggage for international flights or claim baggage and exit the building. And the redesigned Customs and Border Protection (CBP) area features more stations to improve the flow of travelers through the area.

JFK IAT Chief Operating Officer Jim Fazio details the improvements: "The project delivers an improved arrivals process for our international passengers with the inclusion of an additional high-capacity international baggage claim carousel, 14 new CBP lanes and 18 Global Entry kiosks, bringing the total to 72 booths in the Primary Inspection Area in CBP — the largest capacity at JFK."

As Delta makes the move out of Terminal 3 and into Terminal 4, JFK IAT is working with government agencies to coordinate the shift of CBP agents into Terminal 4 to maximize efficiencies and minimize wait times, notes Fazio.

The Port Authority of New York and New Jersey partnered with the terminal management company to install the first indoor taxi stand at a New York City airport. Designed to enhance comfort and safety, Terminal 4 Taxi Central protects travelers from inclement weather and also addresses the airport's longstanding problem with unlicensed and unregulated taxis.

"JFK can be difficult to navigate, and we were concerned about providing a safe arrivals product for our passengers," relates Lora. "Increased presence of Port Authority security personnel will deter illicit activities, and the installation of additional security cameras equipped with enhanced recognition technology will monitor activity in the terminal."

Signage directs customers to the taxi dispatching area on the east side of the Arrivals Hall. The relocated taxi queuing area is adjacent to the dispatcher.

Some JFK IAT executives consider the indoor taxi stand a long overdue solution. "We hope (it) will become the new standard — not only at JFK, but at any airport facing similar challenges," says Maca. "I have seen this work at some of the world's most advanced airports … and I know with the right focus, it will be a success here."

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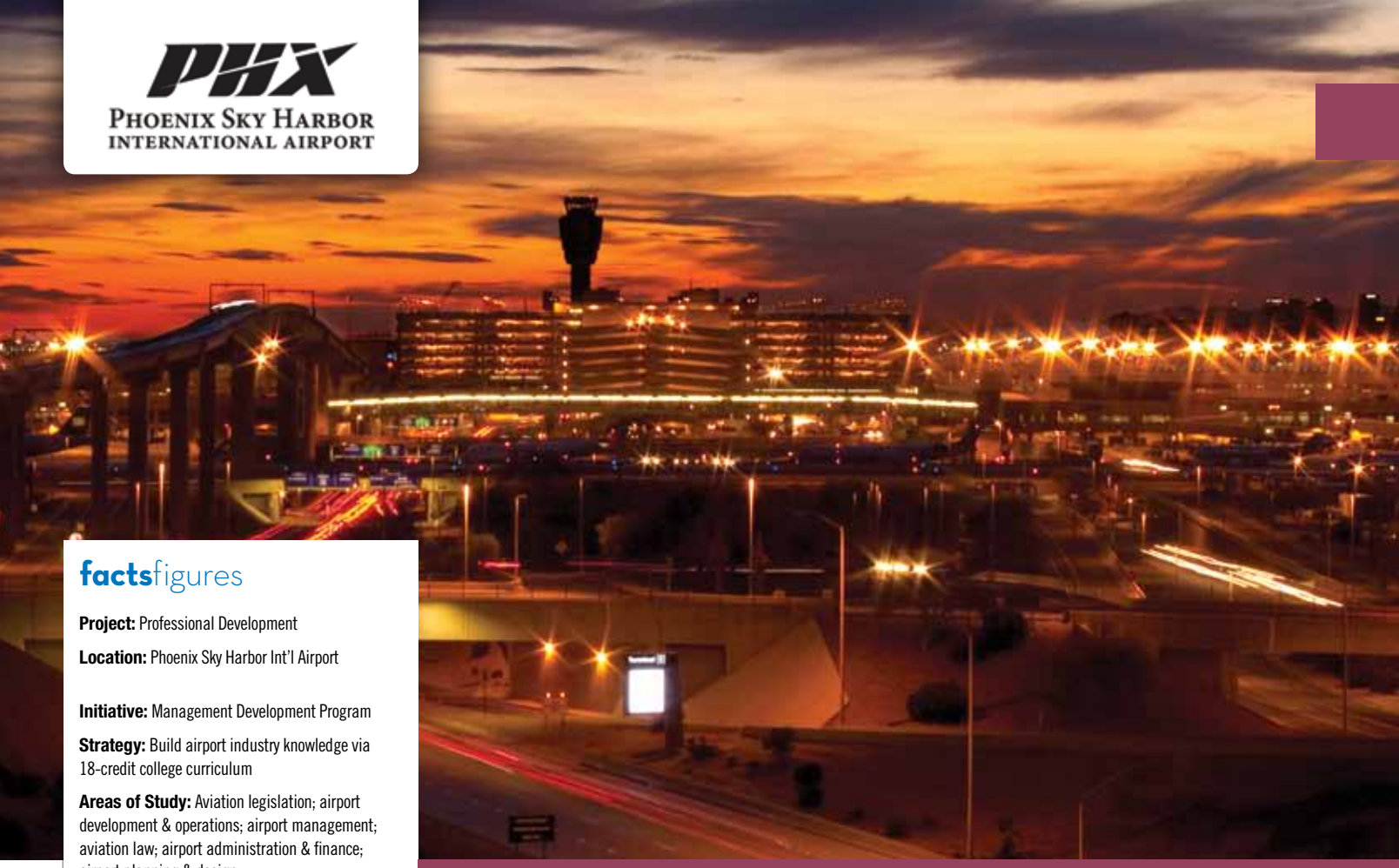

factsfigures

Project: Professional Development

Location: Phoenix Sky Harbor Int'l Airport

Initiative: Management Development Program

Strategy: Build airport industry knowledge via 18-credit college curriculum

Areas of Study: Aviation legislation; airport development & operations; airport management; aviation law; airport administration & finance; airport planning & design

Partner: Embry-Riddle Aeronautical University

Funding: City of Phoenix Tuition Reimbursement Program

Results: 135 graduates; increased camaraderie & cross-division cooperation among participants

Program: Paid Internships

Strategy: Attract new talent

Position Duration: 18 mos.

Mgt. Approach: Rotate interns through various divisions & projects to provide broad range of experience & knowledge

Result: Most interns secure permanent positions at airport; some ascend to senior management positions

Program: *Building Bench Strength*

Strategy: Encourage career planning; create qualified pool of future leaders

Partner: Facilitator Nancy Van Pelt

Participation: Mandatory

Program: Industry credentialing

Partners: American Assoc. of Airport Executives; Consultant Jeffrey Price

Strategy: Classes, study groups & mentoring for employees seeking certified member designation & full accreditation

Results: 50 certified AAAE members; 3 fully accredited airport executives

Sky Harbor Makes Professional Development a Priority

By Rebecca **Douglas**

After a long day of work, most airport employees are more than ready to check out. But once a week, a special cadre at Phoenix Sky Harbor International Airport (PHX) stays nearly five more hours to learn more about the airport industry. The employees are voluntary participants of PHX's Management Development Program, a 14-month curriculum administered and taught by Embry-Riddle Aeronautical University.

In March, the airport's eighth class completed the program, bringing its total alumni to more than 130 employees. Courses cover six areas of study and net graduates 18 college credits. Many employees apply the credits toward a bachelor's degree or use it as a springboard for earning credentials from the American Association of Airport Executives (AAAE).

"The 14-month program is a big commitment," says Anita Clock, curriculum and training coordinator for city of Phoenix's Aviation Department. "Classes are held right here at the airport for convenience, but employees are 'off the clock,' so they're sacrificing time away from their families and other activities."

PHX is proud of the depth and breadth of the curriculum, which includes courses about aviation legislation; airport development and operations; aviation law; administration and finance; airport management; and facility/infrastructure planning and design. Field trips are also considered an integral part of the program and are perennial class favorites. Destinations include PHX's aircraft rescue and firefighting station, Air National Guard facilities, a fixed-base operator, cargo hauler, etc.

"We expose them to many sides of the airport and also take them to other hub and general aviation airports," notes Clock.

Nancy Zeman, director of academic support at Embry-Riddle's Phoenix Sky Harbor campus, considers the combination of traditional classroom presentations,

Nancy **Van Velt**

guest speakers and collaborative projects an effective way to teach working professionals.

Embry-Riddle offers a program with the same course requirements, the Airport Management Certificate of Completion, online and at many of its Worldwide Campus locations.

At PHX, the program attracts participants from all levels and departments. "We've had every division of the airport represented throughout the years," Clock reports. "Some employees enroll to help them do their current jobs better; others are looking to position themselves for advancement. Sometimes, people are promoted before the end of the program."

Clock has literally seen the experience change employees' lives. She recalls one frontline airfield worker with a GED who was initially apprehensive about sitting in class next to department supervisors and other higher-ranking airport personnel. "That's one of the best parts of the Management Development Program: the camaraderie it builds. Employees form relationships with people from other divisions that stay intact after classes end. Even though they come in with various levels of education and industry experience, they band together to learn the material and collaborate on group projects."

Interest in the program has remained consistently high throughout the years, she reports. When 36 employees enrolled for one session, she split the group into two concurrent classes. The most recent class included 12 students; the session before contained 32.

The program has even spanned generations of two different families. Graduates include a mother/daughter pair (facilities supervisor and landside operations assistant, respectively) as well as a project manager aunt and her niece, who works in the airport's communications center.

Coffee-Fetchers Need Not Apply

Management Development Program participants aren't the only PHX employees working to boost their knowledge and skills. One or two paid interns have been regular fixtures around the airport since 1980. Not surprisingly, the positions are coveted posts for recent college graduates and others interested in a career at PHX.

Interns who don't arrive with an aviation degree are required to enroll in the airport's Management Development Program to boost their knowledge about the overall industry. That was the case for recent intern K.J. Irwin, who had a degree in planning before he was "bitten by the aviation bug." Now, he works as a project management assistant at the airport's Rental Car Center.

The structure of the program has "morphed and changed" over the years, relates LaVonne Morris, the management assistant from the director's office who oversees the interns. One aspect, however, hasn't changed: the intense competition for each and every spot.

"A few hundred candidates usually apply, and we interview 10 to 12 of them," reports Morris. "The applicant pool is very strong, so it's difficult to whittle it down."

The top picks who land an internship are sent through "rotations" much like medical residents. "We start them in Operations, right in the thick of everything," Morris explains. "Then, they move through Facilities and Services, Public Relations, Planning and Environmental and many other divisions, spending two to three months at each one."

Interns begin their 18-month stints by meeting with all of the department deputy directors to determine what work is available. "It's a very collaborative process," she notes. "We help them juggle the timing of important events affecting each area, but we encourage them to set their own direction according to what interests them. Plus, we want to see how much of a go-getter each one is."

Throughout the years, PHX interns have helped write procedure manuals, develop airside and security training videos, facilitate international aviation symposiums, coordinate visits by Air Force One, develop requests for project proposals, make preparations

The Management Development Program includes field trips trips to broaden employees' perspective on PHX and the overall airport industry.

for special events such as the Super Bowl, plan live emergency drills and many other projects throughout the airport. "We give them valuable, meaningful jobs that give them the opportunity to show us what they're made of," explains Morris. "It's a nice mix of spreadsheets and documents, sitting in on planning meetings and working out on the airfield."

One recurrent duty is distilling 50- to 60-page weekly department reports into one- or two-page summaries for the city manager's office. "It helps them determine what's really important and teaches them about the political implications of various airport activities," she notes.

After each intern's service is complete, many apply for permanent positions at PHX. "There's not a guaranteed job waiting for them at the end," qualifies Morris. "Competition has been stiff for openings the last few years, but we coach them through the process."

Many interns do, in fact, land permanent positions at PHX; and some climb to the top levels of its organizational chart. One of the airport's first interns now heads a section of the Facilities and Services Division, and others have ascended to professional positions in Public Relations, Business and Properties, Economic Development and other key areas. One former PHX intern eventually became director at Stockton Metropolitan Airport in California.

Helping interns develop their careers is a favorite job duty for Morris. "They step up and do great things," she relates. "It's fun to watch them take the ball and run."

Ready for the Big League

With a large wave of retirements looming on the horizon, PHX recently resurrected a succession planning program it used about 10 years ago. Need for the program originally emerged during strategic planning sessions that human resources consultant Nancy Van Pelt facilitated for the airport's division leaders. Van Pelt's program, *Building Bench Strength*, is designed to help develop a viable pool of in-house candidates to fill future vacancies in upper level positions.

The program approaches the issue on two fronts: self-assessment and career planning. It also focuses on building both

organizational savvy and professional development. This time around, PHX is piloting the curriculum in its Facilities and Services Division and will offer the program to other areas during subsequent phases.

Van Pelt explains that airport employees, like workers in other industries and organizations, often feel overlooked for promotions. "We examined the 'edge' that outsiders often have in securing leadership positions and help in-house candidates develop themselves in these areas," she elaborates. "We encourage them to broaden their range of experience within the airport, to learn more about the industry as a whole and to engage in career-planning so they don't get pigeonholed in one position or area."

During the 10-week program, employees listen to accomplished PHX leaders chronicle their own career paths and describe how their positions fit the airport's overall mission. They also complete self-assessment exercises to clarify their advancement goals and use journals to capture their reactions to presentations and ideas they may want to pursue or implement. Some interview or shadow leaders they admire. Sessions typically last 1½ to 2 hours and occur every other week.

"It's a combination of introspection and outside information from current thought leaders," says Van Pelt. "We want to give participants a broader perspective on the organization and an opportunity to develop contacts beyond their current positions and departments."

She is delivering the pilot program in three cascading phases, beginning with high-level leaders, then moving on to their direct reports and then to frontline supervisors. After participating in the first session, the Aviation Training Team will co-present the second round with Van Pelt and will eventually facilitate the final session of the pilot alone. It will take 1½ years to deliver the program to about 68 PHX employees.

Participation in some aspects, such as shadowing or interviewing a leader, is optional; but all supervisory employees are required to attend speaker presentations, participate in self-assessment exercises and discuss career aspirations with their bosses.

"I keep the information quick and interesting — career 'makers and breakers,' for instance," says Van Pelt. "Basically, I get employees thinking about their career paths, which, in turn, helps build a cadre of future leaders for the airport."

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Earning the Initials

Given PHX's multi-program professional development strategy, it stands to reason that it has more certified members of the American Association of Airport Executives (AAAE) on staff than any other airport in the country. It also has three fully accredited members.

Interest in pursuing professional credentials has been historically strong at PHX, reports Clock. After joining the airport's workforce in 2006, she formalized a variety of ad hoc support mechanisms into official programs. Employees still share homemade flashcards, matrices and other study tools to assist with mastering the AAAE modules, but they now have other options as well.

These days, they can attend a series of weekly study groups to help learn the curriculum. Resident experts in a variety of areas such as airspace, construction, signs and lighting, etc. donate their time to coach fellow employees on specific AAAE material; existing "CMs" also help lead the study groups. After 16 sessions, employees can take a proctored practice test, designed to analyze their overall readiness and reveal specific areas that might require more study time before the real exam.

The airport also provides a one-week AAAE CM study course led by industry consultant Jeffrey Price.

"A lot of the work is self-study, but we try to do all we can to help them achieve their goal," explains Clock. "Between help from other employees and the outside resources we bring in, they're usually very well prepared for the test."

Clock credits several PHX leaders for supporting professional development on a personal level. Aviation Superintendent Jennifer Maples, for instance, is particularly active helping employees prepare for AAAE certification exams and encouraging involvement in the association's Southwest chapter. Her willingness to engage directly indicates a self-perpetuating quality to the airport's ongoing professional development efforts: PHX leaders mentored Maples when she was one of the airport's first interns; now she's returning the favor to employees who aspire to her level of accomplishment.

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FOOD FOR THOUGHT

before installing synthetic turf at airports

Synthetic turf is receiving increasing attention for use in airports because of its environmental, safety and economic advantages over natural grass and/or pavement. However, there are existing turf installation problems and one potentially hazardous wind problem that should to be addressed, if synthetic turf is to reach its full potential for airport use. We think that both answers lie in correct adhesive selection for the outdoor installation of synthetic turf at airports. It's worth noting that whether it is a total glue-down or a loose-lay by just joining seams, the best synthetic turf; sub-surface under it; and the best installers are of little value without a durable high "green strength" (grab) adhesive that can be used to install turf without delays when windy. Weather conditions like steady wind or wind gusts; and/or hot or cold temperatures can delay a turf installation by hours, or days, or weeks, if a high green strength adhesive is not used to install the turf.

In our opinion, just sewing seams and/or just gluing seams, whether the turf contains sand infill or not, is potentially asking for trouble. The reason is that, after installation, if airport wind gets under the turf via edge curl, and/or a broken seam, and/or cut turf, it can lift the turf making it become like a sail and blow away. There are high wind conditions from hurricanes, blizzards, typhoons, cyclones, tornadoes, desert and other wind storms that sometimes visit airports. "Wind lift" can not happen if the turf is totally glued down with a proper outdoor adhesive. Hence, the wind and other problems of installing synthetic turf outdoors in variable and sometimes adverse weather can be avoided by selecting a durable high green strength curing adhesive and totally gluing down the turf to the base.

Three methods of securing turf without gluing to the base (they're called loose-lay turf installations), in order of their decreasing quality and lower price are discussed below:

The first would be to both glue and sew the turf seams using a durable curing high green strength adhesive; a wide adhesive coated seaming tape and a strong durable sewing thread.

The second and third loose-lay installation method while not as good as the one above, is to just either join the turf by using a wide seaming tape coated with a durable high green strength adhesive or by just sewing the seams. Of these two loose-laying seaming methods, we think that glued seams are far superior. The reason is that the bonded area with glue is large because it's spread over the width (12 or more inches) of the seaming tape, whereas, sewing is spot joining of edges with thread with unbonded spaces between each stitch.

Proper adhesive selection is extremely important to install turf at airports. The adhesive should be a durable, curing (not thermoplastic) adhesive, plus have a high green strength during installation in order to overcome the troublesome forces of turf movement due to wind; turf expansion from heat and contraction from cooling in sunlight from passing clouds; stiff turf; turf curl; sudden and unexpected rain; etc. A good and durable high green strength adhesive regardless of the weather has tack, grab, and gripping properties to hold the turf in place, when it is being installed and until it cures, whereas an "oily", slippery, low green strength adhesive does not have these properties, even if it becomes strong after it cures. Additionally, there is no need to "flip" the turf over in wind when gluing, as is often necessary with just sewing seams.

After installation the adhesive must have outstanding exterior durability so that for many years it can withstand flooding and other adverse weather conditions.

In summary, proper adhesive selection is extremely important for turf installations at airports; "total glue-downs are gold; and loose-lays are silver."

Gluing seams using seaming tape and glue box

Glued and sewn seams

Gluing seams using stand-up trowel and seaming tape

Spraying glue on asphalt for turf bonding

Norris Legue, ("Guru of Glue®".) is a chemist and President of Synthetic Surfaces Inc. (www.nordot.com). In about 1969, he invented the first urethane adhesive that was used successfully to install synthetic turf athletic fields. His company's new generation of NORDOT® Adhesives are used to install synthetic turf more than any other adhesive in the world.

Tulsa Int'l Secures Bank Loan to Complete Runway Reconstruction

By Carroll **McCormick**

Tulsa International Airport

factsfigures

Project: Bank loan to complete runway reconstruction

Location: Tulsa Int'l Airport

Owner: Tulsa Airport Authority

Budget for Remaining Runway Work: $30 million

Scope: 7,000 ft. center section; 600 ft. intersection

Maximum Loan: $14.6 million

Lending Institution: Compass Bank

Terms: 4 years; 1.9% annual interest

Additional Funding: $18.5 million FAA Airport Improvement Program entitlement grants; 6-year landing fee increase

Financial Advisor: FirstSouthwest

Prime Contractor: Interstate Highway Construction

Design Engineer: Atkins

Benefits: Consolidation of construction phases; lower total cost

Facing the prospect of a protracted runway reconstruction schedule with multi-year FAA funding installments, Tulsa International Airport (TUL) has taken the financing road less traveled by obtaining a $14.6 million bank loan. As a result, it expects to save millions of dollars and compress the schedule for the remaining portions of the project by three to four years.

Design Packages 1 and 2 replaced 1,200 feet of concrete pavement on the south and north ends of Runway 18-36 in 2011 and 2012. The cost to complete the center 7,000 feet of the runway was initially pegged at $34 million, but is now anticipated at $20.8 million — including more than $4 million of additional work not included in the original price estimate.

Jeff **Mulder**

Due to the pacing and amount of annual FAA funds the airport plans to use for the project, TUL initially faced a six-year or longer construction schedule. "At that time, challenges at the FAA meant that we could not get a letter of intent for this project," says TUL Director Jeff Mulder.

With expectations for the airport's match of federal funds rising from 5% to between 20% and 30%, the airport was in a bind. "We were not in a position to do that," Mulder explains.

Enter Mike Newman, the airport's financial advisor and senior vice president of FirstSouthwest. "It is my responsibility (to assist) the airport in achieving their financial objectives," Newman explains. "In this instance, I developed the financing structure to achieve their goals … without putting pressure on the credit rating assigned to general airport revenue bonds of the airport and keeping costs of issuance of a small transaction down to a minimum."

Mulder relates their objective to the construction process: "We wanted to aggregate enough money to attract contractors and aggregate bid contracts."

Securing Funds

After soliciting proposals from several banks, TUL agreed to a non-revolving advancing term loan with Compass Bank in August 2012. The maximum amount is $14,625,000, at a 1.92% annual interest rate. The airport plans to repay the principal with FAA entitlement funds from 2012 and approximately $18.5 million of future FAA grants. Its final payment is scheduled for August 2015.

TUL officials leveraged a bank loan and temporary landing fee increase to expedite runway reconstruction and reduce operational impacts for its airlines.

While Mulder acknowledges that a bank loan is an unusual form of airport financing, Newman notes that these are unusual times for banks, and TUL was an attractive borrower. "Banks in general have a strong interest in extending credit, through tax-exempt loans or purchase of tax-exempt bonds, to the public sector at the current time," explains Newman.

He cites three primary points, among others, working in the airport's favor: historically low demand for personal and corporate loans, the important service (air travel) that TUL provides, and the general "high credit quality" of airports as local economic drivers. "This project had a relatively short repayment period, and fit perfectly in the bank's desire for term of exposure," he elaborates.

The airport received the loan on the merits of its own good credit rating, adds Mulder: "The loan was not guaranteed by the FAA. If the government shuts down or if there are budget squabbles, the FAA funds might not show up on the day (we) expect. The banks knew that and accepted this as a reasonable risk, and accepted the airport as an acceptable risk."

Cooperation from Carriers

Buy-in from TUL's tenant airlines was another key aspect to its unconventional financing strategy. Airport officials negotiated a temporary hike in landing fees in exchange for a shorter construction period, fewer runway closures and less negative impact to flight operations. The agreement also ultimately helped secure a lower-than-expected winning bid for the work. Accepting the airport's rationale, the airlines agreed to an increase of six cents per year per 1,000 pounds of landing weight for six years. TUL's current landing fee is $3/1,000 pounds.

"The airport presented us with a pretty compelling business case," explains Mike Wesche, senior principal of real estate for American Airlines. "When the period of construction is on, the runway project presents some impacts on us. The loan allowed the airport to increase the scope of their construction package. This compressed construction schedule reduces the operational impact on the airlines. We also felt that this would keep the overall cost of the construction down. It was a prudent decision to make."

Mulder highlights that not closing the runway for five to six consecutive years will tangibly benefit the airlines. "The saved money on the work also ultimately saves the airlines money," he notes.

With a purse sizeable enough to offer a single construction bid, the initial $34 million estimate turned into a $20.8-million winning bid, and three phases of work were

Work began in January to reconstruct the center 7,000 feet of Runway 18-36.

compressed into a single construction season. The savings also provides for enough funds to incorporate two more elements: another 500 feet of runway work for $1.3 million and the installation of two arresting cables for $3 million.

Phase 3 work began in January and is scheduled to be completed the end of May. Phase 4 intersection work is expected to begin next spring and take 14 weeks to finish.

Looking back at TUL's experience, Mulder offers encouraging words to other airport directors considering similar financing strategies: "The lending institutions assessed the risk and accepted it. We had banks eager for the business. This loan was creative, non-traditional (and) easier to get than you might think."

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Airports Adjust to Redeployment of TSA Body

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Project: Video

Program: Redeployment of Passenger Screening Equipment

Airports Affected: 49

Strategy: TSA is removing L-3 ProVision ATDs from regional non-hub airports & sending them to larger hubs to replace less advanced scanners criticized for producing overly revealing passenger images.

Sample of Airports Losing Equipment: Bismarck Municipal (236,000 passenger boardings); Grand Forks Int'l Airport (137,000); Helena Regional (96,500); Minot Int'l (224,000)

Pushback: Airports losing scanners anticipate increased checkpoint wait times due to reduction in overall resources & returned reliance on older metal detection equipment.

Result: Anticipated bottlenecks haven't materialized to date; deployment of extra baggage X-ray machines & changes in TSA procedures/staffing has mitigated technology loss at some locations

Officials at regional non-hub U.S. airports are coping with a federal decision to remove advanced body screening equipment from their facilities and send it to larger hub airports, where the machines are replacing less current scanners that drew a firestorm of public criticism for producing overly revealing images.

According to TSA, the redeployment affects 49 airports nationwide and will cost an estimated $2.5 million.

Airports on the losing end of the initiative largely expected the shift in federal resources to increase wait times, or even create bottlenecks, at their security checkpoints. Taking a technological step backward from body scanners to metal-detection magnetometers, they reasoned, was bound to increase wait times.

But so far, that doesn't appear to be the case.

Some credit the deployment of additional baggage X-ray machines and/or changes in TSA procedures/staffing for mitigating the loss of advanced imaging equipment.

Despite a lack of security gridlock at the smaller airports where scanners were removed, an undercurrent of pushback prevails. Some directors stress the inherent inefficiency of the redeployment, highlighting the millions of tax dollars that were spent to install then remove the same equipment a year or less later. Others are peeved that they spent airport funds to modify checkpoints to accommodate the larger, now-absent equipment.

Airport officials in North Dakota and Montana have been particularly, and publically, critical of the redeployment. They're frustrated because removal of the updated screening equipment coincides with a sharp increase in passenger traffic spurred by the region's oil and natural gas boom.

The North Dakota Aeronautics Commission notes that 2012 was a record-setting year for the state's eight commercial airports: Collectively, the group logged more than 1 million passenger boardings.

"The Bakken oil play has created a lot of economic activity for everyone in western North Dakota," explains Greg Haug, man-

Helena Regional hasn't experienced significant checkpoint delays since TSA redeployed its body scanning equipment elsewhere, but officials still bristle at how the equipment's removal transpired.

Scanners

By Ken **Wysocky**

ager at Bismarck Municipal Airport (BIS). "It's not just workers coming and going … economic prosperity in the region is creating more demand for travel, both business and leisure. We're bursting at the seams and scrambling to build extra parking and add more gates … trying to keep ahead of the demand."

Years In the Making

The controversy began in fall 2010, when airports began using full-body scanners made by Rapiscan Systems. The scanners quickly generated public criticism for producing images some considered too anatomically revealing. Rapiscan was given until June to upgrade the machines with software that produces less-revealing images through advanced target recognition technology.

In January, TSA announced that Rapiscan could not meet the June deadline, and terminated the company's contract. TSA subsequently switched to equipment that produces a less-detailed, cartoon-like body image: ProVision ATD body scanners, made by the Security and Detection Systems division of L-3 Communications Holdings. To hasten the replacement process, TSA decided to remove L-3 units from smaller regional airports and send them to larger hub facilities. According to Haug, an airport must have more than 250,000 annual boardings for three consecutive years to keep an L-3 screener.

TSA explains the process this way: "TSA's deployment strategy is designed to ensure AIT (advanced imaging technology) is in place at checkpoints where they will be used a significant portion of operating hours, increasing overall utilization across the system. Reallocating millimeter-wave AITs, coupled with nationwide use of risk-based security (RBS) initiatives, such as modified screening procedures for children under 12 and adults over 75, allows TSA to reduce the total number of AIT units needed, and substitute these RBS methods to improve security effectiveness and efficiency.

"TSA will continue to evaluate airport needs and will reassess its AIT deployment strategy when additional units are procured," the prepared statement continues. "As TSA continues to implement risk-based security measures … the need of AITs at each airport will be reevaluated to enhance security effectiveness and efficiency."

Modifications Required

At Helena Regional Airport (HLN) in Montana, officials had worked closely with TSA to remodel its checkpoint to install an L-3 scanner and additional X-ray lane. The L-3 scanner, which is about the size of a minivan standing on end, required the airport to remove an overhang, at a total project cost of $125,000.

Making room for the body scanner accounted for about two-thirds of the project cost, and the X-ray lane would have been added

Ron **Mercer**

TSA is redeploying scanning equipment that produces less anatomically specific body images of passengers to larger hubs, so it will be used a significant portion of operating hours and increase overall utilization of the technology.

anyway, says Airport Director Ron Mercer. FAA entitlement funds paid for 90% of the project, and the airport paid for the balance — $12,500.

Although HLN has not experienced significant backups at its single checkpoint since the L-3 scanner was removed, Mercer still takes exception to how the removal transpired. Although he had heard rumors that his airport's body scanner would be removed, the first official notification came via a call from a contractor who was on the way to remove it, he relates. Citing a state law, airport officials said the move was illegal and threatened to have anyone who tried to remove the machine arrested.

HLN officials also asked their state Congressional delegation to intervene, and Mercer requested that the airport be allowed to purchase the unit with Airport Improvement Funds. But that proposal went nowhere, he explains.

Eventually, HLN officials backed down. "But it was not a good way to act with your partners … to have a contractor show up with a semi and say he's going to take out the machine," Mercer recounts. "We didn't want to be obstructionists … and we understand they (TSA) are in charge, and that they face some challenges. But we wanted to make the point that we felt we weren't treated very well."

"At the same time," he adds, "we have a great relationship with our local TSA manager and employees."

At BIS in North Dakota, officials spent about $25,000 of airport funds to move a wall and widen the facility's only security checkpoint to accommodate a new baggage X-ray lane and L-3 unit that were installed in June 2012 … and removed March 7.

Since then, Haug has not noticed significantly longer wait times.

"We don't track the time it takes passengers to get through the checkpoint," he says, "but we were under the impression that it (the L-3 scanner) was quicker. We were concerned that losing the L-3 would create a huge logjam. But with the procedures TSA has in place, the throughput seems to be OK, as long as they open the second X-ray lane in time."

Haug says that in the long run, reliance on the older magnetometer will prompt more pat-down inspections and alternative-screening procedures for passengers with artificial limbs and joints, which set off metal-detection alarms.

"The L-3 was nice because it could screen out certain anomalies like that … it gave the screening folks pretty good information," he explains.

No Adverse Impact

Minot International Airport (MOT), also in North Dakota, only had to make minor electrical updates to accommodate its new body scanner.

"We already went through a terminal modification in 2010 that changed the entire checkpoint area, so there was adequate space for the piece of equipment," says MOT Director Andy Solsvig.

Andy **Solsvig**

As for before-and-after comparisons of security throughput, Solsvig says that so far, it's basically been a wash.

"I think the L-3 found items on people more accurately, but it takes about five seconds for a passenger to go through it," he says, noting that the machines can process 200 to 300 people per hour. "But you can feed people through more quickly with the magnetometer, unless they forget to take off a belt or a watch, or require a pat-down. So depending on how you look at it, they're about the same."

"We thought it would be worse," he adds. "We didn't know what kind of impact to expect. But our TSA people have stepped up in terms of having enough employees to work through the pat-down process … so they've been keeping the lines moving."

Taking a Stand

Grand Forks International Airport (GFK) received its L-3 scanner in January 2012, along with other new pieces of checkpoint equipment. Contractors had to remove windows on the north face of the new terminal building to deliver the new equipment, because the machines were too large to fit through the doors.

When contractors returned later to discuss removing the L-3 body scanner, they planned to remove the windows again. But that didn't sit well with the Grand Forks Regional Airport Authority. In February, the authority approved a measure that barred contractors from altering the building to remove the machine.

"It's (TSA's) equipment; they can have it. But we weren't going to allow them to take it out by removing those windows again," explains Patrick Dame, the authority's executive director. "They'd have to take out an entire bank of windows … about 30 feet wide and 7 feet tall, frames and all. We didn't see any reason for more wear and tear on the building … taking windows out and putting them back in, then possibly doing it again to get a replacement machine inside. That's ridiculous."

Eventually, the contractors devised an alternate strategy, and in early April disassembled the machine enough to fit it through an oversized door by the terminal's passenger boarding bridge.

With the L-3 scanner gone, Dame fully expects wait times to increase. It increased passenger throughput, and GFK's annual passenger boardings keep increasing, he explains.

"We will go backwards in the time it takes to screen passengers," he contends. "We expect the number of pat-downs to increase. When you only have one option (the magnetometer), it's going to back things up."

Replacement Scanners?

Importantly, none of the airport officials interviewed for this article believe that the equipment redeployment has compromised security.

"While the TSA doesn't divulge everything, they've given us enough information to make us feel comfortable that we have a very solid security system in place," Mercer says.

The same officials, however, would surely welcome replacement scanners with advanced-imaging technology. They note that TSA hasn't indicated if or when that might happen, but it seems possible for facilities with enough traffic.

BIS is right on the cusp of the magic 250,000-passenger mark. "We boarded 236,000 passengers last year, which is up 20 percent over the year before. And we're currently running 17 percent higher than 2012," Haug reports. "So if that trend continues, we'll be north of 250,000 passengers in 2013, and we'll have to see what happens in the years after that."

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Edmonton Int'l Upgrades Cargo Area

By Victoria Soukup **Jensen**

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Project: Cargo Area Upgrades

Location: Edmonton Int'l Airport

Overall Cost: $30 million

Development Area: 200 acres

Number of Multi-Tenant Structures Constructed: 3

Building Sizes: 50,000, 63,000 & 93,000 sq. ft.

Private Development Partners: Hangar Development; TerraCap Group

Tenants: Alberta Health Services; Canada Border Services Agency; Cargojet; Federal Express Canada Ltd.; Fox Flight; Purolator; STARS

New Cargo Apron: 236,000 sq. ft.

Cargo Apron Cost: $10 million

Cargo Apron Contractor: Dufferin Construction Co.

Geographic Advantages: On Great Circle Route between Asia & North America; close to highway, railway & seaport access

Upcoming Event: National Cargo Conference: Sept. 25-26

Riding a province-wide economic boom, Alberta's Edmonton International Airport (YEG) is leveraging $30 million of cargo area improvements to attract larger aircraft and expedite freight transfers for a variety of shippers.

YEG's new air cargo area, unveiled late last year, includes three multi-tenant airside buildings and a 236,000-square-foot dedicated concrete cargo apron. A "cargo village" to house shippers, freight forwarders, brokers and other transportation-related businesses is planned next.


Norm **Richard**

"There's a tremendous economic message in Alberta that's driving all the growth," reports Norm Richard, YEG's director of Air Service Development. "Edmonton International wants to help stimulate that growth and drive business to and from the region."

The cargo upgrades, located on approximately 200 acres of land on the airport's south side, were spurred by three years of positive growth in the airport's cargo business and have been well-received by the private sector, report YEG officials.

Cargojet, which provides time-sensitive overnight air cargo services, jumped on board quickly, leasing space in one of the buildings. Purolator, an integrated freight and parcel solutions provider, soon followed.

Federal Express Canada Ltd. upgraded its international freight service between YEG and the FedEx world hub at Memphis International by adding weekday service with a wide-body Airbus 310. In addition to boosting the company's daily air cargo capacity by more than 1,600 cubic feet, the change improves the airport's aircraft mix.

"We didn't have wide-bodied freighters previously," Richard explains. "It was a service gap that we were missing. Our upgrades are a real testament to the carriers that are now coming in to utilize Edmonton International."

The airport is already experiencing a "halo effect" from its investments, he adds. "We view ourselves as a catalyst of economic development within our community … The more access we offer our freight customers, the more business comes to and departs from Alberta. With each and every added shipment, there's a positive return for us."

Welcome Upgrades

As Canada's fastest growing airport, YEG previously struggled with capacity issues. Conditions prompted officials to launch an ambitious airport improvement program several years ago. Upgrades began on the passenger

side, outfitting the facility to accommodate up to 10 million annual passengers. Then, the focus shifted to the cargo side.

YEG created taxiways and roads, installed a dedicated cargo ramp and added 236,000 square feet of apron space for cargo aircraft. The $10 million apron, developed by Dufferin Construction Co., was completed in about six months with the help of an onsite concrete plant.

Two multi-tenant buildings – a 50,000-square-foot facility and a 93,000-square-foot facility – were constructed in partnership with external investors. Airport officials expect both to be fully leased by summer.

The 50,000 square foot building, owned by Terracap Group, houses Cargojet and Purolator. With a dedicated cargo ramp and 20 bays, it was built with airfreight in mind, Richard relates. "The warehouse portion leads directly to the aircraft, and the nose of the aircraft is within 20 to 30 yards of the building," he says. "In terms of efficient operating, it couldn't be better."

Cargojet leases 8,700 square feet of office and warehouse space for its fleet of Boeing 767-200ERs, 757-200ERs and 727-200AFs. The company transports courier products, perishables, live animals and large main deck cargo such as oil field equipment for Alberta's burgeoning petroleum industry.

Lyle **Gibson**

Cargojet personnel appreciate the new cargo ramp, which makes loading and unloading more efficient and helps protect freight from Edmonton's extreme weather conditions. "(Previously) we had to park on a ramp adjacent to our facility, which added extra time to transport the cargo to and from the aircraft," recalls Lyle Gibson, Cargojet's general manager for Western Canada. "Now we just open our airside door and the aircraft is right there."


Mike **Boucher**

The new facility also allowed the carrier to expand its bonded area — an important upgrade, since the company recently took on additional international business that the Canada Border Services Agency requires to be serviced in bonded space.

"Our Asia traffic has grown tremendously over the last year, and this new facility allows us to handle the additional business," Gibson reports.

Purolator moved into the building in March. Beyond enjoying improved freight handling efficiencies, the company couldn't be happier with facility amenities such as a pilot's lounge, employee lockers, office space and a lunchroom. "The building is much more ergonomically and employee-friendly than our former building," reflects Mike Boucher, the company's chief operations officer.

Room for interior equipment storage will be especially appreciated during winter, he adds. "We were anxious for Edmonton International to create the new cargo area," Boucher explains. "We've had a long relationship with the airport, and the move has been a pretty good experience."

Another building, owned by Hangar Development, includes 30,000 square feet of office space and 63,000 square feet of hangar space tall enough to accommodate aircraft tail heights up to 28 feet. Already fully leased, the facility houses three medical flight operations: Alberta Health Services, Fox Flight and STARS.

YEG owns the third structure — a 63,000-square-foot building that currently houses the new airport location of the Canada Border Services Agency. Airport officials plan to lease the remainder of the building to cargo and logistics tenants. If demand outstrips capacity, the building can be expanded an additional 15,000 square feet.

The nearby cargo apron is used daily by Cargojet, and Boeing 777s flown by two German FedEx freighter charters are also common occupants. Volga-Dnepr Ilyushin put the new concrete to the test when hauling live bison from Edmonton to Russia.

Late this year, the airport plans to begin road and infrastructure construction for an adjacent cargo village, which is intended to attract freight forwarders, shippers, receivers and similar businesses.

Global Sweet Spot

Geographically, Edmonton is located is a strategic position for worldwide transportation. As Canada's northernmost major international airport, YEG is situated on the Great Circle Route between Asia and North America, making it an ideal refueling stop for trans-Pacific air traffic.

For sea shipments, Edmonton offers easy access to the North American seaport at Prince Rupert, British Columbia. For rail, it links with two of the largest railways in North America — Canadian National and Canadian Pacific — and provides rail connectivity to locations throughout the continent. In addition, Edmonton is positioned near the vast highway infrastructure of the CANAMEX corridor, a trade route that runs through Canada, the United States and Mexico.

YEG, in particular, is adjacent to the Leduc-Nisku business/industrial park, the largest energy park in Canada and the second largest in North America. It is also the closest major airport for the oil sands industry and Alberta's manufacturers.

"We want to make sure those routes to the target markets are in place here at Edmonton," Richard says. "Our trade market is very global. The cargo volumes have been excellent."

Reaching Out

Beyond its infrastructure upgrades, YEG further demonstrates its commitment to air cargo by engaging with the local, national and international air cargo community. September 25 to 26, the airport will co-host the Roads, Rails and Runways Conference with the Canadian International Freight Forwarders Association.

More than 200 representatives from Canada's $11 billion freight forwarding industry are expected to attend the event. Airport officials say the conference will showcase the rapidly expanding economies of Central/Northern Alberta and the Canadian North, as well as growing trade and investment with Asia and the European Union.

If economic forecasts bear out, the expandability YEG built into recent cargo area improvements could prove to have been critical foresight, notes Richard.

A March report by the Royal Bank of Canada Economics Research predicts that Alberta's "impressive boom" will continue through 2013 and crude oil production will be stronger this year than last. The report also points to a steady upswing of employment and notes that high levels of capital investment in the province are fueling manufacturing activity and wholesaler activity.

"Alberta is leading Canada in many aspects of economic development," Richard relates. "Edmonton International is positioning itself to be a viable option for the manufacturers and suppliers of the province."

Wayne **Humphries**

Hangar Development and TerraCap apparently share the airport's optimism, as both are already considering constructing other buildings in YEG's new cargo area. "We have additional lands available," reports TerraCap's chief investment officer Wayne Humphries. "As soon as we get the next couple of deals in place, we will build another facility at Edmonton."

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Myrtle Beach Int'l Boosts Capacity &

myrtle beach INTERNATIONAL AIRPORT

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Project: Terminal Capacity Enhancement

Location: Myrtle Beach (SC) Int'l Airport

Owner: Horry Co.

Size of Expansion: 240,000 sq. ft.

New Size: 395,000 sq. ft.

Cost: $118 million

Funding: FAA grants; $16.5 million airport funds; $6.2 million TSA grant for baggage system; revenue from sale of land; term finance certificates (backed bonds)

2012 Passenger Volume: 1.4 million

Key Elements: New inline baggage handling system; apron pavement reconstruction; 6 new gates; 8 new passenger boarding bridges; 3 additional ground-loading positions; taxiway expansion and reconstruction; new rental car customer service facility; new restaurants; covered employee exit plaza; parking renovation/ expansion; new airport circulation & access roads

Benefits: More than twice as much interior space; improved traffic flow; increased airside capacity

Construction: May 2010 through March 2013

Terminal Planning/Programming: Michael Baker Jr. Inc.

Architecture: LS3P Associates with Giuliani Associates

Structural Engineering: Kyzer & Timmerman

Civil Engineering: Castles Engineering

Program Manager: MB Kahn Construction Co.

Geotechnical Engineering: S&ME, with special inspections by Mead & Hunt

Site Survey: S&ME

Electrical: Melton Electric

Fire Protection/Life Safety: PASCO (Palmetto Automatic Sprinkler Co.)

Elevator & Escalator: Schindler Elevator Corp.

Inline Baggage Screening System Mfg.: Glidepath

Baggage System Controls Architecture & Installation: Brock Solutions

Bag Claim Devices: Glidepath

Baggage System Electrical Installation: Buckeye Electric

Baggage System Operation & Maintenance: Vanderlande

Passenger Boarding Bridges: JBT AeroTech

Gearmotor with integrated frequency inverter: SEW-EURODRIVE (MOVIMOT®)

Structural Steel Fabrication & Erection: Steelfab

Seating: Vitra

Seating Provider: Herald Office Solutions

Interior Signage & Gate Displays: Tyson Sign Co.

Flight/Baggage Information Display Systems & Gate Counter Integration: AirIT

IT Systems: Air-Transport IT Services & Mercom

Common-Use Self-Service Kiosks: IER

Kiosk Printers: VidTroniX

Security Systems: Johnson Controls

Food Service Operator: MSE Branded Foods

Commissioning Services: Sebesta Blomberg

Rental Car Facility & Plaza Design: Timbes Architectural Group with design architect inFORM Studio

Tourist Appeal With Terminal Enhancement Project

By Rebecca **Kanable**

With brightly colored beach chairs and sand-tone flooring, it's hard to miss the local bent of the recent expansion and renovation at South Carolina's Myrtle Beach International Airport (MYR).

"When you get off the airplane, you feel like you are in Myrtle Beach," says Michael La Pier, who oversees Horry County's Department of Airports.

The terminal's variegated façade, finished with blue glass and copper metallic panels, alludes to South Carolina's Atlantic Coast and 60+ miles of beach known as the Grand Strand; its roof forms mimic ocean waves. Interior colors and finish materials further convey the Myrtle Beach vacation culture, and Nacho Hippo, a restaurant from the local Divine Dining Group, reinforces the airport's ties to the tourism-oriented area.

"When you arrive back at the airport for your departure, you don't feel like you've left," notes La Pier. "It's not a sterile terminal in that regard."

Creating a memorable, inviting space was especially important because MYR is a destination airport, not a hub, explains Philip Oliver, associate principal and senior designer for master architect LS3P Associates.

The $118 million program that delivered the beachy feel was prompted by a capacity crunch the airport was experiencing when planning began and further strains that were expected from anticipated passenger loads, explains La Pier. Each year, nearly 15 million people visit the Myrtle Beach area, and about 1 million of them pass through MYR, he elaborates.

"The community's goal ultimately is to increase its number of visitors to 20 million, and they're looking to the airport to be a contributing partner," says La Pier. "That means expanding our horizons as well as the brand of Myrtle Beach. We're going to try to bring airline service from places where it's not so easy to get to Myrtle Beach."

Currently, the farthest west MYR reaches is Dallas. "Much of our service is inside a 10-hour drive," La Pier reports, noting that adding markets west of the Mississippi River is of particular interest.

"A strong and aggressive airport development program has become fairly successful for us," he relates. Year-to-date passenger arrivals through June are up 12% to nearly 52,600 seats vs. 2012, and 715 arriving flights were added, for a 16% increase.

With tourism as the top generator of jobs and local economic activity, the development of air service is a community focus, La Pier notes. The recently completed Terminal Capacity Enhancement Program, as it's officially known, had the support of key local organizations including the Myrtle Beach Area Chamber of Commerce, specific golf and hotel associations, the Myrtle Beach Regional Economic Development Corporation and the Horry County State Delegation, relates La Pier.

The Myrtle Beach Community Appearance Board, in fact, had to sign off on the project. In 2004, the board rejected plans for a new facility on the west side of the runway; six years later, however, it approved a conceptual design to expand the existing eastside location.

LS3P Associates, working in conjunction with Giuliani Associates, evolved the conceptual design into working designs to renovate the old concourse and repurpose other existing infrastructure. Both firms also provided construction administration services, with active work running from May 2010 through this March.

Bill **Cram**

M.B. Kahn Construction Co. served as the program manager, overseeing about 22 trade contractors. Despite material delivery delays associated with Superstorm Sandy, crews completed work prior to the peak tourist season — a critical deadline for the airport, notes Kahn Executive Vice President Bill Cram.

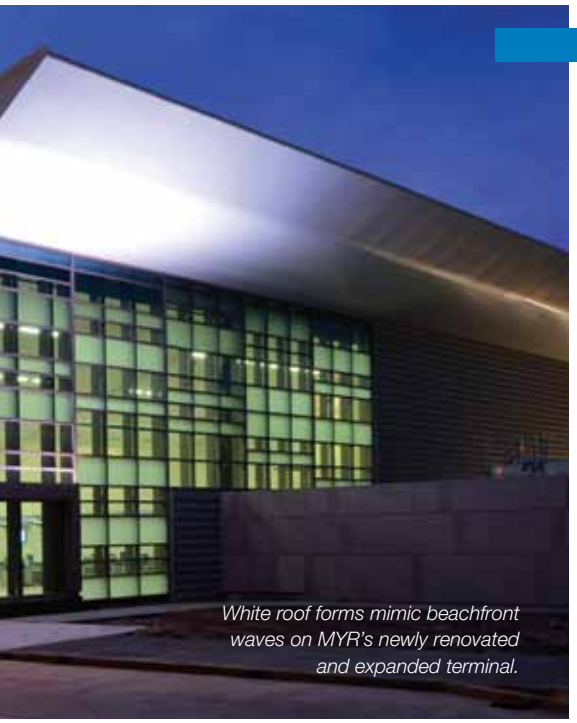
Cram is similarly proud of the project's safety record: only one minor accident amid nearly 800,000 accident-free workhours.

Form & Function

MYR more than doubled the size of its two-story terminal, expanding from 155,000 square feet to 395,000 square feet. The increased footprint provides additional room for the lobby and waiting areas, and new concessions space. Departure gates increased from seven to 13, and JBT AeroTech provided eight Jetway passenger boarding bridges, JetAire preconditioned air units, Jetpower ground power units and other ancillary airside products via a contract of more than $5 million. Three ground-loading positions were also added.

The former gate areas are now a concourse, and the airport's old baggage claim area is now a modernized federal inspection station facility.

Taxiway and apron pavement were reconstructed and expanded, and the



White roof forms mimic beachfront waves on MYR's newly renovated and expanded terminal.

parking lot, roadway circulation and access roads were renovated and expanded. New facilities include a covered exit plaza for employees and a rental car facility with a pedestrian canopy.

La Pier is especially proud of the user-friendly nature of the facility. And by "users," he means airlines and other airport tenants as well as passengers.

The terminal's "user-friendliness" begins in the parking lots, says La Pier. Because they're so close to the terminal, passengers don't have to ride shuttles, he explains. In addition, the new payment plaza was designed for the convenience of customers who are parking and drivers just dropping off passengers.

La Pier describes the terminal itself as comfortable, well lit and easy-to-use, with ample signs. "It's a fun building to navigate because there are lots of vistas," he relates, noting that passengers riding the escalators down to baggage claim are treated with views of a nearby golf course.

"We didn't realize how nice that frontage looked until we started the project," laughs La Pier.

Technology updates include check-in kiosks and an inline baggage handling system. MYR's shared-use approach to information technology benefits the airport, airlines and passengers, notes La Pier. Any airline can use any ticketing counter, customer service kiosk or gate.

"The entire IT backbone is managed and operated by the airport, so we can do some creative things that not only keep the costs for our airlines low, but increase passenger convenience," he explains.

The new backbone is built on AirIT's virtualization platform, and MYR uses the company's full suite of operational, passenger processing and business system tools, including the Airport Operational Database, Resource Management System, and PROPworks, a property and revenue management system. Airport's AirIT common-use self-service (CUSS) kiosks complement its AirIT Extended Airline System Environment (EASE) shared-use passenger processing system.

Non-traditional airport seating and tourist-oriented concessions were selected to "convey Myrtle Beach."

Just as the EASE platform allows airlines to extend their applications onto the airport's common-use systems environment, CUSS kiosks allow airlines to coexist on the same hardware. Passport readers integrated into the check-in kiosks read e-passports, allow passengers to check in with or without bags, and print their own boarding passes.

"CUSS has been around for several years, and it's really grown in popularity in the last couple of years," says Jeff Shull, AirIT executive vice president.

MYR has 18 CUSS kiosks located in front of ticketing counters and in common areas. All are standalone, but most are grouped in pairs.

Shull details some specific advantages of the new shared-use technologies: "If MYR wants to assign a group of ticket counters to WestJet, which is starting service at MYR in May, we can load the kiosks with WestJet processing applications. If US Airways needs to use the ticket counters later, that's not a problem because US Airways software, too, was preloaded."

By maximizing the use of ticket counter and gate space, MYR was able to build a more compact facility — a strategy that lowers construction-related costs and decreases passenger walking distances, he notes.

In addition to core software solutions, AirIT implemented interfaces to support operation of the new baggage handling system, voice over Internet protocol, fuel access, and flight tracking and weather data interfaces.

The printers in the kiosks are VidTroniX MAPs that use a single printhead to print on two boarding pass stocks and one baggage tag stock in succession. Printing on three stocks allows the printer to take up less space than three separate printers. The airport now has 81 MAP printers, including those at the CUSS kiosks.

TSA provided a $6.2 million grant for the airport's new inline baggage handling system. "A bag can move from the ticket counter, through security and out to bag makeup in less than two minutes," La Pier reports.

Glidepath partnered with Brock Solutions to provide the controls architecture and installation, and with Buckeye Electric for the electrical installation of the new system. Currently, it includes three L3 9400 EDS machines and is capable of processing more than 1,500 bags per hour. A fourth machine can be added if the need arises. The outbound system includes two flat-plate makeup units, and the inbound system consists of four flat-plate claim carousels, all provided by Glidepath.

Common-use technology permeates MYR's recent 240,000-square-foot expansion.

The overall system consists of more than 5,300 linear feet of conveyor and 302 motors. Given MYR's customer profile, designers included provisions for golf bags measuring up to 56 inches.

Vanderlande will operate and maintain the system.

Previously, each airline had its own baggage handling device and bags had to be checked by TSA and put on bag makeup carts independently. Now, the new automated system uses common bag belts to take bags for all airlines from behind the ticketing counters to a central location for screening and sorting — just like at a major hub airport.

La Pier is pleased as he reviews the convenience and capacity that has been added at MYR in the last few years: "We are excited for passengers visiting Myrtle Beach for the first time or hundredth time to see and experience the new Myrtle Beach International Airport … When you get here, you're on vacation. And you don't stop being on vacation until you board your airplane and go back home."

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McCarran Int'l Debuts Ultra High-Definition Sign

McCarran INTERNATIONAL AIRPORT

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Project: Signage Upgrade

Location: McCarran Int'l Airport

Hardware: LG Ultra HD 4K Display

Size: 84-inch screen

Placement: D Concourse

Software & Solutions: Four Winds Interactive

Advertising Agency: Alliance Airport Advertising

Kiosk Building/Installation: R.O.E. Marketing

Debut: January 2013

Audience Exposure: More than 1 million passengers/month

It's strange to see travelers stop and take pictures of an airport sign, but it's actually a common occurrence at McCarran International Airport (LAS) in Las Vegas. The facility's new 84-inch ultra high-definition display is "stunning, not only in terms of clarity and rendering, but also in color," explains the airport's assistant director of aviation, Information Systems, Samuel Ingalls.


Samuel **Ingalls**

The top half of the airport's new sign displays wayfinding information, while the bottom half provides more commercial- and entertainment-oriented content.

Dan Smith, director of digital signage for LG USA, refers to the airport's use of its cutting-edge product as "techorating." According to Smith, more and more airports are looking for ways to incorporate signage that blends into the terminal décor and has an artistic feel to it. "It beautifies, blends and informs," he explains.


Dan **Smith**

At LAS, however, the need to improve wayfinding in the airport's busiest area inspired the first commercial installation of LG's cutting-edge display.

Filling a Need

Wayfinding became a tremendous challenge in the D Concourse rotunda shortly after LAS opened its new Terminal 3 in June 2012, explains Alison Rank, senior sales manager with Four Winds Interactive, the


Alison **Rank**

By Jennifer **Bradley**

company that provides software for the new display and others throughout the airport.

Months after the opening, the airport rearranged operations to allow some D Concourse carriers to move their ticketing and baggage services to the new building. With this change, passengers arriving at the D gates now faced two terminal options, resulting in the need for more wayfinding assistance.

Frequent passengers were used to simply going down the escalator and veering left; so it was suddenly became imperative to capture their attention and make them aware of the new "fork in the road." Without better wayfinding, the airport risked having passengers board the wrong tram to claim their baggage.

Given the large size of the gathering area, large-scale directional wayfinding was a necessity, explains Smith. The airport's previous smaller, static image just wasn't visible enough — travelers were spinning their heels in the rotunda, trying to figure out their next move, he explains.

Local culture also influenced selection of the 84-inch Ultra HD display. Décor in Las Vegas is infamously extreme, with a lot of noise and other distractions competing to grab customers' attention. LAS needed to refocus airport visitors and retain their attention long enough to make navigating less stressful and more seamless. According to the airport, its new screen does just that.

The new display "really captivates its audience," reports Smith.

LAS officials also had tech-savvy business travelers in mind when they decided to install the display, even though they're not the stereotypical Vegas demographic. Volumes of business travelers fly into LAS each year for high-end technology tradeshows and conferences, explains Ingalls. So it was crucial to have the new display working as exhibitors and planners arrived for the International Consumer Electronics Show that began on January 8. Because the airport didn't begin conversations with LG until late last October, the timeline was tight for the display to be ready. It took an overnight installation by R.O.E. Marketing, but the LG display went live on January 4.

Although the construction, contracting, shipping and overall logistics of the project were a challenge, the airport and its vendors pulled out all the stops to make it a reality, recalls Ingalls.

Because the D Concourse is now a "decision point," it was important for the large screen to capture and hold

travelers' attention while they ride down the escalator from the D gates into the rotunda, he adds. With help from the new display, they're able to focus on wayfinding information and make their decisions before they step off the escalator.

"The airport overall is better off, and our customers are too," relates Ingalls.

Pixel Power

Before LG approached the airport, Ingalls had never seen an ultra high-definition display. The difference between it and a regular consumer high-definition television astounded him.

While the airport staff was excited about implementing the LG product, they also wanted to keep messaging consistent throughout the airport, notes Rank, referring to Four Winds' contribution to the project. Alliance Airport Advertising, the agency that handles indoor advertising for the airport, was also important in developing the agreement with LG, adds Ingalls.

Cutting-edge display equipment requires the airport to maintain a high level of content, he notes: "You can't just go out and easily pick up or render something in ultra HD. There is very heavy computing power required."

While ultra HD screens can display traditional high-definition content, the opposite is not true. According to Ingalls, the number of pixels is what makes the new screen dynamic in more ways than one. Consequently, it was vital to have a vendor like Four Winds with the capability to create and manage content for the new digital standard.

The Ultra HD 4K takes display technology to a whole new level, says Ingalls. While LAS' wayfinding messages won't be overly dynamic, the lower screen will demonstrate more of the display's visual capabilities. Rank foresees ads targeting specific trade show attendees, holiday greetings, event promotions and even emergency messaging all as good fits. Artwork is another option for the aesthetically pleasing and simple screen, adds Smith.

The flexibility of Four Winds' software is an important element, notes Rank. "It can run multiple formats back-to-back," he explains. "It can be a video followed by a PowerPoint, followed by an image."

Ingalls describes the wayfinding portion of the display as fairly straightforward, with arrows pointing to baggage claims and airline logos directing passengers to their intended locations.

With designers continuing to tweak the wayfinding format, Ingalls says the real test is whether information is legible to travelers at the top of the escalator. "Ultra HD has really brought us the capability for this, which we wouldn't have otherwise," he says.

As LAS discusses a variety of future ultra HD options, Ingalls predicts that the format will become a new standard and that stunning signage will begin appearing at airports nationwide. But for now, visitors continue to stop and stare at the large, crystal-clear display in the D Concourse rotunda.

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More Airports Opening Compressed Natural Gas Stations to Public

By Dan **Vnuk**

factsfigures

Project: Expansion of Compressed Natural Gas Station

Location: Lincoln (NE) Airport

Opened for Airport Use: Nov. 2011

Opened for Public Use: March 2012

Expansion: 2 additional tanks

Cost: $87,000

Funding: $59,000 federal stimulus grant

Anticipated Break-Even Point: 2 years

Installation Consultant: Midwest Energy Solutions

Users: Airport; local and municipal vehicles; transient drivers from nearby interstate

Benefits: Using compressed natural gas in 11 airport vehicles saves the airport $1,500/month vs. gasoline & diesel

In the early days of automobiles, motorists had to seek out hardware stores, blacksmith shops and even pharmacies to fuel their tanks with a petrochemical product that was primarily used as a solvent. In fact, the nation's first drive-through gasoline station didn't open in Pittsburgh until 1913.

One hundred years later, drivers of vehicles powered by compressed natural gas (CNG) face the same challenge. Motivated by lower fuel prices, tax incentives and a chance to "go green," they are often disappointed to find that CNG fueling stations are few and far between in most parts of the United States. For some, however, the answer may be as close as their local airport.

As more airports begin using CNG-powered vehicles to shuttle passengers between terminals and to/from rental car centers, an increasing number are also allowing public vehicles to use their filling stations. For some, the strategy is a break-even proposition that helps support their own CNG usage; others are leveraging their stations as a new profit center.

Lincoln Airport (LNK) in Nebraska opened its existing single-tank CNG station to the public last March and soon found it needed more capacity to satisfy local demand. Before then, airport vehicles were the station's only customers. But with business increasing rapidly as local government agencies converted some of their vehicles to burn CNG, the airport decided to add two more tanks.

Bob **McNally**

By June 2012, consumption by public vehicles outpaced LNK's own fleet for the first time. "We are seeing a consistent increase in other users of our station," reports Airport Director Bob McNally.

According to the U.S. Energy Information Administration, CNG use in vehicles

Los Angeles Int'l Airport was ahead of the industry when installed a private compressed natural gas stations in 1997.

nationwide grew by nearly one-third from 2007 to 2012. With abundant supplies of natural gas throughout North America, proponents encourage its consumption to help provide U.S. jobs. And because it burns far cleaner than gasoline, it is less harmful to the environment and costs less per gallon than gasoline.

In addition to attracting business from municipal work vehicles and the local Bookmobile, LNK's 24/7 station fuels the fleets of area contractors. The station also is seeing more use from what McNally calls "transient" users — buses, semis and private vehicles from nearby Interstate 80. Recently, the station fueled a fleet of CNG-powered garbage trucks on its way to California. Because public customers are required to use credit cards to purchase fuel, additional staff wasn't needed to support the new business.

The airport itself is using the station more lately, too. When LNK opened the facility in November 2011, it had four CNG-powered vehicles; now it has 11.

The station's two additional tanks, which are scheduled to begin service by May, cost $87,000; but the airport received a $59,000 federal stimulus grant that covers more than two-thirds of the cost.

"Calling them 'storage tanks' is not entirely accurate," notes McNally, "as they hold only 35 GGEs (gasoline gallon

equivalents) apiece and are programmed to automatically refill from a gas line once they drop below a certain level."

The new capacity, he adds, will help increase fueling speed: "When the tanks are full, the fueling process goes quickly, because the pressure stays high. As the level of CNG in the tanks drops, the pressure also drops, which makes it difficult to fuel vehicles one right after the other."

With the new tanks in place, the system will automatically switch to another tank when one gets low to maintain better pressure and fueling speeds, he explains.

At LNK, selling CNG to the public is typically a break-even proposition. "The real value to us is in our own fuel use," McNally explains, noting that the airport saves an average of $2 to $2.25 per GGE by using CNG instead of gasoline or diesel fuel. "(That) translates into $1,500 a month in fuel savings," he reports. "Based on our $28,000 share of the cost to install the two extra tanks, the installation should pay for itself in less than two years."

A New Airport Trend?

Midwest Energy Solutions served as consultants during the expansion of LNK's filling station. Company president Mike Batten reports that interest in public CNG stations has increased steadily since he started the business five years ago. Although the mainstay of the company's business is converting vehicles to run on propane and natural gas, it has installed about 25 CNG stations throughout the Midwest and Western United States. The station at LNK was its fourth installation in Nebraska.

"Airports are ideal potential sites for public CNG stations," Batten says. "They're typically in easily accessible locations, on well-traveled roads with good directions, and easy to find. They also have a lot of taxis, shuttle vans, rental car courtesy vehicles running or idling that can impact air quality in the immediate area, which can be improved through the use of clean-burning CNG over gasoline or diesel."

According to industry data, natural gas produces up to 30% less greenhouse gas emissions when used in light-duty vehicles and up to 23% lower greenhouse gas emissions in medium to heavy-duty applications.

Batten encourages airport managers to consider installing public CNG stations as part of being a good citizen because they help fight air pollution and are an important local convenience. And if they choose to mark up the wholesale cost of the natural gas, the station can be a profit center as well, he notes.

Often airports can tap into an existing natural gas line rather than installing storage tanks on site, he adds: "It's much more cost-effective over having liquefied natural gas delivered to a CNG fueling site, although some companies prefer to do this."

Midwest Energy Solutions helps airports and other entities obtain the permits necessary to build CNG stations. "We work on educating the fire marshals, local government officials and others who may not understand what CNG is all about," explains Batten. "They have to become comfortable about opening a station, which is part of our consultant role."

A basic commercial station typically costs about $8,000, and more complex facilities able to fuel four or five vehicles at a time cost $40,000 to $50,000, he reports. "It just depends on how many vehicles you want to service," he relates. "However, we're finding that the larger the station, the quicker the return on investment."

Shortly after Lincoln Airport opened its compressed natural gas station to the public, it needed more storage capacity.

Many of the CNG stations that dot the Los Angeles basin are owned and operated by Clean Energy, North America's largest provider of natural gas fuel for transportation. The company has operations in CNG and liquefied natural gas (LNG) vehicle fueling, construction and operation of CNG and LNG fueling stations, biomethane production, vehicle conversion and compressor technology.

Southern California has the largest LNG and CNG infrastructure in the country, notes Steve McCarthy, western regional manager for Clean Energy. And it may be a predictor of natural gas as a vehicle fuel in coming years, he adds.

With natural gas prices at historic lows and abundant supplies within the United States, Batten encourages airports to consider the political implications of using and selling CNG: "It's smart business," he concludes. "We're relying on ourselves for energy – not on some countries that may not like us very much."

The Department of Energy estimates that 98% of the natural gas consumed in the United States is sourced in the United States or Canada.

Using CNG as motor fuel does, however, have drawbacks. Because it doesn't have as much inherent energy as gasoline or diesel fuel, vehicle performance and economy are typically compromised. It also takes up considerably more space per GGE in a vehicle than liquid gasoline, so capacity and range are limited.

For sellers, storage is a chief concern, as CNG often requires high-pressure, above-ground tanks. In addition, the fueling process itself is more cumbersome than simply pumping gasoline.

California Fuelin'

With its car-obsessed culture and unique set of state environmental rules, it's no surprise that California is a leader in CNG-fueled vehicles. Los Angeles International Airport (LAX), in fact, installed one of the nation's first private CNG fueling stations. After building the facility in 1997, the airport expanded it considerably four years later. Not open to the public, the station only fuels shuttle buses and other LAX vehicles. However, there are two public stations on Aviation Boulevard near the airport entrance: Hertz' decade-old station and new player on the block.

A compressed natural gas station that opened in early April at Baltimore/Washington Int'l services private vehicles as well as the airport shuttles.

McCarthy considers the development of CNG as vehicle fuel a "chicken and egg" dilemma: Will the opening of more stations lead to more interest in natural gas vehicles; or will more CNG-powered vehicles on the road necessitate more stations?

Airports, it seems, could be an important part of the picture. "We're seeing a lot of interest by airports in public CNG fueling stations," he reports. "Most are being tasked with reducing their pollution levels. Since today's jets still don't have alternative fuel options, the airports are forced to look in other areas to reduce pollutants. Often times, they focus their efforts on ground support vehicles such as shuttle buses, taxis and shared ride vans."

Clean Energy comes into the picture by financing such CNG vehicles, seeking grant funding, encouraging legislation, etc. "Our goal is simply to sell more of this environmentally and economically favorable fuel," he relates. According to the company, CNG costs up to $1.50 less per gallon than gasoline or diesel, depending on local prices.

The actual construction phase of adding a CNG station usually lasts about four months, reports McCarthy. The preliminary process of leasing the land, obtaining permits and arranging financing often takes about six months. The permitting process to build a new CNG station may be easier than permitting a gasoline station because it doesn't require underground tanks, he adds.

Clean Energy delivers natural gas to airports and other locations by tapping into the natural gas grid. It compresses the pipeline gas to 3,600 psi and dispenses it into vehicle fuel tanks.

Typically, the company operates and maintains stations under a 10-year lease; and airports receive a set percentage of sales. Because the concept of natural gas as a vehicle fuel is still relatively new in the United States compared to other parts of the world, McCarthy and his counterparts do a lot of "missionary work" to interest airport managers and others in opening a public station. "Natural gas has a bright future as an alternative fuel source," he says. "Airport officials find that opening a public station helps clean up the environment, helps their image, provides additional CNG fueling infrastructure and adds to their bottom line."

Fill'er Up

Clean Energy recently opened a company-owned CNG station at Baltimore/Washington International Thurgood Marshall Airport (BWI) in Maryland. In addition to servicing airport vehicles, private taxis and shuttles, the station will be open for public use 24/7. IMPARK, which recently added a fleet of new CNG-fueled airport parking shuttles, is expected to be a key customer.

Wayne Pennell, BWI's chief operating officer, characterizes the new station as the latest example of the airport's commitment to manage operations in an environmentally responsible manner.

At the station's ribbon-cutting ceremony in April, Clean Energy regional vice president Mark Riley characterized airport and allied ground transportation fleets as "magnets for natural gas vehicle usage."

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Tampa Int'l Tests Food Truck Concessions in Cell

Tampa International Airport (TPA) is scheduled to launch an eagerly anticipated concessions redevelopment program next year, but that hasn't precluded it from offering some of the trendiest eats in the Bay Area in the meantime. Customers just have to venture outside to find them.


Laurie **Noyes**

While officials finalize changes to the food and beverage scene inside TPA's terminals, new options roll into the airport's cell phone waiting lot every day in food trucks managed by an outside vendor. With options such as The Cheesesteak Truck and Chowder Bus, the pilot program has already generated a loyal following since it began in December 2012, reports Laurie Noyes, manager of airport concessions.

"We wanted to find a way to enhance the services for our customers, and food trucks were a natural fit with what we already offer," says Noyes. "This is a very trendy, unique offering that makes the airport a destination."

In addition to appealing to cell phone lot users, the food trucks attract a broader customer base than expected, she explains. Airport employees, workers from nearby office buildings and assorted community members regularly travel to the lot just to sample items from the truck of the day. "Old school" food truck options include Off the Griddle sandwiches, Just Smokin' BBQ, Burger Culture and Mobile Munchiez. Alternatives with an ethnic flare include Asian fusion options from the PAO Truck, Mediterranean dishes from Maggie on the Move, global street food from Grilland Graffeaties and arepas from Nico's Grill. Some operators have even generated national attention. The Dude and His Food truck, for instance, was recently featured on NBC's *Today* show.

Further evidence of the concept's appeal: The Food Network plans to launch the third season of its competition-based program, *The Great Food Truck Race*, in August.

Tampa International Airport

factsfigures

Project: Food Truck Pilot Program

Location: Tampa (FL) Int'l Airport

Area Serviced: Cell Phone Waiting Lot

Service Schedule: Weekdays 11 a.m. - 3 p.m.; Saturdays 10 a.m. – 4 p.m.

Offerings: Menu items change daily; options run the gamut from burgers & fries to fresh local seafood & gourmet wraps with couscous and lemon champagne sauce

Truck Management: Tampa Bay Food Truck Rally

Catalyst: Improve cell phone lot amenities to counter potential resistance associated with elimination of curbside parking

Phone Lot

By Nicole **Nelson**

Airport Logistics

Noyes works with a locally based food truck management program, Tampa Bay Food Truck Rally, to make the national food trend work at TPA. With a stable of 25 independent food trucks, the company sends various operators to service the airport cell phone lot from 11 a.m. to 3 p.m., Monday through Friday and 10 a.m. to 4 p.m. on Saturdays.

In addition to managing the standards and licensing of the trucks, Tampa Bay Food Truck Rally coordinates schedules and menu offerings. Michael Blasco, the company's chief executive officer, explains that he selects trucks for the airport route based on overall trends and posted sales of various food types. Mixing up different styles, he notes, is key.

"We try to be careful not to put one type of cuisine there too much," Blasco says. "Five days of barbecue trucks wouldn't do anyone any good, especially the airport folks that go over there almost every day."

Cheesesteaks and hamburgers have done exceptionally well at the airport, he reports, so those trucks earn repeat appearances. "Exceptionally well" equates to $400 to $600 in sales during the four-hour window that encompasses early lunch through late afternoon snacks, explains Biasco.

TPA doesn't currently collect a portion of daily revenues from the food trucks. Instead, it issues the company a ground transportation permit while evaluating the viability of an ongoing service.

Why Food?

TPA launched the food truck pilot in conjunction with its curbside management program, which discontinued parking at arrival curbs, emphasizes Vice President of Operations John Tiliacos. With the policy change, the airport directed drivers to the short-term parking garage, where they can park for up to an hour before needing to pay, and to the free cell phone lot for even longer waits. As expected, usage in the cell phone lot increased to record levels — 90% capacity during peak periods, Tiliacos reports.

A rotating cast of food trucks and new amenities such as restrooms and free Wi-Fi service are transforming the cell phone lot at Tampa Int'l.

"We viewed this (the food truck program) as a way to enhance the customer experience," he explains. TPA's other cell phone lot enhancements include the addition of restrooms, flight status boards, free Wi-Fi service, vending machines and charging stations for electric vehicles.

John **Tiliacos**

Originally conceived as a 30-day trial, the food truck program will continue for six more months to help determine if developing ongoing service through a request for proposals is warranted, Tiliacos explains. In the meantime, the airport posts the weekly food truck lineup via Facebook, and continues to earn regular "likes" in return.

"Each of our food truck vendors has been very enthusiastic and energized about the prospect of generating business in our cell phone lot, and they have been good partners," he reports.

Other airports such as Orlando International and Austin-Bergstrom International are also experimenting with food trucks. And San Antonio International Airport and Seattle-Tacoma International Airport are reportedly considering similar programs.

Los Angeles International, however, is approaching the trend from a different angle, with plans to build a structure inside Terminal 4 that looks like a food truck and offers a rotating selection of items from the city's most popular food trucks.

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While most airports are more than just airplanes and runways, Ohio's Rickenbacker International Airport (LCK) stretches the usual format further than most. In addition to cargo, military and passenger services, it also includes rail and trucking. As such, the airport is a key component of the Rickenbacker Inland Port — one of the largest integrated logistics complexes in the United States.

"We refer to it as an inland port because we don't have a natural body of water for ships, but we have everything else," explains Elaine Roberts, A.A.E., president and CEO of Columbus Regional Airport Authority.

With large cargo as its focus, LCK has two 12,000-foot runways, 200,000+ square feet of air cargo facility space and 130 acres of uncongested cargo ramp with a hydrant fueling system. Cargo activity is generated by a network of express and all-cargo carriers, including FedEx, UPS, AirNet, Evergreen, Kalitta, Atlas and others.

The Norfolk Southern Rickenbacker Intermodal Terminal, which marries rail and truck transportation, is capable of handling more than 400,000 containers annually. Norfolk Southern operates the intermodal terminal and the most extensive intermodal network in the East. CSX Corporation also provides rail service from nearby Rickenbacker. CEVA and Towne Air Freight are among a multitude of trucking companies serving the area; and Forward Air makes the intermodal terminal home of its North

RICKENBACKER INT'L: An Economic Engine by Air, Rail & Road

By Rebecca **Kanable**

American trucking hub and the heart its operations that serve 85 U.S. and Canadian cities.

Also included in the inland port is the Rickenbacker Global Logistics Park, which includes 1,576 acres on five campuses surrounding LCK and the intermodal terminal.

"When we talk about Rickenbacker, it's a huge complex that extends well beyond the airport itself — both geographically and in scope of transportation and distribution services," Roberts says.

Improvements that have taken place in the last decade and continue today make Rickenbacker Inland Port a world-class multi-modal logistics hub that helps sustain the airport financially.

Economic Engine

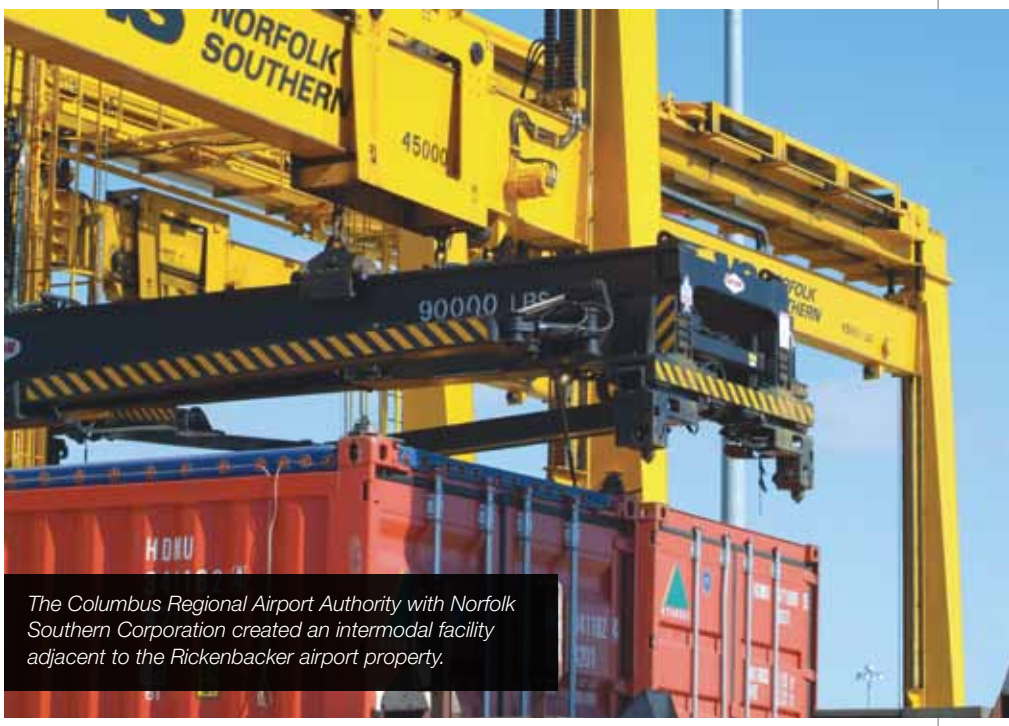
In addition to operating LCK, the Columbus Regional Airport Authority also operates passenger-focused Port Columbus International Airport and Bolton Field for general aviation users.

Last year, the authority commissioned an independent study to quantify on-airport activities, capital improvement projects, visitor-related expenditures and ripple effects generated by airport businesses. It introduces the economic impact study with two simple statements: "Airports are more than just airplanes and runways. They are vital economic drivers."

According to the six-month study conducted by CDM Smith, the authority's three airports support nearly 38,400 jobs, more than $1.3 billion in payroll and $4.6+ billion in total output annually. (Figures include both direct and multiplier effects.) The results indicate a significant increase in impact vs. the findings in a similar 2004 study. Specifically, employment has increased 28%, annual payroll is up 68% and annual output has risen 69%.

LCK alone accounted for 4,806 jobs, an annual payroll of $267.3 million and a total annual output of $904 million.

In addition to the airports, the study also considered certain off-airport, non-aviation businesses at Rickenbacker Inland Port that have direct ties to the airport authority. They accounted for almost 15,800 jobs, $515.2 million in annual payroll and $1.9 billion in total annual output. The figures only include operations directly tied to the airport authority. The impact of all Rickenbacker area businesses is significantly greater.



The Columbus Regional Airport Authority with Norfolk Southern Corporation created an intermodal facility adjacent to the Rickenbacker airport property.

Logical Location

Almost 15% of the jobs in Central Ohio are related to the logistics industry.


Jeff **Zimmerman**

Jeff Zimmerman, director of the Columbus Region Logistics Council, explains why the area is a logical place for such activity: "If you look at a map and draw an imaginary 500-mile circle around Columbus, you find that we have great proximity to dense population centers. That by itself makes Columbus an ideal center for distribution."

Fully 47% of the U.S. population and about 35% of the Canadian population is within that 500-mile radius — just one day's truck drive

LCK
RICKENBACKER
INTERNATIONAL AIRPORT

factsfigures

Airport: Rickenbacker Int'l Airport

Owner & Operator: Columbus Regional Airport Authority

2011 Takeoffs & Landings: 39,400

2011 Freight & Mail: 146.2 million lbs.

2012 Economic Impact Study: CDM Smith

Rickenbacker Global Logistics Park Owner: Columbus Regional Airport Authority

Logistics Park Developer: Duke Realty Corp.; Capitol Square, Ltd.

Passenger Airlines: Vision Airlines; Allegiant Air; ad hoc charter flights

Cargo Carriers: FedEx; UPS; AirNet; Evergreen; Kalitta; Atlas; etc.

Rail Providers: Norfolk Southern; CSX

Trucking Operations: Forward Air; CEVA; Towne Air Freight

from Columbus, Zimmerman elaborates."There's great reach to the consumer and retail level," he explains.

About 50% of all U.S. manufacturing capacity exists inside that same 500-mile radius, he adds. And Rickenbacker Inland Port and LCK are in the thick of it all — located in the middle of the New York-Atlanta-Chicago connection and already equipped with infrastructure. The combination, he explains, makes Central Ohio "the perfect epicenter for distribution."

Financial Self-Sufficiency

Most of LCK, which had been a military airbase, was given to Franklin County, Ohio, in 1979; and some land was kept for joint military use. Units including the U.S. Air National Guard, Army National Guard, U.S. Army Reserve and Navy/Marine Reserve continue to remain active at the airport.

Revenues at the cargo-centric airport are derived from landing fees, ground-handling and fueling operations, cargo facility rent and associated fees from charter passenger traffic. In addition, the county subsidized LCK with millions of dollars through its port authority.

About 10 years ago, however, Rickenbacker Port Authority merged with the Columbus Airport Authority to form the Columbus Regional Airport Authority, which began operating LCK in 2003. Its challenge was to become financially self-sufficient within 10 years, when Franklin County planned to stop providing a subsidy to help offset operating deficits and other expenses, Roberts explains. That's when the authority began promoting Rickenbacker as an inland port.

"This was not a new idea," she notes.

Planes, Trains & Trucks

Shortly after the authority took over operations at LCK, Norfolk Southern Corp. expressed interest in building a $68.5 million intermodal terminal on airport property.

Finding a location for the facility posed challenges. What would have been the most convenient site was partially located on top of a military landfill. Although the military had cleaned up the site, tests would have been needed to determine if anything could be built there. The site ultimately selected on the south side of the airport is in Pickaway County vs. Franklin County with the airport authority and mayor of Columbus; so installing utilities required extra coordination. The creation of a Joint Economic Development District allowed the City of Columbus to bring water and sewer across the county line and tax development that takes place there.

In addition to assisting during site location, the airport authority helped obtain $30 million in federal highway funding to match invest-

ments by Norfolk Southern. And the Rickenbacker Intermodal Terminal opened in 2008.

A railway improvement project to the Heartland Corridor subsequently increased clearances in tunnels to accommodate double-stack intermodal trains. This change reduced travel times for shipments between the East and Midwest. A public-private partnership of Norfolk Southern, West Virginia, Virginia, Ohio, the federal government, and local groups made the $321 million project possible.

The large rail-truck intermodal facility and improved railway allows double-stacked cargo to arrive by train from the eastern seaport in Norfolk, VA, stop at Rickenbacker Inland Port, then head to Chicago — saving two to three days vs. coming by train or truck from the West, explains Roberts. More than 90% of the containers at Rickenbacker are international in origin, she adds.

The 250-acre Rickenbacker Intermodal Terminal, located adjacent to an intermodal campus of Rickenbacker Global Logistics Park, provides customers with access to key Midwest markets, as well as increased terminal capacity and an enhanced level of service.

Having the rail-truck intermodal terminal, LCK and highway access and land for development helps convince companies to locate in the Columbus region even though few will use all those modes, Roberts relates. Some ship by air because they have high-value or time-sensitive cargo. Other less urgent shipments arrive via ocean or truck, which is typically less expensive.

What If?

Roberts considers the merger of the two port authorities 10 years ago a critical step in local development. “Without it, I don’t think there would have been the collaboration and

the resources from the two counties and the city," Roberts says. "I think the railroad would not have ultimately built the intermodal terminal at Rickenbacker. We still might have been doing some of this industrial development, but the rail yard has made a huge difference for demand. I think that's what energized the community and community leaders and Congress to help essentially put more than $100 million into the intermodal facility and Heartland Corridor to Norfolk, VA. That investment would not have happened."

Last June, the airport authority and its stakeholders learned that after three unsuccessful funding applications, they would receive $16 million in Transportation Investment Generating Economic Recovery grants for the Rickenbacker East-West Connector. The project will replace rural roads with a highway capable of handling heavy truck traffic and provide access between the airport, Norfolk Southern intermodal yard, south airfield businesses and U.S. Highway 23. The East-West Connector will also replace an at-grade railroad crossing with a bridge. In total, the area has had three roadway improvement projects totaling about $30 million.

They, too, would not have happened without the merger that created the airport authority, Roberts relates."Clearly, there would have been a lot less development and fewer jobs created," she explains. "The coalescence of the whole community around the development of the Rickenbacker Inland Port I don't think would have been nearly as strong. I think it would have been there as an asset, but it would have been a lot more challenging to ... make this airport self-sufficient."

Global Logistics

While Franklin County's Rickenbacker Port Authority had started some industrial development, Roberts says it was not to the large scale of current efforts.

Using existing airport land and other land it purchased, the airport authority created a nearly 1,600-acre industrial park in 2006. Rickenbacker Global Logistics Park is a master-planned, speculative and built-to-suit industrial park divided into campuses. Most of its warehouses are more than 400,000 square feet. The park's prime location offers tenants access to roads, rail and air.

The park also includes Foreign-Trade Zone (FTZ) status, which allows companies doing business on an international level to defer, reduce or eliminate Customs duties and entry fees on products and production components. This, in turn, lowers businesses' costs and helps boost profits. The highly successful FTZ program is overseen by the airport authority, but extends beyond the inland port to a 25-county area.

Remaining Challenges

While infrastructure improvements and organizational changes have helped LCK and the inland port overcome significant challenges, the overall economic slowdown has hampered progress in the industrial park.

Now that the airport authority has paid off the debt at LCK and is close to breaking even with operating costs, the next challenge will be funding capital improvements, she explains.

As 2013 and the last scheduled payment from Franklin County approached, Roberts planned meetings with the county and local leaders to underscore the ongoing support needed for Rickenbacker Inland Port.

Focused on the goal of financial self-sufficiency for LCK, the airport authority took over management of the field's fixed-base operator after the previous operator's lease expired last fall. The airport also assumed control of fueling, cargo handling and servicing aircraft for both passenger and cargo operators.

With the 2003 airport authority merger came a 43,000-square-foot, two-gate passenger terminal funded by the FAA. Since Port Columbus International already had plenty of passenger space, the LCK terminal was dedicated primarily to seasonal charters, special

events and military flights. Last October, Allegiant Air began offering nonstop service twice a week to Orlando-Sanford International Airport, and the airport authority's FBO won the bid for its ground handling and fueling. In addition, Vision Airlines offers seasonal nonstop service from LCK to Myrtle Beach.

"We're really diversifying to make this airport as self-sufficient as it can be, but our biggest challenge will be paying for major capital improvements," Roberts emphasizes.

Currently, LCK is not classified as a primary airport, because it falls below the FAA's 10,000-passenger threshold. With the Allegiant flights, LCK hopes to be above the threshold in 2013, and therefore eligible to receive $1 million in Airport Improvement Program funds per year, instead of its current $150,000.

"That's a big jump," she acknowledges, adding that LCK has received funding from a military assistance program twice. "We really are looking around for all kinds of creative revenues to help us pay for projects and daily operations of the airport."

For example the control tower, which is staffed by the military and owned by the airport, needs to be replaced at a cost of about $6 million. A design contract has been awarded, and the airport authority is looking for funding to build in 2014.

Big Things Ahead

While economic challenges remain, they are balanced with reasons for optimism.

A project to widen and deepen the channels in the Panama Canal that is scheduled for completion in 2014 includes trickle-down benefits for LCK and the inland port. The improvement will allow ocean container ships from Asia to enter the Panama Canal and go straight up the East Coast to Charleston, NC; Norfolk, VA or New York, and therefore bypass the West Coast.

"When the Panama Canal project is done, we'll see more goods transiting from the East Coast into the Midwest through Rickenbacker – that's the vision," Roberts explains.

Courting Cargo Customers

As a dedicated cargo airport, LCK often finds itself competing with much larger airports in Chicago, New York and Miami.

"We want to increase the amount of commercial air cargo activity that comes through LCK, and we have an excellent business case," says David Whitaker, the airport authority's vice president of business development and communications. "Our cost structure is much lower than that of traditional gateways, and we have capacity."

David **Whitaker**

To solicit business, Whitaker explains, he talks with the entity that typically assumes the risk for cargo flights — often a freight forwarder — instead of approaching the cargo airlines directly. For U.S. consumer goods originating out of Asia, he also talks with the airlines and shippers.

Rickenbacker International Airport milestones

1974 – Facility is renamed Rickenbacker Air Force Base.

1979 – Franklin County Board of Commissioners establishes Rickenbacker Port Authority, reasoning that land released for civilian use would be suited for industrial use. Board enters into a joint-use agreement with the Air Force to maintain operation of the airfield.

1985 – Development begins, with the establishment of an air cargo hub and bulk sorting facility for Flying Tigers.

1987 – Foreign-Trade Zone status is established.

1990 – Air Force transfers control of airport to Rickenbacker Airport Authority.

2003 – Columbus Airport Authority and Rickenbacker Port Authority merge, forming Columbus Regional Airport Authority.

2008 – The Norfolk Southern Rickenbacker Intermodal Terminal opens adjacent to the airport.

2010 – Heartland Corridor opens, increasing the speed of container freight moving in double-stack trains between the East Coast and Midwest.

2012 – 3-mile stretch of Rickenbacker Parkway is widened to accommodate four traffic lanes and provide a more efficient route for moving freight to and from the Norfolk Southern Rickenbacker Intermodal Facility.

"We're not as well-known as some of the traditional gateways, so we have to let them know we are here," Whitaker explains, noting that forwarders often already have facilities and staff at gateway airports. On the up side, he adds, most forecasts predict fairly significant increases in air freight.

Improvements help bolster the airport's image and are especially helpful luring companies looking for new distribution center sites, Whitaker explains.

"We want to make sure we remain ahead of the demand curve," he says.

With that goal in mind, the airport authority built a 48,000-square-foot cargo facility and renovated old military facilities for commercial use.

"If we're successful in our business development efforts to attract a new air cargo operator ... it would be a mistake on our part if we didn't have any space for that to happen," he says, acknowledging that building on spec is somewhat risky. "It really connects the dots between the business development requirement and being successful with that and attracting customers to occupy that space."

Zimmerman commends Roberts, the airport authority and community leaders for facilitating enhancements to further the area's ability to handle growth. Because of them, he says, "We can respond to needs as they present themselves and grow in proportion to those needs."

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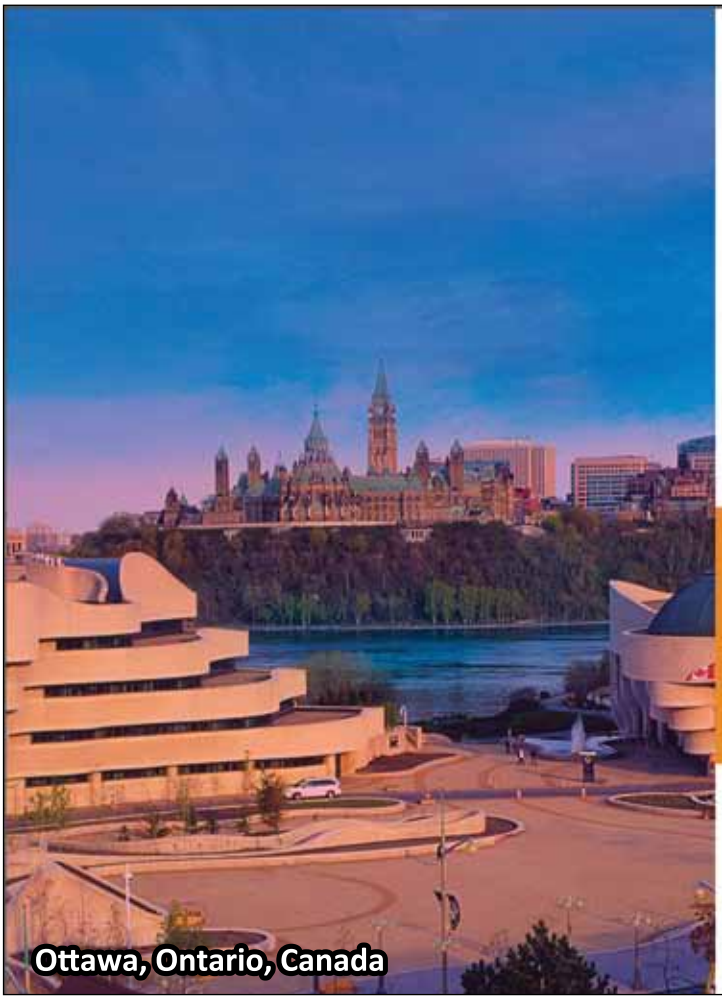

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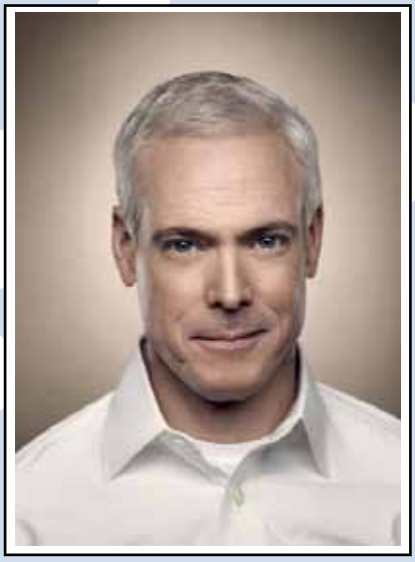

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Don't Wait for FAA to Mandate Implementation of Safety Management System

Dave Crowner, A.A.E.

David Crowner, A.A.E., is senior manager, Airport Operations – SMS and Compliance at Seattle-Tacoma International Airport. His 20+ years in the industry span a variety of positions, including airport manager, director of operations, snowplow operator and aircraft rescue firefighter. Currently, he oversees all airline ramp and ramp/tower operations, technology integration, process improvement, information management, and Safety Management Systems at Sea-Tac.

When I was learning to fly, we were taught to scan the horizon to see and avoid other aircraft. As an industry, we need to improve our scanning techniques to see and avoid safety hazards on the airfield. Safety Management System (SMS) implementation will help us improve hazard awareness, the ability to set appropriate priorities and our decision-making processes and practices.

SMS has already been adopted as the minimum standard of safety care by the International Civil Aviation Organization, other countries' civil aviation authorities, international and domestic air carriers, and all branches of the U.S military.

Most airports have sound safety policies and procedures in place; they merely need to be expanded or adjusted to a more proactive safety approach. For example, we need to incorporate Safety Reporting/Data Collection and Hazard Identification into our operational practices. Smaller airports can utilize simple manual databases such as Excel; whereas larger airports may need a more complex system because of the volume of reports and identified hazards.

Although the FAA is accustomed to being prescriptive regarding policy enforcement, that should not be the case with SMS and safety risk management (SRM). Every airport's risk profile and thresholds are different and must be individually evaluated and considered. In the past, the FAA has maintained an underlying belief that non-standard equates to unsafe, until evaluated by the FAA and deemed "safe" or compliant. In an SMS environment, such a position undermines the very nature of SMS and its predication on determining "safe" operations via local collaborative assessment and mitigation of risks. We need a more flexible approach that allows every airport to adapt its SMS program and associated risk matrix to its own needs, resource availability and risk profile. The FAA should develop a framework of best practices, establishing baseline expectations and processes, rather than prescribe specific SMS practices or its compliance.

SRM panel attendance and/or facilitation is another issue. As large hub airports are finding, it can be difficult to ensure all the appropriate players attend risk assessment panels, and coordination between the FAA's lines of business is relegated to the airport. It remains unclear what remedies an airport has, and its impact on the construction process and schedule, if the FAA is unable to attend. Additionally, it's unclear as to who within the FAA has final authority regarding the approval and acceptance of panel outcomes. ATO is designated as having authority for anything affecting the NAS, but has interpreted this affect as anything occurring on the airport, which conflicts with ARP's jurisdictional authority interpretation related to projects regardless of their location.

Industry trade associations should lead and oversee certain aspects of SMS — especially the management of hazard data. Without a centralized repository for airport hazard data, we are unable to fully benefit from such information. Lessons learned, root causes, contributing factors and trends will be more easily recognized and evident through a more holistic national database approach. The National Wildlife Strike Database is a prime example of how effective this strategy can be. A national airfield hazard database, sponsored an industry trade organization, could provide greater protection from disclosure of such data via Freedom of Information Act requests, thus removing a layer of resistance to reporting of hazards. The information can be de-identified by the managing organization and provided to airports and the industry in a generic, but meaningful, way.

So why do we remain skeptical about SMS costs and want to wait until it's required? We have become conditioned to wait and see how, and to what extent, the FAA will mandate its policy. SMS, however, merits a more assertive, industry-led approach. The FAA's recent delay in SMS rulemaking is an opportunity to remain engaged in the regulatory process, share our ideas and take a more active leadership role. The implementation of SMS makes good business sense, is a more defendable safety response, improves hazard and safety communications, and ensures better, more collaborative safety decision-making and planning. Even though the mandated implementation of SMS currently looks hazy, the benefits of acting as an industry now are clear.

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