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Contact Details:

Anthony Tangorra

Vice President - Commercial

+1 281 546 8679

Anthony.Tangorra@magairports.com

John Wildman

Head of Business Development

& System Integration

+1 347 907 2941

john.wildman@magairports.com

Rosemarie Andolino

CEO and President

+1 312 447 1898

Rosemarie.Andolino@magairports.com





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Publisher
Paul H. Bowers
 paulbowers@airportimprovement.com
 262.510.7832

Editorial Consultant
Rebecca Douglas
 rebeccadouglas@airportimprovement.com
 815.621.4525

Social Media Director
Kristin Shaw
 kristinshaw@airportimprovement.com

Creative & Production Director
Becker 505, LLC - Chad Becker
 chad@becker505.com

Circulation Director
Lisa Monday
 lisamunday@airportimprovement.com

Webmaster
Matt Tews
 matttews@airportimprovement.com

Contributing Writers
**Jennifer Bradley, Ronnie Garrett,
 Nicole Nelson, Robert Nordstrom,
 Jodi Richards, Mike Schwanz,
 Kristin Vanderhey Shaw, Thomas J.
 Smith, Victoria Soukup, Dan Ynuk,
 Ken Wysocky**

Advertising
Paul H. Bowers
 paulbowers@airportimprovement.com
 262.510.7832

Adrienne Gibson
 adriennegibson@airportimprovement.com
 262.844.4368

Vicki Jensen
 vickijensen@airportimprovement.com
 414-331-9768

Editorial Advisory Board
Dr. David A. Byers
 Quadrex Aviation, LLC

Paul Cudmore
 Eagle Integrated Solutions

William Fife
 Peer Review Consultant

Glenn S. Januska
 Casper/Natrona County Int'l Airport

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Big Thanks

You're about to page through our largest edition ever. It's a hefty 88 pages, with 14 stories, a couple personal perspective columns and plenty of pertinent industry advertising—all bound for four trade shows: ACI-NA, Boyd Forecast Summit, NASAO and SWIFT. Whew, I get winded just thinking about it!

But the *best* part is this: The lion's share of article ideas came from you. Airport personnel, their consultants and other industry insiders have provided an abundant pipeline of story leads ever since we began publishing the magazine more than eight years ago. For this, I whole-heartedly thank you.

Why is this important? Because the projects and topics we cover are real, not theoretical. Moreover, the articles are not simply supplied by PR agencies or other self-interested parties. They're researched and written by our own staff to ensure balance and objectivity. We are honored that you trust us to tell your stories fairly and accurately. Clearly, you realize *Airport Improvement* is a safe place to share with others in the industry.

Special thanks go to our profile subjects who talk about projects or initiatives that didn't go exactly as planned. It's easy

to share triumphs, but much more instructive to discuss the challenges. In business as in life, we learn the most from our struggles. It's truly admirable that so many airports are willing to help their peers by being forthright about their own struggles and challenges.

Together, our futures look bright. As long as there are airport projects taking place, there will be stories for us to cover and share. In fact, we invite each and every one of you to let us know what you're working on—perhaps at one of the many trade shows this September. As you can tell from this issue and others, we don't print sensationalist exposes; we showcase topics and projects others within the industry can learn from. We'll do our best to make you proud *and* provide others with helpful information.

Cheers,

Paul



PAUL BOWERS, PUBLISHER


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Charleston Int'l Renovates Terminal Just in Time for Record-Setting Growth

BY ROBERT NORDSTROM





Charleston International (CHS) is no longer a “small town airport,” and local officials are thrilled with the change.

After six consecutive years of passenger growth, CHS broke its previous 2014 record by moving more than 3.4 million travelers through its terminal last year. Volume is up nearly 1.5 million passengers since 2010.

During the sustained growth spurt, CHS has added new airlines and new destinations, and carriers are flying larger planes into the South Carolina airport to handle the traffic.

“Passenger traffic has more than doubled since 2001, and we know from our own studies that the growth is continuing at a rate faster than our projections,” informs Charleston County Aviation



PAUL CAMPBELL, JR.

Authority Executive Director and Chief Executive Paul J. Campbell, Jr. “We are already at passenger levels predicted for 2025.”

Not to be forgotten, the airport executed a roughly \$200 million Terminal Redevelopment and Improvement Program while experiencing dramatic and unforeseen traffic increases. Beginning in 2012, crews stripped the terminal and its two concourses down to the bones and presented a newly modernized facility to the South Carolina Lowcountry region in 2016.



FACTS&FIGURES

Project: Terminal Redevelopment & Improvement

Location: Charleston (SC) Int'l Airport

Approx. Cost: \$200 million

Funding: Airport (15%); bonds (85%)

Program Manager: Mead & Hunt

DESIGN TEAM

Lead Architect: Fentress Architects

Assoc. Architects: Watson Tate Savory; Liollio Architecture

Structural Engineering: Michael M. Simpson & Assoc.

Mechanical/Electrical/Plumbing Engineering: RMF Engineering

Civil Engineering: ADC Engineering Specialists

Special Systems: Burns Engineering

Concessions Planning: Airprojects

Baggage Handling: BNP Associates

Passenger Boarding Bridges & Aircraft Services: Aero Systems Engineering

Signage: Jones Worley Design

Lighting Design: Lam Partners

Vertical Transportation: Lerch Bates

Cost Estimating: Connico

Construction Manager

at Risk: Austin Hitt Joint Venture

Electrical: Allison Smith Co.

Heating/Venting/Air Conditioning & Plumbing: Bell

Structural Steel: Lyndon Steel Co.

Seating: Zoefitig; Miller's

Specialized Demolition: Palmetto Civil; DECO

Millwork & Solid Surface Materials: Coastal Millwork & Supply

Concrete Work: Donleys Concrete Group

Terrazzo Flooring & Ceramic Tiles: David Allen Co.

Site Utilities: Gulf Stream Construction Co.

Jet Boarding Bridges: JBT AeroTech

Outbound Baggage Handling System: Logan Teleflex

Inbound Baggage Handling System: Vanderlande

Curtain Walls & Specialty Ceilings: SPS Corp.

Fire Protection: PASCO

Drywall & Acoustic Ceilings: Precision Walls

Food & Beverage Management: Delaware North Co.

Retail Management: Hudson Group

Noteworthy: Airport completed terminal expansion/renovation amid unprecedented growth in passenger traffic

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Campbell readily acknowledges that managing a massive terminal renovation during unprecedented volume growth created extraordinary challenges, but he shudders to think what could have happened if the airport didn't do just that. "I don't know where we'd be and what we would have done if we hadn't expanded the terminal facilities," he reflects. "Since 2013, when the construction really took off, we've added more than a million passengers. The old terminal wouldn't have been able to handle that."

Hernan Peña, vice president of engineering for the airport authority, agrees: "The timing of this project was right on point. Most everyone now realizes that if we had delayed getting started by a couple of years, we would be in trouble now. We would not have had the capacity to handle today's traffic."



HERNAN PEÑA

Top-to-Bottom Transformation

Three major additions expanded the terminal footprint by nearly 100,000 square feet:

- a rental car pavilion, which was constructed off the end of Baggage Claim;
- the Concourse B extension, which added five new gates;

- and a new building adjacent to the Ticketing Hall that consolidates checkpoints in concourses A and B into a single screening area, with new administration offices above.

The airport's mechanical equipment now resides in a new Central Energy Plant, built approximately 100 yards west of the main terminal. The new facility boosts operational efficiency by consolidating systems that were previously scattered throughout the building. The airport also upgraded all of its utility systems to make the terminal more energy efficient.

Austin HITT Joint Venture served as construction manager at risk on the project, and Fentress Architects lead the design team. Together, the project team expanded the airport to 429,000 square feet.

The new eight-lane consolidated security checkpoint is a key design component that eases burdens for travelers and TSA staff alike, notes Tom Theobald, principal of Fentress Architects. Associated changes to the concessions program brought the airport firmly into the post-9/11 era. Now, the majority of food/beverage and retail vendors are in an easily accessible airside area, he explains.



TOM THEOBALD

AERO Group Congratulates Fentress Architects and Charleston International Airport on the success of the Terminal Redevelopment and Improvement Program



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Previously, the two concourses had separate checkpoints. After passengers moved through Security, they were trapped in dark, low-ceilinged holdrooms with window glare issues, comments Theobald. "If you sat in the middle, you didn't have enough light to read; if you sat near the window, it was too bright," he explains. "Travelers today want to be able to get to the airport, get rid of their bags, move through Security and then relax. The new checkpoint reconfiguration allows that to happen."

Food and beverage options were expanded exponentially. "In the old terminal, we only had one food area landside and one small food and beverage vendor on each concourse. Now, travelers have numerous choices for dining and shopping airside as well as landside," Peña reports.

New dining options feature brands with connections to the local area: DeSano Pizza Bakery, Harvest & Grounds, Charleston Beer Works, and Caviar & Bananas. National chains include Dunkin' Donuts, Burger King and Jack Nicklaus Golden Bear Grill.

The new retail lineup offers the Hudson Store, Veranda News, Tech on the Go, Low Country Harley-Davidson and Eddie Bauer.

In addition to the new variety and volume, passengers can now move between the two concourses without incurring an extra TSA screening—a change designed to boost post-Security shopping and dining.

Essentially, no area of the terminal was left untouched, informs Steve Penson, vice president of Operations for Austin Commercial. The main terminal and concourses received all new terrazzo flooring and ceiling treatments—a complete refresh from top to bottom, he notes.

Removing the second story of the Central Hall area to create higher ceilings and make room for a two-story glass wall was particularly challenging. "We had to detach the concrete floor from support columns, reinforce the columns and remove the floor," explains Penson. "A remote-controlled jackhammer was brought in to break up the concrete floor."

With passenger traffic increasing steadily throughout the project, the window available for construction crews to complete disruptive work shrunk accordingly. "In the beginning, the last flight arrived at 10:30 p.m., then it became 12:30 a.m.," Penson recalls. "And the first flight that used to leave at 6:30 a.m. was now leaving at 5:30 a.m. Doing heavy demolition work with passengers in the terminal proved a real challenge."

The baggage claim area was renovated and expanded from two to three carousels in order to deliver luggage to arriving passengers more quickly and efficiently.

In holdrooms, designers combined traditional linear seating with stools at individual and group tables to offer travelers a variety of

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The airport consolidated passenger checkpoints for both of its concourses into a single eight-lane screening area.



Photo Credit: © Stan Foxworthy

seating options while they wait for flights. All seats in the boarding areas were equipped with power and USB ports.

Fentress Architects performed extensive studies on daylight penetration of the building. Based on the results, clerestory lighting was installed along the roofline of both concourses

and in the area between Ticketing and the new TSA security checkpoint to illuminate the central spaces. Exterior overhangs and shading on walls make full use of light throughout the day, while eliminating the glare that was prevalent in the old building, Theobald explains.

"The old building had no heart," he quips. "Like the Tin Man, it had good bones, though a bit rusty, but it needed a heart."

Now, the new central atrium serves as its heart. A two-story glass wall that separates the landside and airside areas gives travelers a view through Security and onto the taxiways and runways. On the curbside exterior, glass replaced an old concrete block wall, creating a visual connection with the interior of the building.

The pièce de résistance, however, is the 18-foot-tall glass dome that spans 1,742 square feet of floor space below and delivers light deep within the building (see Pages 8 and 9). Located in the center of the terminal, the light-filled atrium functions as the airport's main meeting area and is the first space visitors see as they enter the building.

Throughout the facility, designers drew from a color palette that reflects the local area. "In the historic area of Charleston, the houses are very colorful, with haint blue porch ceilings," Theobald explains. "The terminal's haint blue ceilings reference this Charleston tradition, giving an ethereal feel to the space."

Durable multi-colored solid surface wall panels line the back walls of ticketing and baggage claim areas. A complementary color



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palette of semi-random blues and greens was selected to tie together the ceiling, wall and floor.

“In Charleston, southern hospitality lives side by side with a rich urbanism,” observes Curtis Fentress, design principal at Fentress Architects. “We wanted to design an airport that was polished and modern, yet captured that southern sense of openness and warmth.”



CURTIS FENTRESS

Lessons Learned

Maintaining safe and efficient operations while completing a rehabilitation project that touched every component and structure of the terminal was an immense challenge, acknowledge CHS officials. During the planning stage, they realized some work would be disruptive by its very nature.

“We learned from our early mistakes,” Peña reflects. “At the beginning, we didn’t communicate as well as we could have and should have. We learned that to succeed, we needed to create a team atmosphere so everyone—contractors, program manager, architect, tenants and TSA—would know what was happening, when it would happen and how it would affect them.”

Mead & Hunt, program manager for the terminal redevelopment, served as the single point of contact for project information and assistance. “When tenants had an issue or problem, they brought them directly to us,” explains



During construction, the airport’s traffic increased by more than 1 million passengers.

Photo Credit: © Stan Foxworthy

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Curbside, designers used glass walls to create a visual connection with the terminal's new interior atrium.

Photo Credit: © Stan Foxworthy



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Dennis Wiehl, program manager for Mead & Hunt. “We would then filter them out to the appropriate party to resolve the issue. With a project of this magnitude, establishing excellent lines of communication was critical.”



DENNIS WIEHL

“Our story is unique,” Peña adds. “Throughout construction, we saw growth. While our tenants went through a painful process, they also benefited from that growth.”

With Boeing on one side of the airport and the U.S. Air Force-Joint Base Charleston on the other, growth is not expected to let up anytime soon. “Boeing is growing rapidly,” Campbell informs. “Mercedes Benz just added a plant, and Volvo is building in the area. It’s important for these businesses that they have an airport that their employees can access easily to get in and out of the city. On top of that, Charleston has become a premier tourist destination with accolades from *Condé Nast* and *Travel + Leisure*.”

That said, Peña and Campbell agree that there’s more to do at CHS. The airport’s deck parking, for instance, fills up two or three times a week, and the surface lot also sometimes reaches capacity. Officials hope to break ground on a new parking deck in 2017.

Inside the terminal, space at ticketing counters is also at capacity, and officials are evaluating ways to expand the ticketing lobby.

“These are not problems, they are challenges—good challenges,” Campbell emphasizes. ✈️



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FACTS&FIGURES

Project: Parking Expansion

Location: Boston Logan Int'l Airport

Size of Addition: 10 floors; 1,896 total parking spaces (1,700 for passengers; 196 for hotel guests)

Garage's New Capacity: 12,000 spaces

Cost: \$90 million

Funding: Bonds backed by airport parking revenues

Timeline: Contracts awarded May 2014; 7 of 10 floors completed by Thanksgiving 2015; remaining floors completed by Feb. 2016

Architect: Arrowstreet

Engineer: Parsons Brinckerhoff

Construction Manager: Turner Construction

Concrete: Blakeslee Prestress

Facade Wall Design/Fabrication: EXTECH/ Exterior Technologies

Facade Wall Testing: Intertek Architectural Testing

Facade Wall Installation: Ipswich Bay Glass Co.

Hallmark Feature: Kinetic wall with 48,000 anodized aluminum flappers that swing individually in the wind

Boston Logan Squeezes in 10 More Floors of Parking Space

BY THOMAS J. SMITH

While Boston is famous for its annual marathon, last year's \$90 million parking expansion at Boston Logan International Airport (BOS) was definitely much more of a sprint. As soon as the Massachusetts Port Authority awarded Arrowstreet/Parsons Brinckerhoff the project contract in May 2014, the design team started its stopwatch. Most of the 1,700-space expansion needed to be ready for use by Thanksgiving 2015.

Why so fast?

"Customer service," explains Sam Sleiman, director of capital programs for Massport. "We were overflowing. Our parking spaces were full almost 25 weeks out of 52. We needed those 1,700 spaces."

To help offset the inconvenience to customers, Massport began valet parking vehicles at no extra charge when the airport

parking lots filled up. In addition to finding open parking spots off-site, personnel had to coordinate the retrieval of passengers' vehicles when they returned. Needless to say, various levels of airport personnel were eager for crews to finish the parking expansion.

"The biggest challenge was the schedule," recalls David Bois, an Arrowstreet principal. "It was incredibly fast-tracked." In retrospect, Bois estimates that the 10-story pre-cast concrete structure was designed and built at least twice as quickly as other comparable garages Arrowstreet has designed.

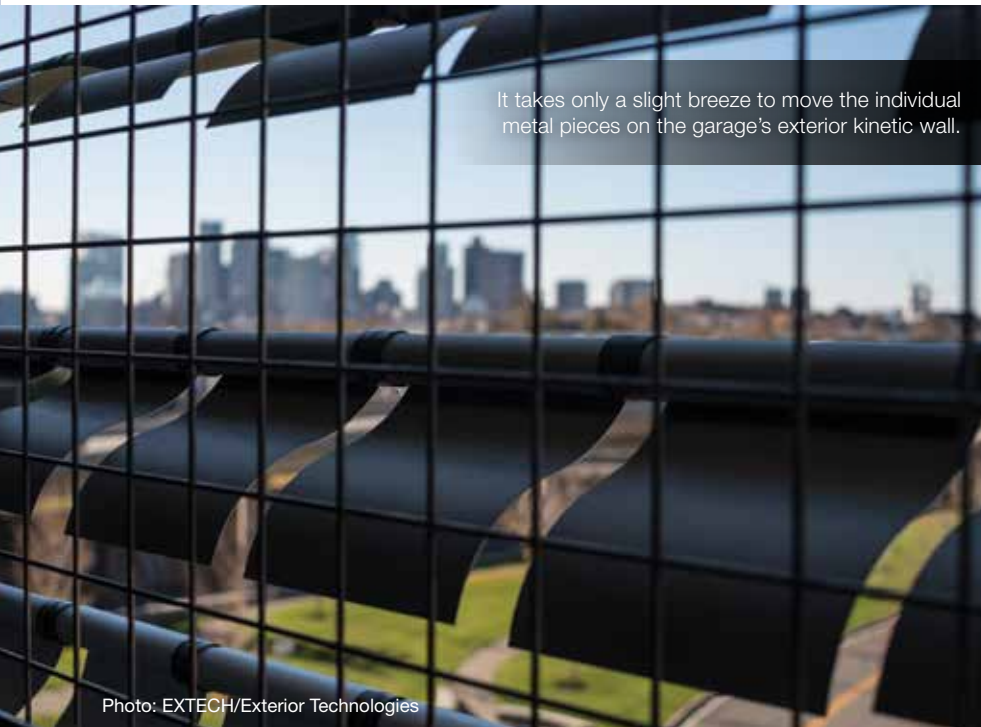
"The challenge was to build in enough design in the early stages so that in the end we would be comfortable that it would have a design that was unique and interesting," Bois explains. By fall, Arrowstreet began sending



SAM SLEIMAN



DAVID BOIS



It takes only a slight breeze to move the individual metal pieces on the garage's exterior kinetic wall.

Photo: EXTECH/Exterior Technologies

drawings to its pre-cast concrete partner, Blakeslee Prestress.

Beyond the tight schedule, the design/construction team faced unusual logistic challenges. Any additions to BOS' Central Garage could not disturb guests in the adjacent Hilton Hotel—during construction or while in operation afterward.

Massport financed the \$90 million garage and walkway project with bonds backed by BOS's parking revenues.

Design Matters

Although speed was a key priority, aesthetics were not relegated to the slow lane. The new parking addition needed to adhere to Massport's new design philosophy for major capital projects. As Sleiman describes it, the port authority wants to create facilities that make passengers feel comfortable, as if they're at home.

With the emphasis on "smart design," the garage expansion needed to work efficiently, but also be a memorable facility, he adds. "We want to bring glamour to travel."

When seeking proposals for the project, BOS consequently looked for teams led by architects, not engineers. Then, it slotted the architectural firm that was selected as the project leader.

"This gave us the best opportunity to lead the process and to integrate design into the entire process," Bois comments.

Specifically, Massport wanted the exterior façade of the addition to break up the visual impact of BOS' massive Central Garage. Officials did not want the expansion to look like a "chunk of concrete" standing in the middle of an airport, recalls Sleiman. Furthermore, a well-designed façade was needed to assure Hilton management that garage customers would not be looking directly into the hotel and vehicle headlights would not be shining into guest rooms.

The initial design included seven floors and placed the garage 50 feet from the hotel, but the final 10-level design creates a 100-foot gap.

Massport originally asked Arrowstreet to consider using a screen to create the visual barrier it required. Because the garage is an open-air structure, a screen could leverage natural lighting and preclude the need for an expensive ventilation system.

"We challenged ourselves to make it something people would be interested in looking at," Bois recalls. "It would be

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more than just attractive, but something that would catch your interest—like watching waves or smoke.”

So instead of a screen, Arrowstreet specified a kinetic wall, with thousands of individual metal pieces that move in even the slightest breeze. The wall, which spans roughly 23,000 square feet, is dynamic and thus ever changing, like the waves or smoke, Bois mentions.

Inspired by the work of California artist Ned Kahn, Bois and other team members traveled to Pennsylvania to study a kinetic wall he designed for the Pittsburgh Children’s Museum. While

there, they also met with EXTECH/Exterior Technologies, the local firm that fabricated Kahn’s design and eventually the wall for BOS.

“We worked together through the drawings and working mockups to develop the final design,” explains Kevin Smith, the company’s director of product application and development. “They were interested in opaque, curved flappers. We went through a series of recommendations regarding construction, flapper materials and finishes.”



KEVIN SMITH

Predicting the ultimate price of the kinetic wall was challenging, but important, for Arrowstreet. “This was not something that was easy to estimate,” acknowledges Bois. “[But] it could not show up at installation costing three times more.” Massport declined to disclose the final price of the kinetic wall.

From a design standpoint, the wall includes 48,000 anodized aluminum flappers attached to metal rods and separated by 1-inch gaps, so each flapper can swing freely and independently of the others. To add even more visual depth, the individual 6-by-8-inch pieces contain mild S-shaped curves.

In a light 5-mph wind, the flappers move slightly; and with winds of 15 mph or more, “you really get some kinetic movement,” Smith remarks.

Because the flappers are designed not to touch each other, the wall creates minimal noise—an issue of initial concern for hotel management. “In a mild wind, some people say it sounds almost like a waterfall,” says Smith.

The wall is, however, designed to withstand Boston’s characteristically strong winds. EXTECH subjected mockups to hurricane forces (Category 3 winds, up to 120 mph) during a series of six sessions at Intertek Architectural Testing. “Everyone wanted to know that the flappers would not detach and become flying debris,” explains Smith.

It took EXTECH personnel three months to cut and form each flapper and another two months to hang them on panels. Ipswich Bay Glass, an area curtain wall installer, then spent about four weeks installing the panels on the exterior of the garage last August. Each panel hooked into place much faster and easier than originally envisioned, Bois recalls.

Frames holding the panels of flappers are covered with steel mesh screen to prevent visitors from reaching in and bending the flappers.

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In addition to facing the hotel, the kinetic wall also serves as a backdrop to the airport's 9/11 memorial, an eight-story glass sculpture that encases two glass panels etched with the names of passengers and crew members aboard the sabotaged flights. The airport has a particularly close connection with the 9/11 tragedies, because the two flights terrorists used to strike the World Trade Center originated at BOS.

On Your Mark, Get Set

Onsite work for the parking addition began in early 2015, with Turner Construction Co. serving as construction manager. Before crews started moving dirt and concrete, the Arrowstreet/Parsons Brinckerhoff/Turner Construction team used 4-D computer modeling to depict the garage addition, map out projected traffic flow in the expanded space and develop a timeline to construct it. Updates to the work schedule were communicated to stakeholders at weekly meetings.

The project site was a sliver of land leased to the hotel for its own parking needs. The lot contained tunnels for underground utilities and an enclosed second-level sky bridge that allows hotel guests to pass through the Central Garage and into the terminal. Neither the tunnels nor the sky bridge could be disturbed during

construction, notes Camille Bechara, Parsons Brinckerhoff's manager for the project.

Although Hilton lost use of its 196 surface parking spaces during construction, crews worked around hotel operations when possible. Pile driving, for instance, was limited to certain daytime hours, Bechara notes.

Construction also temporarily limited capacity in the airport's Central Garage; so it was cause for celebration when crews finished the first seven floors of the addition just before Thanksgiving week 2015, providing about 1,000 additional spaces for holiday travelers. "The first week we were open, it was full," Sleiman recalls.

Work continued on lighting and mechanicals for the top three floors, and the final 700 spaces were ready in February 2016, just in time for traditional winter breaks.

Now, the Central Garage has 12,000 spaces. Customers still use the same entrance and exit, but the newly expanded structure includes a second ramp system to facilitate increased traffic. Designers kept ceilings on individual floors as high as possible to help airport visitors find their vehicles and add a sense of security, explains Bois.



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"I have heard from many, many passengers, and they really, really like it," Sleiman reports, noting that the kinetic wall is a particularly pleasant surprise. "One of our goals is for this wall to be viewed as art. They don't recognize there is an addition to the garage, because it is hidden behind the facade."

The kinetic wall also helped BOS make the most of the dollars it spent complying with state requirements for public art in large capital projects. "We combined art with a need to shield the garage," explains Sleiman. "It was a win-win."

Inside the garage, Massport opted for upgraded finish materials, so the walkways and elevator lobbies resemble those in the terminal. "As soon as the passenger enters the lobby, they feel they are walking in the terminal because everything looks like the terminal. Their anxiety levels go way down," Sleiman comments.

Each lobby in the new areas of the garage also has an interactive kiosk, similar to a giant iPad, which allows airport visitors to check the status of flights and find gate locations, shops and dining options. Maps of the garage assist visitors as they return to collect their vehicles. Lobby areas in the original Central Garage are slated for similar updates later this year and early next. ✈️



Installing the panels of metal flappers proved to be faster and easier than the project team anticipated.

Photo: EXTECH/Exterior Technologies

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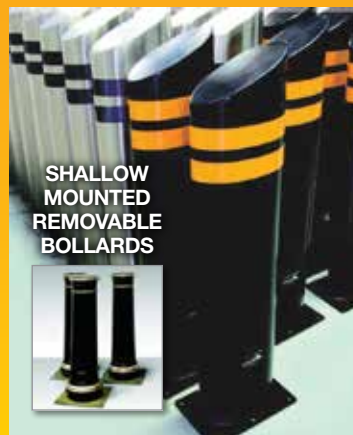


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Gerald Ford Int'l Changes From County Governance to Airport Authority Control

BY DAN VNUK



FACTS&FIGURES

Project: Change of Governance

Location: Gerald R. Ford Int'l Airport
(Grand Rapids, MI)

Previous FAA Sponsor/Operator: Kent County
Dept. of Aeronautics

Current FAA Sponsor/Operator: Airport Authority,
with members appointed by Kent County Board of
Commissioners

Project Consultant: Steven Baldwin Associates

Transition: 2014 – July 2016

Key Dates: Governor signed required legislation on June 30, 2015; county board formed the regional authority & adopted articles of incorporation on Aug. 27, 2015; county & authority signed final operating & lease agreements on Dec. 17, 2015; FAA granted final approval on July 1, 2016

 The new governing authority at Gerald R. Ford International (GRR) is confident that the airport is now better poised for increased growth and a stronger regional presence. On July 1, 2016, the Grand Rapids, MI, airport officially transitioned from county governance to control by the newly created Gerald R. Ford International Airport Authority. The transfer follows two years of discussions and three agreements between the authority and Kent County Board of Commissioners, as required by the FAA.

For the past 60 years, GRR had been owned and operated by Kent County through its Department of Aeronautics, with the county airport board deciding major policy matters. The transition to an airport authority, with members appointed by the Kent County Board of Commissioners, began in 2014 and required state legislative approval.

Governor Rick Snyder signed the necessary legislation on June 30, 2015, and the Kent County Board of Commissioners formed the regional authority and adopted articles of incorporation on Aug. 27, 2015. Kent County and the authority subsequently signed final operating and lease agreements on Dec. 17, 2015. Final approval for the authority came from the FAA, which granted and signed the authority's operating certificate on July 1st of this year. GRR marked the official transfer of its governance to the regional airport authority board during a ceremony attended by FAA officials, Kent County commissioners, airport board members and state legislators including Senators Peter MacGregor and Tonya Schuimaker, and Representative Rob Verhuelen, among others.

“This is a historic day for our region, our county and our airport,” said Roger Morgan, Kent County commissioner and chairman of the newly created Gerald Ford International Airport Authority, at the July ceremony. “The transfer to an authority has been a goal of our board’s for several years, and to see the teamwork, the collaboration of organizations and the FAA’s support has been truly remarkable.”



ROGER MORGAN

Morgan characterized the process as smooth and thanked key players and airport employees for their support during the transition.

Kent County continues to own the airport land, but the authority now handles day-to-day operations through a lease agreement with the county. Airport officials explain that the new structure creates an independent governing enterprise that is solely focused on developing the airport. Key elements of the new authority’s mission include increasing economic development and proactive commercial revenue development, creating a stronger regional focus to respond to air service needs and developing a more entrepreneurial, business and hospitality management focus—all driven by customer service.

The agreement is being implemented at a time when the airport is investing tens of millions of dollars in capital improvement projects, including a storm water runoff system, a consolidated security checkpoint area and additional parking.

It’s also a time of record-setting traffic for GRR. By May, the airport had already served more than 1 million passengers for the year—the earliest that that milestone has been reached in the airport’s history. In 2015, GRR set a new all-time passenger record with more than 2.5 million passengers, an increase of 9.2% from the previous year. With nonstop flights to 23 U.S. cities, GRR is the second-largest airport in Michigan, behind Detroit Metropolitan.

GRR recently received two major accolades from Airports Council International-North America (ACI-NA): Top North American airport (2 to 5 million passenger category) in its Service Quality Award program and a 2016 Environmental Achievement Award.



BRIAN RYKS

While the transfer of governance to an authority with an autonomous board could take up to a year to fully implement, it should further strengthen the airport’s

position as a regional hub that serves all of western Michigan and connects to important international hubs, says Brian Ryks, the airport’s former executive director, now chief executive officer and executive director at Minneapolis-St. Paul International Airport.

Making the Transition

Documents required for the FAA application included a Lease and Asset Transfer Agreement, which moves the airport’s assets, buildings, fixtures, equipment, personal property, employees and financial obligations from the county to the authority.

Under a reorganization associated with the governance transfer, the airport is managed and operated by a president/ chief executive officer, senior vice president/ chief operating officer, vice president/ chief financial officer, and a management team of directors. Together, they lead a 100-person staff and head the airport’s primary functional areas: engineering and facilities, public safety and operations, marketing and communications, and human resources. On July 1, staff members were officially transitioned from Kent County employees to authority employees.

As consultant for the transition, Steven Baldwin Associates managed multiple details of the governance transfer application and approval. Individual elements included:

- completing Assignment and Assumption Agreements, which transferred the rights, titles and interests under all Passenger Facility Charge Records of Decision and all outstanding grant agreements between the FAA and county;
- drafting and lobbying for state legislation to enable establishment of the authority—a measure that passed unanimously;
- assembling and organizing thousands of pages of records and agreements needed for the FAA application;
- transferring county-run functions at the airport such as human resources and information technology;
- and various other administrative and regulatory details.

One of the key administrative details was providing staff extension services, which allowed GRR to install its own personnel manager onsite prior to the official transfer. “Part of our role was to keep the transition smooth by making sure airport employees stayed informed as to the transfer process and how it would affect them,” explains Steve Baldwin, the consulting firm’s president



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and chief executive. Employees did not lose any benefits and even made some minor gains, he notes. Except for a few early retirements, all airport staff became authority employees.

Regarding service development, the consulting firm researched demographics at similar county-owned airports and found that GRR had been lagging in some respects. "It was felt by many involved that the move away from county control would lead to higher autonomy and greater ability to move more swiftly, especially when courting airlines," notes Baldwin. "Today's airports can no longer simply wait for the offers to come in."

Initial efforts to create an autonomous airport authority board at GRR date back to 2008, with regional alliances and economic development groups advocating for capital improvements and development to support the expansion of a modern and convenient airport that could connect to major hubs. Building on initial input from the business development groups, GRR's board researched structures and options for the most effective airport governance. After all parties involved agreed that an authority would be in their best interests, the board hired Steven Baldwin Associates to oversee the process, due to the firm's national reputation for successful governance transfer approvals and strong working relationship with the FAA.

Pros & Cons

Early in the process, some Kent County leaders expressed hesitation about plans to replace GRR's existing governing structure with an airport authority. Several commissioners questioned whether a change requiring new state legislation would be worth the trouble. Proponents of creating an authority pointed to the success that the Regional Air Alliance of West Michigan had in bringing several low-cost airlines to Kent County as an example of what an authority could accomplish for the flying public. A group of private business leaders formed the alliance in 2010 because GRR was considered to have high fares, explain airport officials.

Proponents also noted that the recent trend among top-100 U.S. airports has been toward reorganizing with airport authorities for governance. Supporters reasoned that an authority structure would be more autonomous and free from county wage restrictions, thus allowing GRR to attract and keep talented employees. Those in favor also argued that the move would help make the airport more competitive in attracting new airlines and responding to the flying public's needs.

Commissioner Roger Morgan, chair of the new authority board, feels the airline industry has changed and that profit-oriented airlines no longer pursue airports to provide service. "When the airport operated as a public utility model, it served us pretty well because the airlines were coming to us," Morgan remarks. "But, given a changing industry, we needed to become nimble in the marketplace and be more competitive."

Morgan credits the previous airport board for having the foresight and wisdom to prioritize efforts to change governance. "Over the years, Kent County provided a sound framework for the development of a first-class,



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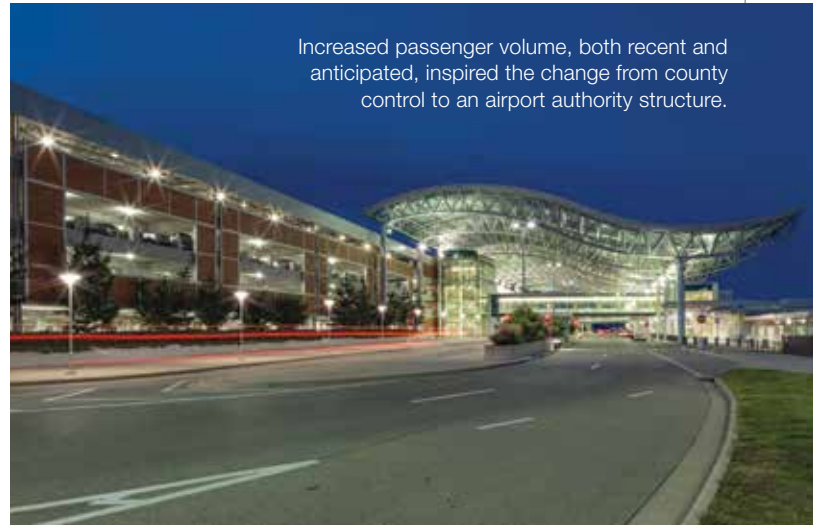
small-hub airport,” he comments. “Transitioning from this model to an airport authority, however, is allowing the airport to truly take off—operating less like a utility and more like a commercial enterprise.”



PHILLIP JOHNSON

Phillip Johnson, GRR's acting president and chief executive, agrees that moving to an airport authority governance model gives the airport greater flexibility to develop policies and procedures and provides greater opportunities for collaboration. “We are fortunate to have regional leaders who understand the challenges of this industry and are willing to work with us, knowing that in the end, what benefits the airport will benefit our entire region,” Johnson says.

GRR officials note that the new regional authority reflects the full service area of the airport in ways a city or county body could not. They reason that an authority is a stronger operating model, because a regional perspective creates a stronger platform for economic development.



Increased passenger volume, both recent and anticipated, inspired the change from county control to an airport authority structure.

“For all involved, the transition should be a huge success,” Johnson summarizes. “The airport will become more business-centric and commercially focused, and our local and regional communities will have an airport that truly reflects the entrepreneurial spirit that epitomizes Western Michigan.” ✈️

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FACTS&FIGURES

Project: New Grab-and-Go Concession

Location: Chicago O'Hare Int'l Airport, Terminal 3

Product Focus: Healthy, locally sourced food

Size: 180 sq. ft.

Operators: Flying Concessions; TAG Restaurants

Current Vendors: 8

Sample Suppliers: Berghoff Brewery; Goose Island Beer Co.; Red Hen Bread; Molino Baking Co.; Chicago Classic Confections; Vosges Chocolates; Breadcrumb

Sample Menu Items: Handmade sandwiches & salads; craft sodas; fruit parfaits; protein plates; gourmet chocolates

Top-Sellers: Roasted Root Vegetables; Sriracha Chicken Wrap

Opened: March 2016

Initial Sales: Undisclosed (triple airport & operator projections)

Build-Out Contractor: Ornelas Construction Co.

Cost of Build-Out: \$230,000

O'Hare Concessionaire Leverages Farm-to-Table Food Trend

BY VICTORIA SOUKUP

Operators of Green Market, a new grab-and-go concession at Chicago O'Hare International Airport, knew they had a winner even before it opened in March. They trusted the appeal of their concept: healthy foods purchased from local vendors. What they *didn't* know was how quickly and enthusiastically airport visitors would embrace the current trend.

When first-month sales greatly exceeded expectations, the operators started thinking bigger and better. Now, discussions are on the table about opening another storefront at ORD and possibly even taking the concept national.



MANOLIS ALPIGIANIS

"America's taste buds are changing," says Manolis Alpigianis, of TAG Restaurants. "People aren't eating everything fried, and they're not drinking as much soda. We came up with something that

plays to today's taste buds, and we saw results almost immediately." Specifically, Green Market is grossing three times more sales than the airport and TAG anticipated, he reports.

Alpigianis opened Green Market in ORD's Terminal 3, behind the TSA checkpoint near Gate L3, with his longtime friend Ezequiel "Zeke" Flores, chief executive officer of



EZEQUIEL FLORES

Flying Concessions. The 180-square-foot space was originally intended to be a typical grab-and-go concession with standard sandwiches, bagged chips and soda for quick sale.

"As we started talking specifics, we just kept thinking about the way the country is going in terms of food," recalls Alpigianis. "I walked around the airport and saw all the same food. And I couldn't find something that I personally wanted to eat."

As Flores describes it, the two quickly changed the concept from typical to trendy. “We ended up proposing a farm-to-table concept, with the freshest products that are locally sourced, showcasing local businesses and providing healthy to-go food,” he explains

ORD officials couldn’t be happier. “Green Market provides a wide range of fresh, high-quality, locally sourced products for passengers, offering some of the best food and beverage items produced in Chicago,” says Ginger Evans, commissioner of the Chicago Department of Aviation. “It’s owned by a local minority company, which is a priority for Chicago’s airports. And it offers passengers an amazing variety of packaged to-go products, all from a relatively small footprint of space within the concourse.”



GINGER EVANS

Chicago Roots

Green Market combines Flores’ background in airport concessions, real estate and audit accounting with Alpgonianis’ experience in the food industry. Both are Chicago natives and chose to run their respective businesses there. The result makes Green Market

somewhat unusual, as large national companies often dominate airport concessions.

TAG Restaurants is a locally owned business run by Alpgonianis’ family, which also owns a small chain of restaurants in the Chicago area and has operated America’s Dog, a concession in ORD’s United Terminal, for the past four years. Flying Concessions, headed by Flores, is a Latino-run concessionaire that was formed to attract strong national retail brands to Chicago airports.

Green Market’s operational point of difference—its focus on locally grown produce and products from small, local vendors—is also the most difficult aspect for the business partners. “We constantly have our ears very close to the ground with everyone in the local food industry,” Flores notes. “I originally had a partner who was very active in the food business. And with TAG Restaurants’ experience, I guess you could say it is in our DNA.”

Currently, Green Market works with eight local vendors that supply everything from hothouse vegetables, artisan salads and protein plates to specialty potato chips, craft sodas, fruit parfaits, and gourmet chocolates. Suppliers include Berghoff Brewery, Goose Island Beer Co., Red Hen Bread, Molino Baking Co., Chicago Classic Confections, Vosges Chocolates and Breadcrumb.

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Surprising Top-Sellers

While finding vendors is a lot of work, it has become a “passion” to ensure that Green Market has a good variety of offerings, explains Alpogianis. For instance, the concessionaire devotes few of its 36 total cooler shelves to traditional mass-market sodas, preferring to save space for power drinks, teas and craft sodas. “If you give people healthier alternatives, they will buy it,” he advises.

Green Market’s homemade salads and sandwiches are developed by Alpogianis’ brother, George, who works as an executive chef in Chicago. Items are packaged off site and delivered twice daily to the airport.

Although the operators expected good sales at the airport, they were surprised by which particular selections have become the hottest menu items. Roasted root vegetables, for instance, beat out potato chips as the most popular side. “We also didn’t know that the Sriracha chicken wrap would be the No. 1 sandwich,” shares Alpogianis. “We’re outselling them two to one versus a

chicken Caesar salad. We didn’t realize that all the top-selling items would be the ones geared toward a healthy diet.”

That’s not to say Green Market doesn’t sell potato chips. But the chips it sells are locally made gourmet varieties. “We have to have crowd-pleasers, but we also have to bring in good potato chips,” Alpogianis notes.

Back-of-House Issues

Both principals stress the importance of constantly and methodically reviewing inventory. “We have to monitor every square foot,” emphasizes Flores. “We continually explore new products, and if something isn’t moving, we bring in new products. It’s truly a labor of love and is fun.”

Beyond time, the concession’s emphasis on local products also requires frankness. “We want to find local vendors and build relationships with them,” says Flores. “But we are also candid and tell them that while we are willing to try a product, we might have to pull it if it is not selling.”

Like other ORD vendors, Green Market is required by the Chicago Department of Aviation to use “street pricing.” Green Market compares its pricing to Whole Foods: sandwiches are \$8.88; craft root beer sells for \$2 to \$3; and small batch chips cost about \$2. Flores and Alpogianis declined to provide specific overall sales figures.

The partners’ commitment to offering healthy, locally sourced food is echoed in the space’s building and finish materials. Despite extra expense, the operators chose bamboo woodwork and energy-efficient LED lighting. Build out, which took three weeks, cost \$1,275 per square foot, for a total cost of \$230,000.

Flores notes that Green Market helps the local community, because it is a small business competing among established industry giants. “It’s win-win for all of us,” he says. “We’re local companies adding value to our airport. When the city sees local businesses doing business at the airport, it’s great for the city and the state. We would love the opportunity to work with CDA (Chicago Department of Aviation) to open another Green Market at O’Hare.”

As Chicago natives, Flores and Alpogianis both wear their local pride on their sleeves. “We love our city and we love our airport and we want it to be the best in the world,” notes Flores. “We had proposed to the city a great concept to bring in farm-to-table foods, the freshest products, locally sourced, all while promoting local businesses and making healthy to-go food. The airport gave us the opportunity to bring in Green Market, and it exceeded all our expectations. Travelers demand healthy products, and Green Market is a great example of a great concept that we believe will grow not only at O’Hare but also at other airports.” 

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Lakeland Regional Gains Maintenance Support by Integrating with City's Security System

BY NICOLE NELSON



FACTS&FIGURES

Project: Integrating with City's Security Platform

Location: Lakeland (FL) Linder Regional Airport

Key Stakeholders: City of Lakeland, Florida Dept. of Transportation

Platform: Genetec Security Center

Installation/Maintenance: SiteSecure

Project Cost: \$350,000 (including optic cable)

Funding: \$350,000 Security Grant from FL Dept. of Transportation

Project Timeline: Aug. 2014–March 2016

Key Benefits: New resources for system maintenance; supports compliance with security requirements for upcoming commercial service

Until recently, Nan Walsh was concerned about the “security of the security” at Lakeland Linder Regional Airport (LAL), a Part 139 facility in a particularly



NAN WALSH

lake-dotted portion of central Florida. As assistant director of LAL, Walsh felt that the dated, stand-alone security system the airport had been using had “reliability issues.” And that was putting it diplomatically.



ALAN LEE

Alan Lee, security and safety systems supervisor for the city of Lakeland, described the antiquated system as, “basically a work station with no backup capabilities.”

Not surprisingly, airport personnel were growing increasingly weary about using and maintaining the outmoded system. Airport officials were further motivated to change by

the prospect of adding commercial service. Such traffic changes would mean federalized passenger screening and associated requirements for system access and maintenance requirements from TSA and the Department of Homeland Security. Inspired to tackle such issues, the airport began working with city governance and eventually converted to the Genetec Security Center, which was already being used by 53 other sister sites within the city of Lakeland.

“We were having a lot of issues with that (previous) system,” Walsh recalls, noting that airport property was secure, but the system’s reliability shortcomings came at a steep cost. “It was an older system and it was difficult to get any support as a smaller department. Maintaining that wasn’t necessarily economical for us anymore.”

These concerns were put to rest in August 2014, when officials agreed to fully convert to Genetec’s Security Center platform and align LAL with the rest of Lakeland’s citywide system.

A \$350,000 security grant from the Florida Department of Transportation assisted with the purchase and installation of the new system, and also covered the cost of installing miles of fiber optic cable to all of the airport's security gates and several buildings.

"We have fully implemented the system and are using all of its attributes right now, including security cameras, gate doors and all the other different functions that the system comes with," Walsh reports. "It was a slow rollout as far as integrating the old hardware with the new system. We had to change over from the previous system into this system and then as we constructed fiber and were able to bring gates online, we slowly transferred them over to new hardware."

Last to the Party

LAL was slow to convert to the Genetec platform because personnel needed to verify that the system would meet all of its airport-specific needs.

Starting with the water utility department in 2004, the city had been instituting a more robust and reliable IP-based security system to help its departments take advantage of the growing fiber infrastructure throughout the city. By 2007, the goal to

expand the standardized system across all local organizations and upgrade to IP access control in various buildings was largely standardized through Genetec's Security Center, a unified security platform with video surveillance, access control and automatic license plate recognition systems.

"We were actually the last department in the city to integrate," Walsh says of the \$350,000 project. "We wanted to make sure that the system was going to operate to its full capability prior to us changing over."

The airport officially agreed to convert its access control system to Genetec in August 2014, and staff and administrator training began a few months later in October. In December 2014, work crews began installing fiber optic cable around the airport, and system installation and hardware conversion was underway by early 2015. Cardholders and access rights then officially transferred to Genetec and the slow rollover of systems began. The conversion process was completed by June 2015, and the system build-out (additional gates, doors, and cameras added to the system) wrapped up this March.

The aviation department worked with the city to compartmentalize and partition the system, and put specific protocols in place to separate sensitive aviation security access



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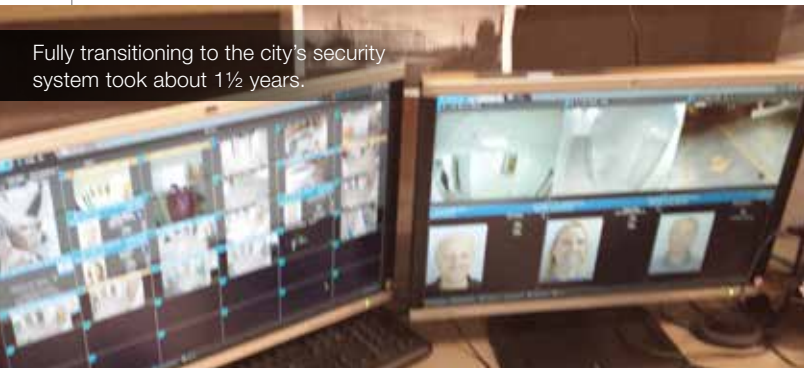
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Fully transitioning to the city's security system took about 1½ years.



ADAM LUNN

from the wider city system. In short, LAL's objective was to prevent non-authorized personnel from altering elements regarding airport security.

"We had to ensure that the airport portion of the system was isolated from the rest of the city," explains LAL Operations Supervisor Adam Lunn. "Partitioning the airport within Genetec allowed us to isolate our security parameters and access media from others within the city system. This eliminated the potential for those outside the airport from modifying them."

The extra steps taken to bring Genetec's Security Center online at the airport were worth the wait, and the reliability of the new

system has been "phenomenal," reports Walsh.

In addition, the airport now has multiple sources to help resolve issues if they arise: the city's information technology facilities, Genetec and SiteSecure, the security integrator that installed and now maintains the system for the city. In total, SiteSecure manages 650 cameras and more than 450 doors.

"We have a lot more support now," notes Walsh.

According to Lunn, the most attractive feature of the Genetec conversion is the expandability of an already extensive system. The city has continued to make LAL a priority, bringing additional access gates, doors and cameras online as recently as March.

"The city contract with SiteSecure and Genetec greatly enhances the support we have for our system," says Lunn. "This system provides the airport with the reliability and expandability needed to meet the demands of current and future airport users."

Because LAL is not currently federalized, the airport complies with state DOT security guidelines. However, the airport is also working closely with TSA in anticipation of future commercial airline service.

"We wanted to ensure that whatever system we implemented was or would be approved by (federal aviation agencies)," Lunn explains, noting that all correspondence with TSA regarding the Genetec security system has been positive. ✈️

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McCarran Int'l Completes Transition to All-Concrete Runways

BY ROBERT NORDSTROM

McCarran
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FACTS&FIGURES

Project: Runway & Taxiway Reconstruction

Location: McCarran Int'l Airport (Las Vegas)

Timeline: Oct. 2014 – April 2015 (Phase 1); Oct. 2015 – April 2016 (Phase 2)

Cost: \$64.7 million

Funding: Airport Improvement Program (75%); local match (25%)

Engineering & Design: Kimley-Horn & Assoc.

General Contractor: Las Vegas Paving Corp.

Concrete Contractor: TAB Contractors

Electrical Contractor: Royal Electric

Construction Inspection: Clark County Dept. of Aviation

Survey: VTN

Geotechnical Quality Control: Aztech Engineering

Preformed Pavement Seals: D.S. Brown

Airfield Lighting: ADB Airfield Solutions

Of Note: Project completed over 2 winter seasons on time, on budget & with a perfect safety record

 In April, McCarran International Airport (LAS) in Las Vegas reopened its 14,500-foot primary runway, following a six-month closure. Runway 7L-25R, which handles about one-third of the airport's traffic, had been temporarily closed from October to April during each of the past two years to replace nearly 366,000 square yards of deteriorated asphalt concrete pavement. Now, aircraft operate on 19-inch-thick, full-strength Portland cement concrete pavement.

Dennis Anderson, assistant director of airside operations at LAS, explains the split-season strategy: "Runway 7L-25R is our longest runway. To take it down for a full year would have had a negative impact on our air carriers during the hot summer months, when larger aircraft need the longer runway for takeoff. The cooler winter temperatures are also better for concrete work."



DENNIS ANDERSON

In addition, local wind patterns often push traffic to north-south runways during the cooler months.

The reopening of 7L-25R in April completed LAS' transition from asphalt to Portland cement concrete on all four of its runways. The FAA is pushing major airports to change to all concrete runways, informs Todd Cooklin, project manager for Clark County Department of Aviation. "Cleaning rubber residue off concrete is easier than cleaning it off asphalt," he explains. "And there can be some issues with asphalt pushing and moving when you get into the August heat."



TODD COOKLIN

New Pavements & More

The first phase of the airport's nearly \$65 million project broke ground in October 2014 and was completed in April 2015. Demolition and reconstruction began on the east end of the runway, where most westbound aircraft touch down when landing, and extended over nearly two-thirds of the runway's length.

In addition to the east-end runway reconstruction, cross taxiways A-3, A-4 and A-5 between taxiways A and B were reconstructed

with Portland cement concrete. Crews removed and replaced deteriorated pavement on Taxiway B between cross taxiways B-1 and C-1. The asphalt blast pad on the east end of the runway was also reconstructed.

Phase Two on the west end of the runway ran from October 2015 through April 2016 and included reconstruction of cross taxiways A-6, A-7 and A-8.

Between the two major construction phases (May to October 2015), workers replaced nearly 38,000 square yards of deteriorated asphalt on a segment of Taxiway C between cross Taxiways B-5 and B-7 with Portland cement concrete.



KORY ANDRYSCIK

Complicating matters throughout the project, adjacent cross taxiways could not be closed simultaneously. This restriction prompted Kimley-Horn, design lead for the project, to create sub-phases to define areas where contractors could work. "It required a lot of coordination with the tower, Operations and Maintenance in order to set up appropriate barricades and make sure

everyone knew which taxiways were open and closed so that aircraft could move efficiently to and from the gates," informs Kimley-Horn Project Manager Kory Andryscik.

A new subsurface drainage system was installed to replace an aboveground drainage system that did not meet FAA standards,



For the last two years, LAS closed the runway from October to April to replace deteriorated asphalt concrete pavement with new 19-inch Portland cement concrete pavement.

with ditches and culvert crossings between Runway 7R-25L and Taxiway A. The new system, which includes catch basins and reinforced concrete pipe, drains to the east and empties into a detention basin on airport property.

"The old system consisted of open channels and swales that didn't meet current FAA standards, and a lot of the infields were not graded correctly," explains Andryscik. "We removed a lot of material from the infields on the west end of the project to fill the infields on the east end of the project, getting rid of those open channels and bringing the infields into compliance with FAA standards."

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LAS also upgraded airfield lighting during the project. In addition to installing new elevated and in-pavement high-intensity runway edge lights, crews added infrastructure for future runway guard lights by installing circuit conductors and ferroresonant constant current regulators in the east airfield lighting vault.

Taxiways A-2, A-3, A-4, A-5, A-6, A-7 and A-8 received in-pavement bidirectional medium-intensity taxiway centerline lights, and the holding bay on the east side of Taxiway A-2 received omnidirectional medium-intensity edge lights.

New LED mandatory hold signs and guidance signs were installed, and new duct banks crossing beneath paved surfaces were encased with a minimum of 3 inches of 4,000 psi concrete.

The airport's new LED fixtures reduce the electrical load on its lighting vault, notes Andryscik.

Saving Time & Money

The airport significantly reduced its project expenses by reusing existing materials such as aggregate base when possible and by cold-milling approximately 137,000 cubic yards of asphalt. Fully 90% of the material was placed in the airfield infields to control dust and erosion; and asphalt millings were rolled and compacted to form an asphalt lift that abuts the new shoulder.

Throughout the project, general contractor Las Vegas Paving removed 44,000 cubic yards of Portland cement concrete, excavated 128,000 cubic yards of existing base material and then reprocessed the existing P-209 base. TAB Contractors followed, laying down approximately 193,000 cubic yards of Portland cement concrete. In total, crews laid 43,000 tons of P-401 asphalt to construct 4-inch-thick, 50-foot-wide shoulders on each side of the runway.

An onsite concrete batch plant saved money, time and environmental costs by limiting the distances trucks traveled to deliver materials. Bryan Pringle, project manager of Las Vegas Paving, estimates trucks hauled in up to 25,000 loads of concrete and asphalt.

To save time, LAS officials established a robust escort system for trucks hauling materials between the batch plant and construction site. Trucks lined up for inspection at a main gate adjacent to the batch plant, and then 15 to 20 escort vehicles operated by FAA-trained personnel led two to three trucks at a time onto the airfield and to the construction site.



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During peak construction, 50 to 75 people worked on the runway at the same time.

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"It was a very efficient system and really helped with meeting project deadlines," Pringle reflects. "We were able to move trucks in and out on a continuous basis. TAB was running anywhere between 15 to 20 dump trucks with PCC (Portland cement concrete), and we had 20 to 30 trucks hauling our materials in."

During peak construction, 50 to 75 people worked on the runway at the same time. In areas where aircraft traffic would have been impeded, contractors used nighttime and weekend shifts.

"The scheduling requirements were very tight," reflects Pringle, noting that contractors had to meet 24 separate milestone completion dates. About half of the 11 active taxiways involved went directly to the main terminal, he adds.

Keep Talking

Airport officials, contractors and the design team all proudly note that the nearly \$65 million project was completed on time and on budget.

Excellent communication among all the parties involved was key to the project's success, observes Jim Chrisley, deputy director of Aviation, Operations at LAS. "We



JIM CHRISLEY



had great teamwork," he elaborates. "They met every morning at 7:30 a.m.—contractor, Airfield Operations and Construction and Engineering. The Airport Operations coordinators coordinated airfield movements with the tower and tenants, then created diagrams so everyone understood what would be happening on any given day. We didn't hit roadblocks because everyone kept talking and communicating."

Pringle seconds that notion, adding, "As a contractor, we do these large projects all the time. But the team atmosphere on this project was wonderful. This was a special project." ✈️

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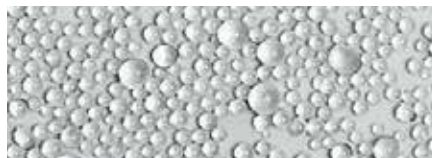
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Airports Leverage Technology to Take Out of Security Wait Times

 Wait times at TSA checkpoints became a hot topic this summer, especially when passengers stuck in screening lines began missing flights after arriving hours before their departure times. As lines grew, so did the frustration, and U.S. airports redoubled ongoing efforts to keep passengers happy while maintaining high security levels.

As conversation ensued about TSA staffing and funding levels, some airports focused on the psychological aspects—that the unknown nature of checkpoint wait times fuels passengers' discontent and that lines can look worse than they actually are. Three airports in particular—Orlando International Airport, Cincinnati/Northern Kentucky International Airport and San Antonio International Airport—had a jump on the situation, because they had already installed systems that provide estimated wait times when the topic became a national news story. The systems they deployed use Wi-Fi, Bluetooth and video analytics in various combinations.

Technology Bake Off

In May, just before summer travel began, the Greater Orlando Airport Authority announced several initiatives underway to ensure quick, efficient flow through the screening process at Orlando International Airport (MCO). Authority staff members

were already meeting with the TSA team on a daily basis, and contract personnel were added to help during the upcoming busy summer months. About one year prior, the authority had invested in a software program that predicts checkpoint wait times and improved wayfinding by using 1,000 beacons and a few dozen cameras.

Carolyn Fennell, the airport's senior director of public affairs and community relations, explains that passenger demographics at MCO significantly affect its checkpoint operations. Fully 95% are origination/destination travelers, so more people pass through its checkpoints than airports with more connecting passengers, she explains. MCO also has a high concentration of tourist traffic and infrequent travelers, who typically consume more time at checkpoints.

To find the best technology to suit MCO's particular needs, the airport authority invited companies to compete for a checkpoint queuing solution contract. The bake off, as some called it, also allowed airport personnel to see how various technologies worked at their facility. After testing multiple options, the authority chose SITA's QueueAnalyzer, which combines historical and real-time data with algorithms to deliver wait-time predictions by leveraging information collected via Bluetooth, Wi-Fi and cameras. By recording data on an hourly, weekly, monthly and year-to-year



the Mystery

BY KRISTIN VANDERHEY SHAW



KEVIN PETERSON

basis, the system provides information that helps the airport keep wait times at reasonable levels, says SITA Senior Product Manager Kevin Peterson.

"We have about 12 lanes at two checkpoints, and it can give the visual appearance of being very crowded," says MCO Director of Information Technology John Newsome. "Even for those of us who travel often, going through an unfamiliar airport can cause anxiety."

According to Newsome, MCO's best measures have come from mobile devices. "We measure the progress of a mobile device without identifying an individual, by using a unique identifier," he assures. "We see smart-watches, Fitbits, phones...anything that uses Bluetooth or Wi-Fi. It's a huge sample size."

Using multiple technologies improves the system's accuracy. "We lean on Bluetooth, primarily, and that sample size has been growing quickly because of wearables and watches," explains Peterson. "A Wi-Fi-to-Bluetooth network interface device connects the Bluetooth sensors to the cloud-based application server; we use Wi-Fi generally to sense how busy the area is. It's a component of the algorithm."

Peterson estimates the system's accuracy at about 98%, noting that a significant portion of the data for the algorithm comes from the video feed.

"For this application, we don't use streaming video, we use consecutive snapshots to take a count," he notes. "The accuracy is driven by having multiple technologies/data sets, and the sophistication of the mathematical algorithm. We can measure the frequency of entry and exit and distinguish patterns of passenger movement to determine who is a passenger and who is not."

After the system was installed, MCO personnel noticed that its accuracy dropped dramatically when queues grew long, because travelers were lining up beyond the sensors' range. With increased traffic expected for spring break, MCO installed more cameras at the end of the concourse, so they could view the entire line.

The system displays wait times on screens near the checkpoint, at check-in counters, and on MCO's mobile app. Soon, wait times will also be listed on the airport's website. "We are careful to say that the numbers can change rapidly," notes John Vinelli, manager of information technology for MCO.

Newsome and Vinelli praise the onsite TSA team for its excellent relationship with the airport, noting that they meet frequently to discuss measurements and ways to maximize checkpoint efficiency.

Newsome explains that providing passengers with wait time information helps offset the appearance of long lines. "Information is power," he explains. "If we display the wait time for them...they feel better. It's a way of keeping the anxiety down, and that fits in with our overall objective to have well-informed, relaxed passengers. It fits with the water features,

the lighting, the music and all the rest we have here in Orlando to make [air travel] a less stressful process."

New Info on Existing Displays

In 2014, San Antonio International Airport (SAT) requested competitive bids for a video-based system to calculate and display wait times for the TSA checkpoint in Terminal A, the larger of its two terminals. Specifically, officials wanted a system that could display estimated wait times on dedicated monitors and on the airport's existing multi-user flight information display system.

FACTS&FIGURES

Project: Calculating & Displaying Security Wait Times

Key Benefits: Easing passenger anxiety; offsetting negative appearance of lines; optimizing checkpoint efficiency



CINCINNATI-NORTHERN KENTUCKY INT'L AIRPORT

Est. Annual Traffic: 6 million passengers

Technology Deployed: Bluetooth/Wi-Fi hybrid

Product Installed: BlipTrack, from BLIP Systems/ Lockheed Martin



ORLANDO INT'L AIRPORT

Est. Annual Traffic: 40 million passengers

Technology Deployed: Video plus Wi-Fi; Bluetooth

Product Installed: QueueAnalyzer, from SITA



SAN ANTONIO INT'L AIRPORT

Est. Annual Traffic: 8.5 million passengers

Technology Deployed: Video analytics

Product Deployed: TRAX, from Infax

“Sometimes when our checkpoint line gets long, it can become relatively unstructured because our stanchioned queuing space is limited,” explains SAT Chief Strategy and Development Officer Nathan Polsgrove. “Passengers would see the line and panic. The wait might have looked like 45 minutes, when in reality it might have been 20 minutes. The issue we had wasn’t that the wait time was too long, rather it was that the passenger *thought* it was longer than it actually was. We wanted to relieve anxiety when the passengers saw the long line.”

After reviewing its options, the airport selected TRAX, a passenger queuing system from Infax. A series of 10 video analytics cameras now monitor passenger movement through the queue, and software calculates the time it will take passengers to get through the checkpoint. Estimated wait times are then displayed on two dedicated 48-inch monitors.

Because TRAX interfaced with the airport’s pre-existing multi-user flight information display system (also by Infax), wait times are displayed on flight information monitors throughout the terminal and on SAT’s website as well.

Debbie Drew, manager of Planning and Administration at SAT, says the airport team performed extensive research about Bluetooth vs. Wi-Fi vs. video and consulted several other airports

to learn what worked there, and why. Based on their findings, they chose a video-only system.

“Some think it would be too expensive to use video to measure wait times; but it’s actually a simple way to capture data and use some existing infrastructure to improve operations as a whole,” says Tracy Davis, director of Transportation Sales for Infax.

Original plans for SAT’s new system only included cameras along the main entry corridor for Terminal A. “What we found is that more people were also utilizing our PreCheck and frequent flyer entrance locations. Consequently, the numbers at the exits were getting skewed,” explains Henry Galindo, who was the airport’s information technology project manager/senior management coordinator at that time. “When we started comparing entry to exit numbers, we had to figure out why there were more exit numbers. At first, we thought the system was just calibrating itself until we analyzed the data.” To remedy the situation and obtain more accurate



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counts, SAT installed two additional cameras at the alternate entrances.

The team also learned that the terminal's high ceilings would be a challenge during camera installation. Working closely with Infax, they designed a custom gooseneck fixture to hold the cameras in place. In retrospect, more pre-planning about camera setup and operation would have helped, notes Galindo.

That said, learning about other airports' trials helped the overall planning process. "By getting more granular, we can then use that information to be more detailed on our own dashboard," says Polsgrove.

The decision to post specifics online sparked a lot of debate, notes Drew. Those against the idea worried that passengers might check wait times on SAT's website, arrive late and try to hold the airport liable for missed flights. Adding a disclaimer on the website was designed to assuage such concerns.

Leveraging Data to Manage Growth

In the last several years, Cincinnati/Northern Kentucky International (CVG) has experienced major changes that, in turn, prompted the airport to alter its checkpoint configurations. In May 2012, CVG closed Terminal 2 and consolidated all non-Delta operations



in Concourse A, which had been recently renovated. Terminal 1 was closed three years later and then torn down early this spring. Shortly after that, crews demolished Terminal 2 to make room for a consolidated rental car facility and expansion to Concourse A.

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Suddenly, CVG staff found themselves with longer security lines. In addition to devising ways to keep wait times reasonable while shifting the checkpoint, they also looked for a tool to assess wait times.

With new systems in place, the airport has reduced its wait time by about one-third, reports CVG Vice President of Customer Experience Brian Cobb. “Now we’re down to 30 minutes or less at peak, and we’re consistently below 15 minutes on average for general security.”



BRIAN COBB

The airport began by partnering with Purdue University, which was researching Bluetooth technology. Impressed with its findings, CVG set out to find a commercial solution. “We put out a proposal to see what was on the street and discovered there is no ‘one size fits all,’” recalls Cobb. “Heat-seeking cameras didn’t work for us because of our high ceilings. We ruled out video cameras, because that program was cost-prohibitive for us and there wasn’t enough camera platform for us to leverage.”

After reviewing many options, CVG chose a queue management system from BLIP Systems/Lockheed Martin that combines Bluetooth and Wi-Fi. BlipTrack calculates checkpoint wait times by monitoring the flow of passengers with devices that use the two technologies.

“Two to three years ago, Bluetooth seemed to be a dying platform, and we felt it was not enough to ensure accurate measurements,” recalls Cobb. “Using both Wi-Fi and Bluetooth together gives us a substantial sample size—more than enough to calculate wait times. There are several algorithms, and we do periodic manual testing to check our system accuracy.”

Another factor that guided the airport’s selection was the mounting/setup process. The new system didn’t require much more than power-over-Ethernet connections to targeted sensors, notes Cobb.

Estimated wait times—averages of the previous 10 minutes—are now displayed prominently on a large screen in the terminal and on the airport’s website. Separate times are calculated and shown for TSA PreCheck and general checkpoint lanes.

The system also sends color-coded mobile alerts to CVG operational staff. Management personnel receive yellow warnings when passengers wait more than 20 minutes and red messages when it stretches to 30 minutes or more. “[This] essentially means that I don’t have to be tied to a desk,” says Cobb. “I get mobile alerts on my phone...and we then share that info with our airline partners and TSA contacts.”

Using data gathered by the airport’s new system, the TSA team was able to reschedule its shifts. Previously, it had eight or more staggered start times per shift; now officers begin in larger groups.

“If you’re able to see how people move, if you’re able to see bottlenecks, you can react,” says Christian Bugislaus Carstens, marketing manager at BLIP Systems.

“Previously, the airport would forecast and plan based on last year’s arrivals. If you don’t take into account new routes, seasons, events, you can miscalculate on staffing. If you’re able to look at how queue times are during the day, then you’re able to have a dynamic solution to see how you should react.”

From the airport’s perspective, BlipTrack also helps address the “perception is reality” issue that plagues the entire industry. “Security is the biggest pinch point in most airports,” explains Cobb. “If a customer sees a long line, the anxiety goes through the roof. This [system] allows us to alleviate some of that stress. We have the ability to look at all three TSA product types (PreCheck, general and special assistance) to see how the customers are getting through the lines. Then, TSA can see the ebbs and flows of the customer base with each of their three products, and can adjust accordingly if they so choose. Now, we can see exactly what times the problems occur and let them see the gaps.”

CVG is currently adding additional sensors to see which lanes are open and closed throughout the day. The next step is to establish a “show-up profile.”



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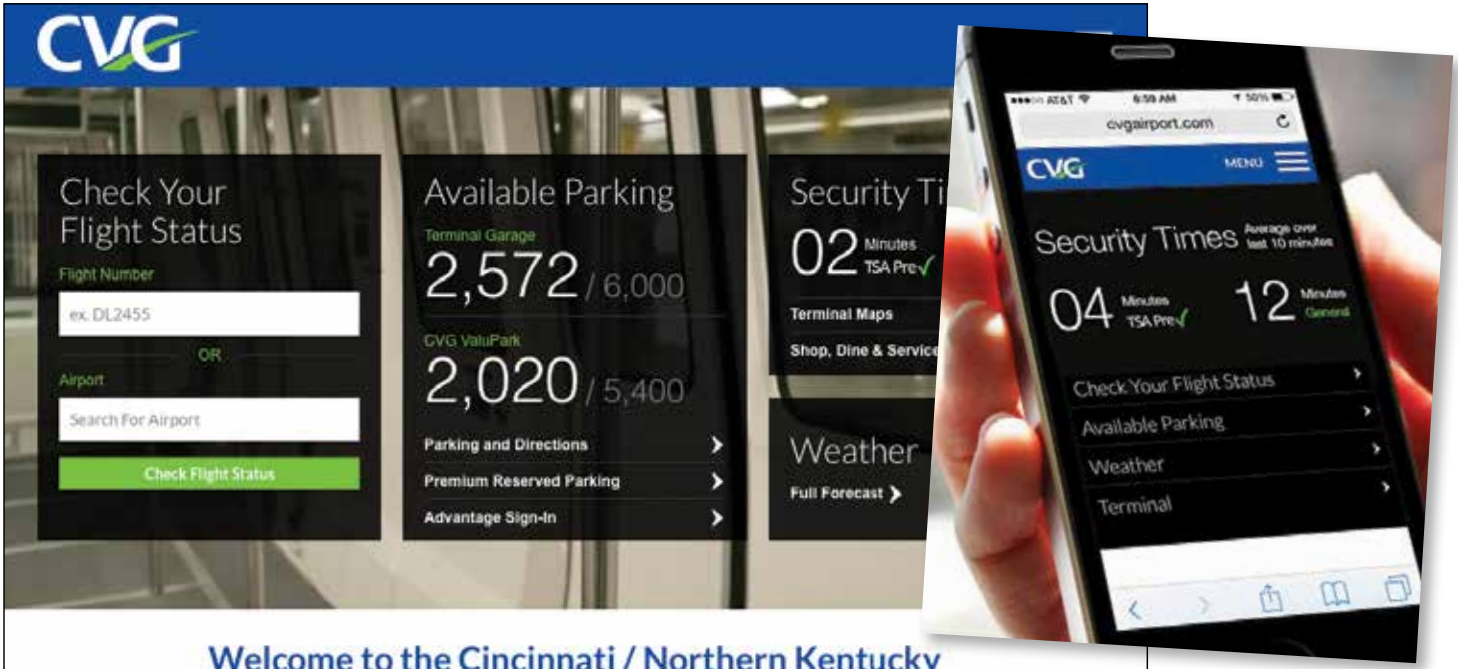


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Estimated checkpoint wait times are displayed on CVG's website.

"Leisure travelers' profiles are very different than business travelers'," Cobb relates. "The problem with the checkpoint is that you never know when the flood is going to hit you. We may know how many customers are coming that day, but we don't know what time they'll show up at the checkpoint. So we can look to see which airlines are flying that day and we will know what kinds of flights and what types of passengers are traveling. Then, we can hand the TSA that data, and from a staffing perspective, we're better prepared that way than throwing additional people on the lines. We can focus on being more efficient."

The airport and BLIP Systems are also adding sensors outside the terminal and throughout the facility to track where passengers are parking and queuing. The data they collect will show how many drivers are parking in off-site competitors' lots and map where passengers are dwelling once inside the terminal. The information will help CVG target its marketing and win customers in areas where competition is fierce, notes Cobb.

"If you take a look at our airport overall, this data capability is a small positive spot in the middle of an incredible growth spurt," he comments. "We have done a great job recovering quickly, and this technology is one step into better using our data."

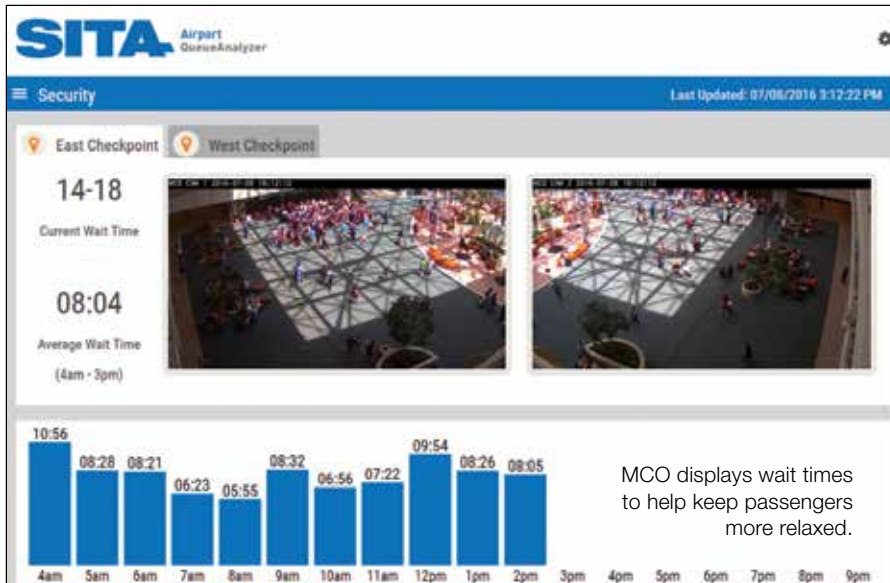
What's Next?

"Airports are taking a wider approach to thinking about different types of 'data sets' to give the passenger the right information, at the right time, at the right place," says Manik Arora, president and chief executive officer of Arora Engineers. "Parking management, queue management, terminal movement analytics, fleet management, ground transportation, and facility and airfield intelligence are all playing an important role in providing statistically

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who push them. Airports could also use the devices or cellular devices to track employees and determine who is closest to resolve a variety of service issues.

Looking ahead, Arora anticipates movement away from separate beacons and toward Bluetooth-controlled lights that will also gather data. In fact, he predicts that almost every device on the airfield or in the terminal will eventually include sensory capabilities.

Davis, from Infax, says the next level is infrared 3-D laser sensors. "We have a 3-D laser solution that we roll out in restroom areas," she says. "When it hits [a predetermined] threshold of passenger throughput, the system alerts the staff to clean the restroom. Using sensors, we can then track when the janitorial carts arrive to the restroom to service it."

The company can also add hardware in other areas to measure general dwell time, concessions traffic, response by ground transportation and more, notes Davis. "The solution allows the airport to view the movement of passengers, dwell times and assets on a terminal map," she adds. "This helps the airport see a complete picture of how passengers are flowing and where they are spending their time, which not only helps the airport improve the passenger experience, but also operations and concessions as well."

For checkpoint areas, SITA is working on an open lane detection enhancement to help determine how many lanes should be operating based on the number of passengers flowing through. For airports with more than one checkpoint, the company offers load balancing to show passengers which checkpoint has the shortest wait time.

"Airport buildings are living and breathing organisms," observes Arora. "Technology and innovation are moving so fast, that it's smart for airports to keep their minds and initiatives open to changing infrastructure."

He also advises airports to create master plans that consider return on objectives as well as return on investment. "This should at least help identify priorities and quick wins," he explains. ✈️

measured 'big data' to the user, inclusive of any Apple, Android or any new platform device."

Airports that can look at it from an enterprise point of

view will be able to make smart, data-driven decisions for enhancing the passenger experience and increasing operational efficiencies across the airport, he adds.

Currently, Arora and his team are working on a pilot that uses Smart Tags to track wheelchairs and the personnel



MANIK ARORA

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NORFOLK INTERNATIONAL AIRPORT

FACTS&FIGURES

Project: Terminal Renovation

Location: Norfolk (VA) Int'l Airport

Phase I: Nov. 2013-March 2014

Phase II: July 2014-July 2016

Cost: \$34 million

Funding: State entitlements (\$16.2 million);
federal entitlements (\$13.9 million); airport
reserves (\$3.8 million)

Architect: Gresham, Smith & Partners

Phase I Contractor: Clancy & Theys

Phase II Contractor: ET Gresham

Atrium Furniture: Allermuir; Arcadia;
Kron Designs; Leland Int'l; Nevins; Source Int'l

Planters: Landscape Forms

Waste & Recycling Receptacles:
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Food & Beverage Concessionaire: HMSHost


Retail Concessionaire: Hudson Group

New Features in Lobby: 10,000-sq.-ft.
skylight & natural plants



Norfolk Int'l Spruces Up Terminal with \$40 million Facelift

BY JODI RICHARDS

 With the recent addition of a sweeping skylight in its main lobby, Norfolk International Airport (ORF) finally has the grand connection to nearby botanical gardens its original 1970s design intended. According to ORF officials, the 10,000-square-foot skylight and other elements of the airport's \$34 million renovation program create a terminal that is modern and aesthetically stunning, and also more efficient and better equipped to meet current and future passenger needs. A \$6 million project updated ORF's general aviation facility.

Norfolk Airport Authority Executive Director Robert Bowen, A.A.E., notes that the main passenger terminal was in need of a "major freshening up" when planning began for the renovation in 2009. The tired, worn facility had low ceilings, little natural light, cluttered concourses and an outdated balance of post- and pre-security concessions—not the experience officials wanted to provide ORF's 3 million annual passengers.



ROBERT S. BOWEN

The main terminal, built in 1974, was originally designed to include a skylight in the lobby, but it was never installed. In 2002, ORF constructed a separate arrivals terminal, complete with new baggage claim and rental car areas, and connected it to the main departures terminal with a glass-enclosed pedestrian bridge. Other than minor updates here and there, the main terminal remained largely unchanged since it first opened, Bowen relates.

"The renovation is primarily about improving the passenger experience," adds Charles Braden, ORF's director of market development. "We can control what we can control, and that's it. By taking the facility here and trying to affect the experience—that's something we can accomplish." Specific elements of the renovation designed to improve the customer experience included updating terminal facilities, ensuring that the airport offers amenities customers want and creating a calm, relaxing environment.



CHARLES BRADEN

With passenger volume growing, such measures seem more important than ever. Traffic at ORF peaked in 2005, and then dropped with the widespread consolidation of airlines and during the Great Recession, which economists mark from late 2007 to June 2009. In 2013, government sequestration further impacted the airport negatively, as nearly half of Norfolk's economy is based on the military and government activities. In June 2015, however, ORF experienced an increase in capacity, and this June, the airport celebrated its 13th consecutive month of year-over-year growth. Total passenger volume was up about 8% year-to-date, and officials expect the growth to continue through the end of the year.


ORF executed its recent \$34 million renovation project without incurring any debt, Bowen reports proudly. Phase I, which cost about \$14.2 million, was paid for with \$7.5 million in state entitlements, \$5 million in federal entitlements and \$1.7 million of airport reserves. Phase II, which cost about \$19.7 million, was funded with \$8.7 million in state entitlements, \$8.9 in federal entitlements and \$2.1 million from airport reserves.


As a project precursor, the airport hired design/consulting firm Gresham, Smith & Partners to perform a facility assessment in 2010. "We looked at all public spaces, all passenger processing elements, and broke that down by what we call journey segments," explains Wilson Rayfield, executive vice president at the firm. Journey segments include the ticketing and check-in process, concessions, security screening, holdrooms and restrooms, as well as circulation, baggage claim and access to parking, rental cars and other ground transportation.



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In addition to evaluating the functionality of the terminal, consultants assessed its overall feel and how the facility reflected the airport authority's goals. Expanding sightlines and improving wayfinding, without necessarily relying on signage, emerged as important issues.

Although it was well maintained, ORF's 40-year-old terminal was dated and dark, Rayfield comments. "They hadn't updated the interior in a long time."

During Phase I of the project, the airport:

- renovated and expanded the security checkpoint in Concourse B;
- installed terrazzo flooring in the lobby and throughout both concourses;
- replaced escalators;
- installed new carpeting in holdrooms; and
- upgraded safety features.

Phase I also added the project's hallmark element: the 10,000-square-foot skylight in the main lobby.

Phase II included updates to the Concourse A security checkpoint; all new public restrooms on both concourses; and

fresh interior finishes such as walls, ceilings and lighting in the concourses and restrooms.

Long-Awaited Changes

Prior to recent renovations, the design and ambiance of ORF's main lobby did not leave a great impression on departing and arriving passengers, notes Rayfield. The overall space was dark, and freestanding concession kiosks and potted plants of varying sizes and health made the lobby hard to navigate, he explains. "When you were standing in there, you really couldn't see beyond any of that."

Working with its concessionaires, Hudson Group and HMSHost, the airport rebalanced the retail and food/beverage programs to shift more offerings onto the concourses. The changes allowed designers to open up the main lobby and fill it with natural illumination from the skylight. "It's been a huge addition and improvement to our main lobby," says Bowen.

New finish materials include travertine marble on existing columns and terrazzo flooring. Designers also added an array of strategically selected plants. Given ORF's neighbor, the Norfolk Botanical Gardens, officials had long wanted to incorporate an "airport-in-a-garden theme," but plants did not fare well inside the previous terminal due to its lack of natural light.

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New terrazzo flooring and restroom updates were two important elements of the renovation.



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These days, plants fill the atrium and thrive under the new 10,000-square-foot skylight. In fact, the plants flourished so well, they quickly grew beyond the 12-foot threshold needed to maintain sightlines established by the architects. “The plants that we had previously had trouble growing. Now, we actually have trouble keeping them from *not* growing,” Braden quips. “It’s a good problem.”

With the stunning effects of the new skylight, interior landscaping and other renovations, ORF’s lobby now serves as a signature space within the terminal—something the airport previously lacked, Rayfield notes. “It is a hub for passengers at the airport, and [the authority] knew they needed to make that space really significant.”

Matthew Amos, architect with Gresham, Smith & Partners, reports that passengers and meeters/greeters alike are enthusiastic about the changes. “It’s gone from a space that everyone was forced to walk through that they quickly passed through, to a space that people intentionally stay,” he explains.

“It’s full of people all of the time,” adds Rayfield.



MATTHEW AMOS

Checkpoint & Other Updates

ORF’s two passenger screening areas were also updated during the renovation project. Aesthetics, processing efficiency and access were all improved, Rayfield reports. “Security requirements have changed so much in the last 10 years, the [previous] checkpoints had overgrown the space and were very constrained and dark,” he elaborates.

New, larger TSA checkpoints were configured to process current passengers more efficiently and allow for the easy addition of more lanes to accommodate future traffic growth. The checkpoints’ clear-span design will allow ORF maximum flexibility as security requirements evolve, explains Amos.

Floor-to-ceiling glass walls on the north and south sides allow ample daylight to stream into the checkpoints, making them “open, light, bright and airy,” says Rayfield.

Restrooms also received major improvements, adds Amos. Updated, more efficient plumbing and larger, more comfortable stalls are more pleasing for airport visitors, he remarks.

While modernization was the main goal of the renovation project, designers were careful not to detract from or compete with the terminal’s original architecture. “(ORF officials) are very proud of the architecture of the facility,” says Amos. “It was important to them that we didn’t digress from a design standpoint too much. They wanted anything we built to look like it was part of the existing facility, just fresh and new.”

Managing Construction

Because it was important to maintain safety and access during the project, renovations were carefully phased to minimize impact to travelers and tenants, Rayfield notes.

In the main lobby, the construction team built what Bowen refers to as “the great wall” to shield travelers from work noise and

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dust. Then, crews cordoned off two-thirds of the lobby with floor-to-ceiling plywood and heavy plastic. Once construction in that section was complete, they moved the wall and worked on the remaining portion of the lobby. The temporary partitions were partially finished—painted, with baseboards and signage—because keeping up appearances for passenger comfort was important, adds Rayfield.

At TSA checkpoints, workers built new screening stations around the existing structures, so much of the construction was invisible to passengers until the day the new checkpoints opened.

The airport issued guidelines to contractors about when and how they could perform disruptive tasks, like installing terrazzo. Typically, they completed such work between midnight and 4 a.m., after the last flight landed and before the first batch of departing passengers streamed in the following morning.

During skylight work, crews first installed the skylight outside and then cut away the roof underneath it. “Besides cranes outside, people had no idea the skylight was there until we ripped out the ceiling,” Amos recalls.

To accommodate passengers during bathroom renovations, ORF added a new set of restrooms on each concourse. New and renovated facilities include oversized stalls to allow room for passengers traveling with luggage. Each set contains two standalone restrooms for each gender, which allows maintenance crews to close half for cleaning and keep the other half in operation.

Adding & Shuffling Concessions

Prior to renovations, ORF was arranged in typical pre-9/11 fashion, with concessions concentrated before the TSA checkpoints. “[Now,] passengers don’t frequently eat or shop before they go through Security,” Rayfield says. The new program redistributes offerings to reflect that change.

When the airport started its renovation project, concessionaires presented plans to make capital improvements to their facilities as well. “It ended up being a good collaboration,” reflects Bowen. “At the same time we were freshening up the public areas, the concession areas were being upgraded as well.”

HMSHost brought in more locally inspired restaurant options, like James River Grill on Concourse A and Back Bay Bistro on Concourse B. The company also seized the opportunity to upgrade its quick-serve options to balance and complement the new full-service spaces, explains Bryan

Loden, HMSHost vice president of business development.

With the new floor plan in place, and passenger numbers on the rise, concession numbers are growing. From July 2015 to May 2016, food and beverage sales increased 9%, and retail was up 6%.

The airport authority reaffirmed its commitment to ORF’s existing food and beverage concessionaire by extending the current lease with HMSHost and partner FDY by five years, to June 2026. The \$63 million extension brings the total value of the contract to \$113 million.



BRYAN LODEN



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Retail and food/beverage concessions are now concentrated *after* TSA screening checkpoints

In July, HMSHost announced plans to open three new restaurants: The Local @ ORF, a “gastropub” that will feature products from local farmers and breweries; ORF MKT, which will focus on using fresh, all-natural, local, farm-grown, sustainable products; and Here’s To Heroes, a partnership with AB InBev to honor all branches of the U.S. military.

“HMSHost’s plans for the future are designed to appeal to what today’s modern travelers are looking for: quality, variety, convenience and a personal connection,” says Loden.

The company’s new trio will join its lineup of seven existing restaurants (Back Bay Bistro, James River Grill, Great American Bagel, Burger King and three Starbucks).

Efficiency Improvements

Just like all other projects at ORF, recent renovations stressed sustainability and energy efficiency, notes Braden. The skylight is glazed with high-performance, low-emissivity glass with a ceramic frit to reduce radiant heat gain in the main lobby. Liberal use of glass in the atrium and security checkpoints allows the airport to take advantage of natural light and consequently reduce its energy consumption. Clocks and light sensors control artificial illumination in both spaces.

Heat gain on the south side of the checkpoint is reduced by three overhanging louvers on the building exterior that block the summer sun from hitting the glass walls.

Terrazzo flooring was selected for its long-lasting, easy-maintenance qualities. Carpet, while good at muffling noise, does not fare well in high-traffic areas, explains Bowen. “Acres and acres of carpet were replaced with terrazzo flooring,” he reports, adding that the new hard-surface flooring brightens the terminal and gives it a more modern feel.

In less-traveled holdroom areas, the airport installed new carpeting.

Other efficiency-driven changes included the installation of lighting that consumes less energy and replacing ORF’s 40-year-old escalators with updated and safer equipment.

What’s Next?

A third phase, not included in the \$34 million price tag, kicked off in June. Key elements include the renovation of restrooms in the main lobby, the addition of lactation rooms near the main lobby and on each concourse, the relocation of ORF’s information booth and the addition of non-public storage space.

Upgrading exterior signage and wayfinding within the building is another major project scheduled for fiscal year 2017, Bowen adds. Other short-term plans include landscaping and sidewalk work. ✈️



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An onsite lake that used to be considered a liability is now helping the airport save \$430,000 in annual utility costs.



Nashville International Airport

FACTS&FIGURES

Project: Geothermal Cooling System

Location: Nashville Int'l Airport

Owner/Operator: Metropolitan Nashville Airport Authority

Cost: \$10.4 million

Funding: 40.8% Energy Performance Guarantee; 34.2% federal; 12.5% state; 12.5% airport authority; \$300,000 grant from Tennessee Valley Authority

Design/Build Team: Blakley Construction Services; Energy Systems Group; Garver; Nashville Machine; Smith Seckman Reid

How System Works: Water piped from airport's central plant is cooled by plates submerged in a quarry lake. Cooled water is then pumped back to chillers, which consume less energy to cool terminal air because they received pre-chilled water.

Key Elements: 11 plates submerged 50 ft. below lake surface, where water temperature hovers near 50 degrees year-round; 10,000 ft. of 20-in. pipe buried 3 ft. below ground surface

Est. Anticipated Annual Savings: 6,000 kw of peak demand electricity; 1.3 million kw-hours; 30 million gal. potable water; \$430,000 utility costs

Documented Savings: 50% reduction in energy consumption (to 0.525 kw/ton), Feb. to mid-May 2016

Accolades: 2016 Environmental Achievement Award, Airports Council Int'l-North America; 2015 Governor's Environmental Stewardship Award, TN Dept. of Environment & Conservation

Nashville Int'l Turns Quarry Lake into Largest Geothermal Cooling System in North America

BY JENNIFER BRADLEY

When temperatures rose to sweltering heights this summer, Nashville International Airport (BNA) kept visitors cool with an energy-saving geothermal system which leverages naturally low temperatures in an onsite quarry lake. Shrinking utility bills help airport management also stay cool as a cucumber.

Ever since mid-February, BNA has not used a traditional air conditioning system. Instead, it cools the entire terminal by tapping into a thermal layer of an onsite lake to cool water for use in its chiller plant. The new system proved especially valuable—and cost-efficient—during this summer's heat waves, but BNA officials expect its appeal to last well into winter. Even when Nashville's typically moderate climate dips to 20 degrees (Fahrenheit), the airport still needs to cool air for the terminal, because people, equipment, lighting and movement prove to be great heat inductors.

The new geothermal system at BNA is the very definition of sustainability, says Christine Vitt, vice president of Strategic Planning and Sustainability for the Metropolitan Nashville Airport Authority. It's also a significant asset for the airport, she adds, noting that the

system is poised to far exceed the \$430,000 projected annual energy savings for its first year in operation.

"I think we're getting the most out of this system we possibly could," Vitt comments.

"If you think about every drop of water in a closed loop system doing the cooling work over and over again, there are so many benefits—from potable water reduction, energy savings, stormwater collection, even air emission reductions on the power plant side. There are many good things that have come from this program."

Interestingly, the airport doesn't pull cool water from the lake for the system. Instead, it uses cool lake water to chill other water, which is then used to condition air throughout the terminal. By doing so, it preserves the lake's naturally clean, cool water for repeated reuse.

Inspiration to Operation

Inspiration for the geothermal system occurred several years ago, when the airport



CHRISTINE VITT

authority and its team of designers, engineers and contractors were discussing what to do with an abandoned quarry the airport acquired when it purchased land for a runway project more than three decades prior. A 2008 feasibility study led the airport authority to believe that the only viable way the airport could benefit from the quarry was to find a use for the water in its lake. In 2010, a flood overflowed the lake for the first time since BNA owned the property, further inspiring the airport to put its water to use.

The idea to use the quarry lake for a geothermal system was suggested and developed by Nashville Machine and Energy Systems Group, which had performed previous energy-saving work on the airport's chillers, lighting and heating/venting/air conditioning system.

In a nutshell, the contractors developed a system that uses water from 50 feet below the lake's surface, where temperatures hover around 50 degrees throughout the year, to pre-cool water for the chillers that condition air for the terminal.

"We're not drawing any water out of the quarry for cooling," specifies James Hurt, project manager at Nashville Machine. "We're flowing water through heat exchangers that are in the quarry, and that allows the transfer of heat from the exchangers to the water."

Scott Terry, project director from prime contractor Blakley Construction Services, provides more details: Eleven plates (essentially enormous car radiators) that are submerged in the lake chill water that comes in from the airport's central plant via 20-inch piping. After the water circulates through the lake plates and cools down to 53 degrees, it is pumped back to the airport for use in the air conditioning system. Because the chillers receive water that is pre-chilled in the quarry lake, they consume less electricity, explains Terry.



SCOTT TERRY

At no time in the process does the water inside the pipes touch the quarry water, he notes: "It's an entirely closed system, a recirculation system." Because the quarry lake collects stormwater runoff from the surrounding 140 acres, it acts as a retention basin and provides very clean water, adds Vitt.

Over several years, the idea of using the quarry lake for geothermal cooling gathered grassroots support all the way up to and including the board of directors, notes John Waddle, project manager at Energy Systems Group.



JOHN WADDLE

"By the end of 2013, we had a preliminary design in place that validated this would be a viable project," recalls Vitt. By Feb. 11, 2016, BNA was fully operating on its new geothermal cooling system.

Project Pioneers

Two other major players for the project were Smith Seckman Reid, the firm that designed the overall system, and Garver, which designed the pipeline between the quarry lake and the airport's central plant.

Ryan Sisemore, vice president and Aviation East Region Director at Garver, notes that the design/build approach helped to facilitate the project's timeline and push the unique design forward. "We really had to step outside of the industry to gather the right knowledge and people to do this," says Sisemore.



RYAN SISEMORE

Nashville Machine installed components at both ends of the project: the 11 stainless-steel lake plates and the pumps and piping that connect to existing chillers for the condenser water. Blakley Construction installed the piping that connects the two ends. Energy Systems Group oversaw the energy and thermal operations.

Siemens optimized controls in the chiller plant to maximize the system's efficiency. Variable frequency drives installed on the new motors vary the water flow and adjust the temperature of the water entering the chillers. "During the peak days of cooling, when it's above 95 degrees, they will increase the flow to improve the ability of the chillers to meet the load," Hurt explains.

Considering the system as a whole, Waddle credits the airport for maintaining its commitment to the project. "It took six years to bring this to fruition from original concept," he comments. "We just didn't let it die. We kept putting the ball in play, and I think it's noteworthy that we all had the tenacity to stick with it. We believed in it."

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Crews installed a 5,000-foot pipeline for the geothermal project.

Another huge hurdle was a lack of similarly sized projects. According to the airport authority, its new system is the largest geothermal lake plate cooling system in North America. “We were pioneering a lot of this because there wasn’t a ‘last time’ to refer to,” Waddle notes.

Ron Holdaway from Smith Seckman Reid had experience designing a similar, but smaller, geothermal system for Walt Disney World—experience Sisemore called “invaluable.” But the project at BNA was the first of its kind for most of the team. The project also included a unique water source. The airport’s quarry lake, which was once considered a liability, is now “basically a battery pack that recharges itself,” he quips.

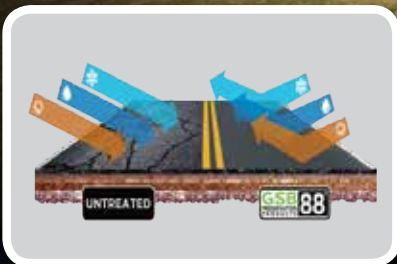
Like Sisemore and other team members, Waddle considers the BNA



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geothermal project a once-in-a-lifetime experience. "So many things had to come together at the same time," he says. "We knew it would be difficult to have an opportunity like this again in our careers. This will definitely be the project I'll remember the rest of my life and one that has had the biggest impact on me personally."

Conquering Challenges

Installing roughly 5,000 feet of piping was another formidable test. The pipeline corridor includes two 20-foot high-density polyethylene sections for supply and return as well as a 4-foot high-density polyethylene irrigation pipeline. Not only did the pipeline need to run underneath Runway 2R-20L and multiple taxiways, it also had to pass under a state highway. Crews completed the task during a 60-day shutdown the airport had already scheduled for airfield maintenance.

The team had to make open cuts, remove and replace runway and taxiway concrete pavement, cut electrical circuits, penetrate drainage systems and then put everything back together again after installing steel casings and piping throughout the area. Around the highway, crews bored beneath the pavements.

"We knew we were going to find a lot of unknowns [obstacles]," Sisemore notes. "After completing as much research on the

existing infrastructure as we could, we still knew there would be a significant amount of field engineering." In the end, collaboration allowed the team to beat the original deadline by about a week, he adds.

In Hurt's opinion, the most challenging aspect of the project was floating 6,000-pound heat exchangers/cooling plates into the quarry and then sinking them 50 feet without compromising the piping that connects them to shore. Crews used cranes to lift 11 cooling plates into place, one at a time. Each was equipped with a special flotation device that gradually lost buoyancy as water flowed into the heat exchanger, eventually allowing the equipment to sink to the desired depth. Divers inspected the plate locations to verify conditions.

Weather was a major factor during the fall 2015/winter 2016 installation. Strong winds made it difficult for barges to deliver the exchangers to the correct location. "It seemed like [every] day we were going to put the heat exchangers in the water, the wind would pick up," Hurt recalls. "You could almost set your watch by it."

Waddle agrees that the quarry was not a work-friendly environment. The strategy to install the cooling plates required hours of calculations and counsel from multiple experts. Key questions included: How many barges are needed? How many cranes?

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What's the best way to maneuver the heat exchangers? How are we going to sink them in the right spots? "The wind wreaked havoc on us and there wasn't anything we could anchor to, so the barges were constantly being pushed out of position," he recounts.

Hurt explains that the heat exchanger is connected to a manifold in a "reverse return" configuration, with the first exchanger receiving the last water and vice versa, so equipment can self-balance for the system's flow rate. Valves with a control valve regulate the exchange and allow personnel to turn off any specific heat exchanger if problems arise.

Regardless of multiple challenges, Hurt notes that the project team was well-prepared for each stage of installation. "We had done a lot of coordination and everybody knew what they were supposed to do," he says.

Terry notes that partnering was especially important for the fast-paced project. "It let us sit down as a group ahead of time," he relates. "Everyone was able to lay out their concerns, expectations as well as their commitment in front of the others."

Invisibly Green

Hurt considers BNA's geothermal system the height of sustainability, and is amused

that all of its key components are buried deep below water. There's nothing to show people, he muses: "It works wonderfully, and you don't see any of it."

The transition from BNA's traditional cooling system occurred over a 24-hour period that ended on Feb. 11. Siemens continues to monitor the new system's performance, and Vitt estimates the optimization the company performed, tweaking every control that operates the cooling system, will likely save the airport another \$70,000 per year. The first post-installation analysis in May indicates an overall efficiency improvement greater than 50%, with energy consumption decreasing to 0.525 kilowatts per ton. "There was a lot of relief when the numbers started showing what they did," Vitt notes.

Annual projected savings for the project include: 6,000 kilowatts of peak demand electricity usage, 1.3 million kilowatt-hours, 30 million gallons of potable water and \$430,000 in utility savings.

To date, the project has already garnered multiple awards: a 2016 Environmental Achievement Award (special/innovative projects category) from Airports Council International-North America and the 2015 Governor's Environmental Stewardship Award (sustainable performance



Rough terrain and windy weather challenged onsite work crews.

category) from the Tennessee Department of Environment and Conservation.

In retrospect, Terry says that the project offered a valuable opportunity to put corporate social responsibility in action by doing good things for the environment and the airport. "A lot of times we do projects because there's a need, but every once in a while, a project has a social consciousness, it's for the greater good," he notes. "This was one of those."

Sisemore credits Vitt for thinking out of the box and balancing risk with potential reward. "This project was very unique, hard to model and know exactly how it would function," he reflects. "Honestly, the system is running more efficiently than what the design team had targeted."

The project's performance-guaranteed contract undoubtedly multiplies that excitement.

Vitt considers the geothermal project a gratifying accomplishment that was a long time coming. "Everyone is happy with the system," she reports. "Even the maintenance crew is touting how easy it is to monitor and maintain. There's just nothing negative about it, and that in itself is pretty rewarding!" ✈️

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Lost Nation Airport Boosts Income



Lost Nation Municipal Airport (LNN), a reliever for Cleveland Hopkins International, has an unusual business as its major tenant. It's not a corporate flight department or aircraft maintenance shop, but rather a family sports and recreation facility, complete with basketball courts, indoor soccer fields, batting cages and lots of other facilities designed for fun.

LNN developed the Lost Nation Sports Park by repurposing a 75,000-square-foot hangar on the far northwestern corner that stood empty for years. Now, the facility generates \$83,000 in rent for the small airport, and has become an integral part of its local community, Willoughby, OH.

The facility is open year-round, and offers both indoor and outdoor courts and fields. Programs for adults include flag football, soccer, volleyball, basketball, softball, indoor golf and Zumba classes. Children play basketball, baseball, flag football, soccer and other activities. The airport facility even includes a full-service restaurant/bar.

Securing a major tenant such as the sports park was a godsend for LNN, comments Airport Manager Patty Fulop. "The hangar was built in 1992 as an aircraft repair facility, and Cleveland Jet was the major tenant. They worked on Gulfstream, Lear and CitationJets," she chronicles. "But Gulfstream decided to take its repair business in-house, and it left Cleveland Jet with a void from which they could not recover. That was a major hit for us; the hangar was empty for several years."



PATTY FULOP

That's when Mike Srsen, a local businessman and former treasurer of the Cleveland Browns, approached airport officials about developing an indoor sports recreation facility that could be used year-round by local residents. Encouraged by their response, he pitched his idea to the city of Willoughby, which owned the airport at the time.

"I was willing to finance the deal myself, along with my partner, Patrick Parker [former chairman and chief executive officer of Parker Hannifin]. I thought it would be easy to get approval, since the hangar was empty, and they were not getting any money from it," Srsen recalls.

Several challenges lay ahead, however. "City officials liked the idea, but told us we needed FAA approval, since the hangar had a conditional use permit, which was just for airport repairs," he explains.

Mr. Srsen Goes to Washington

To move his sports complex idea off the dime, Srsen traveled to Detroit to meet with officials at the FAA Field Office, and also to Washington, D.C., to meet with Steven LaTourette, the region's congressman at the time. "Steve was very supportive, especially when we told him we would invest \$2 million of our own money, and no government funds would be needed," Srsen recalls of the recently deceased legislator. "What is not to like?"

One of the congressman's most helpful contributions was warning the entrepreneurs about likely bureaucratic delays. "Steve was instrumental in going through the step-by-step process, and

with Community Sports Park

BY MIKE SCHWANZ

warned us that the government moves at its own pace," Srsen recalls. "Unfortunately, that turned out to be true."

After two years navigating the permit process, Srsen got FAA approval, and Lost Nation Sports Park opened in 1998.

The building has two full-length basketball courts, which also double as volleyball courts. An artificial turf field is used for soccer, lacrosse and flag football. There also are several indoor batting cages. In 2002, the owners expanded outdoors by adding six full-sized soccer fields—a project that required new drainage pipes for the 13-acre parcel.



FACTS&FIGURES

Project: Community Sports Park

Location: Lost Nation Municipal Airport (Willoughby, OH)

Annual Aircraft Operations: 46,000

Airport Owner: Lake County Ohio Port & Economic Development Authority

Strategy: Convert empty hangar into revenue-generating sports facility

Hangar Size: 75,000 sq. ft.

Name of Business: Lost Nation Sports Park

Sports Offered: Flag football, soccer, volleyball, basketball, softball, indoor golf, Zumba classes

Annual Rent: \$83,000

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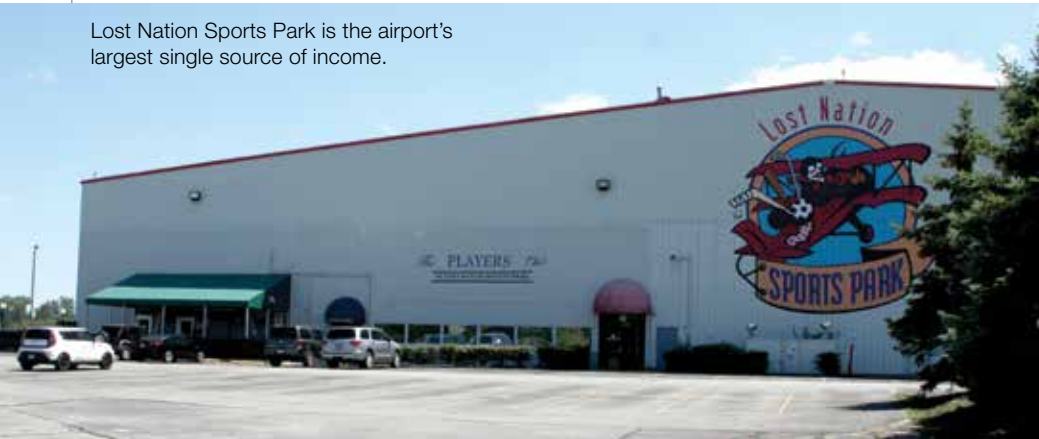
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Lost Nation Sports Park is the airport's largest single source of income.



Growing the Field

From the airport's perspective, Lost Nation Sports Park is a valuable tenant that pays \$83,000 per year in rent—LNN's largest single source of income, notes Fulop. "We own two large hangars, and five others are owned by individuals. However, we have long-term land leases with all of our hangar tenants, including Lost Nation Sports Park," she elaborates.

Classic Jet Center rents the two airport-owned hangars and runs its fixed-base operation. It also provides the airport with maintenance services such as mowing and snow plowing.

Lately, Fulop is noticing a change in the mix of aircraft flying in and out of LNN. "We are seeing an uptick in our corporate jet business," Fulop reports.

The Lake County Ohio Port and Economic Development Authority, which took over airport operations in October

These days, the sports park is a significant part of the community, remarks Srsen. "Besides all of our sports leagues, we also have a full-service restaurant and bar. So many people come here just to dine and socialize."

And the business continues to grow. "We now have 10 full-time employees,

plus 50 other part-time employees," he reports. "It is very satisfying that thousands of people use this facility throughout the year."

In fact, the facility at LNN has been so successful that Srsen recently opened a similar recreational park in Lorain, OH, a western suburb of Cleveland.





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MARK RANTALA

2014, expects that growth to continue and increase. Mark Rantala, the authority's executive director, considers LNN an underserved airport with a bright future. "Lake County has 230,000 people. Mentor has 50,000, and Willoughby has 30,000. So a third of the county population is right here, and the airport is right in the middle of the two," he says.

In addition, Rantala emphasizes that Lake County has 900 manufacturers, and most are located just one mile from LNN. "Many executives like to fly in and out of our airport," he comments. "We are now receiving FAA money for airport improvements, as well as funds from the Ohio Department of Transportation.



After establishing its indoor facilities, the sports park expanded outside by adding six full-sized soccer fields.

"We renovated both airport runways, and added automated weather observation systems. We are selling more fuel, and we anticipate adding more T-hangers. There is room on the property to do that, and there is a demand for hangar space. We are aggressively looking to get that done," he adds.

Recent and future improvements notwithstanding, Rantala acknowledges what a unique and important role Lost Nation Sports Park played in helping keep the airport afloat during lean times a few years ago: "[It] is a very valuable county resource, especially as a recreational facility for adults as well as children. They have been a wonderful tenant for us." ✈️



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FACTS & FIGURES

Project: Environmental Standards for Ridesharing Services

Location: Seattle-Tacoma Int'l Airport

Companies Involved: Lyft; Uber; Wingz

Sample Provisions: Vehicle emissions/fuel efficiency requirements; penalties for deadheading; reporting requirements

Pilot Timeline: March 31, 2016 - March 31, 2017

2014 Outbound Taxi Trips: 818,526

2015 Outbound Taxi Trips: 920,062

Trips by Ridesharing Companies in April 2016: 39,975

Reduction of Taxi Trips vs. April 2015: 6.7%

Trips by Ridesharing Companies in May 2016: 51,438

Reduction of Taxi Trips vs. May 2015: 9.1%

Sea-Tac Establishes Guidelines for Rides

BY MIKE SCHWANZ



Seattle has long been considered one of the greenest cities in the United States, and Seattle-Tacoma International Airport (SEA) is making sure that the ground transportation options it offers passengers live up to that reputation.

Since 2003, SEA has required taxis servicing the airport to meet various environmental standards. Now, it is applying the same criteria to ridesharing companies as well.

On March 31, 2016, the Port of Seattle officially began allowing select transportation network companies—Uber, Lyft and Wingz—to pick up and drop off riders at SEA. On

the same date, it started a one-year pilot program with provisions that outline fuel efficiency/emissions standards for such vehicles, measures to decrease deadheading (miles driven without a passenger) and incentives to encourage drivers to promote carpooling among customers.

Details of the pilot program include:

- \$5 per trip pickup fee for vehicles driving for transportation network companies.
- Pickups are restricted to the third floor of SEA's parking garage. No pickups are allowed on airport drives.



Environmental Sharing Companies

- Each ridesharing company is required to use its customized software to report whenever vehicles using its app enter the geo-fences (virtual perimeters) around the airport drive.
- Ridesharing companies are required to send monthly information on each vehicle servicing the airport, with specific data regarding pick-ups, drop-offs and other activity details.
- Ridesharing companies are required to adhere to the Port's Environmental Key Performance

Indicator (E-KPI), which establishes a threshold for emissions based on a fleet's weighted average mile-per-gallon performance, deadheading statistics, and pooling of passengers who are otherwise unaffiliated. If companies do not meet the environmental performance standards after six-month and nine-month periods, they incur additional \$5 per trip fees until they achieve the Port's green benchmarks.

E-KPI guidelines may appear to be overly complicated, but they are not

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as bad as they seem, says Stephanie Meyn, manager of the Climate Protection Program at the airport. "For one thing, drivers operating under the Uber app know they need to get at least 45 mpg on their vehicles in order to pick up passengers, so they buy various hybrid or electric models," she says. "Ultimately, this saves them money on gas." (See sidebar 69 for info about hybrids at SEA.)

"In addition, the TNCs (transportation network companies) provide the vehicle data that we need," adds Meyn. "The



STEPHANIE MEYN

companies accumulate all of this data, and use it for the monthly report they send to us. The drivers themselves are not involved in doing this."

Worth the Effort

"Most airports require GPS-based activity data from TNCs," continues Meyn. "While we have to request additional data to calculate the E-KPI, this is data the companies already collect. We need the make, model and vehicle year, and then our data systems look up the EPA fuel economy of that vehicle. We also have data on the success rate of carpooling and deadhead reduction. We do all the calculations. We don't ask the drivers or TNCs to do this."

To help decrease deadheading and manage vehicle traffic at the airport, SEA established a holding lot specifically for ridesharing drivers. The lot is especially useful for drivers dropping off passengers during off-peak times, because they can wait for business to pick up during busier flight periods without leaving the airport grounds. There is a three-hour time limit for drivers to receive deadheading reduction credits.

Drivers also get credit for carpooling passengers, but results for that component of the program may not be known for several months, notes Meyn. Uber and Lyft have apps that help customers share rides, and travelers seem to be slowly getting used to the idea. "Business travelers who have been using taxis for many years may be hesitant to use ridesharing. But it does save passengers money, so I expect it will catch on, especially for personal travel," she reasons.

Looking Forward

As is the case in most markets, younger people use ridesharing apps more than older demographic groups in the greater Seattle region. "As time goes on, we expect older passengers to get more comfortable using TNCs to get to and from the airport," Meyn predicts.

With the airport's pilot program still in its infancy, SEA will not perform a full environmental analysis on it until sometime in October 2016, after new provisions have been in effect for about six months. But for now, each TNC is sending monthly reports to airport officials. "This spring and summer, we have been doing E-KPI calculations and working closely with all the ridesharing companies to help them with any issues they might have," Meyn says.

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Seattle is Hybrid Country

Not surprisingly, the rate of hybrid ownership in Seattle is high compared to other U.S. markets. According to Nielsen Scarborough market research, about 5% of all vehicles in the area are hybrids—slightly more than double the national average.

Although outdoorsy Subaru Foresters are a much more common sight in the area, 13,000 Priuses are registered as passenger vehicles in King County, WA. The zip code with the highest rate of Prius ownership includes Seattle-Tacoma International Airport (SEA) and Tukwila—middle-class neighborhoods with many international residents. In these areas, there are 414 Priuses for every 10,000 car-owning households.

“So far, so good,” she reports. Meyn and Sustainability Manager Leslie Stanton give regular updates about the pilot program to senior leaders on the Port of Seattle Commission, which oversees SEA as well and local maritime activities. “This project is very important to the elected commissioners,” Stanton says. “The commissioners hold the TNCs very responsible. They take it seriously. The voters want this as well. Seattle is one of the most environmentally conscious cities in the country, so the people here expect the airport to do its part to reduce emissions.”

Taxis, Too

The environmental standards recently applied to ridesharing companies have been in effect for taxis operating at SEA for more than a decade. Because Yellow Cab holds the contract to pick up passengers *leaving* the airport, its vehicles also must meet SEA’s 45 mile per gallon fuel efficiency standard average and other requirements such as deadhead reduction. (Any taxi company may drop off passengers at the airport.)

Yellow Cab’s contract expires this fall, but it is expected to be one of the bidders for the airport’s next five-year contract. The airport issued a request for proposals in May/June, and SEA officials were evaluating responses from several companies in July/August.

SEA’s requirements for taxis, and now ridesharing vehicles, establish a decidedly green benchmark for the industry regarding mainstay ground transportation options. “We are proud that we are the only airport in the world with such strict environmental standards,” notes Stanton. ✈️

The overall top-selling electric car in the greater Seattle area is the Nissan Leaf, but the Toyota Prius is by the far the leading model used by ridesharing companies operating at SEA. Other popular models include Honda Civic hybrids, as well as Ford Focus and Nissan Leaf electric plug-ins.

Since SEA launched its ridesharing pilot in late March, personnel are even seeing luxury-level Teslas picking up passengers at the airport. “I guess the word has spread,” quips Stephanie Meyn, manager of SEA’s Climate Protection Program. “Sea-Tac Airport prioritizes low-carbon transportation and getting you there in style.” ✈️



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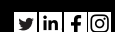
TOP: Denver International Airport – Hotel and Transit Center, Colorado
LEFT: Los Angeles International Airport – Tom Bradley Terminal, California | RIGHT: San Francisco International Airport – Air Traffic Control Tower, California

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Abraham Lincoln Capital Airport



FACTS&FIGURES

Project: Hangar Reconstruction

Location: Abraham Lincoln Capital Airport (Springfield, IL)

Hangar Size: 20,000 sq. ft.

Rehab Cost: \$1.3 million

New Features: Lower ceiling, induction lighting, right sized infrared heat systems

Architect: Knight Engineers & Architects

Owner: Springfield Airport Authority

Operator: Horizon Aviation

Construction Complete: Feb. 2015

Details: Airport opted to reconstruct & update 50+-year-old hangar rather than build new; saving steel structure & concrete floor reduced expenses & increased sustainability of project



There comes a time in every airport's life when the focus has to become "out with the old and in with the new." Sometimes that means building entirely new facilities. More often, it involves breathing new life into existing facilities by adding modern updates and conveniences. Such was the case when Abraham Lincoln Capital (SPI), a commercial air service airport in Springfield, IL, recently updated its hangars.

The Springfield Airport Authority and Horizon Aviation, the field's fixed-base operator (FBO), first put the wheels in motion to replace or upgrade the airport's hangars in September 2013. The airport's three hangars supporting operations at Horizon were approximately 55 years old and lacked modern features. After evaluating multiple options, airport officials decided against demolishing a facility known as Hangar 3



ROGER BLICKENSDERFER

and building new. The most efficient plan was to preserve some portions for reuse and reconstruct the rest. Roger Blickensderfer, director of Facilities and Maintenance at SPI, calls the strategy "sustainable reutilization."

"Rehabilitating it would give us an operational facility that would allow us to do more construction at the airport as time went on," explains Blickensderfer.

Executive Director Mark Hanna notes that rehabbing Hangar 3 was the first phase of a larger plan to overhaul the entire FBO facility. Some of SPI's corporate users sought their own space on the field, but were not interested or able to lease property or having the airport build them a hangar of their own, he explains. "These corporate tenants were at a point where they were starting to fly more for business, but weren't quite at a point where they needed their own



MARK HANNA



Updates 50+-year-old Hangar

BY RONNIE GARRETT

facility,” Hanna elaborates. Rebuilding ‘Hangar 3’, and changing its configuration, enabled the airport to fashion a more efficient hangar with suites, or smaller, individual corporate hangars under the same roof. Airport management considers the project a short-term measure that facilitates long-term plans to update all the buildings at the FBO complex, including the airport’s other two hangars.

“We wanted to provide the best infrastructure possible to support the airline, corporate and general aviation owners and operators, and the flying public who use Abraham Lincoln Capital Airport,” says Springfield Airport Authority Chair Frank J. Vala. “Restoring Hangar 3 to like-new condition produced immediate benefits for corporate, general aviation tenants and Horizon Aviation FBO.”

Preserving the Old

Before any changes occurred, officials debated the merits of keeping the more

than 50-year-old hangar. “We batted back and forth between rehabilitating the hangar and building new,” Blickensderfer recalls. “But brand-new construction would have had to go back on the same footprint, or very close to the same footprint, which would have meant removing the concrete floor as well as the entire structure.”

The airport retained Knight Engineers & Architects to develop options for Hangar 3. After a professional review of the facility’s interior and exterior, Knight determined that the structure’s bones and steel facade were reusable and able to support new siding and roofing materials. The \$1.3 million price tag for reconstruction was also low enough that the airport could release the facility back to Horizon Aviation and amortize the payments, Blickensderfer says.

Demolishing the hangar in its entirety, then building a new one was estimated to cost approximately \$5.5 million,

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notes Hanna. "The economics made sense: \$1.3 million vs. \$5 million," he relates. "And the expected lifespan of either option was about the same."

Jon S. Ditter, senior architect at Knight Engineers & Architects, notes that his firm supported the decision to rehab rather than replace the hangar, and his team relished the chance to use sustainable and green building concepts to execute the project. "The rehabilitation essentially doubled the building's lifespan, while providing like-new building aesthetics," says Ditter. "[It also] increased efficiencies and performance, which will serve the airport and its tenants for years to come, while reducing its impact on the environment."

New Floor Plan

Before recent renovations, Hangar 3 was an underutilized open bay hangar with one 80-by-18-foot bi-fold door and aged electrical, lighting and heating systems. Smaller, single-engine aircraft were its primary users.

The plan developed by Knight and SPI converted the 20,000-square-foot hangar into a three-suite facility, with approximately 12,600 feet of common hangar space and

two corporate suites. The individual suites, each with its own doors, contain about 4,000 square feet and 3,400 square feet of space, respectively.

“The hangar was deeper than it was wide,” says Hanna. Although the design was inefficient for ground handling, aircraft storage and moving aircraft in and out, the large, long footprint enabled designers to break up the space into three separate parts. With two doors of slightly different sizes on the north side, the new hangar can accommodate larger aircraft with wider wingspans, while also offering separate suites for smaller aircraft. Occupants now refer to the hangar as user-friendly, notes Blickensderfer.

Eye on Sustainability

To preserve the hangar’s main steel structure, which engineers determined was sound, crews began by installing additional beams and cleaning the steel. Next, they applied a conversion coating to the entire structure to prevent rust and corrosion. According to Hanna, the conversion coating will extend the life of the building by up to 50 years. It also eliminated the need to mill new steel and haul it in from another location, he adds.

“The entire structure was cleaned and power-washed, and then this conversion coating was put on to keep corrosion and rust from returning.”

Crews also replaced all remaining metal materials and the facility’s electrical and mechanical systems. “All of the roof’s steel; all of the sidewall steel; and all electrical, mechanical materials were recycled,” reports Blickensderfer. “The airport took bids from local recyclers to get the best price per pound. These materials will be reused in other metal products down the road. Plus, there was a little bit of value returned back to us in recycling these materials.”

Retaining the hangar’s existing structure allowed the airport to keep the original concrete floor intact—a measure that reduced construction dust and haul-away emissions, minimized materials going into landfills, and prevented potential damage to existing roadways.

Changes to the ceiling reduced the area inside the hangar that requires heating by 23%. The original hangar had a high interior roofline and lacked a traditional ceiling, explains Blickensderfer. “It was about 44 feet from the roofline to the peak,” he details. “We put in a 20-foot ceiling and insulated [it].”

The new ceiling also prevents birds from sitting on the original building structure inside the hangar. Previously, birds created a mess that required additional maintenance and posed potential health hazards.

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Designers reconfigured the 20,000-square-foot hangar into a three-suite facility with 12,600 feet of common space and two separate corporate areas.



Between heat and electricity, the new hangar consumes 28% less energy than its predecessor, reports Blickensderfer. “We had been heating a much larger area than we needed to,” he explains. “Heat rises, and we were heating up by the peak of the roof. That wasn’t helping keep heat where it needed to be, which was where the airplanes were actually parked.”

White paint on the ceiling reflects light from the hangar’s new induction lighting system, which improves visibility in the suites while reducing the amount of electricity consumed.

Engineers also right-sized the infrared heating system to the facility’s square footage. Infrared heaters, combined with the lower ceiling and improved insulation, reduce the total thermal units needed to heat the suites and improves the quality of the heat produced. “Before the rehabilitation, the heating costs were very significant,” Hanna recalls, noting that new efficiencies benefit tenants and the airport alike.

Inspired by the performance of interior induction lighting (Blickensderfer estimates that it is 60% more efficient than the previous system), the airport decided to install LED lights outside. The new energy-efficient fixtures are expected to further reduce tenants’ electric bills, greatly improve the security and safety of night operations, and reduce maintenance needs.

“We’d already been moving toward LED lights throughout our airport facilities,” comments Blickensderfer. “We’ve had extremely good results with electricity reductions using LED lighting.”

Sustainability Sans Certification

Despite the project’s numerous sustainable features, the airport opted not to pursue Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council.

“We wanted to incorporate sustainable concepts into this rehabilitation to gain the benefits and efficiencies associated with such construction techniques,” explains Hanna. “Doing so will lower operating costs for our tenants and reduce maintenance costs for the airport authority.”

LEED certification simply wasn’t necessary, he adds: “We wanted to add sustainable processes and preserve infrastructure, and build using LEED concepts. But we thought instead of spending the money to go through the LEED certification/commissioning process, those funds could be used to create greater value in the project.”

With or without LEED certification, the airport has an energy-efficient facility that is, for all practical purposes, new, he reflects.

It’s also being well received by users, adds Blickensderfer. “The reconstruction and rehabilitation of Hangar 3 was immediately appreciated,” he comments. “The two corporate suites were rented and occupied on the first day of availability, and the aircraft operators in the common hangar refer to it as new hangar space.”

Previously, owners were reluctant to store their aircraft in the hangar. “That is no longer an issue,” he says proudly. “We see aircraft being moved in there that weren’t part of this FBO’s customer portfolio previously... This is a brand-new hangar in every aspect from a day-to-day use standpoint.” ✈️

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FACTS&FIGURES



PORTLAND (OR) INT'L AIRPORT

Project: Measuring Customer Satisfaction

Data Sources: Airport Service Quality program; in-house surveys on iPads; ad hoc research; comments via social media

Volume: 4,000-5,000 surveys/yr



SOUTHWEST FLORIDA INT'L AIRPORT

Project: Measuring Customer Satisfaction

Data Sources: Airline surveys; social media posts

Volume: 1,000 surveys/quarter



TAMPA (FL) INT'L AIRPORT

Project: Measuring Customer Satisfaction

Data Sources: Multiple-choice questions during Wi-Fi log-in; social media responses; focus groups; Airport Service Quality program; third-party surveys

Volume: 2,500 surveys/day

Est. Total Surveys: 920,000/yr

Research Staff: 2

Research Budget: \$225,000/yr (excluding personnel costs)

Survey Says: It Pays to Know What Customers Are Thinking

BY KRISTIN VANDERHEY SHAW

As competition for passengers grows fierce, some airports are turning into freestanding, amenity-filled cities in their own right. Those actively engaged in the “amenities/service race” often consult survey data to guide their ongoing improvement efforts.

J.D. Power, a mainstay in consumer satisfaction research, offered this observation in its latest North American study: “Airports have undergone a major cultural shift, as traveler experience has become the focal point of airports’ strategy to improve overall passenger satisfaction.” The firm also notes a widespread emphasis on terminal facilities—the factor its research indicates has greatest impact on overall airport satisfaction.

This year, Portland International ranked highest in satisfaction among large airports on the J.D. Power survey, followed by Tampa International. Dallas Love Field and Southwest Florida International tied for the top nod among medium-sized airports.

What sets these airports apart? Clearly, they all strive to learn what their customers are thinking, and not just through the annual J.D. Power survey. Top-performing facilities use many methods to track and improve their performance: in-house and third-party research; customer comments on social media; and results from Airport

Service Quality, the global benchmarking program administered by Airports Council International.

Leveraging Wi-Fi

In addition to recent wins on the J.D. Power survey, Tampa International Airport (TPA) has been recognized by *Travel + Leisure* magazine as one of the top three U.S. airports since 2013. Readers describe the Florida facility as “easy to navigate” and even “the model for all U.S. airports.” With a reputation like that to preserve, TPA doesn’t cut corners when it comes to gathering passenger data.

The Airport Service Quality program is a key tool for the airport, but it also hires a third-party firm to survey departing passengers at random intervals. Additionally, it runs survey questions that pop up every time passengers log onto the airport’s Wi-Fi network. In-house programmers created the system and template for the Wi-Fi survey, and TPA staff members administer it. Kenneth Strickland, senior manager of Research and Evaluation for the airport, compares the program and its results dashboard to SurveyMonkey, a mainstream online tool.



KENNETH STRICKLAND

“The Wi-Fi at TPA is free and has been since the beginning. It’s one of the essential elements of our brand,” advises Strickland. “We want airport visitors to be comfortable when they’re here and feel like they’re just hanging out in a great space. There’s no advertising on our Wi-Fi, but we do ask guests to complete a quick survey before getting online, and most guests don’t mind doing that in exchange for the free high-speed access. People can opt out easily, but most don’t. Our response rate is 59 percent.”

Each customer who logs on receives a maximum of five multiple-choice questions, which the airport team updates frequently. “We can collect about 2,500 surveys per day,” Strickland reports. “With that much data, we can get very granular.”

Typically, the airport runs three to five surveys at any given time, and questions are asked for a variety of purposes. Collecting zip code information, for instance, tells his team whether travelers are local.

In July, a top priority was gauging how the \$1 billion construction project currently underway is affecting traveler experience. “Tampa Bay’s airport is beloved in the community, and we are well known for our commitment to customer service,” says Strickland. “That didn’t change just because we are under construction. Our mantra has been: We’re an airport first, a construction zone second.”

“By doing regular surveys, starting just after we broke ground in late 2014, we can measure how and if construction is impacting the passengers’ trips. We want to be able to adjust quickly if needed. Fortunately, we have never exceeded 6% of passengers saying they are heavily or moderately impacted, and we trend closer to 3%.”

Through the Airport Service Quality program, officials discovered that ambiance is very important to TPA customers. In subsequent ad hoc and online surveys, the airport asks where passengers are located when answering particular questions, so staff can identify and improve areas that may need attention. Changes can include adding greenery for visual appeal, shifting noisy construction projects to off-peak hours and increasing janitorial staff during high-traffic periods, explains Strickland.

“The data we collect sparks a lot of conversations with our construction team, janitorial team and operations team,” he notes. “With 2,500 surveys per day, we can get a good cross section for even the smallest segments.”

The airport uses Wi-Fi surveys when there is not enough time for a full-blown market survey. As TPA prepared to redevelop its concessions program, debate swirled internally about emphasizing local brands vs. national brands. Strickland’s team consequently tested passenger opinions on the subject. With attention turning toward public transportation options between downtown and the airport, the team gathered enough data after a week or two to estimate the number of passengers interested in such service.

When renderings of a consolidated rental car center began circulating, the team realized the future facility would be pivotal to the airport’s brand; so it completed a large, in-house brand study with focus groups. Response from passengers indicated clear

concerns about potential disruption, and the airport knew to tread carefully. “We’re expanding to accommodate more passengers, and it’s a delicate balance to ensure we keep our passengers happy,” explains Strickland.

Survey data also helps the airport serve particular populations of passengers. Knowing that 40% of its travelers are older than 55, TPA works to eliminate dark spaces and sharp corners in its facilities. As a result, designers have created cleaner sightlines for easier wayfinding.

Overall, Strickland pegs the incremental value of TPA’s survey program at more than \$2 million. “Since we launched this program, we have received over 3 million surveys at no cost to us, and we can see via social media that our passengers appreciate the option,” he advises.

Using surveys and focus groups, Strickland estimates that TPA has completed \$300,000 to \$400,000 worth of brand work in-house for less than \$20,000. Research results were used to create the airport’s brand standards and a first-time brand manual.

“One firm suggested a sand creation as a centerpiece in the terminal, and through focus groups we discovered that what gets passengers really excited is the visual stimulation of water,” Strickland says. “The Florida experience starts in the air, when passengers are landing here. We need to embody that Florida feeling from the time they get off the plane to the time they leave.”



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The airport even used surveys to improve its already-popular spring Runway Run. Based on customer feedback, the team changed the shirts that promote the event and added more portable restrooms on race day. This year, they achieved a 22% survey response rate and a tough-to-beat 96% satisfaction rate.

“We believe strongly in disclosing our survey results with other airports,” says Strickland. “Not many airports have market research people on staff like we do; we share our tactics with other airports and I am contacted regularly with requests to share our process. Healthy airports and healthy airlines are good for everyone, so it’s important to us to help out.”

We’re Listening

Passengers love Portland International Airport (PDX) so much that even its carpet has a hashtag: #pdxcarpet. When the airport replaced the iconic floorcovering last year, it also created a cubist collage in its honor.

But carpeting isn’t the only thing passengers love about PDX. The Oregon airport is consistently lauded for its customer service, and it topped the large airport category in the 2015 J.D. Power survey. PDX keeps an even closer eye on customer satisfaction via a steady stream of in-house surveys

The airport’s own research and strategic analysis team develops and administers the studies. Using iPads and a quantitative 10-point scale, onsite personnel ask visitors about facility cleanliness, staff courtesy, speed of service, and then drill down from there. In total, they survey 4,000 to 5,000 passengers annually, and social media channels funnel in other additional comments.

“We want to be a place where passengers love to hang out,” says Public Information Officer Kama Simonds. “The closest major airport is three hours away, and very few passengers complain about getting here.”

The airport also conducts a terminal user survey five times per year to collect demographic and determine how its passenger base may be changing. The survey collects information such as age, gender, trip purpose, point of origin, checked bags, etc.

“We’re interested in the passenger experience and recommendations for improvement,” says Walt Marchbanks, customer relations manager for the Port of Portland. Recent comments include requests for more comfortable seating and more



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power outlets in gate areas, reports Marchbanks. Feedback about baby changing tables and lighting helped prioritize previous projects, he adds.

According to Simonds, it's all about heeding passenger requests whenever possible. "On Concourse A, passengers were routinely expressing frustration about our flight information display system (FIDS) screens," she relates. When the airport upgraded the concourse, passenger input influenced the decision to purchase bigger screens and where to place them. "Our surveys are a great source of data from our customers," says Simonds.

PDX also has an active customer information team that answers the white paging phone in the terminal and responds to emails in addition to monitoring feedback from surveys and social media. Everything is tracked and analyzed, notes Simonds. "We're not assuming, we're actively asking questions," she emphasizes.

When passengers click "contact us" on the Port of Portland website, their messages are sent to the airport, where personnel track and categorize the comments. The team captures metadata, and then aggregates and analyzes it. Results are used in annual reports and three-year collections.

"As time changes, our tool changes," Marchbanks comments. "Now, we can reach customers through social media. You have to

evolve through time and see which ways your customer wants to communicate. We're using Facebook and Twitter as well as our conventional methods."

Recognizing the powerful affect that passenger screening has on customer satisfaction, PDX includes local TSA personnel in its airport-wide customer service program. Marchbanks reports that the relationship is excellent on both sides. The PDX team monitors survey responses about the TSA checkpoint and has implemented various amenities to stave off undesirable scores.

During the 2016 summer travel season, the Port of Portland hired 16 contract security officers for line management, to help free TSA officers for screening duties. The contract helpers worked eight hours per day from June 12 through Labor Day. "The Port has been working actively with the TSA to avoid adverse experiences, and I feel that we have the best TSA team in the nation," says Marchbanks.

Simonds agrees that it's important to take a holistic approach and survey passengers about specific details such as security, check-in and getting to the airport. "Sometimes, the airport team is not the only owner of that process, so we have to look at those comments carefully to see which elements are in our control or which we need to work on with our partners and vendors," she explains. "Our ultimate goal is to help our travelers."



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Airline Info

Southwest Florida International Airport (RSW) was bursting at the seams before its new \$438 million terminal opened in September 2005 with three concourses, 28 gates and the ability to expand to five concourses and 65 gates over time. As such, officials remember an important caveat when comparing survey results with other similar-sized airports: RSW is relatively new.

“Our airport facility is only 10 years old and still has the ‘new-car smell’,” says Vicki Moreland, director of Communications and Marketing for the Lee County Port Authority Department. “Because it was the first terminal built since 9/11, we were designed in the post-9/11 environment. We have concessions before and after Security. We have the latest infrastructure, so when we benchmark with other airports our size, our wayfinding, customer amenities and cleanliness are off the charts because our facility is so new.”



VICKI MORELAND

The airport receives a windfall of customer satisfaction information from one of its largest airlines, which surveys

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passengers monthly. Data includes general satisfaction levels and specific feedback about security, concessions, cleanliness and parking. Quarterly reports provide customer demographics and allow RSW to see how it stacks up against other similar-sized airports.

In one survey report, the RSW team noticed that the airport's cleanliness ratings declined slightly during the busy winter travel season. Feedback from customers via social media echoed the sentiment. The airport quickly shared the data with Triangle Services, its cleaning provider, and increased the maintenance budget to allow for more janitorial staff.

In a similar vein, the airport regularly shares pertinent feedback with SP+, its parking vendor, and HMSHost and Paradies for concessions.

If scores decline in any area, the airport takes note and strives to proactively make improvements, notes Moreland. "For instance, RSW has met or exceeded the standards in satisfaction for our security wait times," she remarks. "But last season, we saw the scores slide down. Not alarmingly so, but it was a driving factor for us to budget additional funds to hire an outside firm to help manage the lines for the next winter travel season."

When questions or comments arrive via social media or the airport's website, a trained team of five professionals work with

Moreland to respond promptly. They also send copies of specific feedback to RSW executives and other partners. "We track all feedback so if we see a trend, we can do something about it," Moreland says. "Most of the information comes through email into one central location, which means we handle responses very quickly."

RSW personnel also make a point to spend time out in the community, listening to what local residents say about the airport. "It's important to get specific feedback to make positive changes," says Moreland. "A citizen may not be looking at the parking the same way an infrequent traveler might. So if we survey approximately 800 people per quarter and determine whether they are visitors or residents, it helps from a problem-solving standpoint."

She cites Wi-Fi service and the cellphone lot as specific examples of amenities the airport has improved based on passenger survey data.

"Customer care is important to us," she emphasizes. "If we are recommending that travelers arrive two to three hours prior to their flight departure, this means they will be in our airport for a considerable period of time, and we need to anticipate and meet their needs while they are here." ✈️

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Eppley Airfield Sculpts New Retail Opportunity with Interactive Art Gallery

BY KEN WYSOCKY



FACTS&FIGURES

Project: Interactive Art Gallery

Location: Eppley Airfield (Omaha, NE)

2015 Passenger Volume: 4 million

Gallery Size: 1,000 sq. ft.

Operator: Hudson Group

Opened: April 2016

Merchandise: Various work of area artists (paintings, sculptures, hand-painted clothing, etc.) sold on commission

Interactive Element: Artist demonstrations are open to the public & streamed live to monitors outside the store

Key Benefits: Engaging travelers & increasing dwell time; boosting concession revenue; promoting the Omaha-area art scene

Eppley Airfield (OMA) in Omaha, NE, put its outside-the-box thinking on full display when it opened an interactive art gallery in late April. In addition to selling pieces by regional artists, the new concession features live demonstrations of select artists creating their work—a strategy that is engaging airport visitors and boosting retail sales.

The gallery, believed to be the only one of its kind in a U.S. airport, was developed and is operated by Hudson Group, OMA's retail concessionaire. The 1,000-square-foot space features everything from paintings, metal works and photography to sculptures, hand-blown glass, multimedia pieces and hand-painted scarves.

The new venture is located in the airport's north terminal, next to a Hudson bookstore in space vacated by a specialty retailer. Hudson also operates four news and gift shops at OMA.

"We were looking for something completely different to fill that space—something other than another news and gift shop,"

explains Stan Kathol, director of finance and administration for the Omaha Airport Authority. "We wanted a specialty shop with a Midwestern flavor to it, if you will."

Hudson Group Omaha spent nine months searching for potential Iowa and Nebraska artists to provide pieces for the gallery, and a jury of four longtime local artists made the final selections. "We wanted as many different

mediums as possible, not only to appeal to more people, but to showcase all the art created locally," says Christie Erwin, general manager of Hudson Group Omaha. "We tried to get the best of the best, from seasoned artists to up-and-coming artists who would normally have trouble initially getting their work into galleries."



STAN KATHOL



CHRISTIE ERWIN

Currently, Gallery Eppeley by Hudson showcases work from 52 area artists. Individuals agree to keep their art in the gallery for a year and are compensated on a commission basis when pieces sell. After the year concludes, artists may resubmit their work for inclusion in the gallery's next collection. To inject even more variety, Hudson features a guest artist position, which changes more frequently.

OMA's nine-year contract with Hudson guarantees the airport a minimum annual payment or a percentage of the gallery's gross annual sales of specific product categories, whichever is greater.

Erwin describes the response from airport customers as "overwhelmingly positive."

Kathol agrees, noting that the gallery opened just in time for three events that attract tens of thousands of visitors to the area: the annual shareholders' meeting of Omaha-based Berkshire Hathaway, the prominent investment firm owned by billionaire Warren Buffet; the College World Series; and trials for the U.S. Olympic swim team. Having the gallery ready for the increased traffic generated by these high-profile events gave it maximum exposure right from the start.

"The gallery helps portray Omaha and the airport as modern and progressive and shows visitors what Omaha has to offer in terms of the arts," Kathol comments. "For the short time it's been open, we've received a lot of positive feedback. It's a new, exciting and innovative concept."

A Year in the Making

The canvas for OMA's new concession concept was prepared last year, when airport officials started looking for a new retailer to replace a departing tenant. At the same time, Hudson's contract was coming due, and the global travel retailer was considering changes to some of its stores.

Erwin pulled from her personal palette and suggested an interactive art gallery. Years ago, she had arranged for artists to demonstrate and sell their art in the nearby casino where she used to work. "The concept worked exceedingly well, so I knew from experience that an art gallery might be a good fit here," she explains.

After Hudson executives approved the concept, Erwin presented it to OMA officials, who immediately embraced it. "I thought it was great," Kathol recalls. "We were looking for something unique."

Beyond simply adding a new retailer, management also wanted to encourage more browsing by the airport's approximately 4 million annual passengers. "We're not a large connecting hub and don't have a tremendous amount of physical space," Kathol notes. "People get in and out of our airport pretty efficiently—there's not a lot of dwell time."

Hudson's gallery proposal fit the bill, and a vacant corner store proved well suited for the new venture. With two walls of glass windows, it affords twice as much visibility for artwork as a conventional storefront. Hudson further opened the space by removing part of the wall that separates the gallery from the bookstore next door. "Generally speaking, people who like books also like art, so it's a perfect match," Erwin comments. New foot traffic from the gallery has helped increase sales in the bookstore, she reports.



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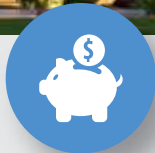
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The gallery features a wide variety of works from more than 50 area artists.

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The concessionaire enhances the gallery's novelty and draws customers inside by staging live demonstrations. On any given weekday, airport visitors can watch a professional sculptor, acrylic painter, jewelry maker, woodcarver or other artist at work, tapping new creative muses. Some of the artists delight young visitors by giving them lumps of sculpting clay, Erwin notes.

Two employees—well-known local artists Russell and Penny Christensen—fill in if a scheduled artist unexpectedly can't make it.

Hudson and OMA leverage the gallery's interactive nature and boost the retailer's visibility by showing live video of the artist demonstrations on two 60-inch television monitors mounted outside the store. The screens put the artists squarely in sight of passengers coming from the parking garage or emerging from a nearby elevator and escalator.

"They attract a lot of attention," Erwin notes. "People are curious and watch them work for a long time and ask a lot of questions...We've found that people tend to linger here while waiting for a flight or waiting to pick someone up."

From a retail perspective, Hudson makes a concerted effort to ensure that there's something for everyone in the gallery. Prices consequently range from .50 cents for a small piece of leftover blown glass known as a "forge drop" to \$24,000 for a 4-foot-tall bronze eagle sculpted by Russell Christensen. "We want everyone to be able to afford to buy art," Erwin says.

Purchases are packaged carefully for travel or shipped to customers' homes. Departing local passengers can leave purchased artwork at the gallery and pick it up upon their return. "The fact that the store is in an airport has not dissuaded people from buying things," Erwin notes.

If You Build It...

Erwin says the gallery at OMA reflects Hudson's willingness to try new things and could springboard to other novel retail attractions. "I don't know if this will become part of a national trend, but I think it's definitely working here," she muses. "It's perfect for this airport."

"Airports these days have to think outside the box a little bit," she continues. "There are so many news and gift stores in airports, so there's a need to stand out... People are looking more for an experience—something to do with their time when they're in an airport. So the trend is toward trying to find out how to give them that experience."

Kathol agrees, and notes that OMA's 25-year master plan could very well include other unique and innovative retailers. "If things work out well, most assuredly we'd consider this and other concepts in our future terminal master plan because we'll have more space available," he says. "We want to give our customers a good experience and give visitors to Omaha a good first—and last—impression of the city." ✈️



Artists are compensated on a commission basis when their pieces sell. Prices range from less than \$1 to \$24,000.



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TSA Screening Partnership Program is Good, But Certainly Not Perfect



Here we go again.

In March, suicide bombers attacked the departures hall at Brussels Airport, killing 16 people. In June, dozens were killed when Istanbul Ataturk Airport came under siege. Closer to home, Dallas Love Field suffered a single fatality this June, when city police shot a man who confronted them after throwing rocks at his ex-girlfriend's car as passengers streamed out of the baggage claim area.

Not surprisingly, airport security is once more at the front of most American travelers' minds—ahead of ticket cost, record-breaking profits for airlines and even the lines at Starbucks.

Shortly after the 9/11 terrorist attacks and subsequent creation of TSA, the safety and security of passengers was the new mantra coming from Washington. Forward thinking at the time even created a program that allowed five airports to develop and use a privatized security screening program. Kansas City International (MCI), where I served as director for 12 years, was one of those five airports.

Since that time, security concerns in the United States have ebbed and surged like the stock market and more than 20 U.S. airports now use private screeners. Militarizing passenger screening seemed like the right response to the heightened security concerns that followed the 9/11 attacks. Of course, some of the "antis" in political office voice concern about returning to private companies screening passengers. They fret about another terrorist event occurring because of a lapse by private screeners. However, private screeners followed all procedures and policies dictated by the federal government on 9/11.

I have to applaud the folks at TSA for keeping us safe. They have had a few miscues (behavior detection officers and millimeter wave machines some call "see



MARK VANLOH

Mark VanLoh, A.A.E., was director of the Kansas City Aviation Department from May 2004 to June 2016. Before that, he served in various executive positions with the Chattanooga Airport Authority, Cleveland Airports Commission, Toledo Port Authority and Rockford Airport Authority.

me naked devices"), but the PreCheck program is near brilliant. It's an idea that was no doubt borrowed from the airline industry, which provides special treatment to frequent fliers. That's right, a good idea from private industry—much the same as private screening providers.

I certainly trust the leadership at Homeland Security to provide airports with intel, procedures and policies; but as any airport director will tell you, the majority of our time in the office is spent on personnel issues. Imagine a workforce of 70,000 employees—or whatever Congress has set the number at this week. I can't believe that someone in a cubicle in D.C. is actually reviewing all of those performance audits, termination requests, random drug tests, family/medical leave cases, etc.

Airports are so unique that one size does not fit all, yet flexibility for screening operations at individual airports is non-existent. We recently observed this firsthand at Minneapolis-St. Paul and Atlanta International. Changes only occurred there after public outcry about long wait times and airport officials threatened to pursue privatized screening.

While I obviously tout the screening partnership program, I also recognize that it should be improved:

- TSA needs to be more flexible in its supervision to better foster innovation. Imagine Google or Apple working on their next groundbreaking tech device while being constantly redirected by Washington.

- TSA should rescind system-wide staffing caps based on what is being used elsewhere in the federal workforce. Airports are unique and have different requirements. Consider, for example, the unusual terminal layout at MCI!
- Private companies should be able to vary compensation and benefits for their employees instead of being tied to federally mandated salaries that may work in the Midwest but not California or New York.
- Airport operators should help select their private screening companies. As director at MCI, I was never involved with the process or even informed of the final decision until the new operator contacted us for badging requirements!
- Cost should not be the primary selection factor for private screening companies, as it currently is. This is a dangerous precedent that could return us to the poorly performing system that existed pre-9/11. Selection should be based largely on technical capabilities and performance.

Unfortunately, it appears that air travel will remain a preferred target for terrorists. We have to involve our brightest and most successful organizations to keep us safe and secure. I'm confident that private industry can be part of the solution to many of the technical issues faced by TSA, an understaffed and overworked federal department. ✈️

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