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ICT | 8



RSW | 16

**in this  
issue**



PHL | 20



DFW | 26



DTW | 32



MIA | 38



RNO | 44

- 8 Wichita Celebrates Past, Prepares for Future With New Terminal
- 16 Southwest Florida Int'l Opens Onsite Travel Plaza
- 20 Sign Standardization Enhances Wayfinding at Philadelphia Int'l
- 26 Dallas/Fort Worth Int'l Ramps Up Parking Options

- 32 Detroit Int'l Installs Visual Screen On End-Around Taxiway
- 38 Mobile Passport App Eases Congestion at Miami Int'l
- 44 Reno-Tahoe Int'l Delights Passengers with Random Acts of Kindness
- 50 Largest Freestanding Building in DHL Global Network Opens at O'Hare Int'l



ORD | 50



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2,000	Charleston (CHS)	Arrived
2,000	Minneapolis (MSP)	Arrived
3,000	San Jose (SJC)	Arrived
1,500	Salt Lake City (SLC)	Arrived
500	LaGuardia (LGA)	Arrived
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1,000	Newark (EWR)	Expected

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AVL | 54



MLI | 60



DEN | 64



RNT | 70



PHL | 78

## columns

Identity Crisis or Opportunity? 7

Industry Insider 82

Glenn Januska, director of Casper/Natrona County Int'l, demystifies air service development.

## advertiserindex

ACI-NA	63	Hanson	58
ADB Airfield Lighting	69	HNTB	13
AECOM	15	Hufcor	19
Aerosweep	27	IER	39
Airport Consultants Council	59	Infax	10
Airport Improvement	49	Inter Airport	81
Airport Lounge Development	3	International Display Systems	14
Airport Seating Alliance	18	ITW GSE	61
Airport Technical Support	13	JBT	11
Airus Media	65	Kaba	41
Argus	62	Kimley-Horn	33
Arora	21	Laz	30
Asphalt Systems	75	Liberty	28
ASSA	39	M-B Companies	31
Astronics/DME	45	Mead & Hunt	52
AVCON	55	Neubert	55
Becker 505	58	NLB	73
Blast Deflectors	71	Off The Wall Products	25
Boyd Forecast Summit	80	Parsons	67
CHA	71	Parsons Brinckerhoff	47
Chrysalis	9	Pennington Seed	17
Cobus	23	RS&H	57
Cofely	83	Ross & Baruzzini	12
Cyclone	76	Rubb	74
Daktronics	22	SEW	BC
Delta Airport Consultants	79	Sherwin	36
DS Brown	53	Signature/ASIG	2
Eaton Crouse Hinds	35	SITA	42, 43
EJ	72	Sprint	79
Ennis-Flint	37, 77	SWIFT	66
Five Star Airport Alliance	46	TranSystems	18
Flex-O-Lite	7	TYMCO	29
Fullfab	48	Tymetal	46
Gee	65	Waterblasting Technologies	51
Graco	37	Zoetig	5
Gresham, Smith & Partners	21		

54 Asheville Regional Saves \$12 Million Using Free Coal Ash Fill

60 Quad City Int'l Updates Boarding Bridges

64 High-End Pet Resort Adds Customer Convenience, Revenue at Denver Int'l

70 New 737s Roll Out on New Taxiway at Renton Municipal

78 Fort Lauderdale Int'l Starts a Reading Revolution With Free Virtual Library

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# Identity Crisis or Opportunity?

Remarkable architecture can instantly telegraph specific locations. Show many people a certain famous opera house, arch and tower, and they'll easily name the cities of Sydney, St. Louis and Paris, respectively. Here in the airport industry, we have our own share of memorable architecture: Denver International's iconic white fabric peaks, the distinctive curved forms around the control tower at LAX, and even the blue-green carpeting at Portland International. (It actually engendered a cult following and inspired a line of gift merchandise!)

Of course, identity isn't always physical or visual. Sometimes, personal interactions create an organization's identity. Reno-Tahoe International recently showed its stripes with a customer service program for all of us to admire. (See Page 44 for the details.)

Whether physical or cultural, identity is also moldable. It's up to *you* to shape what customers think of your airport; programs, policies and infrastructure improvements are your tools. When planning your next initiative, consider what makes your particular facility or market special. What's your *raison d'être*?

In today's climate of justifying every dollar spent, it's easy to undervalue the potential power and worth of an airport's identity. Sure, there's enormous pressure to build cost-efficient facilities with streamlined processing abilities. They don't, however, need to be plain, utilitarian boxes that forgo grand opportunities to create environments that travelers *want* to experience and spend money in.

It takes risk, money and a lot of time and energy to build a great airport. But it's worth it. Do you think there was much remorse at DEN, LAX and PDX after their memorable facilities were unveiled? Today, more than ever, we need visionaries to step forward and provide our airports with unique identities. Dream big!

In our March/April issue, we inadvertently neglected to credit the source of the runway photo on Page 36. It was provided by Aerial Innovations of Georgia.

Cheers,

*Paul*



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## factsfigures

**Project:** Terminal Redevelopment  
**Location:** Wichita (KS) Dwight D. Eisenhower Nat'l Airport  
**Program Name:** Air Capital Terminal 3  
**Total Cost:** \$225 million  
**Terminal Cost:** \$160 million  
**Cost of Parking Garage/Rental Car Center:** \$40 million  
**Enabling Projects:** \$25 million  
**Financial Consultant:** Leigh Fisher Associates  
**Transition Consultant:** Chrysalis Aviation Solutions  
**Program/Construction Manager:** Aecom  
**Master Architect/Engineer:** HNTB Corporation  
**Associate Architect:** GLMV Architecture  
**Civil & Mechanical/Electrical/Plumbing:** Professional Engineering Consultants; Dudley Williams Associates  
**Structural Engineer:** Dudley Williams & Associates  
**Terminal General Contractor:** Key Construction/Walbridge joint venture  
**Passenger Boarding Bridges:** Jetway, by JBT Aerotech  
**Boarding Bridge & Walkway Installation/Maintenance:** Airport Technical Support  
**Ground Support Equipment Installation Maintenance:** Airport Technical Support  
**Baggage System Design:** Logplan  
**Fire Protection Engineer & Code Consultant:** FSC  
**Information Technology Design:** Ross & Barruzini  
**Historic Exhibits/Public Art Coordinator:** Greteman Group  
**Landscape Design:** Landworks Studio  
**Paging & Acoustics:** AVANT Acoustics  
**Signage:** Carol Naughton + Associates  
**Curtainwall Design:** Heitmann & Associates  
**Parking Facility Engineer/Architect:** Carl Walker  
**Rental Car Facility Consultant:** Coover Clark  
**Parking General Contractor:** Crossland Construction Co.

# Wichita Airport Celebrates History, With New Terminal

The winds of change are blowing in Kansas. In January, Wichita Mid-Continent Airport (ICT) announced its new name, Wichita Dwight D. Eisenhower National Airport; and officials plan to unveil a new \$160 million passenger terminal building and \$40 million parking garage/rental car center in May. Together, the projects create a new front door for the city that highlights its heritage as “air capital of the world.”



Victor White

Since the 1920s, 300,000+ airplanes have been built in the city — more than any other place in the world. “We’ll always be the air

Victor White, director of airports for the Wichita Airport Authority, explains that the city moniker has nothing to do with ICT or its airline service, but everything to do with airplane manufacturing.

capital and wanted to capitalize on that and reclaim that title in the minds of our local community and the visitors to the airport as well,” White elaborates.

Officials named the airport’s recent terminal development project Air Capital Terminal 3 (ACT 3 for short) because the new facility is the city’s third airline terminal. The first was built in the early 1930s and is now home to the Kansas Aviation Museum. The second terminal opened in 1954, when McConnell Air Force Base opened and forced the airport to relocate to its current site.

The need for a new terminal was outlined in a 2001 update of ICT’s master plan. The existing terminal, designed and built in the 1950s, was “mechanically deficient and functionally obsolete” and did not meet current fire, electric and plumbing codes, White relates.



# Prepares for Future

By Jodi Richards

A second “sub-area master plan” later presented two choices: rehabilitate the existing terminal or build a new facility. Supporting analysis showed that both options would cost roughly the same, but a remodel would take twice as long as starting from scratch. In 2004, the airport authority, which is also the city council, voted to move ahead with designing a new terminal. Given the similar cost estimates, efficiency and convenience for customers and airlines drove the decision, White explains.

## Convincing the Carriers

The airport hired Aecom as the ACT 3 program/construction manager in 2005; and HNTB was brought in as the master architect/engineer. The design process, however, lasted longer than anticipated, due to initial opposition from ICT’s carriers.

“There was a little bit of airline resistance to the concept of spending that much money for a brand new facility at a small hub airport,” explains White. “It took a lot of persuasion to get the airlines on board. There was a time in the early design phase that I wasn’t sure we would do the project.”

To bring the airlines around, it was important not to increase fees beyond levels they could “reasonably and realistically afford,” he relates. At the same time, airport officials reassured carriers that a new building

“Building and opening a new terminal is a daunting and extremely complex set of tasks. The Chrysalis team has been a huge benefit to us.”

– Victor White  
Director of Airports  
Wichita Airport Authority

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would provide a "significantly improved" level of customer service and efficiencies that would translate to cost savings.

"We had to be creative in how we structured the business deal with the airlines, in terms of the use and lease agreement," White recalls.

In the end, the airport leveraged the "luxury" of its strong industrial park to create what White describes as a "palatable deal" for carriers. (ICT's park is home to the world headquarters of Bombardier Learjet; Textron Aviation, which includes Cessna and Beechcraft; and dozens of major aviation suppliers.)

"We were able to swallow hard and take some of the revenues from those non-airline sources to help produce a compensating source of revenue for the terminal project that will artificially lower the rates to the airlines," he explains.

The airport's "final sales pitch" to the airlines was engineered after years of intense negotiations with the help of financial consultant Leigh Fisher Associates, White notes.

### New Efficiencies

The new 273,000-square-foot building was designed and constructed to Leadership in Energy & Environmental Design standards, and is therefore expected to provide multiple efficiencies over the previous facility.

*Wichita Nat'l provides boarding bridges and ground support equipment as perks for airlines.*

Glass walls and skylights help cut daytime lighting costs while providing a brighter environment for customers, notes Pat McCollom, associate vice president of program management with Aecom. The new terminal has four to five times more natural light than the previous facility, he notes.



Pat McCollom

Water-conserving plumbing and high-efficiency heating, ventilation and air-conditioning systems are also expected to reduce the airport's operating costs.

The roof is designed to reflect heat from the sun, while high-efficiency insulation in the roof and non-glass wall areas will also help control heating and cooling costs. Materials made of recycled content and efficient water fixtures are other important parts of the terminal design, adds Phil Hannon, architecture project manager with HNTB.



Phil Hannon

In-pavement heating systems that pipe warm water and glycol through the concrete in front of the terminal were added to minimize slips and falls in colder temperatures and reduce the need for shoveling during snowstorms. Similar technology is also used in the

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parking garage and baggage makeup areas. Heated floors will help maintain a more even temperature in the baggage area as doors open and close for baggage carts, notes White.

More visible customer service improvements were made airside, with the addition of new glass jetways from JBT Aerotech. In the old terminal, only about half of the gates were equipped with loading bridges. When the new terminal is complete, it will have 12 gates — each with its own bridge. As a benefit for its airlines, the airport purchased and will maintain the bridges. It also provides

preconditioned air and power for the bridges, as well as ground power units on the ramps. “That turned out to be a huge selling point to the airlines,” White relates. “It’s less equipment they have to maintain, provide and operate; and we will roll the cost of doing that into the rental rates for the building.”

The glass-walled boarding bridges provide passengers with great views of the apron, airport and sky, Hannon comments. Ample glass, along with high ceilings and open spaces, also helped create a lighter, less congested ticketing area, he notes.

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The new terminal will allow the airport to handle 2 million annual passengers.

Improved concessions will further elevate service for customers, White adds. New food and beverage options from MSE Branded Foods and retail outlets from Paradies are concentrated on the secure side of the terminal, as opposed to the pre-checkpoint layout of the old terminal.

### Design Opportunities & Challenges

Given the rapid and significant evolution in ticketing and check-in strategies over the last decade, Hannon notes that it was important for ICT to have a flexible design. Its new ticketing area consequently includes an access floor, so kiosk locations and queuing arrangements can be changed as needed. “We think that’s a pretty innovative way of handling an on-grade ticketing area to allow flexibility long into the future for operations we can’t even speculate on at this point,” says Hannon.

Sightline issues for ICT’s air traffic control tower proved to be a tougher challenge to resolve, ultimately affecting the layout of the new terminal building and the shape of its concourse. Because the control tower is located on the far side of the existing terminal from the new terminal, there were strict limits on how high the new terminal could be. It also significantly impacted the slopes and maximum heights of the roof, Hannon relates.

“We were fairly restricted in the footprint of the building, because the farther away you got from the control tower, the lower the roof would have needed to be,” he explains, noting that the design team managed to take advantage of the available area and provide an efficient and visually appealing structure.

While the new terminal is only slightly larger than the old, increased flexibility and more efficient use of space will allow the airport to handle 2 million passengers — 2.4 million when expanded. Current passenger traffic is about 1.5 million per year.

The new terminal’s last three gates will be put into service after the old terminal is demolished and more ramp space is available. Nine will be available at the grand opening.

### Celebrating History

Throughout the extended design process, city officials were clear about wanting a modern facility that represents Wichita’s rich aviation history. Design elements that acknowledge and celebrate the city’s important role in the industry can be seen in big and small ways throughout the new facility, Hannon says.

The swooping, curvilinear shape of the roof at the front of the airport is reminiscent of an aircraft wing and evokes the element of flight, he explains. The main level arrivals/departures curb features a translucent canopy, designed to shield passengers from the elements yet maintain overhead views. Inside, the building “really looks to the sky” with lots of natural light streaming through glass walls and skylights, he continues.

The shape of the ceiling and diffusers on the back wall of the ticketing area are meant

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Photo by Carl Koster

to reflect or recall aviation manufacturing, McCollom adds. Additionally, various shaped elements and finish materials such as metal and glass were selected to remind passengers of aircraft interiors.

Together, various design features not only add the historic nods the city wanted, they also create a “sense of place” for the new terminal, notes Hannon.

Wichita’s aviation history is detailed more literally in a display on the second floor mezzanine, immediately before the security checkpoint. Fourteen two-sided panels celebrate local aviation pioneers, including the early barnstormers; Wichita-born aircraft manufacturers such as Cessna, Beechcraft and Bombardier; and local makers of aircraft

# UNSURPASSED AVIATION EXCELLENCE



TOP: San Diego International Airport – Terminal 2 West Expansion, Calif. | LEFT: Los Angeles International Airport – Tom Bradley International Terminal, Calif. | RIGHT: Wichita Dwight D. Eisenhower National Airport, Kan.

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parts. Airplanes built in Wichita are highlighted on a separate three-panel display.

An in-terminal public art program includes a 330-foot long sculpture for the ceiling of the great hall. The work's light-reflecting dichroic glass will appear to change colors as passengers move through the area. Terrazzo flooring throughout the building features zinc inserts that are reminiscent of airplane contrails.

### Setting the Stage

With the new terminal squeezed in as close as possible to the old terminal, construction was able to proceed without suspending operations at the existing terminal. Although it wasn't a pure greenfield

Covered parking will be a new option for customers.

site, construction had almost zero impact on the airlines, tenants and customers coming in and out of the airport, reports White.

The same was *not* true across the street during construction of ICT's new \$40 million parking garage. Located in the middle of the long- and short-term and rental car parking lots, that project had a "huge impact" on passengers for the two years it was under construction, he acknowledges.

The reward, however, is the airport's first covered parking facility, plus a "hybrid consolidated rental car facility," as White describes it. The first floor of the garage houses ready and return staging areas for the nine rental car companies that operate at ICT; and an attached customer service center contains transaction counters for each agency in a two-story, glass-walled lobby. Vehicle fueling and servicing occur at a separate facility.

In addition to building the new \$40 million parking garage and \$160 million passenger terminal, ICT invested about \$25 million in enabling projects. Initiatives ranged from roadway improvements, utility work and a new Customs facility, to relocating and rebuilding the airport's main cargo facility and remote park-and-ride economy shuttle lot.

Phasing of the enabling projects allowed the airport to maximize Airport Improvement Program grants and set the stage for its terminal project, notes McCollom.

### The Evolution Continues

Although the new terminal will enable ICT to accommodate more passengers and airlines in the future, increasing traffic was not the expressed purpose of the project. "The intent was to replace a 60+-year-old building that was functionally obsolete — replace it and give us a modern and high-tech future," White clarifies.

The new facility will also evolve as industry trends change — something the previous building could no longer do, he adds. Currently, ICT has service from United Airlines, American Airlines, Delta Air Lines, Southwest Airlines and Allegiant Air.

As a literal representation of Wichita's aviation future outside the manufacturing sector, the new terminal provides a rally point for the local community. And a psychological boost is particularly welcome, given the overall economic recession and dip that general aviation aircraft production has taken in recent years, White explains. "The community and economic development leaders are trying to recruit new companies to come here to balance things out, but we don't want to throw away this tie to aviation the city has," he relates. "(Wichita) always has been and always will be the air capital of the world." ✈️



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PMG Airport Developers spent \$4 million building a travel plaza at Southwest Florida Int'l in Fort Meyers.



# Southwest Florida Int'l Opens Onsite Travel Plaza

By Thomas J. Smith



## factsfigures

**Project:** On-Site Travel Plaza

**Location:** Southwest Florida Int'l Airport (Fort Meyers)

**Main Components:** 7-Eleven convenience store; Mobil gas station; carwash

**Impending Addition:** Quick-serve restaurant

**Operator:** PMG Airport Developers

**Initial Contract Terms:** 25-yr lease with possible 10-yr extension; \$15,400/month rent for 2.25 acres plus 1 cent/gal. of fuel sold & 1% of store's annual sales over \$1.5 million

**Building Size:** 3,000 sq. ft.

**PMG's Building Cost:** \$4 million

**Architect/Engineer:** Eryou Engineering

**General Contractor:** Aventura Construction

**Noteworthy Details:** Convenience store includes a real-time flight information display; extra parking capacity was added to create new cellphone waiting lot; new interstate exit routes all inbound traffic past airport travel plaza

When Southwest Florida International (RSW) opened a 24-hour gas station/convenience store last summer, it became the first airport in the state to offer a turnpike-style travel plaza. Strategically located between RSW's entrance and exit roads, the facility sits on land that Lee County Port Authority set aside for that very purpose when it modernized the Fort Meyers airport with a new terminal that opened in 2005.

Currently, the plaza includes a 12-pump Mobil gas station; a 7-Eleven convenience store, complete with a real-time flight information board; and a carwash used regularly by taxis and limousines serving the airport. The 3,000-square-foot building also has space for a quick-serve restaurant that is already in the works.

The \$4 million facility was built and is operated by a private developer. RSW collects \$15,400 per month in rent, plus 1 cent per gallon of fuel sold and 1% of the convenience store's annual sales over \$1.5 million.

"Given that the location is a very nice piece of property and centrally located, we were confident our revenue requirements would be met," says Ben Siegel, deputy executive director of administration at RSW.



Ben Siegel

The airport selected PMG Airport Developers to build the onsite travel plaza after receiving two responses to its 2010 request for proposals. Officials then negotiated a 25-year operating lease, with a possible 10-year extension. RSW began collecting rent and its slice of gas sales when the plaza opened last June; but it hadn't earned revenue from the convenience store as of March, because the 7-Eleven had not surpassed the \$1.5 million sales threshold after nine months in operation.

"We are still in the ramp-up period," explains Neysan Rassekh, PMG's executive vice president for real estate development and finance. "A travel plaza like this typically takes about a year or more to reach maturity."



Neysan Rassekh

In addition to its location at RSW, the company operates travel plazas at New York's LaGuardia Airport and John F. Kennedy International; Washington Dulles International; and Indianapolis International. The company is also developing locations in Palm Beach and Cleveland, and is currently wrapping up lease negotiations for a plaza at Chicago's O'Hare International that will provide compressed natural gas as well as traditional gasoline. The firm is also finalizing terms with one other airport Rassekh prefers not to name.

"We look for airports where there is demand for the service, where national convenience stores want to go and where the land is right," he explains. "Fort Myers seemed to be an easy partner to work with."

PMG Airport Developers is a unit of Petroleum Marketing Group, which owns, operates or supplies more than 850 gas stations coupled with convenience stores in the U.S. Mid-Atlantic region.

### Ramping up Revenue

Advisors at AirProjects, an airport concessions consulting firm, consider onsite travel plazas an effective way for some airports to generate new revenue from unused land. Often, the sites are remote parcels with few other productive uses, and airports can attract significant capital investment from private sources by positioning them for concessions opportunities, explains Kent Vanden Oever, a director with the Virginia-based firm. In some cases, on-airport travel plazas capture business from travelers and employees alike, he adds.

The old real estate mantra — "location, location, location" — certainly applies to RSW's plaza, especially since the state of Florida opened a dedicated exit ramp off Interstate 75 for airport traffic. Previously, vehicles traveled surface streets to get to the airport, passing a variety of gas stations and convenience stores along the way. Now, all drivers using the exit pass directly by the airport's plaza, whether they are heading to the terminal or a parking facility.

RSW's new plaza is also the prime spot for customers to re-fuel rental cars before returning them at the airport, says Siegel, noting that the airport's contract requires PMG to keep its fuel prices within 5% of the local average. "They cannot raise prices to the point that customers may want to shop elsewhere," he explains.

Rassekh anticipates that the new exit ramp will increase the plaza's business by 20%.

Per its contract, PMG paid to build 75 extra parking spaces at the plaza to create a cellphone waiting lot for the airport. RSW maintains the lot and now provides a better experience for customers (its previous cellphone lot didn't have restrooms or concessions). The plaza operator, in turn, finds that cellphone lot users often gas up their vehicles or come into the store for a snack or drink while waiting for their riders.

Customers will soon have even more food and beverage options, as officials from PMG Airport Development are talking with national fast food restaurants about operating at the RSW plaza. "We expect to identify someone in the next six months," Rassekh noted in March.

Elsewhere, the company partners with Dunkin' Donuts, Burger King, Wendy's and Subway.

### Family Resemblance

The travel plaza at RSW cost almost \$1 million more to build than a similar non-airport facility, notes Rassekh. In addition to meeting county zoning codes, the plaza also had to meet the airport's design standards, he explains.

According to Siegel, PMG succeeded. The plaza looks and feels very similar to the terminal building, he comments.



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RSW's 24-hour travel plaza includes a 7-Eleven convenience store and space for a quick-serve restaurant.



"It does not look like a typical gas station," agrees Rassekh. "It looks like a natural extension of the airport. We strive to work with our airport locations to put in the architectural elements to make them unique to the local community, and that often takes a significant expense over a traditional gas station."

The company didn't encounter any major difficulties during construction, he reports. Utilities, in fact, were already in place

near the building site, due to the port authority's foresight when constructing the airport terminal years earlier.

PMG Airport Developers worked with the airport to install directional signs throughout the area and markets the plaza to airport employees, rental car operators, local hotels and nearby residents. ✈️

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*New overhead directional signs provide wayfinding information for arriving and departing passengers. Terminal labels on the bottom gray panels let visitors know which terminal each bridge accesses. LED lighting improves visibility, even in low-light areas.*



## Sign Standardization Enhances Wayfinding at Philadelphia Int'l

By Jennifer Bradley



### factsfigures

- Project:** Signage Overhaul
- Location:** Philadelphia Int'l Airport
- Signs Updated/Replaced:** 5,000+
- Terminals Affected:** 6
- Total Cost:** \$4.4 million total
- Construction Costs:** \$3.3 million
- Consulting, Professional Services:** \$1.1 million
- Timeline:** 2012-2015
- Wayfinding, Planning & Environmental Graphic Design:** Gresham, Smith and Partners
- Electrical Design:** Arora Engineers
- Graphic Design:** Jones Worley
- Sign Fabrication:** Architectural Graphics
- Installation:** Rockport Construction Co.
- Lights/LED Fixtures:** LSI Industries



When it comes to the art and science of signage, connecting with 95% of your audience is like grabbing the brass ring, explains Mike McCartney, engineering manager at Philadelphia International Airport (PHL).



Mike McCartney

With that goal in mind, PHL undertook a major sign standardization project designed to drastically improve wayfinding for the 30+ million passengers who pass through its facilities each year. The \$4.4 million project took more than two years, spanned six of PHL's seven terminals, added nearly 2,000 new signs and replaced or updated more than 3,000 others. In addition, refinements to the design, placement, lighting and message consistency of signage led to noticeable improvements throughout the airport.

Officials hired Gresham, Smith and Partners (GS&P) to create a new uniform standard for the airport's signs, design the overall project and administer the construction process. With the work complete, PHL officials, airport visitors and the project team like what they see.

Jim Harding, director of Environmental Graphics at GS&P and principal in charge of the project, says that PHL's new signs help passengers immediately know where they are. "It's a beautiful system," Harding reflects.



Jim Harding

Changes that may seem small, such as increasing the size of lettering by 1 inch, made a huge difference in the physical presence of the signs and how people read, react and respond to them, he explains.

## Looking Back to Move Ahead

Although the recently completed project began in 2012, the team drew on a background study GS&P performed in 2007. The firm's research cited inconsistent signage as PHL's biggest wayfinding issue and provided specific examples, such as signs using five different names for the regional train system that serves the airport. Other wayfinding prompts used "ticketing" and "departures" interchangeably to reference the same area.

A general desire to incorporate more pictograms for the airport's growing base of international travelers who don't speak English also propelled the project forward, recalls McCartney.

GS&P personnel working on the revamp note that the signage inconsistencies found at PHL are typical at large, complex airports. With seven terminals and 126 gates, PHL ranks as the 20th busiest airport in the world.

"It's understandable how they got there over time," says Jim Alderman, senior project designer with Environmental Graphics at GS&P and project manager/senior designer for the PHL project. "Each of the terminals had renovation projects going on at one time or another, so you could walk from one end of the airport to another and experience three or four totally different sign systems."



Jim Alderman

Like many airports, PHL had a history of simply adding more signs, he explains. Eventually, the signs accumulate and create visual clutter that actually complicates wayfinding. McCartney refers to the common kneejerk reaction as sign-a-holic syndrome. "This is where wayfinding complaints are addressed



New freestanding signs along curbs near baggage claim areas identify zone assignments for various ground transportation services. A single-post design and ample clearance allow pedestrians to walk underneath. Previous double-post signs blocked more of the sidewalk.

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New overhead directional signs in baggage claim areas direct passengers to ground transportation options outside.

by adding yet another sign,” he explains. “Eventually, you’re so saturated with signs that you lose the messaging on any of them.”

Renovations had also eliminated the line-of-sight to some signs, and limited space hampered the effectiveness of others — creating a proven disconnect that lowers passengers’ confidence levels, notes Alderman.

McCartney agrees that PHL’s signage issues developed gradually over years. “At no one time did anyone take a holistic approach and look at the whole airport in terms of signage structure,” he reflects. “In one terminal, the signs were maroon and white, and in another, black, white and red. It was a hodgepodge of formats and styles.”

Stepping back to examine the airport’s history with signage helped the team chart a course forward.

Beyond common sign problems that plague many airports, PHL also has a unique challenge: Its baggage claim area is located down a long and winding path, across the street from the terminals and ticketing areas. “It’s not what passengers would normally expect,” says Alderman. “The signage and wayfinding have to coax them along.”

### Facilitating Flow

Alderman and Harding both emphasize the importance of studying passenger flow when redesigning an airport’s signage program.

“It all begins with origination and destination,” explains Harding. “You also have to factor the flow into the specific needs of each different type of passenger: departing, arriving or connecting.”

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Long-term GS&P research has found that connecting passengers typically struggle the most with wayfinding. “Usually, there’s not a whole lot to tell them where they are as they exit the jet bridge,” he comments. “We try to put ourselves in the shoes of each passenger — to understand what it is they need to know, at the right place, at the right time, to make the right decision.”

Passengers who know an airport’s flow patterns are less stressed and enjoy their travel experience more; and passenger ease translates directly into concession sales, says Alderman. “If people are confident about where they are, where they need to be next and how to get there, they are much more likely to relax along the way, buy a coffee and spend some time in the newsstand,” he explains.

Research shows that happy customers spend up to 40% more than unhappy ones; and effective wayfinding helps keep airport customers happy, reasons Harding.

McCartney knows firsthand how frustrating ineffective signage is for passengers — and for airport staffers who field complaints about it. “You want to decrease the amount of people just standing around looking where to go,” he says.



*New signage is externally illuminated using adjustable, ultra-thin LED fixtures placed and directed to minimize light spillage. Sign faces have a matte finish to minimize glare.*

But passenger flow changes over time, especially as renovations occur and operations evolve, Harding advises. Unfortunately, airports often adjust signs in the small, immediately affected area, often creating inconsistency and confusion elsewhere.

Instead of reflexively adjusting or adding signs in individual areas, Alderman encourages airports to consider the “spider web ripple effect” that every change has. “You have to back up and see the bigger view of things to see how extensive that ripple is in order to stop the gaps in the wayfinding,” he advises.

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*New elevator directories in the garage are designed to show the relationship between garage levels and terminal levels, which do not correspond one-to-one.*

## Design & Installation

Harding says that PHL's updated signage program successfully addresses the three Cs of wayfinding: connectivity, continuity and consistency.

The new design scheme was patterned after existing signs that have been well received in the airport's newer areas, Terminal F and International Terminal A-West, notes McCartney. There are, however, subtle differences. The text on the new signs is slightly larger, the grid is rigorously deployed and better lighting improves readability, details Alderman. The fixtures also are slimmer and less obtrusive, he adds.

The task of resolving glare issues by repositioning individual signs fell to Philadelphia-based Rockport Construction Co. Working alongside the project electrician, Rockport's four-man crews hung signs throughout the two-story building from May 2014 into January 2015. The large fixtures — some up to 21 feet long — were particularly challenging, especially when they had to be anchored into older ceilings with utilities strung throughout, recalls contractor John Rutecki. "The overall project looks really nice," he remarks. "The old signs were past their prime."

Chris Reid, architectural project manager at Architectural Graphics, fabricated PHL's new signs. Having completed many similar projects in the past, brightness and clarity were Reid's initial concerns. "I wanted to make sure we could get them to illuminate properly through the designs," he explains.

Using energy-efficient slim-line LED fixtures was a key component of the project, says McCartney, explaining that their improved technology makes the signs visible from farther away and really "makes the text pop." Cost, sustainability, maintenance and performance benefits drove the decision to replace fluorescent units with LEDs early in the design process, notes Alderman.

Like lighting, standardization was an important topic throughout the project. Recurring locations such as restrooms, information booths and curbside ground transportation zones are now marked with uniform signage. In addition, the garage area has a new directory design, with terminal levels listed on one side and parking levels on the other. Previously, visitors had been confused about level changes between the two areas, Harding explains. Having new signs in the terminals, baggage claim areas and elevators that service the parking garage supports the wayfinding progression, he notes.

McCartney knew that the team approach to design, fabrication and installation had succeeded when compliments began rolling in as crews hung the first few signs. One employee described the changes as a "breath of fresh air." A member of the senior management team said that the new signs make the concourse look 25 years younger.


"You can see these signs from afar," reports McCartney. "So people are no longer congregating in little pockets at decision points, looking where to go. The signs actually direct them, and call out to visitors various points where they can meet their family members after they exit the secure side of the airport."

## Long-Term Benefits

At the outset of the project, GS&P performed an inventory of PHL's existing interior signs and entered the data into a geographic information system (GIS) platform that geo-referenced the signs on a scaled data map. Designers used the valuable findings to identify inconsistent messaging and optimize sign placement. Going forward, the database will help airport officials manage the new system GS&P put in place.

"The GIS database was something we considered a success," says Harding. "The airport has thousands of pieces of information to manage. How can they logistically and realistically keep up with that? It can be crazy."

In addition, the scaled data map will eventually become a part of the airport's asset management system, notes McCartney. The airport also plans to leverage its new wealth of asset information by developing an interactive wayfinding map to further improve customer service within the terminals.

Given the recent improvements at PHL, Harding encourages other airport officials to assess their signage. "It's important an airport values its wayfinding system," he says. "It requires maintenance as do the HVAC, lighting or communications systems." 

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# Dallas/Fort Worth Int'l Ramps Up Parking Options

By Jodi Richards



## factsfigures

**Project:** Parking Garage Renovation

**Location:** Dallas/Fort Worth Int'l Airport

**Terminal:** A

**Size:** 5 levels; 2.9 million sq. ft.; 7,793 spaces

**Cost:** \$176 million

**Engineer of Record:** Jacobs Engineering Group

**Construction Manager at Risk:** JV Balfour Beatty Construction; Azteca Enterprises; H.J. Russell & Co; Carcon Industries

**Parking Planner:** Walker Parking Consultants

**Parking Guidance System:** Indect USA

As Dallas/Fort Worth International Airport (DFW) moves further through its \$2.69 billion Terminal Renewal and Improvement Program, customers parking at Terminal A will benefit from a completely rebuilt structure equipped with new technology.

The \$176 million Terminal A parking project is a three-phase undertaking slated to be fully complete in June. The first phase opened in March 2013, along with Phase 1 of the Terminal A renovation. When all three phases are complete, the structure will add nearly 7,800 spaces to DFW's on-airport parking, bringing its total to 42,000.

At 2.9 million square feet, the five-level parking facility is the largest new structure built at DFW since Terminal D and its Skylink intra-airport train system opened in 2005, note airport officials.

Ken Buchanan, DFW's executive vice president of revenue management, says that the new parking facility provides much needed capacity improvements at DFW and updates 40-year-old structures that were in dire need of customer service improvements.



Ken Buchanan

"We had very old facilities that required a significant amount of time to locate those individual parking spots when we were near full," Buchanan says.

The former parking landscape at Terminal A included three separate parking structures with low ceilings and very little natural light. Ramps made it impossible for customers to see across the facility to locate available spots, and the multiple-story



structures lacked elevators. “It was just not conducive to today’s environment,” Buchanan notes. “Customers value convenience and speed. The old facilities were a barrier to that.”



Casey Wagner

Walker Parker Consultants assisted DFW in correcting the issues as parking planner for the project. “They were working with the original structures, which were outdated in the layout and ease of pedestrian conveniences,” summarizes Casey Wagner, the firm’s senior vice president. “Just finding an open space was a challenge.”

## Simplifying the Hunt

An electronic parking guidance system from Indect USA was added to help drivers find open spaces quickly and efficiently. The system includes a series of ultrasonic sensors installed above each parking space that detect whether a vehicle is present, explains Indect Director Dale Fowler. That information switches on a light at the front of each parking spot: Red if a stall is occupied, and green if it’s available. Blue lights indicate handicapped-accessible spaces; white lights designate one- or two-hour parking, depending on the garage.

Parking signage is electronically linked to the individual spaces, so customers are notified about how many spaces are available on each floor as they pull into the parking ramp. Subsequent signs then indicate how many spaces are available in each direction. From there, customers are guided to open spots by the colored lights above each space.

Indect demonstrated the technology for DFW officials in 2012 by equipping about 50 spaces with its system. Moving forward, the airport required the technology to be demonstrably 99.9% accurate upon deployment and made Indect’s payments contingent on the system passing a 20-day test.

“They realized the key to the success of this technology was accuracy,” Fowler explains, agreeing with the airport’s position. “If a system isn’t accurate, customers will ignore the system, and it becomes a waste of money.”



Dale Fowler

With the Indect equipment passing initial and subsequent tests, the airport is pleased with its new technology — so pleased that it deployed the same system in the Terminal D parking structure and plans to install it in Terminal E parking as well.

The technology allows DFW to maximize the use of its parking assets, notes Buchanan. For example: In the older facilities, a parking structure is declared full when it reaches about 85%

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capacity, because it's so difficult for visitors to find the other 15% of spaces that are available. Buchanan likens the search to finding a needle in a haystack: "People end up going from floor to floor, winding up and down just to find that one space that's available."

To help, the airport often dispatches personnel to direct passengers to open spaces.

The system also helps the airport manage its parking operations through reporting features that provide DFW personnel with historical data, such as average length of stay or how many times a space turns over each day. Fowler says this is important, because before the system was installed, some visitors stayed "substantially longer" than their time limits. Now, the average length of stay in a one-hour spot is 54 minutes.

To further improve customer service, DFW provides information about parking availability on its website and mobile applications. "People want to plan and prepare for their trip," Buchanan says. "We can provide this information to customers ahead of time." Information about available spaces is within five minutes of a real-time feed, he adds.

"DFW is very focused on providing a great customer experience," Fowler says, noting that its new parking technology gives the airport a competitive advantage.

As another customer amenity, DFW recently extended its free wireless access from the terminal into the parking structure.

### Improved Circulation

Separating parkers from the general traffic by pulling them off the airport's International Parkway was key to the Terminal A parking project, says Wagner. "That alleviated a huge congestion problem," he says.

An external circulation system also helps get parkers to the first available space more quickly and efficiently, he adds: "You're not driving past row after row of occupied spaces."

Now that the garage is one building rather than three separate structures, the roadway system is easier to navigate as well, Buchanan reports. "It's very easy to just go right into the garage and travel through all sections from the inside vs. having to go in and out onto the roadway," he explains.

"That goes back to their (DFW's) commitment to customer service," notes Wagner.

Phasing for the project was planned and executed so only one of three sections was closed at a time for construction. The airport also expanded its valet operation and offered valet parking for the same rate as terminal parking. "Because we know they are time-

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Customer focus groups reinforced the importance of ample lighting in the new garage.



pressed and we've taken an entire garage out of commission, we knew that we needed to offer an opportunity for people to be easily accommodated," Buchanan explains.

### Customer Input

As it does with so many other issues, DFW asked customers about parking before making any changes. "We survey our passengers constantly and ask them what it is they want, the type of experience they want at DFW," Buchanan

comments. "And then we go to work to try to provide that."

Parking, they discovered, is all about speed and convenience.

Surveys showed that most DFW passengers do not use the airport's parking facilities, Buchanan reports. They are dropped off at the curb, take cabs, rideshare or park offsite instead. Among the various reasons, DFW personnel identified convenience as a common theme. Many travelers find it more convenient to arrange a ride or park offsite than drive through a construction zone or search for that needle-in-a-haystack parking spot, he explains. "We want to invite those customers who are not parking with us for convenience back, because we feel we've taken care of those concerns they've had," Buchanan says. "We can attract those customers back and ultimately grow our revenue as a result."

Currently, parking adds \$135 million to DFW's annual budget, making it the airport's largest source of non-aeronautical revenue.

Feedback from focus groups underscored the importance of ensuring that customers feel safe — especially after dark. In addition to building a well-lit garage with emergency callboxes throughout the facility, the airport operates its valet business out of the parking garage, so there are always employees in the structure, Buchanan explains.

Large, high-speed elevators were installed to accommodate passengers and their luggage, and take them directly into the terminal. "It's just a matter of a few steps, and you're in the terminal," Buchanan says. "That's something we try to maintain here at DFW."

Other customer convenience elements added to the Terminal A parking garage include: covered walkways at terminal entries, higher clearances to accommodate vehicles carrying mobility aids and a pedestrian bridge that connects in-field parking to the garage.

### Looking Ahead

DFW planned for the future by installing an information backbone capable of accommodating additional parking needs or products that may arise, notes Buchanan. And the airport is already considering more enhancements.

Ideas under consideration include reserved parking areas and variable rates within facilities based on length of stay — service improvements that are possible because of the airport's new parking control system, he adds.

"As an airport, we strive to provide a better experience for our passengers," Buchanan states. "We know passengers in this day and time have a choice on how they want to connect and travel. We want to make it easy for them to choose DFW Airport." ✈️

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# Detroit Int'l Installs Visual Screen On End-Around Taxiway

By Kathy Scott



## factsfigures

**Project:** Visual Screen

**Location:** Detroit Metropolitan Wayne County Int'l Airport

**Placement:** On End-Around Taxiway Q, running perpendicular to centerline of Runway 22L

**Cost:** \$1,019,360

**Size:** 708 ft. long, 20 ft. tall

**Design & Engineering:** Michigan Aviation Partners, a joint venture between Kimley-Horn and Tucker, Young, Jackson, Tull

**Construction:** Motor City Electric Utilities/Hy-Lite Construction Joint Venture

**Key Benefit:** Enhances safety by adding a visual barrier between departing & arriving pilots

Passengers touching down on Runway 4R at Detroit Metropolitan Wayne County International Airport (DTW) probably assume that the long, plain structure off the end of Runway 22L is a fence or billboard space ready for advertisers. (See photo on Page 35.)

Actually, it's the back side of a visual screen strategically positioned on the airport's end-around taxiway, beyond the runway safety area. The front red-and-white-striped side, which faces Runway 22L, serves as a sight barrier between departing and arriving aircraft. The screen is designed to mask aircraft on the end-around taxiway for departing pilots, so they can more easily detect aircraft that are in front of the screen, on the far end of their departure runway. By providing a visual point of reference, the brightly striped panels help pilots discern the two critically different types of ground traffic.

Built at a cost of about \$1 million, DTW's 708-foot-long structure is the third visual screen installed at a U.S. airport. The first two were built at Dallas/Fort Worth International (DFW).

Work crews constructed DTW's screen in 82 days, from April 7 to June 27 last

year, without disrupting any flights, note airport officials. To keep airfield traffic flowing smoothly, crews were not allowed to use equipment taller than 25 feet while the runway was open. The contractor also had the option of working from 9 p.m. to 9 a.m., when the runway was closed.

## Why Taxi Around?

Although end-around taxiways are relatively new, installations at a handful of high profile airports have captured the industry's attention by reducing airfield wait times and fuel costs — thus benefiting airlines and passengers alike. Because aircraft spend less time idling, decreased emissions are also a plus.

Hartsfield-Jackson Atlanta International (ATL) has the distinction of being the first U.S. airport to install an end-around taxiway. Commissioned in spring 2007, Taxiway V allows aircraft arriving on Runway 26R to taxi around the end of the adjacent Runway 26L instead of waiting for clearance to cross over it. Initial research predicted that ATL's end-around taxiway would increase overall airfield efficiency by 30% and save more than \$27 million per year in taxiing and flight delay costs.



According to FAA personnel, 12 U.S. airports now have end-around taxiways, and two more installations are under consideration. ATL and DFW are the only locations with end-around taxiways that don't include specific operational restrictions, they note.

### Why Add a Screen?

Amid early enthusiasm about the operational benefits of end-around taxiways, the FAA continued to focus on their safety and engaged the Mitre Center for Advanced Aviation System Development to help identify potential risks regarding their use. (Mitre Center is the same not-for-profit entity involved in the development of FAA's NextGen air traffic system.)

"During these evaluations, it became clear that pilots were having difficulty distinguishing between EAT (end-around taxiway) aircraft and runway incursion aircraft," researchers said in their written report. "One study found 25 percent of the pilots could not correctly identify if an aircraft was crossing the departure runway, or was on the departure-end EAT, resulting in unnecessary rejected takeoffs with EAT aircraft and failures to abort with runway incursion aircraft."

FAA consequently charged its Airport Safety Technology Research and Development Section with developing design



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criteria for a structure to help remedy such issues. Personnel were specifically directed to determine the most conspicuous material, configuration, pattern, color and lighting methods for an effective end-around taxiway visual screen.

DFW's screen, designed by Freese and Nichols, was the first to be installed. A study conducted by faculty from the University of Texas at Arlington confirmed that DFW's end-around taxiway has, in fact, improved runway safety, increased capacity and reduced departure delays. Researchers presented their findings at the Transportation Research Board's 92nd annual meeting in January 2013.

The end-around taxiway at ATL does not include a visual screen, because it was built approximately 30 feet below the surface of Runway 26L.

### Detroit's Design

Michigan Aviation Partners, a joint venture of Kimley-Horn and the local engineering firm of Tucker, Young, Jackson, Tull, designed DTW's visual screen. The 20-foot-tall structure helps pilots departing on Runway 22L differentiate between aircraft on end-around Taxiway Q



J.J. Morton

and those crossing the far end of their active departure runway, explains Kimley-Horn's J.J. Morton, P.E. "Without the obstructed view by the screen, the potential of an aborted takeoff is real," Morton elaborates.

The structure itself is made of 295 composite aluminum screen panels covered in non-reflective sheeting, notes Nathan Summers, the Kimley-Horn P.E. who served as construction administrator for the Michigan Aviation Partners Team. The screen's foundation system includes 60 drilled shafts, which are 25 feet deep, spaced 12 feet apart and filled with structural concrete. "Tolerances for the drilled shafts could not vary more than one inch from design," he details.



Nathan Summers

Personnel from Tucker, Young, Jackson, Tull led the structural design, with Kyle Pabin, P.E., referring to accepted visual screen designs detailed in FAA Advisory Circular guidelines. In addition to considering the specific type of aircraft that use Runway 22L and the landscape that surrounds it, engineers also reviewed options for the foundation and screen panels.

The need for a "breakaway design" prompted the team to use screen panels constructed of aluminum honeycomb material that is laminated with color-reflective sheeting on the runway side, notes Morton.

Pabin describes the design as pieced together from the middle outward. The entire structure was required to tilt at the request of FAA personnel during construction to test how it affected the radar, he adds.

"The most challenging aspect of constructing the screen was installing the foundation to very near perfect horizontal alignment and the vertical members to plumb," Pabin recalls.



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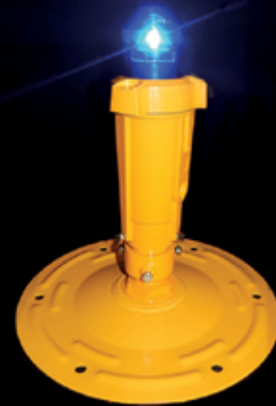


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Screen panels are an aluminum honeycomb material to provide a "breakaway design."

Summers notes that the structural steel is comprised of hollow structural section posts with a frangible connection four feet off the ground. "The support frame for the visual screen panels had the option to either be constructed in an upward angle or downward angle of 10 to 15 degrees," he explains, noting that the team opted for a downward angle, to reduce the potential for reflections to affect navigational equipment.

In retrospect, Morton is positive about screen's overall design and the interplay between Kimley-Horn and Tucker, Young, Jackson, Tull during the project. "We've had great success mentoring smaller firms and growing their experience and exposure," he reflects.

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# Mobile Passport App Eases Congestion at Miami Int'l

By Mike Schwanz



In February, customers at Miami International Airport (MIA) began using a new mobile app designed to ease long lines at U.S. Customs stations. Although data is still being collected, preliminary reports indicate that wait times have been cut in half.

The Mobile Passport Control app allows passengers to enter and submit their passport and Customs declaration information via tablets or smartphones, instead of using traditional paper forms. The new app, which works on Apple and Android devices, is the result of a partnership between U.S. Customs and Border Protection (CBP), Airports Council International-North America (ACI-NA) and Airside Mobile, the app's developer.

MIA is only the second U.S. airport to offer the new Customs option to customers. Hartsfield-Jackson International Airport (ATL) served as the program's pilot location last summer.

Two groups of passengers may use the app: U.S. citizens with a valid U.S. passport, and Canadian citizens with a valid Canadian passport and B1 or B2 visa status. After downloading the app, eligible travelers are prompted to set up a profile using information from their passport. Families traveling together can create multiple profiles. The app does not require pre-approval, and is free.



Debbie Shore

Given the nature and volume of its traffic, MIA is a logical location for the new processing option. Debbie Shore, who managed the app project for the Miami-Dade Aviation Department, notes that MIA is the second-busiest U.S. airport for international passenger traffic. The federal inspection facility in its North Terminal handles an average of 20,000 international passengers per day.

"It is the single-busiest federal inspection facility in the country," Shore elaborates. "Our Customs area is always packed — especially between 10 a.m. and 8 p.m. So anything we can do to ease congestion is much appreciated."

### Pre-Approval Process

Before CBP authorized the use of the app, it first had to ensure the security of individual passengers and the United States as a whole. "It was a lot of work developing this app with our partners; we had to worry about security and privacy rights," relates Migdalia Arteaga, a public affairs officer at CBP's Miami field office. "So far, it has exceeded our expectations in Miami, and has worked very, very well. It allows each officer to see several more passengers per hour.

"We are confident the new MPC (Mobile Passport Control) app will continue to expedite entry into the United States for U.S. citizens, while maintaining our high levels of security."



### factsfigures

**Project:** Mobile Customs App

**Location:** Miami Int'l Airport

**App Name:** Mobile Passport Control

**Launched:** Feb. 2015

**Available to:** Passengers with valid U.S. passports; Canadian passport holders with B1 or B2 visa status

**Airport Infrastructure:** Wi-Fi or regular cellular service; signage; scanners for Customs machines

**Scanning Equipment:** IER

**User Requirements:** Mobile phone or tablet, Apple or Android

**Key Benefits:** Speeds Customs processing (in dedicated & other lines) by allowing app users to fill out forms online before reaching the checkout area. Initial results show wait times are cut in half.

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A new mobile app is helping decrease wait times at U.S. Customs stations in Miami Int'l.



Like Shore, Arteaga characterizes the transition to the new app as smooth. “There have been no real problems retraining our officers,” she reports. “All an agent really needs to do is ask the passengers to put their phone, with the QR (quick response) code receipt, on the scanner. It will set off either a red light or a green light. In addition, many U.S. citizens who are international travelers already are used to using kiosks in which a traveler swipes his or her passport and then gives it to the Customs officer.”

The equipment passengers use to scan the receipts on their cellphones and transmit data to Customs officers is provided by IER, which also produces units for scanning boarding passes at security checkpoints and gates. Additionally, the company teamed with app developer Airside Mobile to provide MIA with automated passport control kiosks that use similar infrastructure as the new Mobile Passport Control app and include biometric readers.

“As with the check-in process, some passengers will want to use a mobile-based application, while others will prefer a kiosk-based interaction,” explains IER Vice President and General Manager Herve Muller.

While using the app has been quick and easy for travelers and CBP officers, getting it approved by all the necessary partners was a long, grueling process. “It took two years in development, with many, many meetings, to get the product the way we wanted it,” reflects Matthew Cornelius, ACI-NA’s managing director of air policy. “Our main challenge was that international

travel continues to grow, but we had to meet the needs of the CBP in terms of security and user-friendliness.”

Hans Miller, chief executive of Airside Mobile, estimates that his company’s app development team had hundreds of meetings with CBP and ACI-NA. “In all, there were probably more than 100 people involved with this project,” Miller estimates. “But we had a great team, and everyone was very dedicated to making it work.”

Not surprisingly, information security was a crucial challenge. “We do not store any personal data on our system,” Miller says. “The traveler profile is only stored on the phone, where it is encrypted and protected by a Mobile Passport PIN. That is in addition to the phone’s built-in security protection.”

## Refinements & Replication

As the second airport to use the app, MIA benefited from lessons learned during the app’s launch at ATL. “When the pilot program started last August, our whole project staff was there, interviewing passengers as well as airport staff and CBP staff,” Cornelius relates.

One of the elements Airside Mobile was asked to improve was the form itself. “People kept making typos as they filled out the forms electronically on their phones,” Miller explains. “We changed the design a bit, so a warning line tells the user if there is an inconsistency or obvious mistakes.”

Changes were also needed after Apple released its iPhone 6 and new operating system.

Despite a few challenges with the Google version, Cornelius says that the app’s introduction at MIA went fairly smoothly. “Overall, things are going very well,” he reports.

Feedback from the two airports currently using the app — and their customers and airlines — has been very positive. “Data from Miami is still being collected, but it seems anecdotally as if the app cuts the time of waiting in Customs lines by about 50 percent (compared to) manual processing,” Cornelius says. “In Atlanta, Delta surveyed all of its passengers, and the satisfaction level was very high.”

Realizing the direct benefits to them, some airlines are encouraging customers to use the new app. “Delta and American are promoting it to their passengers,” reports Cornelius, noting that carriers experience complications when customers miss flights because they’re stuck in line at Customs.


With support from airlines and travelers alike, the app may become a sought-after customer convenience. Chicago O’Hare International added Mobile Passport Control in mid-April, and Seattle and San Francisco will reportedly be the next markets. “By the end of 2016, up to 20 airports hope to have the program online,” Cornelius reports.



MIA's Shore has good news for other airports interested in taking their Customs process online. "Your international terminal does not really need Wi-Fi; basic cellular service works fine," she reports. "The app requires very little memory to fill out the simple questionnaire."

Beyond connectivity, airports need scanner equipment for Customs and signage to promote the service, adds Cornelius. "Mobile Passport Control offers flexibility with relatively little investment," he notes.

Shore, an enthusiastic advocate of the program, hopes many airports will begin offering the app. "The more U.S. citizens who use Mobile Passport Control, the better for airports," she explains. "It will free up the wait for international passengers arriving in the United States."


At MIA, the new app may lead to more programs for other international travelers arriving in the United States. "This summer, we expect to begin offering our automated passport control kiosks to all international travelers with B1 or B2 visas," says Shore. "Eventually, we hope that up to 90 percent of our passengers can be processed on some sort of electronic machine. This will be very big for MIA, due to our large number of international travelers." 

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## Ready to Go Paperless?

Using the Mobile Passport Control app requires travelers to follow five steps:

- 1) Download the Mobile Passport Control app from the Apple App Store or Google Play Store prior to arriving back in the United States.
- 2) Create a profile using information listed on his/her passport.
- 3) Complete the "New Trip" section upon arrival in the United States.
- 4) Submit Customs declaration form through the app to receive an electronic receipt with an encrypted quick response code. (Receipt expires four hours after being issued.)
- 5) Present passport and smartphone or tablet with digital bar-coded receipt to a CBP officer.

Personnel at Miami International Airport encourage users to download the app and create their profiles *before* leaving the United States. That way, they will only have to fill out the "My Trip" section when returning. 

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# Reno-Tahoe Int'l Delights Passengers with Random Acts of Kindness

By Kristin Vanderhey Shaw



**Reno-Tahoe International Airport**

## factsfigures

**Program:** Kindness Takes Flight

**Location:** Reno-Tahoe (NV) Int'l Airport

**Format:** Volunteer staffers perform random acts of kindness for customers & encourage them to act kindly toward someone else

**Example Acts:** Free drinks & snacks; proactive offers of help; small toys for children; compliments

**Direct Costs:** \$1,000/year for giveaway items

**2014 Social Media Reach:** 1.18 million

**New Facebook Followers:** 4,400 (117% growth)

**New Twitter Followers:** 1,950 (92% growth)

**Increase of Customer Interactions:** More than 1,000%

**Survey Results:** Customers rate service 6.38 out of possible 7

**Media Exposure Generated:** 450+ hours of positive TV news coverage

**Local Concessions Participant:** Tahoe Trail Bar



Spotted recently at Reno-Tahoe International Airport (RNO): Business travelers breaking out in ear-to-ear grins and casual fliers chuckling in a combination of disbelief and delight. The cause? Simple acts of kindness such as a free bottle of water, an unexpected compliment or proactive offers of help from airport authority employees.

Flurries of heartwarming scenes occur throughout RNO's terminal at least once a month thanks to its Kindness Takes Flight program. Volunteer employees perform random acts of kindness for passengers while on break from their usual positions as airport planners, communications dispatchers, human resource personnel, etc. Collectively known as the "Kindness Team," about 30 staffers work to increase happiness among the airport's 3.5 million annual visitors and encourage them to spread good will to others.

What started as a social media strategy in late 2013 eventually grew into a full-fledged

feel-good project. During its first full year of operation, the program reached in excess of 1 million people, generated hundreds of hours of positive news coverage and more than doubled the airport's Facebook following.

The program evolved as the Marketing Department developed an umbrella social media strategy to support the airport's strategic five-year plan. "In the process, we created the kindness program to connect with our passengers on a personal level," explains RNO Marketing Manager Rebecca Venis.

Brian Kulpin, vice president of marketing and public affairs at the airport, describes the results as effective blend of good old-fashioned customer service and high-tech social media.



Brian Kulpin

## Let the Good Times Roll

RNO launched Kindness Takes Flight on "Black Wednesday" of the busy Thanksgiving

Passengers are encouraged to tweet about the kindness they receive and perform.

travel weekend, with volunteers working shifts all day long. At the same time, it also debuted Paws 4 Passengers, a program that brings volunteer therapy dogs to the concourses to comfort nervous fliers. Premiering the programs in tandem was the airport's way of adding unexpected joy to what is often an extra crowded, stressful travel day, notes Venis.

Since then, the airport has staged one or two primary kindness events each month, with extras during holidays and special events. Sometimes, the Kindness Team sets up gateside "treat stations" with complimentary drinks and snacks for arriving and departing passengers. Other times, members roam the concourses, surprising unsuspecting travelers with free candy and children's toys. On National Compliment day (Jan. 24), RNO volunteers set up a themed booth and issued kind words to airport visitors.

Whatever form the kind gesture takes, team members ask recipients to "pay it forward" by performing an act of kindness for someone else. They also hand out small cards, complete with a specific Twitter hashtag, that encourage airport visitors to share their experiences online.

"The reactions were priceless," reports Heidi Jared, RNO manager of public affairs and customer service. "At first, the most common reaction was disbelief. But when we explained, a smile would spread across their face and they would thank us."

One woman actually welled up in tears up when a member of the Kindness Team engaged her. The passenger was coming from a rough weekend in Lake Tahoe, where her 16-year-old daughter dislocated a knee during the practice run of a ski competition. "The simple act of buying that mom lunch was just the kind of small act of kindness that suddenly gave her a little hope that things would be looking up," Jared relates.

Marketing personnel posted many of the stories on the airport's Twitter page (#KindnessTakesFlight and #RAKWeek2015), in hopes of getting other organizations to join their campaign of making air travel a friendlier and happier experience. "The small goal was to create content people would share," Venis explains. "But we (also) wanted to have a hashtag that would spread ... maybe even bring back feelings of nostalgia."

While staff members knew that gauging public reaction was important, it wasn't their primary measure of success for the program. "It's not about the (number of) followers, but about interaction," Venis emphasizes. "We wanted to create sharable content. Often, passengers share moments of frustration; but they also sometimes share moments of joy. We wanted to help provide moments of joy that passengers would want to share. We created the program to make the connection with our passengers on a personal level."



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Customer reactions range from skeptical disbelief to tearful gratitude.



The idea for Kindness Takes Flight was sparked in part by viral videos of employees at JetBlue, KLM and other airlines performing acts of kindness for passengers. "Many airports had already put a strategic plan in place for social media, but most of them hadn't developed a strategy for content and platform, at the time," recalls Venis.

RNO's kindness program developed as the Marketing Department refined the details of its broader social media strategy. "Once we realized our objectives, we focused on which channels we would use, our social personality, and how we could measure our success," she elaborates.

### ROI on Kindness

According to Venis, the first year of the program cost about \$1,000 for giveaway items and reached 1.18 million social media users — shaking out to about 85 cents per 1,000 impressions.

"If I took that \$1,000 and purchased an ad, I can't convince people we are a friendly airport," she notes. "With social media, it's friends telling friends and family, and the credibility is high."

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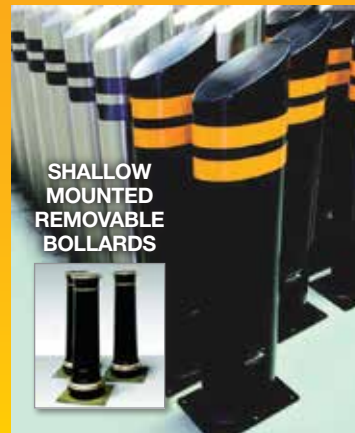
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Marily Mora

RNO Chief Executive Officer Marily Mora appreciates the results delivered by the low-cost program. "In challenging economic times, many airports aren't able to invest as much in customer service as they would like," explains Mora, noting that RNO decreased in-terminal staffing levels and eliminated its passenger aid program in 2010 due to budget cuts. "This program (Kindness Takes Flight) costs very little, and it's a great morale boost for our customers and staff."

As vice president of marketing and public affairs for the airport, Kulpin highlights Mora's role when reviewing the program's success. "It's so nice to have a CEO who gives us the freedom to do this — one who understands social media, too. She could see what we were trying to do, and that makes it easier," he remarks. "We're all about our passengers; and our employees have the opportunity to never lose touch, no matter what department they're in."

### Game Plan for Action

With visible executive-level support, the Marketing Department had no difficulty encouraging participation from various areas of the airports.

"Some (volunteers) would normally not be out on the floor with customers, and it helps them see the big picture about what we do," Mora comments. "This program really distinguishes us and sets us apart as a welcoming community and shows off our personality in the process."

RNO's Kindness Team meets quarterly, coordinating with airlines to schedule its blitzes of activity during peak flight times. Members are also occasionally rallied at the spur of the moment to provide extra customer service during flight delays or cancellations.

Marketing Coordinator Janelle Mack has seen the positive results first hand: "Even just in terms of wayfinding, passengers really appreciate the help. We hand out trail mix, granola bars ... whatever we can. We all know delays can be frustrating."

Beyond its measurable results in customer service and marketing, the program also provides benefits to airport employees and even vendors. Some staff members enjoy providing kindness as much as the passengers enjoy receiving it, notes Mora. One team member thanked the top exec for the opportunity to "spread smiles" and the events are known to spread a happy, positive feeling throughout the entire Administrative Office.

One of the airport's local concession vendors, Tahoe Trail Bar, got involved by distributing free coffee, smiles and more than

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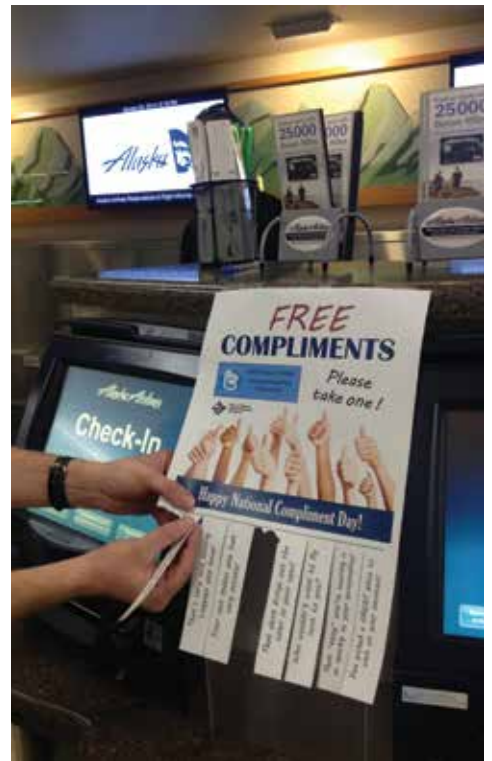
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In January, the Kindness Team surprised passengers with written and verbal compliments.



700 of its snack bars to passengers. Promoting its products in the airport rather than at sports events such as 5K races or paddleboard events allowed the company to connect with a new type of potential customer.

“At the airport, we saw a much less standardized consumer across the American demographic,” explains Wes King, the company’s chief executive. “We had an awesome chance to see what the average person enjoyed about our bar, and the response was overwhelmingly positive.”

Like the members of RNO’s Kindness Team, King enjoyed the process. “The best takeaway for me is getting to do something purely for the sake of kindness. It’s amazing how good that makes you feel,” he reflects. “To see the smile on someone’s face when you hand them coffee and a trail bar is wonderful. Often, when you go to events all day [to promote a product], it’s taxing. In this case, I came away feeling more energized and excited about what I do.”

Jared, who manages the airport’s public affairs and customer service, feels similarly: “While a little good PR is always nice, we genuinely did it to enhance the travel experience for our passengers any way possible.”

The marketing benefits, however, speak for themselves. With RNO’s social media followers up 80% since Kindness Takes Flight launched, people on Twitter and Facebook are clearly “talking” about the airport — in a good way.

“Social media is always changing, and it’s such a pay-to-play environment,” Venis notes. “Generating interaction and sharing is becoming so important; and every day, they change the algorithm. It’s a constant challenge, and it’s becoming harder and harder. The key for us is that we wanted the growth and followers and we wanted the interactions.”

Jared sums it up in one sentiment: “Kindness is not an algorithm that changes.” ✈️

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# Largest Freestanding Building in DHL Global Network Opens at O'Hare Int'l

By Victoria Soukup



Chicago O'Hare International Airport (ORD) continues to progress toward its goal of becoming the North American leader in global air cargo with the recent opening of a \$35 million landside warehouse and more airside development in the works.

ORD joined forces with Aeroterm, a private real estate developer that specializes in airport industrial projects, to add the new 491,000-square-foot freight facility to its landscape. When it opened in January with cargo heavyweight DHL Global Forwarding as its tenant, airport officials considered the event an important step toward making Chicago a leader in global trade.

"O'Hare is one of Chicago's key economic engines," says Michael Boland, acting commissioner of the Chicago Department of Aviation. "With DHL's investment, we are ensuring that O'Hare International Airport will continue to be a powerful economic engine and one of the world's leading transportation hubs."

DHL Global signed a 10-year lease with Aeroterm, which, in turn, has a 40-year lease with the city. Both have options to extend.

When Aeroterm completes a separate 850,000-square-foot airside project currently under construction, ORD will have an impressive 4 million square feet for moving cargo — more than any other passenger airport on the continent.

## DHL Behemoth

Construction of the new facility began in November 2013 and was completed at the end of last year. With 440,000 square feet of warehouse space and 51,000 square feet of office space, the new facility is DHL Global's largest air export gateway.

Specifically, it is the company's largest freestanding building in the world and its largest U.S. building of any type. The new structure was designed to accommodate 500+ employees and replaces a facility DHL previously occupied in nearby Franklin Park, IL.

Chris Remund, chief executive officer for DHL Global Forwarding, U.S., explains that ORD's strategic location for air cargo shipped to/from Europe and Asia, and within North America, was a key factor in its selection for the new facility. "Given the airport's ability to process approximately 1.5 million tons of imports and exports, it was the perfect location to expand our operations," he explains.

Remund also highlights the importance of ORD's Modernization Program, which he says is reducing delays, increasing capacity and meeting increased demand for companies doing business with the airport. "We wanted to continue partnering with an airport that



Chris Remund



## factsfigures

**Project:** Landside Cargo Warehouse

**Location:** O'Hare Int'l Airport (Chicago)

**Cost:** \$35 million

**Owner:** Aeroterm

**Leasee:** DHL Global Forwarding

**Warehouse Size:** 440,000 sq. ft.

**Office Space:** 51,000 sq. ft.

**Handling Capacity:** 20 million kg of freight/month (by end of year)

**Special Features:** 2 temperature-controlled chambers, totaling 10,000 sq. ft.

**General Contractor:** FCL Builders

**Construction:** Nov. 2013 – late 2014

**Future Capacity:** When Aeroterm completes a \$200 million/850,000 sq. ft. airside project now under construction, airport will have 4 million sq. ft. of cargo facilities



The \$35 million facility includes 440,000 square feet of warehouse space.

is investing and taking concrete steps to meet its future growth — something we are always looking to do as a company,” he comments.

Per DHL’s specifications, Aeroterm outfitted the facility with 59 docks, four drive-in doors and 142 trailer storage spaces. It is a TSA-certified cargo screening facility and is Customs-Trade Partnership

Against Terrorism (C-TPAT) validated. While the bulk of the building is warehouse space, it also includes a three-story office component.

Remund notes that two elements make the facility especially appealing to DHL customers: Its Foreign Trade Zone status reduces the amount they must pay in Customs duties, taxes and tariffs; and carriers can receive cargo for direct loading into containers, because it’s a Bonded Container Freight Station.

“This facility represents a milestone in our journey of becoming both the global market leader in the logistics and transportation industry, and our customers’ first choice,” he says. “It allows us to better serve our customers by giving us the ability to process substantially more cargo. The warehouse is expected to handle about 20 million kilograms of freight per month by the second half of 2015.”

### Environmental Elements

Two temperature-controlled chambers, totaling nearly 10,000 square feet, allow the warehouse to accommodate sensitive pharmaceutical, biotech and medical products and/or devices. One chamber is designed to maintain a temperature between 35° and 46° F and the other between 59° and 76° F. The warehouse also includes a temperature-controlled dock for processing.



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Like all other infrastructure projects at ORD, the new DHL facility was designed and built according to the Chicago Department of Aviation's Sustainable Airport Manual, which requires specific green building practices. As such, the new warehouse includes electric freight-handling equipment, and the overall project is slated for Leadership in Energy and Environmental Design certification by the U.S. Green Building Council.



Erin Gruver

"We took careful measure of using recycled materials, natural lighting and energy-efficient equipment," details Erin Gruver, Aeroterm's executive vice president of acquisitions and development. The project also included participation by minority- and women-owned companies and disadvantaged business entities, he adds.

Except for severe winter weather suspending construction for a few months, Gruver describes the construction process as seamless. He attributes much of the productive momentum to Aeroterm's good relationships with DHL and the city. "The airport is very prepared and works hard to ensure that we understand every aspect of the site and project," he explains. "They helped us plan for — not react to — potential unknowns related to the site; and that allowed us to continue and maintain the schedule."

Gruver also credits the city's practice of being actively involved in projects that affect ORD: "The mayor (Rahm Emanuel) was a big proponent of this project, and with his help and the Chicago Department of Aviation, we were able to get this done quickly. That was very important to us."

### Bigger Project Underway

With construction of the new DHL warehouse ending in late 2014, work continues on an even larger airside development project, also by Aeroterm. Crews began the 850,000-square-foot Northeast Cargo Center in November 2014; and airport officials expect them to finish the first two phases of the \$200 million project next spring (2016). The third and final phase is projected to be complete in late 2017.

When combined with Aeroterm's other holdings at the airport, the Northeast Cargo Center and recently completed DHL warehouse bring the company's investment at ORD to nearly \$400 million. "We like O'Hare because it is a major U.S. gateway, a primary portal for international freight and trade," Gruver comments. "Chicago is a very strong market for us, which we have invested in significantly and we plan to continue to invest in the coming years."

Three ground handlers — Alliance Ground International, Total Airport Services and Swissport — have already committed to lease space in the facility, Gruver reports.

Once complete, the 65-acre cargo complex will be able to simultaneously accommodate up to 15 of the newest generation Boeing 747-800 freighters, notes Boland. "The center is expected to generate \$600 million for the airport over the life of the lease, and will create thousands of new jobs during construction and after it opens," he adds.

Ongoing development of its cargo infrastructure also keeps ORD aligned with city hall. Mayor Emanuel, who was reelected in April, cites the transportation, distribution and logistics industry as a critical part of his plan for economic growth. He further estimates that those sectors will bring more than 110,000 jobs to the area during the next decade alone. Boosting the city's competitiveness in the field is essential, he stresses.

"This new DHL Global Forwarding building is a testament to Chicago's burgeoning growth and can offer local businesses of all sizes a gateway to trade expansion within the U.S. and abroad," Emanuel explains. "The city of Chicago is proud to partner with businesses like DHL that want to invest in our community by adding jobs, promoting commerce and further positioning the city as a leading cargo hub." 



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# Asheville Regional Saves \$12 Million Using Free Coal Ash Fill

By Robert Nordstrom



## factsfigures

**Project:** Land Reclamation

**Location:** Asheville (NC) Regional Airport

**Acres Reclaimed:** 50

**Fill Material Used:** Coal ash from nearby energy plant

**General Contractor:** Charah

**Coal Ash Supplier:** Duke Energy

**Construction Management:** Avcon

**Liner System:** Chesapeake Containment Systems

**Construction Timeline:** Nov. 2009 – Fall 2015

**Honors:** 2011 General Aviation Project of the Year, awarded by the Southeast Chapter of the American Association of Airport Executives

**Of Note:** Using a local byproduct rather than traditional fill saved the airport about \$12 million



When it came time for Asheville Regional Airport (AVL) to reconstruct its only runway, the management team got creative. Instead of resigning to an extended shutdown that would have effectively put the North Carolina airport out of business for an extensive period, they decided to build a new taxiway and use it as a temporary runway while the existing runway is demolished and reconstructed.

But that's only the beginning of their story.



Mike Reisman

"We're located in a mountainous area," explains Mike Reisman, AVL's deputy director of development and operations. And as such, most of the airport's land outside of the runway

and taxiway safety areas is greatly varied in topography. To build, we needed to reclaim land that in some areas was 40 to 60 feet below the airfield elevation."

Enter Progress Energy (which has since merged into Duke Energy) and Charah, a construction company that specializes in coal ash management. AVL partnered with the two firms and initiated work in 2009 on a massive

reclamation project that spans more than 50 acres and uses coal ash fill to build previously unusable land up to airfield level grade.

While a large portion of the reclaimed land is designated for business development, AVL's new taxiway/temporary runway is being built on a portion of the most recent 30-acre reclamation site.

Lew Bleiweis, the airport's executive director, describes the fortuitous and mutually beneficial arrangement: "The energy company needed a safe storage solution for their coal combustion byproduct, known as coal ash; and the airport needed fill material suitable for the airfield project. It was a win-win situation."



Lew Bleiweis

Even the geography was right. "They were able to safely place coal ash in an area only a couple of miles from their coal ash storage ponds," Bleiweis continues.

In the end, using Duke Energy's byproduct saved AVL approximately \$12 million in land reclamation costs over traditional methods, and about 4 million cubic yards of coal ash found a new home, he relates.





## Reclaiming Land

Charah initiated work on the 53-acre Westside Project by completing an environmental assessment and due diligence audit. Borings were taken to determine the geologic and hydrogeologic conditions. And erosion, sediment and pollution prevention controls were implemented according to local, state and federal regulations regarding coal ash as fill.

Although state regulations did not require a liner system for the project, AVL, Charah and Duke Energy determined that installing a state-of-the-art liner system with an estimated 400-year life expectancy was a more environmentally responsible approach, Reisman explains.

Construction began by clearing, grubbing and excavating existing soils to establish a suitable subgrade surface. A geocomposite clay bottom liner, 60-mil high-density polyethylene bottom liner and geocomposite

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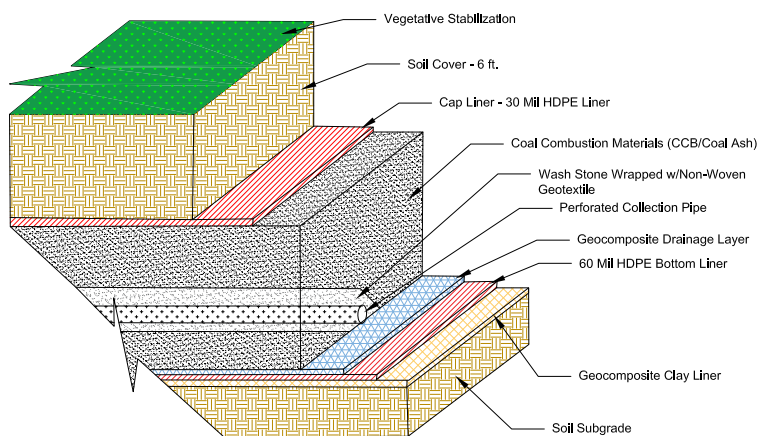
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**Coal Combustion Byproduct/Coal Ash Line System**

drainage liner were then laid over the subgrade surface. Above the liners, Charah installed perforated drainage collection piping and wash stone wrapped with nonwoven geotextile to capture and disperse residual drainage from the coal ash.

“The coal ash is encapsulated within a fully sealed vessel,” Reisman elaborates. “After they clear the ground area, they place the geocomposite clay liner directly on the ground. This liner consists of two layers of nonwoven geotextiles containing bentonite to serve as a barrier between the ground and coal ash. A thick, semi-rigid 60-mil synthetic liner is then laid out in large rolls, and seams are overlapped and heat welded. Next, a drainage liner is set in place to capture

moisture retained in the coal ash and disperse it to either an underground holding chamber or the sanitary sewer system.”

Charah excavated and stockpiled coal ash from Duke Energy’s coal ash ponds. After the ash was dry enough, it was loaded onto dump trucks and hauled to the fill site. “A 15% to 25% moisture level is optimum for compaction and dust control,” informs Scott Sewell, Charah’s chief operations officer.



**Scott Sewell**

Contrary to what some might assume, Sewell says that coal ash packs like concrete. “It’s some of the best material we’ve ever worked with as far as uniformity of size and compaction,” he reports.

Crews laid the coal ash in approximately 12-inch lifts, then spread and compacted it with a vibrating smooth drum roller to achieve the FAA compaction requirement of 95% Proctor. Both nuclear and standard density testing methods were used to confirm the compaction, notes Sewell. When elevation reached within 6 feet of final grade elevation, workers laid a 30-mil high-density polyethylene cap liner over the top of the coal ash and heat welded around the perimeter to the bottom 60-mil liner, creating a fully sealed vessel, he explains. To bring the fill to final grade, 6 feet of soil topped with vegetative cover was placed and compacted per FAA requirements.

Before the current fill project began, AVL completed a smaller fill project on the north general aviation side of the

Liners installed above and below the coal ash fill provide environmental protections that surpass state requirements.

airport that also used coal ash as fill. The earlier project added approximately 15 acres of land suitable for aeronautical use and required mitigation efforts due to environmentally sensitive areas, including a stream and wetlands.

The airport selected Avcon to provide construction management services for the current project. "Approximately 1,100 linear feet of 60-inch reinforced concrete pipe was installed about 40 feet below the finished grade," explains Mike Darcangelo, Avcon's regional manager.

"The pipe carries stormwater, and is in place to manage the required removal and mitigation of a small stream.

"Also, per regulations, Charah constructed a 50-foot buffer on each side of the pipe to keep the former streambed area free from the coal ash fill. Only an earth fill and 6-foot soil cap could be placed above and around the pipe."

### Looking Forward

With the current fill project projected to be complete by September, AVL broke ground last August on its \$64 million taxiway and runway project. According to Bleiweis, the new taxiway/temporary runway is expected to take two years to complete, and the new runway an additional two years.



Mike Darcangelo

"It's all part of the airport's 20-year master plan," he remarks. "Once the temporary runway is commissioned as our main runway, we will begin work on the new permanent runway."

None of the improvements would have been possible without the reclamation of nearby land, he adds.

"It's been a great partnership," Bleiweis reflects. "The energy company had a byproduct they needed to safely store, and we had an area that needed to be filled. Plus, in effect, this has been a green project — not just because we are recycling coal ash materials, but because the coal ash was relocated so close to the airport. That translates into less fuel and exhaust pollution throughout the duration of the project."

Garry Whisnant, plant manager at Duke Energy's Asheville facility, feels similarly about the project. "Our partnership with the airport has allowed us to reuse ash in a beneficial way and help advance the airport's comprehensive growth plans," says Whisnant. "This project is a perfect example of how innovative solutions can drive economic development in local communities. We are excited to be part of it and hope to find similar opportunities in other communities as well." 

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## Free Fill Adds Land, Saves \$15 Million at Lewis University Airport

Starting in 2001, Lewis University Airport (LOT) in Romeoville, IL, began periodically receiving loads of coal combustion byproducts from several nearby energy plants. The process continued off and on for seven years, and work crews following plans created by Hanson Professional Services transformed the small airport's landscape, using the coal ash to create a base for a new runway.


When the dump trucks began making their treks, LOT had a single 2,900-foot runway set on 172 acres of land. Today, it boasts a 6,500-foot instrument-equipped runway designed to handle corporate aircraft plus a 5,700-foot crosswind runway on 1,000 acres of land.

Chris Lawson, director of aviation at LOT, describes the project as an ingenious and cooperative effort. "The Illinois Division of Aeronautics and the FAA saw \$15 million of savings in construction costs," Lawson notes.

Approximately 2 million cubic yards of fly ash and bottom ash were placed on airport land, plus an additional 500,000 cubic

yards of onsite clay for the top, bottom and sides of the fill area, reports Ron Hudson, Hanson's project manager.

The coal combustion byproduct fill was placed and compacted in 8-inch lifts to build a 35-foot embankment to support the new runway, explains Hudson. The design included an engineered clay liner with a composite geo-membrane as well as a leachate collection layer and piping system. The material was fully encapsulated with another geo-membrane, he adds. An additional drainage layer with underground piping carries groundwater away from pavements. Clay and topsoil were laid and compacted above the geo-membrane fabric. The areas excavated onsite became the project's storm water detention areas, which saved additional dollars.

"Five years after construction, the site and runway are still in great shape," reports Hudson. "Because of this success, the public-private partnership remains in place, with a smaller scale embankment program designed to create an extended runway safety area at the airport in the works." 

## POWER PLAY

The Joliet Regional Port District, ComEd, Mineral Solutions Inc. and Hanson worked together to provide free coal-combustion byproducts (CCB) for the fill of Lewis University Airport's primary 6,500-foot-long runway. Lewis was the first airport to use CCBs on a major runway project — one of the largest environmental-reuse projects in the nation at the time of its completion in 2009.

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## Quad City Int'l Updates Boarding Bridges

By Dan Vnuk



Ever since the heyday of Mississippi steamboats, the Quad Cities that straddle the mighty river have been a hub of agricultural, industrial and commercial activity. With Bettendorf and Davenport on the Iowa side of the river, and Moline and Rock Island on the Illinois side, transporting goods and people is a historic and current key to the area's prosperity.

Quad City International Airport (MLI) in Moline has been an important component of the regional transportation network for decades. Currently, MLI serves more than 763,000 annual passengers and ranks as the third-busiest airport in the state, behind only O'Hare and Midway International in Chicago.

Last fall, Moline's bustling airport finished a \$2.5 million project that included the installation of five new jet bridges and two new airside walkways. The initiative was federally funded with bonds backed by passenger facility charge (PFC) revenue — a financing mechanism and income source that Bruce Carter, the airport's aviation director, stresses is vitally important for MLI and other small hubs.

"The PFC-funded jet bridge project will have a lasting impact on our ability to serve airlines now and in the future," explains Carter. "Modernizing the PFC cap is a must and is a fiscally responsible way to ensure that airports have the resources to remain competitive. PFCs gave us that opportunity."

### Less Emissions, More Flexibility

MLI's recent boarding bridge project was in the planning stages for two years. The airport replaced the five oldest units in its 10-piece fleet with new JBT AeroTech bridges, and will likely replace the remaining older equipment over the next 10 years, explains Bryan Johnson, MLI's assistant aviation director.



Bryan Johnson

The airport also added 50-foot fixed walkways and pre-conditioned air units to two gates, B10 and B15. While the installation of foundations added to the overall length of construction, the new walkways maximize the apron area and allow the airport to



### factsfigures

**Project:** Jet Bridge Upgrades

**Location:** Quad City Int'l Airport (Moline, IL)

**Cost:** \$2.5 million

**New Equipment:** 5 electric/mechanical boarding bridges; 2 fixed walkways; 2 pre-conditioned air units

**Bridge Manufacturer:** JBT AeroTech

**Installation:** Walter Niese Machine

**Crane Work & Installation Support:** Brandt Construction

**Key Benefits:** Increased ability to service large & small aircraft; decreased carbon emissions



Last year, MLI Aviation Director Bruce Carter received the AAAE Distinguished Service Award in recognition of his career-long leadership and contributions to the industry.

accommodate larger aircraft, Johnson notes. Including the extra work for the new walkways, the project took approximately 10 working days per bridge, he details.

The bridges that were replaced dated back to the late 1980s and early 1990s. “Normally, these last considerably longer,” says Johnson. “But so much has changed in recent years with the jet bridge design, materials and now even sustainability.”

Installing electric/mechanical boarding bridges and eliminating ground power units driven by diesel engines ultimately help reduce the airport’s footprint of carbon emissions, he explains.

In addition to sustainability, flexibility was another factor driving the project. Some of the previous radial bridges didn’t effectively service the airport’s current fleet mix, comments Johnson. Specifically, they couldn’t physically reach high or low enough for certain aircraft. “(The new bridges) will give us the most flexibility, so we can serve large aircraft down to the smaller regional and charter jets,” he remarks.

Personnel from Walter Niese Machine, the contractor that installed the bridges, say the project went well, despite a few engineering “hiccups” and weather delays. In addition to reducing emissions, MLI’s new electric/mechanical bridges will help reduce noise and equipment on the ramp, notes company co-owner Steve Niese.

Johnson expects the airport’s new AeroTech bridges to be in service for 25 to 30 years.

### Other Improvements

The recent boarding bridge project is the latest in a larger series of infrastructure improvements at MLI. Last year, the Illinois airport remodeled both

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Crews installed new boarding bridges, fixed walkways and pre-conditioned air units.




of its concourses and expanded its TSA security checkpoint, baggage claim area and rental car facilities during a major terminal renovation.

Last summer, a new Holiday Inn hotel opened adjacent to the airport.

MLI's current terminal dates back to 1985, after studies showed that an addition to the original 1954 structure would be more costly than building a new one. Completion of the new \$11 million terminal helped garner additional service. Between 1979 and 1986, the airport increased from two to seven carriers. Currently, four serve MLI: Allegiant Air, American Airlines, Delta Air Lines and United Airlines. Delta is the airport's largest carrier, by seat capacity and number of daily flights.

Although MLI has no commercial passenger flights to overseas destinations, it is an official U.S. Customs port of entry with Foreign Trade Zone status and a U.S. Customs Office for shipment of goods. With a number of large firms such as machinery manufacturer John Deere & Company based in Moline, locally based corporate jets frequently make non-stop flights from MLI to destinations around the globe.

Last year, a larger U.S. Customs and Border Protection facility that processes international passengers arriving on general aviation flights opened at the airport. Located in a former air cargo building, the facility includes a processing room, an interview room, an agricultural inspections area, office space and holding cells for passengers who are prohibited from entering the United States or travelers who are being detained and transported by law enforcement.

"In addition to commercial activity, Quad City International enjoys bustling charter air travel activity," adds Johnson. "The next phase of the Customs facility project calls for renovating the remainder of the building to create an international terminal or Federal Inspection Service, as we are looking forward to the creation of non-stop international charter flights in the near future." 

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Photos courtesy of Denver Int'l Airport

# High-End Pet Resort at Denver Int'l Provides Convenience for Travelers, Boosts Non-Airline Revenue

By Ken Wysocky



DENVER INTERNATIONAL AIRPORT

## factsfigures

**Project:** High-End Pet Boarding  
**Location:** Denver Int'l Airport  
**Within:** WorldPort freight & cargo facility  
**Operator:** Paradise 4 Paws  
**Opened:** Dec. 2014  
**Size:** 25,000 sq. ft.  
**Capacity:** 150 pets  
**Operator's Est. Building Cost:** \$1 million  
**Lease Length:** 15 yrs  
**Rent:** \$92,000/yr for first 2 yrs, then 10% higher rental fee or 10% of gross annual sales, whichever is greater  
**Project Architect:** Schmidt Design  
**General Contractor:** Z Constructors Nationwide  
**Engineering:** B & H Engineers

Things are going to the dogs (and cats) at Denver International Airport (DEN), and passengers — as well as airport officials — couldn't be happier.

The reason for their delight is Paradise 4 Paws, a luxury pet resort that opened at the airport in December. In addition to eliminating many of the hassles associated with dog and cat boarding for travelers, the 25,000-square-foot facility provides an ongoing source of non-aeronautical revenue for DEN. The company that operates the business is also thrilled, because the new location expands its, er, pawprint into another major market.

Under a 15-year agreement, Paradise 4 Paws pays DEN a fixed annual rental fee during its first two years — about \$92,000 per year, reports airport spokesman Heath Montgomery. After that, the Chicago-based company pays either a



Heath Montgomery

higher rental fee or 10% of its gross annual revenue, whichever is greater. The rental rate increases about 10% per year after the initial two-year rate, notes Greg Hegarty, senior vice president of properties in DEN's revenue management division.



Greg Hegarty

The idea of adding a high-end pet-boarding facility emerged from two sources: the airport's periodic customer surveys and benchmarking information about amenities at other similar-sized airports.

"The concept really came from our customers," Hegarty notes. "About 61 percent of our 53 million annual passengers either begin or end their trips in Denver, which surveys show is very animal-friendly. So in early 2014, we put out a request for proposals for pet lodging ... and Paradise 4 Paws brought to the table the most innovative and competitive package."



Photos courtesy of Denver Int'l Airport



Saq Nadeem

Saq Nadeem, the company's founder and chief executive officer, considers DEN a great fit for the company's target customers: affluent pet lovers.

"It's part of our business concept to focus on top airports in the United States, and Denver is always striving

to be the best airport in the world," says Nadeem. The company operates three other pet resorts at Chicago O'Hare International, Chicago Midway International and Dallas/Fort Worth International and recently signed a contract to open a location at New York's John F. Kennedy International. It also operates two "boarding lounges" — one near Love Field in Dallas and another in central Denver where travelers can drop off their pets for shuttle-service delivery to the company's resorts.

"The response has been phenomenal," Nadeem says of the company's new location at DEN. "It's our best opening to date."

### Pet Project

The Paradise 4 Paws at DEN is located inside WorldPort, a freight and cargo center on the south end of the airport. The facility can accommodate 150 animals a day, and is open 365 days a year; check-in and checkout is offered 24 hours a day. In addition to a variety of cageless accommodations, the resort offers on-

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Canine lodging runs the gamut, ranging from 5-by-6-foot suites for \$45 per night to "Top Dog" accommodations for \$100 per night that provide Spot with a private 9-by-9-foot suite, complete with a flat-screen television, full-size bed and 24-hour webcam access for owners.

Standard dog perks include premium bedding, nightly tuck-in service and playtime in one of the resort's two play areas: one for dogs under 25 pounds and another for larger dogs. Each area features a bone-shaped splash pool, indoor grass, soft rubber floors and webcams for pet owners with separation anxiety.

Cats are housed in a separate gated community. Rooms range from \$25 per night for a 5-by-5-foot deluxe bungalow to \$35 per night for 5-by-9-foot presidential accommodations. The resort's feline lodging overlooks an adventure jungle, where cats can cavort among custom-made trees or watch the constant movement inside a large aquarium.



Photos courtesy of Denver Int'l Airport

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### Taking Care of Business

“We want to make pets’ stays comfortable and enjoyable,” Nadeem emphasizes. “We really focus on convenience and quality. We know how difficult and inconvenient it can be to leave a pet behind.”

By operating around the calendar and clock, Paradise 4 Paws makes it easy for passengers to drop off and pick up their pets — despite early departures or late arrivals, he notes. At more typical boarding facilities, travelers often end up paying for an extra night’s stay because of holiday schedules or flight times outside of standard business hours.

“That’s why we came up with the concept of a pet resort at an airport, where people can just drop off their pets on the way in and pick them up on the way out,” says Nadeem.

Demand for luxury pet boarding is driven by an increasing tendency for pet owners to “humanize” their dogs and cats, he observes. “More and more people are either putting off having children or marriage, and they’re instead finding companionship with pets,” explains Nadeem, quoting industry research that says 80 million U.S. households now include pets.

“In addition, empty-nesters also are looking to fill a void left by departing children,” says Nadeem, who owns two Blue Weimaraners (Vera and Miuccia) and two cats (Gucci and Versace). “I am one of those crazy pet people.”

According to the American Pet Products Association, owners spent a whopping \$58 billion on their four-legged friends last year,

and it expects that number to exceed \$60 billion in 2015. The category of pet services, which includes grooming and boarding, posted the biggest gains in 2014, with a nearly a 10% increase; and the association expects the category to grow 8% this year.

### Revenue Diversification

At DEN, the Paradise 4 Paws pet resort reflects a different trend: boosting and diversifying non-aeronautical income.

“This revenue helps drive down the costs for airlines helps make us more competitive,” Hegarty explains. “It’s all about attracting airlines. If you can drive down airline costs, it makes you more competitive.”

“This has been going on for decades,” he continues. “As the airline industry evolved through consolidations, airports awakened to fact that they, too, needed to be competitive. Airlines are looking at how to best utilize their aircraft and which markets to serve ... so airports started to focus on the overall cost structures of doing business at their airports.”

Like many other airports, DEN continues to search for new sources of non-aeronautical revenue to drive down costs for carriers. Paradise 4 Paws is simply one of its latest finds.

“Airports are very focused on the volume of passengers ... and airlines drive that,” adds Hegarty. “The more domestic and international travel we bring to our airport, the more revenue we generate through things like retail sales, car rentals, parking, food and beverage and so forth.”

### Fulfilling New Expectations


DEN passengers can expect even more top-tier amenities as the airport continues to study what travelers want — and then develops programs accordingly.

“As technology continues to grow and becomes more accessible, it drives customer expectations,” says Hegarty, pointing to the C concourse as an example. When the airport recently expanded the area, it included more comfortable gate seating, USB ports and outlets for charging electronics, and the ability to order food via computerized tablets.

Looking ahead, he reports that the airport will work to improve customers’ rental car experiences and solicit new vendors for about 70% of its concessions to attract fresh concepts.

Many of the airport’s future efforts will target two specific groups: “engaged explorers,” defined as energetic and open-minded optimists who love the novelty of travel and share their opinions via social media, and “demanding elites,” travelers who value status, are career- and family-oriented and desire a lot of options at the airport.

“Our analysis shows there are many different ‘buckets’ of Denver International travelers,” he explains, “but these two segments represent the best opportunity to generate non-aeronautical revenue.”

As for the “engaged explorers” and “demanding elites” with pets, DEN already has them covered. 

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## factsfigures

**Project:** Taxiway Reconstruction/Rehabilitation

**Location:** Renton (WA) Municipal Airport/Clayton Scott Field

**Cost:** Approximately \$10 million

**Funding:** FAA (90%); airport (10%)

**Engineering Consultant:** Reid Middleton

**Prime Contractor:** ICON Materials

**Electrical Engineering:** Elcon Associates

**Geotechnical Engineering:** HWA Geosciences

**Pavement Quality Assurance Testing:** General Testing Services

**Survey Monument Installation:** Peterson Survey Monuments

**Electrical Contractor:** Colvico; Innovative Electric

**Pavement Milling:** Ground Up Road Construction

**Thermoplastic Markings:** AirMark, by Ennis-Flint

**Installed by:** Hicks Striping & Curbing

**Hydroseeding:** Country Green Turf Farms

**Fencing:** C & P Fencing

**Construction Survey Staking:** Baseline Surveying; Apex Surveying

**Quality Control/Materials Testing:** Construction Testing Laboratories

**Concrete Paving:** Salinas Construction

**Recognitions:** American Council of Engineering Companies 2015 Bronze Award; Washington Asphalt Paving Association 2013 Special Merit Award

**Of Note:** Although airport is classified as a small general aviation reliever, it is used daily by Boeing 737s from local assembly plant; so taxiway needed to be designed & built accordingly.

# New 737s Roll Out on New Taxiway at Renton Municipal

By Robert Nordstrom

Although Renton Municipal Airport/Clayton Scott Field (RNT) is classified as a small general aviation reliever airport, its traffic is unusually taxing on airfield pavements. Every 737 produced at the adjacent Boeing factory takes its maiden flight off RNT's single runway; and to access the runway, the heavy aircraft must traverse the airport's 3,500-foot Taxiway B.

After decades of use by Boeing and general aviation aircraft alike, the airport recently replaced it. These days, nearly 40 new 737s roll off Boeing's local assembly line and onto the new pavement each month. Lined up nose to tail, the factory's annual output would extend almost 12 miles. That translates into a lot of wear and tear on a taxiway classified for general aviation use, points out Airport Manager Jonathan Wilson.



Jonathan Wilson

"The taxiway was old and its load bearing capacities were not sufficient to support the 737 loads operating on the taxiway," says Wilson, explaining that the taxiway was

designed for 15,000-pound King Airs rather than 90,000-pound 737s.

"The pavements were coming apart, the taxiway didn't have a crown to shed rain water and it was time for replacement," he details.

The trick was designing and building a taxiway to meet the needs of both general aviation and Boeing operations. Funding was a critical issue because the FAA views RNT as a general aviation airport that needed a taxiway to support lighter aircraft — Group II and under.

"It was tough," Wilson recalls. "We had to make the case that we're different; we need a bigger section of pavement with a better subsurface that will carry more weight. We were looking at a \$10 million-plus project for an airport with only about \$2.5 million in revenue a year. Without FAA grants, it would have been impossible to construct the taxiway, or maybe it would have taken us another 20 years. We had to convince the FAA that this taxiway was unique and worth funding beyond Group II standards."

## Keeping Pace With Production

Before RNT's recent project, much of the existing taxiway's infrastructure dated back



Photo Courtesy of Stephanie Campbell Photography

to the 1940s. As a result, the list of design and engineering objectives for the new surface was extensive:

- upgrade pavement load ratings
- bring the taxiway configuration up to FAA standards
- improve stormwater conveyance systems
- alleviate in-field ponding and improve water quality
- replace the fire water line system
- update edge lighting and signage with LED technology
- add an emergency generator to ensure operations during power outages
- standardize taxiway name designation to improve operational safety

Despite the numerous improvements needed, the airport had to keep costs within FAA grant allocations and finish construction within a tight schedule in order to minimize disruption to flight operations. In fact, one of the two runway access points needed to remain open throughout the entire project.

To address the challenges, planners divided construction of the new taxiway into two projects: the 1,700-foot north end, which only affected general aviation traffic, and the 1,800-foot south section, which affected Boeing activity and some general aviation operations.

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## Shorter, Longer Jet Blast Deflector

At 22 feet tall, the previous blast deflector at Renton Municipal Airport/Clayton Scott Field (RNT) was about 7 feet too high for the non-precision approach procedures airport officials wanted to implement. It was also old and due for replacement, note personnel from URS, the project's engineer of record.



Andy Carpenter

“It was originally designed for Boeing 727s, which have three engines: one on each side and a higher one at the rear of the aircraft,” informs Andy Carpenter, URS’ project manager for the blast wall. “The 737s taking their maiden flights out of RNT feature engines lower to the ground and do not generate blast as high as the 727s.”

The new wall, by Blast Deflectors, stands about 13 feet at its highest point in the center and slopes down to about 10 feet at both ends. Constructed primarily of steel, it has a red and white angled top cap to provide prominent visual markings for approaching pilots.




Don Bergin

“The galvanized steel was powder coated with gray, red and white paints to resist corrosion and prevent potential contaminants from spilling into the surrounding area,”

adds Don Bergin, sales director with Blast Deflectors.

The previous blast wall also served as a security fence along West Perimeter Road due to its shape and location. To maintain site security and jet blast protection for people and vehicles south of the runway, the new wall was constructed between the existing blast wall and runway before the old wall was removed. Though the new wall is closer to the end of the runway, it is small enough to not be considered an obstruction. At 264 feet long, it is the largest continuous radius jet blast deflector in the world, says Bergin.

“The old blast deflector was too tall,” reports Airport Manager Jonathan Wilson. “It was a technical obstruction and needed to come down. The new one has a smaller footprint but provides the same benefits. And, it’s much nicer to look at!” 

### factsfigures

**Project:** Blast Fence

**Location:** Renton (WA) Municipal Airport/Clayton Scott Field

**Cost:** \$1.2 million

**Funding:** FAA (90%); airport (10%)

**Engineer of Record:** URS (now part of AECOM)

**General Contractor:** Merlino Construction Co.

**Manufacturer:** Blast Deflectors

**Of Note:** World’s largest continuous radius jet blast deflector



Construction began in April 2013 on the north end. Because this section had a 25-foot-wide footprint designed for lighter general aviation aircraft, it required a less complex phasing and construction schedule, Wilson explains.

As the north project neared completion, the airport eagerly awaited word about funding for the larger, more complex south project — a 50-foot-wide section for heavier aircraft. Timing was critical, because crews needed to begin the south project immediately after the north project was complete in order to finish the entire taxiway during the 2013 construction season. As it turned out, funding was finalized and confirmed just weeks before crews finished the smaller portion of the job.



Kurt Addicott

“The grant allocation came down to the wire, but we were able to break ground on the south end in early July,” recalls Kurt Addicott, principal engineer for Reid Middleton, the prime design and engineering consultant

on the project. “Getting the south project done in 2013 was critically important because Boeing’s production rate was increasing. If we didn’t get it done in 2013, the production schedules were going to make phasing even more complicated in 2014.”

Boeing maintains nine single-aircraft workstations along the south end of the taxiway, where new 737s undergo final preparations before their maiden flights. In general, no more than one workstation was shut down at a time during taxiway construction.

Only small sections of pavement needed to be closed for rehabilitation and drainage improvements during the three-phase north project. On the south end, work was divided into seven phases; and crews had to take more sections of pavement out of commission. After the pavement was reconstructed or rehabilitated, sections were reopened one by one.

Boeing also maintains workstations on private property on the east side of the Cedar River (Apron D), which requires aircraft built there to cross a bridge to access Taxiway B. At one point during the taxiway project, aircraft movement across the bridge had to be shut down.

“As we worked through the phasing, we had to be mindful of Boeing operations across the river,” recalls Wilson. “If you consider that

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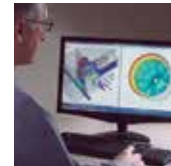


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Boeing pressed underused workstations on the west side of the field into service when aircraft movement across a bridge over the Cedar River was shut down during construction.



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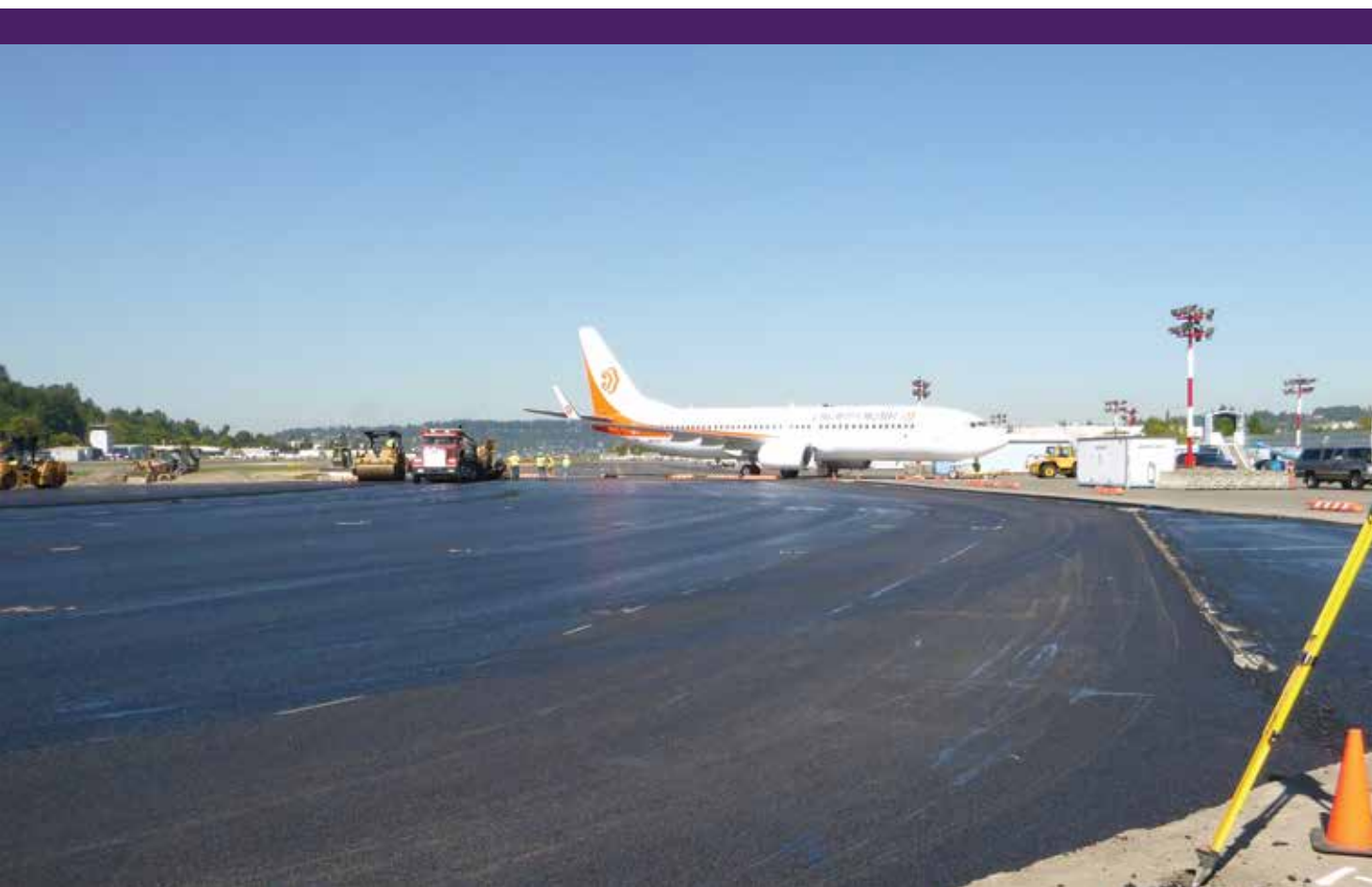
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Boeing had about 440 aircraft deliveries in 2013, shutting down access to the runway from Apron D for 14 days was going to be a problem for them. To get around this problem, Boeing staged aircraft at some underused workstations on the west side of the field before bridge access was shut down."

Addicott underscores how important phasing was from the start of the project. "It helped tremendously that the airport and Boeing representatives had a good working relationship throughout the project," he reflects. "We worked closely with Boeing to try to develop a phasing schedule that would meet their operational and our construction needs."

### Underground Issues

Insufficient subgrade conditions and underrated pavement strength were significant issues during the project, especially on the south end where Boeing operated. Addicott notes that several factors exacerbated RNT's already challenging subgrade conditions: poorly functioning stormwater conveyance pipes; an old, leaking fire water line; and high water tables, due to the proximity of Cedar River and Lake Washington and heavy clay



layers that hold groundwater below the pavements.

“A significant part of the airport’s footprint was built over marshland that had been hydraulically filled with unstable materials pumped in from Lake Washington back in the 1940s,” he explains. “This was a problem, particularly on the south end, where the pavement loads were considerable.”

A patchwork of existing pavement in varying depths and sections further complicated rehabilitation efforts. Some areas included asphalt on top of the taxiway’s original Portland cement concrete slabs; other areas had crushed rock and asphalt directly on poor subgrade.

The simplest solution would have been to rip everything up, establish a uniform foundation and build from there, Addicott informs. Time and cost, however, ruled out the “easy option.”

Instead, geotechnical sub-surface investigations were performed to determine the quality of subgrade soils throughout different areas of the taxiway. In some places, pavements were reconstructed by treating the subgrade soils with cement to establish

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a firm foundation for asphalt top layers. In other areas, pavements were rehabilitated with asphalt overlays to achieve pavement strength goals and reduce the duration and cost of construction.

### Above the Surface

Updating the taxiway's cross-sectional configuration to meet current standards was another important objective. FAA design standards require crowned pavements to disperse water to each side of the taxiway; RNT's previous taxiway shed water across the entire width of the pavement.

"The existing pavement was not crowned," Wilson explains. "All the water was supposed to move across the pavement from one side to the other. Over time, though, the pavement had settled, creating ponding and puddling issues."

To mitigate Boeing's concerns about more stormwater being directed into its storm system, the airport installed a slot drain along the length of the taxiway. The system captures water from the new crowned taxiway and moves it through an oil/water separator before draining it into the Cedar River.


The airport also replaced paint markings on the south end of the taxiway with new thermoplastic markings — a key element for the project because of the airport's traffic, Wilson emphasizes.

"The brand new Boeing jets need to leave our field in perfect condition," he explains. "Because the engines are so close to the ground, loose glass beads from the painting process become FOD (foreign object debris) that can potentially be sucked up into the engines. Boeing is nervous about that, and the thermoplastic helps to reduce potential problems."

Although thermoplastic markings are initially more expensive than paint, they reduce maintenance costs over time, he adds.

### Lessons Learned

Reflecting on the airport's new taxiway, Wilson breathes a sigh of relief: "It's all done; the product is first rate; we couldn't be happier with the outcome."

With nearly five years between initial planning for the project and its ultimate completion, the importance of upfront planning is still paramount in his mind. "Once you get to construction, it's too late — especially when the project requires complicated phasing and construction methods," he relates. "One of my takeaways from this project is to spend more time in the planning process to make sure I have all the little details dialed in before final design." 



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Philadelphia Int'l created its Virtual Hot Spot with existing furniture from elsewhere in the terminal.



# Airports Leverage Existing Wi-Fi Networks With Free Downloadable Books for Passengers

By Kathy Scott

 Walk down the aisle of any flight lasting more than an hour, and you can probably guess what titles are topping the *New York Times* best-seller list with surprising accuracy. Airline passengers are highly vested in reading; and so are the airports they pass through.

Newsstands placed strategically along the concourse sell everything from glossy lifestyle magazines and lighthearted beach novellas to informative local guidebooks and hardcover tomes about the latest business theories. But travelers also clutch tattered paperbacks brought from home as if they are precious cargo.

These days, passengers don't just bury their noses in books and newspapers. More and more read on the glowing screens of Nooks, Kindles and other portable electronics. Airport officials are consequently connecting the dots between the recent

explosion of e-reading and their in-terminal Wi-Fi service (or the continued pressure to provide free Internet access).

Fort Lauderdale-Hollywood International Airport (FLL) in Florida was the first to offer passengers free downloads of e-books in 2011. In cooperation with the Broward County Libraries Division, FLL provides access to over 15,000 public domain titles — an enterprising way to offer reading material to travelers without a local library card.

Fiction and non-fiction selections are available, and many of the books are classics for children and adults, notes Catherine McElrath, publication specialist II at the Broward County Libraries Division. Bestsellers are *not* offered, which helps mitigate competition with airport vendors.

"The project was launched as a fun, free way to provide reading material to guests of the airport and Fort Lauderdale and to raise awareness of Broward County Library's electronic services," explains McElrath.

McElrath credits FLL's public information officer, Greg Meyer, for providing the support to make the program happen. "[He] assisted in helping libraries get free public service space on their terminals," she notes.

Once access was granted, Meyer also ensured that passengers knew about the program. The quick response codes used to access the program are displayed with the

messaging on our television monitors in the baggage claim areas of all four terminals, notes Meyer.

To date, airport visitors have scanned the codes 1,266 times.

After FLL began offering free electronic reading material, a variety of other airports have followed suit. Cherry Capital Airport (TVC) in Traverse City, MI, calls its program *Books on the Go*. "It's a partnership we're very proud of," notes Susan Wilcox Olson, the media and marketing representative for the airport. "The downloads are quite popular in the summer months, when we have a lot of inbound vacation traffic."

## Reading Free in Philly

Last February, PHL unveiled its Virtual Library Hot Spot, a furnished area on the airport's busy D/E Connector terminal that provides passengers with free and unfettered access to over 35,000 e-books. The virtual spot also links them to nearly 1,200 author podcasts and megabytes of other digital content — all provided by the Free Library of Philadelphia.

The partnership expands the reach of the Free Library, potentially extending its powerful electronic platform to nearly 30.5 million passengers who pass through PHL every year and nearly 20,000 employees who work there.

## factsfigures

**Project:** Virtual Libraries

**Industry Leader:** Fort Lauderdale-Hollywood (FL) Int'l Airport

**Other Locations:** Boise (ID) Airport; Cherry Capital Airport (Traverse City, MI); Manhattan (KS) Regional Airport; Philadelphia Int'l; San Antonio Int'l

**Funding Sources:** Local libraries & their boosters; airport operating budgets

**Delivery Mechanisms:** In-terminal "hot spots;" kiosks; reading/download rooms

**Key Benefit:** New customer amenity

"By merging technology, customer-focused vision and the Free Library's digital resources, we have partnered with the library to create a unique traveler experience at PHL," explains James Tyrrell, the airport's aviation deputy director.

Roughly one year later, PHL staff is still working with the Free Library to expand awareness of the resources available at the in-airport Hot Spot. Currently, the most direct route to the library services provided at PHL is the airport's splash page. The Free Library also staffs the area with a digital resources specialist two days per week to assist visitors and airport employees accessing the library's services.

"The Virtual Library is an airport initiative to help us achieve our goals to provide more innovative customer services and amenities to our passengers," says Tyrrell. "In the digital age, the Free Library of Philadelphia's resources have become more accessible, and the Virtual Library gives airport visitors the ability to download e-books, listen to podcasts and browse through the library's vast digital offerings in a comfortable setting."

An existing space was outfitted with furniture collected from other areas of the airport, so costs to add the reading room were minimal, he notes.

Accessing the e-material is designed to be fast and simple. When users log on for free Wi-Fi access, they are directed to PHL's homepage, where a splash page highlights links to free, downloadable material through the Free Library of Philadelphia. Since launching, the site averages about 5,000 page views per month.

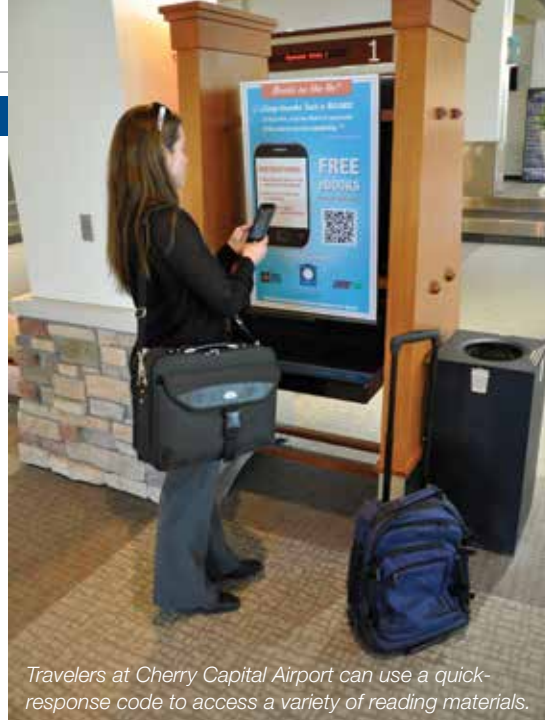
## Branching out in Idaho

In addition to providing a unique new service for its own customers, PHL also inspired Boise Airport (BOI) to offer free downloads of reading material. The Idaho facility took PHL's hot spot concept one step further and brought a full digital branch of the local library into its terminal.

"When I read about the virtual library at PHL, I knew it was a concept I wanted to bring to Boise," says BOI Airport

Director Rebecca Hupp. "The implementation of a digital library branch in the Boise Airport fit well into our overall plan of improving customer experience and providing travelers with a local sense of place."

BOI opened a digital library branch on its busiest concourse last October. Located inside Gate 16 on Concourse B, the branch includes a reading area and six computers. Various library services are offered, including the ability to download books via the airport's free Wi-Fi.



Travelers at Cherry Capital Airport can use a quick-response code to access a variety of reading materials.

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## Airports & eLibraries

When it comes to passengers and reading, numbers tell a lot of the story:

- A 2012 study by digEcor, a digital entertainment company, found reading to be the number one activity for passengers on flights from one to eight hours long.
- Fully 97% of airline passengers carry a smartphone, laptop or tablet; 18% carry all three, according to the *2014 Passenger IT Trends Survey*, by SITA and *Air Transport World*.
- A study from the Pew Research Center found that reading on e-book devices and other portable electronics grew 13% between November 2012 and January 2014. Pew also found that after the 2014 holidays, 32% of U.S. adults owned e-readers such as Kindles and Nooks — up from 24% just four months prior.
- Boingo Wireless reports that fully 29 of the 30 busiest U.S. airports now offer complimentary Wi-Fi — vs. just nine in 2007. On average, 28% of departing passengers use free Wi-Fi, but the range of passengers connecting varies widely (from 6% to 72%), due to differences in network quality and dwell time. ✈️

According to Hupp, it cost BOI less than \$25,000 to partner with the Boise Public Library and add the new customer amenity. Funds for the project came out of the airport's existing budget.

### The Kiosk Model

San Antonio International Airport (SAT) took yet another approach to offering free digital downloads by adding two stand-alone kiosks last October. Together, they cost \$26,000 and were funded by Friends of the San Antonio Public Library. The airport has since installed a third kiosk.

Each kiosk houses software that links travelers to the local library's digital collection; users simply plug in. Out-of-town travelers can sign up for a temporary library card at the kiosks or check out up to three books for seven days without a card. San Antonio Public Library cardholders can check material out for three weeks. At the end of the loan period, books automatically check themselves back in via a cloud-based system, so visitors don't have to return to the airport to return their reading materials.

From October through January, visitors made 600 download requests, reports Nora Castro, the airport's public relations manager. E-books continue to be the most popular segment download.

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## A Cautionary Tale

Seattle-Tacoma International Airport (SEA) took a hybrid approach to its in-terminal library by offering free paperback books and magazines as well as free downloads; but the program ultimately proved unsustainable.

Three “Quick Reads Shelves” were set up on SEA’s Concourse A by the King County Library System’s award-winning reading program, and visitors were encouraged to pick up free reading material for their flights. Between June and August of 2012, the program distributed more than 15,000 books, reports Julie Acteson, library system’s community relations and marketing director. “It was a variety of genres for adults, magazines, and children’s books — all donated from local organizations,” she explains.

In 2013, the library added an additional area on Concourse B, for a total of four Quick Reads Shelves at SEA. County librarians took turns staffing the airport spaces — helping travelers select reading material and restocking the shelves.

Unfortunately, even with donated books, the cost of the program was difficult to maintain. The library system and its foundation spent \$50,000 during one three-month period to support the unique initiative, Acteson details. Eventually, they discontinued the program.

## Paper Perseveres


Although the growth of e-reading is unmistakable, the appeal of traditional printed material continues to endure. According to a 2014 study by the Pew Research Center, the percentage of U.S. adults who read an e-book in 2013 rose to 28%, from 23% the year before; but 69% of survey respondents had read at least one printed book during the same period. The study also found that the vast majority of e-readers also read printed books.

“Though e-books are rising in popularity, print remains the foundation of Americans’ reading habits,” the report concluded.

Manhattan Regional (MHK) knows that its passengers enjoy printed books, because visitors regularly pluck them off a shelf and carry them right out the front door. No, it’s not a rampant case of shoplifting. The small Kansas airport doesn’t have a gift shop.

The books come from the local library, which collects them from area donors and then distributes them to MHK and six other wait-prone locations. Neither the airport nor the library expects passengers to return the books they take. “We just ask that they pass them along for someone else to enjoy,” explains Judi Nechols, an adult services librarian in Manhattan.

MHK calls its collection *Books on the Fly*, and passengers are grateful for the unexpected perk. “It seems to be very popular — especially when traffic is up during holidays or because of activity at Fort Riley (a nearby Army installation),” Nechols remarks. Typically, the library delivers 50 to 60 books per month, but personnel drop off extras if stock begins to dwindle sooner than usual.

In March, MHK moved into a new terminal. Although the library shelf had not yet been relocated, airport personnel were certain it wouldn’t be long before the books were unpacked, in place and attracting curious browsers. 

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### Glenn S. Januska

*Glenn S. Januska, A.A.E., has been director of Casper/Natrona County International Airport for eight years. In total, he has worked at five different airports during his 27-year career.*

## Air Service Development Strategies

 Air service development should be easy. In theory, all it takes is convincing an airline that it can make a profit serving your market; but that's really not enough. Given the limited amount of aircraft airlines have to deploy and the larger number of airports vying for service, you must also demonstrate that a carrier can make more money in your market than elsewhere. How this is done is very different from one airport to the next.

The old saying, "When you've seen one airport, you've seen one airport," absolutely holds true for air service development. What succeeds in one market may not work in others. Developing an effective strategy for your particular market is critical.

First, **know thy market.** With a catchment area of 270,000 people, Casper, WY, is a small market; but it is also relatively isolated, with Denver a four-hour drive away. We're small enough that no airline analyst wakes up and says, "Let's look at Casper today." So we do the work ourselves. Every two years, we complete a market analysis/leakage study. We know the size of our market, which airlines passengers are using, where travelers are going and what they are paying for fares — at our airport and elsewhere. United may not care as much if Casper passengers leak to Denver ... until its executives see how many passengers do so and which airlines they use.

There are a host of questions to ask: How much traffic is origination and destination (O&D) vs. connecting? How far is the nearest hub(s)? What airlines serve them? Do those carriers have aircraft that would work in your market?


In Casper, we have a 10,150-foot primary runway. With an elevation of 5,150 feet and a dry, desert climate, a fully loaded FedEx A300 has no problem using our airport daily. A 30-passenger EMB-120, however, would be weight-restricted in the summer. Delta service to Minneapolis (580 nautical miles) works with a CRJ-200; but

service to Atlanta (1,166 nautical miles) requires a larger aircraft. Given the O&D and connecting passengers through Atlanta, our market analysis shows that a larger aircraft might make sense, but not with the frequency we would need for business travelers and not at the profitability level Delta would likely want.

Second, it's important to **know thy airline.** A year before Allegiant started flying in Casper, its market development team invited us to a conference, where I learned "everything Allegiant." I loved walking out of that event with a plan. If Allegiant started service in Casper, I knew that neither our existing airlines nor our fixed-base operator would provide ground handling services. So we turned to our flight school, and its instructors welcomed the opportunity to supplement to their pay with extra ground handling work.

We also told our local economic development entity about the importance of having ground support equipment, not only for Allegiant but to help attract other carriers by lowering the cost to enter our market. The alliance consequently purchased the equipment and leased it to the flight school, which has successfully provided Allegiant's ground handling for seven years now.

An executive from a different airline told me that he wished every airport would provide its cost per enplaned passenger, but very few do. Now I know our cost and share it with him and all of our other airline partners.

Yet another executive told me that his airline had plenty of historic data about our market, but he really wanted to know what might affect future travel demand. Easy enough! I email my list of airline contacts all news story about central Wyoming that could translate into butts in aircraft seats. They may get more information about the energy industry than they ever expected, but they also understand our market better. Who knows? Maybe some airline person will wake up thinking about Casper. 



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