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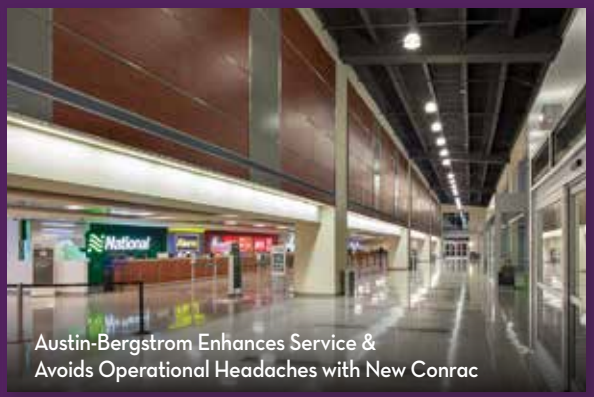
Mitchell Int'l Rebuilds Baggage Claim Building From the Bones Up



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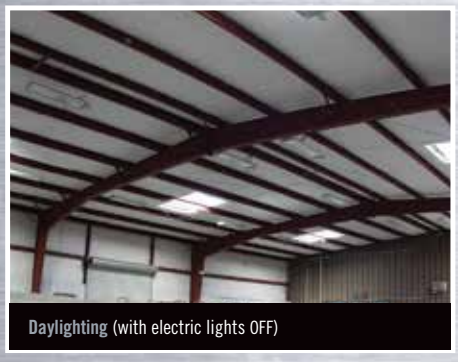

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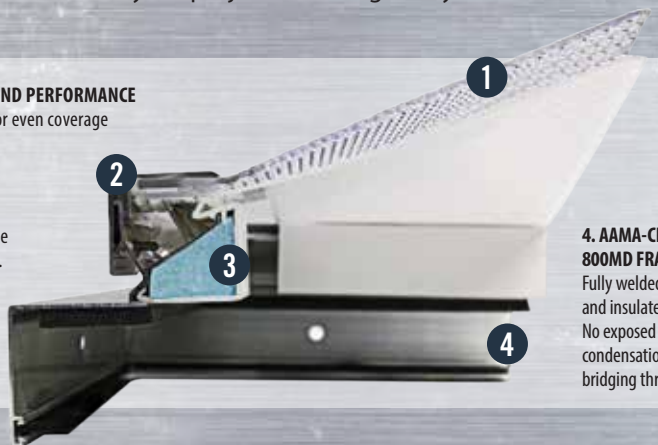

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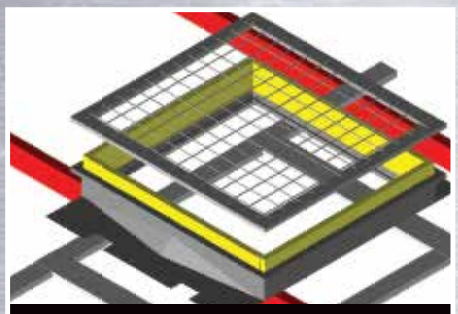

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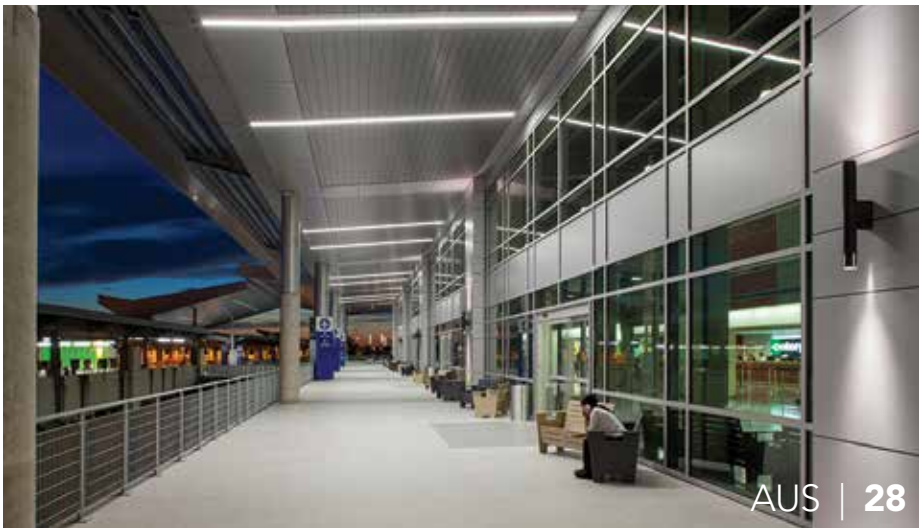
* According to Jon McHugh, PE, LC, and technical director with the energy consulting and research firm, Heschong Mahone Group, Inc., America could reduce its peak load electrical demand by 24,000 megawatts just by daylighting existing buildings that could utilize daylight using toplighting or skylights.

WWW.NUCORBUILDINGSGROUP.COM/DAYLIGHTING

YHM | **14**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Oh, What a Feeling!

Over the last few months or so, I've detected a change in attitude, and this sense was validated at the national conferences I attended in fall. What is it, you ask? That airports and other aviation sectors are now enjoying the best of times.

Perception or reality? It depends.

If you've followed the airlines' quarterly earnings reports, it appears they are certainly enjoying some heady success. But that's a discussion for another time.

What I'm referring to is how people are *perceiving* the overall health of the airport industry.

It seems that 2015 has been a breakout year. Airports are serving many more passengers than ever before, and project work is occurring at levels we haven't seen in a decade or more.

Is that really the case? Sort of.

It's true that passenger counts increased in 2014 and 2015; but that's nothing new. They've been inching higher over the past few years. However, the increases seen over the last five years have been slow and predictable. Yes, we are doing better; but it isn't as though the floodgates have opened.

When it comes to airport spending, we're all too familiar with the AIP and PFC sagas. The amount of AIP dollars has been static, and the PFC rate is frozen. Any increase in available funds is tied to increasing the number of passengers.

So what is driving this attitude that we're in the midst of an airport boon? I contend that it's predictability and stability. Interest rates and oil prices are low. Consumer confidence and the overall economy are good. But mostly, we're in a pattern of predictable and constant growth without any huge disruptions threatening the domestic economy. We're able to plan and execute. Whether it's families taking vacations or airports building new runways and terminals, people are confident that tomorrow will support today's plans.

My hope for you is that sustainable growth follows you and all of your endeavors into 2016.

Cheers!

Paul

Air Service Development Leads to Terminal Expansion at Punta Gorda Airport

By Jodi **Richards**

FLYPGD.COM
Charlotte County Airport Authority

factsfigures

Project: Terminal Expansion & Renovation
Location: Punta Gorda (FL) Airport
Owner/Operator: Charlotte County Airport Authority
Cost: $8.6 million
Funding: 70% FAA; 30% state grant & airport
Terminal Addition: 40,000 sq. ft.
Space Renovated: 16,000 sq. ft.
Program Manager: AECOM
Architect: Schenkel Shultz Architecture
General Contractor: DeAngeles Diamond Construction
Baggage Handling System: G&S Airport Conveyor
Traffic Modeling/Forecasting: Airport Cooperative Research Program
Seating: KI
Concessions: Faber Int'l

Punta Gorda Airport (PGD) is proving that one size does *not* fit all when it comes to air service development.

In 2014, passenger volume at the southwestern Florida airport jumped a colossal 88% over the previous year. By mid-Spring 2016, PGD expects to finish an $8.6 million terminal renovation and expansion.


Gary **Quill**

Executive Director Gary Quill explains that the airport is investing in its facilities as Allegiant Air grows its service there. The strategy has been to meet increased customer demand with incremental improvements and additions that stress function over fashion. Throughout the years, Quill and other airport officials have experienced an interesting journey evolving the terminal to its current state.

In 2007, Skybus Airlines brought the first commercial air service to PGD since 1984, and the airport served its passengers out of a basic 16,000-square-foot terminal with two gates. When Skybus went out of business in 2009, many community members were not surprised. James Parish, assistant executive director at the county-owned and -operated airport, recalls the sentiment as: "See, we told you it wouldn't work."


James **Parish**

Undeterred, Parish says that Skybus helped "prove the model," and the airport did, in fact, attract service from Direct Air, Vision Airlines and Allegiant Airlines. While Allegiant is the only carrier still operating at PGD, its service has grown from three to 28 cities. Previously, the carrier didn't base any aircraft at PGD; now it bases six there during peak season in fall and winter.

Parish notes that fully 99% of the airport's enplanements are leisure, with 70% being inbound traffic. "Allegiant's thing is they're so cheap, you can't afford not to fly," he explains. "They're basically taking people off the couch who wouldn't usually take the trip."

Officials expect the airport to finish this year with 30% more passenger volume than in 2014. While such growth is noteworthy, Parish and Quill agree that the rate is not sustainable over the long run. They still expect growth in 2016 and beyond, just not as much. "I could see next year at maybe

The airport renovated its 16,000-square-foot Bailey Terminal and added a 43,000-square-foot expansion.

20%, and then maybe leveling off at 5% or 10% the next few years," Parish says. "Allegiant has been very aggressive about growing this base. We're one of the most profitable bases for them."

Allegiant's profitability has a lot to do with PGD's business model, he adds.

When Skybus began serving the airport, PGD did not have any debt; so it developed an arrangement that allowed the airline to essentially fly in and out for free. "We made our money off of parking and rental cars," Parish explains. At the time, there was skepticism about whether the model would work; so it was limited to three years. But the approach proved successful by the end of the trial. "The numbers were better than we ever imagined," Parish recalls.

Since then, the airport has stuck with its winning model and maintains a $0 cost per enplanement for Allegiant. The airline pays a fuel hookup fee, but provides its own fuel and handles its own maintenance, ground handling, etc.

PGD began as an intermediate stop for Allegiant flights that originated in St. Petersburg, FL, and served three cities. The carrier didn't begin basing aircraft in Punta Gorda until March 2012, after Direct Air went out of business. "That was the beginning," Parish reflects. Currently, Allegiant is in the process of switching the aircraft it bases there from MD-80s to A320s.

Currently, about 90% of PGD's 70,000 operations are general aviation flights.

Quill reports that revenue from customer parking during 2015 should hit $1.4 million, and rental car revenue is expected to exceed $3 million. Together, the two concessions average about $10 per enplanement, he notes.

In total, PGD nets well more than $1 million from its sole airline — enough to subsidize other operations. "It's kept our general aviation costs so low that we have not increased our T-hangar rent in 10 years," he remarks.

With total enplanements for 2015 expected to hit 400,000, Quill notes that the airport was able to accommodate significant growth without the weight of 30-year bonds, which many airports use to support terminal projects. "We've been able to incrementally add so that we don't have that humungous debt hanging over us," he elaborates. "In effect, it creates a much more cost-effective situation."

Step by Step

To meet the customer demand associated with a "rapid run-up" of Allegiant service over the last few years, PGD set up a temporary holdroom on the ramp. The facility seated about 300 people and was created by joining seven

58-foot trailers together. "That began the planning for an expanded terminal," Parish recounts.

Two separate studies were performed with the FAA to quantify the airport's need for more terminal space, and it was still a challenge to get the agency on board, he remarks. "The FAA model for small hub or non-hub airports was written in the early '80s and it doesn't really fit an origination/destination type airport," he explains. "It fits an airport that's part of a hub and spoke (system)."

Because PGD's six based aircraft all depart in the morning within 20 minutes of each other, the airport has high peaks of passenger volume in the morning and again in the afternoon when aircraft return.

"We have been growing so fast that it's really hard for the FAA or any government entity to keep up with it," Parish acknowledges. Under the FAA model, the terminal area forecast indicated no growth for PGD. Even with data that demonstrated the actual growth, the FAA model still showed zero, he explains.

Terrazzo flooring was specified to reduce maintenance costs.

PGD subsequently used modeling from the Airport Cooperative Research Program and other sources to demonstrate its need, and FAA later approved its plan. AECOM was contracted to manage the $8.6 million project program, and Schenkel Shultz was selected to provide architectural services for the design-bid-build project.

The project includes a 43,000-square-foot expansion as well as renovation of the existing 16,000-square-foot Bailey Terminal. When work is complete, PGD will have six gates. Ticketing, TSA screening and bag screening will be located in the renovated building with two gates and holdrooms. The four new gates and holdrooms are slated for the new portion, which will be served by two bag belts.

The FAA is funding 70% of the project; the remaining expenses are being covered by the airport and a grant from the Florida Department of Transportation.

Pretty Is As Pretty Does

When the airport opened its former terminal in 2007, officials told architects they weren't interested in winning any design awards. "We wanted it to be functional and inexpensive, and that's what we built," explains Parish.

That facility is now four times its original size, but the airport has continued to focus on low expenses and a lean staff. "We really work to keep our costs down and help the airlines keep their costs down," Parish comments.

Steve **Henriquez**

The airport is maintaining the same emphasis on function during its current expansion program. "You have to have an architect that understands this isn't to be a monument to anyone," says Steven Henriquez, vice president with AECOM. "You *can* do something relatively inexpensive and efficient."

PGD's new building is rectangular shaped — which is efficient to build — and constructed with cast concrete panels — a very inexpensive method to build large buildings, he explains. "We're

not going high end; we're going commercial quality with long-lasting, low-maintenance materials that have a good shelf life," Henriquez continues. "We're doing a lot for a little."

The new terminal's plain structure does not mean it lacks service or comfort, Parish emphasizes: "It's a very nice, very functional, spacious building; but we have an eye on the cost every step of the way."

He cites terrazzo flooring and other finishes selected for easy maintenance as examples of cost-containing measures.

Parish notes that even though the design is basic, the facility flows in a typical manner and is appropriate for PGD's needs. "We were a small airport, and we're still a small airport," he reasons. "But I think today it looks more like what (passengers) are used to."

A newsstand/gift shop and new restaurant with full bar are slated to open by January, under the direction of Faber International, PGD's new concessionaire. The airport is also in the development phase of implementing a new advertising program with a national firm.

Officials note that the facility is designed to meet current rather than future needs, because FAA's model requires airports to base projects on previous years' numbers. Even so, they built in flexibility by including extra seating where possible. "Allegiant is still talking about adding more aircraft and more cities," Parish notes. "And, as most airports, we're constantly evolving."

Growing Pains

Like other airports throughout the industry, PGD is experiencing some discomfort during its construction. For roughly nine months, the airport had only one lane available in front of the terminal for drop offs, which caused some traffic headaches. Airside, at least one-third of the ramp was fenced off to keep construction outside the airport operations area and preclude the need for extra security measures.

Completing as much of the project as possible during off-peak travel seasons has been a challenge, Henriquez acknowledges. "The intent was not to be in construction during two traffic seasons," he details. "We're trying to keep the impact as little as possible."

Work on the new addition began in March and was finished in August — providing Allegiant with four new gates before its peak season at PGD. The second phase of the program, rehabilitating the existing terminal, is slated for completion by March 2016.

Growth has inspired some local pushback. "There are people that don't like our model — the airline not paying," Parish advises. "But for the most part, it has been a great thing for the area." He

Anticipating more growth from Allegiant Air, the airport included extra seating where possible.

and Quill consequently both make time to speak with community organizations to help garner support for the airport and its terminal project. "We did get a lot of support from the business community, the hoteliers, real estate agents and restaurants that really support what we're doing," he reports.

And what they're doing adds 200 jobs that wouldn't otherwise exist, Quill notes. The most recent economic impact study about PGD was conducted by the Florida Department of Transportation in 2014, based on 2012 data. At that time, the airport was credited with $219 million of annual impact in the region. Its current impact, however, is logically much greater, because the study was largely based on enplanement figures, and passenger traffic has more than tripled since 2012.

The county's real estate market has also benefited from the airport, Parish adds. "A lot of that is attributed to people being able to get down here inexpensively," he explains. "They can hop on a plane and be here without going through Atlanta or another hub."

Low Costs Fuel Improvements

Parish says PGD's model works because the airport keeps its costs extremely low by operating with a small workforce and expanding in a cost-conscious manner.

"They do wonders with the few people they have on staff," observes Henriquez.

Keeping a tight budget allows PGD to be competitive with its neighbors — Sarasota-Bradenton International to the north and Southwest Florida International in Fort Meyers just 20 miles south.

"We went with the Wal-Mart model," quips Parish, about PGD's new terminal. "It's a very inexpensive, but functional building that can get people in and out."

The terminal's grade-level design and ground-boarding-only approach are critical to containing costs. Second floors come with additional expenses — particularly elevators and/or escalators and boarding bridges.

Another way PGD holds the line on expenses is hiring off-duty police officers for security instead of maintaining a force of its own. It also builds parking lots rather than more expensive covered garages.

Designs for a multi-phase parking expansion are nearly complete, and the airport recently improved its rental car facilities. The first phase of planned parking improvements will add 200 to 400 spaces, a new 50-car cellphone lot, employee parking and overflow parking for customers. The ultimate size of the parking lot will depend on the bids PGD receives, Parish notes. "Basically, cost is one of the biggest driving factors in our decision-making," he explains.

To keep pace with increased airline activity, an air traffic control tower was added in 2013. "We were operating with a lot of traffic without one," Parish comments. "And it was hard to get the FAA to approve our tower, even though we had the funding to build it from the state."

Other airfield improvements include a taxiway expansion and the addition of an instrument landing system.

In addition, the airport recently added a second fire truck to its fleet. Parish notes that the new equipment is a tremendous benefit to the general aviation side of the airport, since 80% of aircraft rescue and firefighting calls are for general aviation incidents. The airport is also modifying the general aviation parking areas and plans to build a new general aviation terminal in 2016. "We're still a general aviation airport that has commercial service," Parish advises.

That said, Quill notes that if other airlines are interested in operating at PGD, the airport has facilities for them. "So far, Allegiant is the only one on the horizon," he relates.

"We get nibbles, but haven't had any bites," Parish adds. "I think we've definitely proven that there's a desire to come to this area."

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MAKING THE CONNECTION

Photo: Florida Aerial Services

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Hamilton Int'l Expands Cargo Space & Adds Cold Storage Area

By Thomas J. **Smith**

Cargo is already a dominant force at John C. Munro Hamilton International Airport (YHM), and it's about to get even bigger, and more diverse, with the opening of a $12 million warehouse complex.

The 80,000-square-foot cargo center includes 5,000 square feet of cold storage — a new feature that allows the Ontario airport to expand into the lucrative niche of perishable cargo such as fresh fruit, flowers and bio-medical products.

Sitting on the western edge of Toronto's metropolitan region, YHM is the eastern Canadian base for Cargojet, Purolator, Canada Post, DHL and UPS. Last year, more than 75,000 tons of goods passed through the airport. Express and overnight freight traffic accounted for fully 60% of all aircraft movements at YHM in 2014 and generated 40% of its $16 million revenues. In addition, more than 800 of the airport's 1,160 direct employees work in cargo operations.


Frank **Scremin**

Investing in a proven performer, the Ontario provincial and Canadian federal governments each contributed $4 million to build a new cargo center and help generate jobs. Frank Scremin, the airport's chief executive officer, reports that the project is expected to create an additional 400 direct and indirect hires.

TradePort International, the private for-profit company that operates the city-owned airport, also invested $4 million to fund the project. TradePort is a wholly owned subsidiary of Vantage Airport Group, which is based in Vancouver.

It's Cold in Here

Research helped guide the specific elements of the new facility. A marketing study by the Montreal office of Hong Kong-based Strategic Aviation Solutions International documented market demand for dedicated coolers, which are critical for handling perishable freight.

The study also discovered interest in a "neutral, generic" warehouse. Prior to construction of the new facility, all cargo facilities at YHM were owned or controlled by freight carriers. "There was a real gap in the infrastructure and our ability to penetrate the marketplace," Scremin concedes.

Stanley Wraight, a consultant with Strategic Aviation Solutions, notes that the airport's existing facilities also lacked cross loading docks, which forced freight haulers to assemble shipments out on the ramp, even in the middle of winter. "It became a question of safety and security," he explains.

Designed by Chamberlain Architect Services, YHM's new cargo facility was built on the site of a large 1940s-era hangar and a smaller facility used by Cargojet. Construction began in August 2014 and was completed in

John C. Munro
HAMILTON
INTERNATIONAL AIRPORT

factsfigures

Project: New Cargo Center
Location: John C. Munro Hamilton (ON) Int'l Airport
Private Airport Operator: TradePort Int'l
Project Cost: $12 million
Funding: $4 million from province of Ontario; $4 million from federal Canadian government; $4 million from TradePort Int'l (private airport operator)
Total Size: 80,000 sq. ft.
Warehouse Space: 70,000 sq. ft.
Office Space: 10,000 sq. ft.
Construction: August 2014 - mid-June 2015
Architect: Chamberlain Architect Services
Construction Manager: Martin-Stewart Contracting
Consultant: Strategic Aviation Solutions Int'l
Common-Use Air Cargo Manager: ACI Air Cargo
Key Benefit: 5,000 sq. ft. of cold storage space allows airport to handle perishable freight

mid-June, with Martin-Stewart Contracting managing the building process.

Heeding its consultant's research, YHM included 5,000 square feet of cooler space in the new facility — a first for the airport.

Room to Grow

Cargojet, Canada's largest airfreight carrier, leases half of the overall space in the new cargo center. As its operations grow, the airport can expand the building by another 20,000 square feet to accommodate Cargojet's growth, notes Wraight.

He describes the facility's neutral or common-use side as a big, open box that was designed to accommodate upgrades. A mechanized sorting operation or modular shipping facility are two examples of likely enhancements.

The airport's previous lack of common-use space hampered it from capturing business from companies with infrequent shipments. Now, such companies can fly parcels into YHZ and have an operator handle them as part of a consolidated shipment, Scremin explains. The common-use facility is particularly attractive to e-commerce businesses, because it eliminates the need for them to invest in their own warehouse space.

The airport recently hired ACI Air Cargo, a third-party logistics provider that specializes in air freight, to supply all cargo handling services within the common-use area. As such, it will provide end of runway cargo services and cross docking as well as handling bonded, e-commerce and temperature-controlled air cargo. The company also operates dual bonded facilities at Toronto Pearson International Airport (YYZ) and Montreal-Pierre Elliott Trudeau International Airport.

Turn Up the Volume

While the new facility is expected to generate additional cargo flights, Scremin says that the larger opportunity lies in increasing cargo *volume* by helping express operators further leverage existing routes out of YHM that are already strong.

Assessing the competitive front, he notes that although YYZ, in nearby Toronto, handles greater volume than YHM, it's primarily due to belly freight and the Toronto airfield has slot restrictions that limit its number of overnight flights. In contrast, YHM is unencumbered by similar constraints.

According to Scremin, express carriers can operate more efficiently and effectively at YHM because the airport's rates and fees are more competitive, and the area is less congested. Even though YYZ also has cooler space, it is not a hub facility dedicated for perishables, he notes.

Wraight adds industry interviews indicate that YHM is ideally located to develop a regional facility, because it sits on the doorstep of the Niagara Peninsula, which is home to much of Canada's orchards, vineyards and berry patches. The area also has a number of major highways with two nearby transborder crossings — one in Buffalo, NY, and another in Detroit, MI.

Handle With Care

Given the high value of some perishable shipments, YHM will have more competition than YYZ in Toronto. With a single pallet of bio-medicine potentially worth $1 million, many major airports are currently developing cargo facilities with cold storage capabilities. Maintaining strict control of temperatures is critical, because some of the pharmaceutical products being shipped contain cultures that can take a year to grow. "The ability to handle these different commodities the way importers and exporters want is a tremendous value added for the airport," Wraight explains.

TradePort approached the project as an opportunity to maximize the airport's existing assets. The new cargo center allows the operator to squeeze additional productivity out of the airfield during the night, when passenger aircraft are less active, Scremin explains.

"This facility will allow us to maintain Hamilton International Airport's dominant presence in the overnight express cargo segment in Canada, and create new opportunities to diversify the types of goods that can be processed through the airport," Scremin concludes.

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Peggy Gray Photography

Emergency Drill at Rochester Int'l Includes Social Media Simulation

By Kristin Vanderhey **Shaw**

RST ROCHESTER INTERNATIONAL AIRPORT | MN

factsfigures

Project: Full-Scale Emergency Simulation

Location: Rochester (MN) Int'l Airport

Timeline: Planning began in spring for Sept. drill

New Strategy: Communications staff practiced using social media during an emergency & leveraging local public information resources from outside the airport

Social Media Simulation Software: SimulationDeck, by Nusura

Primary Exercise Participants: Airport personnel; fire & police departments; Red Cross; various city departments; Mayo Clinic; Rochester Emergency Management

Other Participants: Public works; public library; public utilities; public schools; MN Dept. of Transportation; Dept. of Public Health, county sheriff's office

Unique Dynamic: City-owned airport is operated by subsidiary of Mayo Clinic

When disaster strikes, airport staff must react quickly and decisively — almost instinctively. That's why annual emergency training is so important. It helps employees perform appropriately and safely by providing opportunities to practice their particular roles in prescribed response procedures.

Rochester International Airport (RST) recently enhanced its training regimen by adding crisis communication components to its latest full-scale safety exercise. Aircraft rescue and firefighting staff, ramp workers and other frontline employees were under scrutiny during the Minnesota airport's four-hour mock disaster; but employees handling media relations were also put to the test. To increase realism, RST added the wildcard factor of social media.

Putting it mildly, social media has turned the field of crisis communications on its head. Whether it's a hurricane, inflight incident or trouble in the terminal, the public expects information and updates much faster and more often than it did just a few years ago. Typically, people learn details and see photos via Facebook, Instagram and Twitter before airports issue official statements — often well before reliable facts and information are available.

Allowing RST's communications staff to feel the breakneck speed of social media during a staged training scenario helped them understand how news of airport disasters literally races forward. Firsthand experience trying to keep pace with a story — and possibly get ahead of it — was deemed highly beneficial.

"We knew it would be a very good learning experience," says Tiana Rossow, the airport's marketing and communications manager. "In the real world, we needed to know how the communication would be conveyed."

The Facebook Factor

Having conducted "tabletop" exercises in 2013 and 2014, the airport staged a full-scale training event in September that simulated an aircraft crash. For the media relations element, RST not only included its own communications staff, the airport also included employees from local fire and police

A mock airplane crash gave rescue workers and communications staff a valuable chance to practice their skills.

departments; Red Cross; Mayo Clinic; Rochester Emergency Management and various city departments. To ensure it could mobilize even wider resources during an actual emergency, the airport also invited representatives from a variety of other organizations (See list on left side of opposite page.)

The multi-agency communications team used a cloud-based application called SimulationDeck to train privately on social media tools without compromising security and safety. The system, by Nusura, replicates the functionality of Facebook, Twitter, Instagram, YouTube and web blogs, as well as more traditional media such as television, newspapers and radio.

"Social media and other emerging digital technologies are playing an increasingly essential role in responses to natural disasters, terrorist attacks, civil and political unrest, criminal investigations and military operations," says Mark Amann, senior vice president and chief executive officer of Nusura. "These technologies not only provide a unique opportunity for organizations to communicate directly with the public, but they also are a source for previously unavailable situational awareness and intelligence."

Social mapping is one of SimulationDeck's newer capabilities. The application uses geographic information system technology to show clients where posts on social media are coming from. "In real incidents, geo-tagging of social media posts has proved essential to enhancing situational awareness and driving decision-making," explains Amann.

RST did not use the social mapping feature during its recent training exercise.

Down to the Nitty-Gritty

Beyond social media, RST's training scenario addressed scene command operations, triage and transport of victims, crime scene and fatality operations, family assistance and mass-alerting public messages.

"In 2012, the triennial airport exercise tried to accomplish unified scene command, public information and family assistance, and we were partially successful," recalls Ken Jones, director of emergency management for the city of Rochester. "For 2015, our goal was to emphasize the need for true unified operations at the scene, within family assistance operations and joint public information center activities."

Ken **Jones**

The exercise specifically tackled the common issues of conflicting command teams and uncoordinated public messages. When command teams did not appear to be working together, trainers used "injects" to steer teams together and force them to work in a unified command structure. Family assistance center operations were extended to the community Emergency Operations Center and hospital family support center. A new fatality management plan that was created after the 2012 exercise provided a live playing field to train medical examiner staff and police department investigators.

"This exercise was deeper and more challenging, and the teams benefited greatly," Jones reports.

While the previous full-scale exercise identified one person as the sole public information officer, this year's exercise used a community team to coordinate scene communications with social media messages and press releases.

"Tiana (Rossow) is the only person on the airport staff who handles communications, so in an emergency situation we would rely on the surrounding community to act as public information officers," explains Jones. "When you thrust people into an emergency situation, it's hard to get everyone together. In the exercise, we wanted to get them used to working together."

During the 2012 exercise, the team discovered that the public information officer became so engrossed in some aspects of rescue duty it became difficult to provide timely information to the media. In that case, Mayo Clinic was forced to handle media inquiries, which proved to be inefficient.

"With such a small staff, it's important for us to have community helpers in a case like this," says Rossow. "This simulation helped us get to know each other and ensure we have each other's contact information so we know who to rely on."

Given the opportunity to learn how to respond during an airport emergency, community resources outside of airport operations, such as personnel from the library or public utilities, could be great assets if we understand how to work together, she elaborates.

During the exercise, the RST team established a Joint Information Center, which was specifically designated for members of the airport/community communications team, as well as a separate Media Center for outside newsgatherers on airport grounds. Team members also held a simulated press conference, with mock media members trained to ask tough questions like real reporters.

"Using SimDeck, we could respond to radio and TV reports, and we got to follow Twitter and Facebook posts to practice how to respond after the incident," recalls Rossow. "Very quickly, you see how the airport can be affected by the public perception."

One of the biggest lessons was learning how to ensure a good flow of information without communicating too much. "Everything happens so quickly that you have to be able to react quickly, but not with anything that could be inaccurate," she explains. "You have to be able to confirm details before you put them out."

Not speaking on behalf of the airline was another key takeaway. "As the airport operator, there is very limited information we can speak about," Rossow relates. "We just want the public to know that we're communicating and involved."

The simulation also prompted the communications team to consider logistic details such as information technology resources needed to operate remotely. "If I don't have access to my office, I need to know how to respond," she explains. "What would I need? Where is that backup location? How do I get more hands on deck to help with the fast-paced information that is flowing? Taking the time to think about that is important."

Navigating New Media

With RST's full-scale exercise complete, participants are still reflecting on lessons learned in September. The power and speed of social media made an impression on the communications team.

"Rochester's team has had the opportunity to experience all of the communication surprises and distractions that could potentially be hurled their way by using the tool," notes Nusura's Amann.

But even as a six-year Federal Emergency Management

The airport established separate command centers for internal communications staff and external news media.

Agency veteran, he is careful not to use the word "expert" when talking about any social media practitioners. He also eschews the word "expert" when it comes to social media, and he refers to "promising practices" rather than "best practices."

"It hasn't been long enough for us to learn about what works perfectly," Amann explains. "The challenge in the real world is that things happen much more quickly and organically than I could imagine."

The challenging dynamics of social media helped inspire him to found Nusura. "We felt there was a huge gap in what we were able to train and the way the demands of the media concerned citizens and elected citizens," he relates. "Even in a small disaster, people need to be adequately prepared. There was a gap in realism in how they trained and what happened in the field."

SimulationDeck is sold as part of a larger emergency preparedness program; via an annual subscription; or as a one-time purchase.

Given his background, Amann fully expects the influence and importance of social media to continue increasing. He also predicts that new media channels will continue to provide challenges — and opportunities — for teams responding to emergencies. As average citizens with cellphones continue to

Peggy Gray Photography

document emergencies faster than official authorities, airports need to practice how to react.

"Every airport should strive to make it as realistic as possible. This allows you to feel the heat … and it makes you better at providing timely, accurate, good information," says Amann. "Information can save lives and reduce human suffering. Information is a commodity. Getting info to people quickly is key."

Jones, from his post with Rochester's emergency response department, agrees: "Better decisions help us save lives and protect our employees and customers. These exercises are a great opportunity to fail in a risk-free event. We had a chance to make mistakes in a good way, and we learned so much from our mistakes. In the case of a real disaster, we are as prepared as we can be, and that's important."

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Old Crow Airport Enjoys Community's New Fuel Depot

By Victoria **Soukup**

factsfigures

Project: New Fuel Farm

Location: Old Crow (YT) Airport

System Owner: Vuntut Gwitchin First Nation

Estimated Cost: $6 million (CAN)

Tanks: 9

Total Capacity: 270,000 liters

Fuel Stored/Dispensed: Home heating oil; unleaded gasoline; ultra low sulfur diesel; jet-A1; avgas

Design: Began in fall 2013

Construction: April – Sept. 2015

General Contractor: W.S. Nicholls Western Construction

Design Build Engineer: Argus Consulting

Fuel Supplier: Air North

Noteworthy Detail: Because airport is north of Arctic Circle, some equipment had to be specially designed & airlifted to project site; town & territory created a temporary winter road to facilitate other deliveries

Fuel is more than a revenue stream at Old Crow Airport (YOC) in Canada's Yukon Territory; it's the very lifeblood of the region. Located north of the Arctic Circle, the small community of Old Crow is only accessible by air. When the local government recently replaced the aging fuel farm that supplies crucial heating and automotive fuel to the community's 250 aboriginal residents, YOC's ability to store and deliver aircraft fuel was also improved.

The Vuntut Gwitchin First Nation, which governs Old Crow, owns the fuel depot and allows YOC to use it. The community's new nine-tank system is located at the airport, and dispenses five different types of fuel: jet-A1, 100LL avgas, home heating oil, unleaded gasoline and ultra low sulfur diesel. Total storage capacity is 270,000 liters.

Given the depot's crucial role on so many fronts, its opening in September was a major event. Then again, so was designing and building it. Weather was a formidable and constant issue; some equipment had to be airlifted to the remote project site; and concrete, a staple fuel farm material, could not be used. Further complicating matters, cell phone service was spotty at best, and Old Crow had no hotels for workers.

"Logistically, this was the most challenging project we've ever done — and we've done all types of remote projects," reflects Brent Easter, vice president of general contractor W.S. Nicholls Western Construction.

Brent **Easter**

Despite many obstacles, Nicholls completed the estimated $6 million (Canadian) project under budget, on time and on schedule. Initial figures for the recently completed project indicate the cost will be 10% under budget, notes Easter.

Roger Kyikavichik, chief of Vuntut Gwitchin First Nation, notes that a new fuel system was greatly needed. "This project, designed to increase fueling capacity, efficiency and safety in our north area while ensuring environmental regulations are followed, is a plus not only for our people of Vuntut Gwitchin First Nation, but for the other resource users who will benefit also from this new fuel farm," says Kyikavichik.

Roger **Kyikavichik**

The community's previous fuel system was located across the street from the airport, and aviation fuel was kept in separate tanks owned by the Yukon government. It was common knowledge that the dispensing

The specter of spring flooding from the nearby Porcupine River required engineers to secure fueling equipment.


Photo: Gary Njootli

equipment was outdated, the tanks were old and the system's location complicated the transfer of fuel from delivery aircraft using YOC's 5,022-foot gravel runway.

In addition, local leaders wanted an automated system, so the new depot would not have to be staffed by an attendant. Previously, residents could only pick up fuel during limited hours on certain days of the week. "The idea was to centralize more of their fuel receiving and dispensing activities safely, with environmental protections, in a more cost-effective and efficient manner," summarizes Easter.

Longer hours were established for community members, and the depot's new self-service dispensing system accepts credit cards or proprietary cards issued by Vuntut Gwitchin First Nation. Pilots can pump jet fuel or avgas 24/7.

Extra Special Delivery


Dan **Frank**

YOC's location (67 degrees north latitude) proved to be an overriding challenge — not only for construction crews, but also for Argus Consulting, the firm that provided engineering services for the project. "There's no road into the town, so everything we designed, whether it be tanks or the pump enclosures, had to fit into a C-130 Hercules to be airlifted in," explains Dan Frank, vice president of engineering at Argus.

The company began working on equipment design and logistics in fall 2013 to ensure everything would fit onto the transport aircraft. A few months later, however, the Yukon and First Nation governments announced they would plow a 260-kilometer "winter road" between Old Crow and Dempster Highway, a major transportation route. The gesture was significant, because a temporary route hadn't been established there in 10 years. Further, it meant that contractors could transport some equipment and components for the project by land instead of air.

The winter road was also exciting news for the community, which promptly put it to good use by arranging the delivery of large items such as building supplies, appliances, vehicles and outboard motors that are expensive to ship by air. About 50 trucks were expected to travel the winter road, which was not available for public use and would only be open for three weeks, due to weather and logistics.

Because the road was so popular and temporary, not all equipment needed for the fuel system project could be driven in. "We had to do two very large airlifts by the Hercules aircraft, totaling nine loads to get the rest of the equipment into the site this past spring," Easter reports.

Long, Cold Journey

Each of the five different fuels stored at the new depot has its own pump, filtration and metering system, which were designed by Argus and built and tested on skids at Nicholls' Vancouver facility. The systems are housed inside 32-by-9-foot enclosures made with steel frames, aluminum exteriors and 3 inches of insulation to protect components against the area's extreme winter weather.

Due to the complicated logistics of traveling to the project site, the team emphasized minimizing potential surprises in the field. "We tested each system with fuel at Nicholls' facility prior to being shipped up to the site; so everything was able to be pre-commissioned before it went up to Old Crow," Frank remarks.

Fuel is trucked from Whitehorse, YT, up Dempster Highway to Fort McPherson, NWT, where it is loaded into a Hawker Siddeley 748 aircraft for the 40-minute flight to YOC. Seven tanks fit inside the aircraft, enabling it to carry 6,000 liters of fuel on each of its quarterly deliveries.

"It's quite a process just to get the fuel there," Frank muses. The supplier, Air North, takes the seats out of the airplane and attaches the fuel tanks to the seat rails. After finishing the two-week fuel haul, it pulls out all the tanks and switches back to passenger service.

The new depot at YOC makes it easier for crews to off-load the fuel. "The plane can taxi up and park near the first enclosure, where the appropriate unloading hose is unreeled and the respective pump is activated to transfer all the fuel from the aircraft tanks to the fuel depot storage tanks," chronicles Frank.

The enclosure contains five hoses for off-loading (one dedicated to each product) and a sixth hose for single-point loading of jet-A1. "That way, if an aircraft comes in that has single-point fueling, we can service the aircraft at about 200 gallons a minute," he continues.

The system also allows for over-wing dispensing of both jet-A1 and avgas for general aviation aircraft.

The hoses lead to hard piping that connects to one of three other enclosures, where the pumping and filtration equipment is located — one for jet-A1 and avgas, another for gasoline and diesel, and a third for home heating oil. From there, fuel is pumped to the appropriate storage tanks.

No Concrete?!

YOC's remote location, brutal weather and rough terrain conspired to create unique engineering and construction challenges for the project. Because Old Crow sits on the banks of the Porcupine River, which has a history of spring flooding, it was essential to secure equipment. Normally, concrete foundations would be used to provide ballast; but it was too expensive to transport Portland cement to the site, Frank explains.

The new communal depot dispenses five different kinds of fuel for use in aircraft, vehicles and home heating systems.

So the Argus team turned to local resources instead. Engineers devised a system that uses large gabion baskets filled with rocks from a nearby quarry to secure the enclosures, tanks and pumping systems in the event of high water. Large cables running through the baskets hold the ballast rock in place.

Another challenge was timing construction so work wouldn't disturb the permafrost. "Being so far north, we had to get in and place 4 inches of insulation across the entire site early in the spring, prior to the thawing of the active layer of the permafrost," Frank notes. A fuel-resistant liner and gravel was then laid on top of the insulation for further protection. "We wanted to eliminate any heat transfer."

The prep work was critical because if the permafrost thawed, the tanks and piping could settle and cause the system to malfunction.

Harsh weather was another impediment. At one point, heavy rains caused a riverbank to wash away at Fort McPherson, NWT. With ferry service suspended, trucks hauling fuel for commissioning the project could not get across the river for the flight to YOC, causing several days of delay.

"It seemed there was always weather on one end or the other of the fuel haul," says Frank.

Gimme Shelter

Feeding and housing workers even proved to be a challenge. With no hotels in town, Nicholls rented a small home, with sleeping capacity for four, and hired a local resident to cook for the team. But the company had up to 12 workers in the town at any given time from April to September; so other workers bunked in private residences, bed and breakfast style.

With milk from the local store costing $13 a gallon and ice cream priced at $20, Nicholls chartered an aircraft and flew in thousands of dollars of more moderately priced food in a series of delivery trips.

Easter credits the Vuntut Gwitchin government for hiring Argus and W.S. Nicholls to provide the new fuel depot. "They let us do the design, the construction, the optimization and the enhancements to suit what they needed," he relates. "They didn't micromanage; they let us provide them with a premium product."

As Vuntut Gwitchin chief, Kyikavichik concurs: "From start to finish, the key to the success — we worked together as a team."

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State Test Program Fully Funds Runway Project at Gainesville Regional

By Mike **Schwanz**

factsfigures

Project: Runway Renovation

Location: Gainesville (FL) Regional Airport

Primary Component: Reconstruction of Secondary Runway 7-25

Other Elements: LED airfield lighting; surge suppression system

Total Cost: $2.8 million

Funding: Florida Dept. of Transportation

Engineering Consultant: AECOM

Local Contractor: V.E. Whitehurst & Sons

Airfield Lighting: Astronics DME

Isolation Transformers & Complete Kit: Integro

Airfield Lightning Arrestors: Surge Suppression Inc.

Noteworthy Detail: Airport received 100% funding from state by serving as a test site for alternative asphalt mixtures and paving methods

It's often a challenge to secure partial funding for major projects, but Gainesville Regional Airport (GNV) in Florida received full funding from the state for its recent $2.8 million runway renovation. Typically, the Florida Department of Transportation (FDOT) will pay up to 50% of construction expenses at state airports. However, it pays up to 100% of the cost for special demonstration projects.

To qualify for the highest possible state funding, GNV had to install several different mixtures of asphalt and use innovative products or construction methods throughout its runway project. Pavement specialists will check test sections periodically throughout the next several years to determine which perform best.

The failing condition of GNV's secondary runway made it easy for the airport to accept FDOT's conditions for extra funding. Allan Penksa, the airport's chief executive officer, explains that Runway 7-25 hadn't been rehabilitated in about 40 years, and it was originally constructed during World War II. Several sections were in various forms of disrepair, which presented problems because the runway accommodates about one-quarter of GNV's traffic.


Allan **Penksa**

"The soil was not ideal, and there was a high water table," Penksa explains. "The runway had been overlayed over the years and had a lot of cracks, creating opportunities for water seepage. There were lots of inconsistencies beneath the surface."

After considering several alternatives for improving the surface of Runway 7-25, Penksa and other airport personnel embraced the idea of GNV serving as a demonstration project for FDOT — and the associated funding it would provide.

In exchange for increased funding, the airport installed test sections of alternative asphalt mixtures.

Barbara Cloud, aviation administrator for District 2 of FDOT, explains that safety and preserving airport infrastructure are key factors in allocating state funds. Each FDOT district receives a pool of money that can be used to support its commercial and general aviation airports.

"We decided to fund the Gainesville airport project because different types of surfaces can be tested," Cloud comments. "This information will be helpful for not only airports, but for road construction projects as well."

GNV agreed to install a variety of asphalt mixtures and use innovative products or construction methods. It also consented to periodic pavement testing after the project was complete.

The airport's engineering consultant, AECOM, created several construction strategies to help secure final approval from FDOT for the runway renovation. Bill Prange, the company's project engineer, describes the multi-step process: "We first had to collect geo-technical data, measure thickness of the underlying layers, and establish a design pavement section. From that data, we developed a number of reconstruction alternatives."

Engineers had to specify FDOT asphalt mixes rather than those commonly required by the FAA. "We used two different asphalt binders on the project," Prange reports. "PG 76-22 is a high-end polymer modified asphalt used in the top layer. The underlying asphalt used a PG 58-22 binder, which is more moderately priced."

On a more general level, the rehabilitation design included 1 inch of asphalt milling (cold planing); sealing cracks with hot rubber sealant; correcting grade and profile deficiencies with asphalt leveling courses; and installing 3 inches of new structural asphalt.

Pavement Plus

During the project, crews also replaced Runway 7-25's edge lighting system. A patchwork of direct buried cable was replaced with new FAA-approved cable in conduit and a new counterpoise ground system. Older quartz runway light fixtures were replaced with FAA-approved LED medium-intensity edge lights that will consume less energy. In total, crews installed 56 L-861 lights by Astronics DME. The design included strategically placed surge suppressors to protect cable, transformers and fixtures during Gainesville's frequent lightning storms. (See next page for more information.)

To fulfill FDOT funding requirements, AECOM consulted with three of the agency's offices and research facilities to identify alternative construction products and methods not commonly used at Florida

Surge Suppressors Installed to Prevent Power Outages

Located in a hotspot of Florida thunderstorms, Gainesville Regional Airport (GNV) installed a series of airfield lightning arrestors in the new lighting circuit for its secondary runway, 7-25.

"Lightning is a real problem here," explains Allan Penksa, chief executive officer at GNV. "We are the lightning capital of the world, and anything that can prevent power outages is very valuable to us."

The devices, supplied by SSI (Surge Suppression Inc.), are designed to protect airfield lighting cable and fixtures from damage during electrical storms. Rick Stevens, senior business development manager for the manufacturer, notes that the suppressors will protect against power surges up to 20,000 volts.

As recommended, GNV placed the lightning arrestors underground every 1,500 feet along the airfield's main power loop.

The ability to test SSI's lightning arrestors without removing them or turning off power to the lighting system is a major advantage, particularly at busy airports, emphasizes Stevens. "It only takes about 10 minutes per suppressor to check their status," he details. "Other products have to be removed from the circuit, taken out of the ground, tested and resealed, then returned to their place underground. This makes a huge difference for the workers, especially during super-hot weather or in freezing temperatures."

airports. Ultimately, engineers incorporated the following into the design to GNV:

- Echelon paving to increase the performance of longitudinal cold joints;
- Three different pavement interlayer products to prevent or delay the reflection of pavement cracks to the surface (Cidex 100 SB, by 6D Solutions; Grid Bit, by Pluvitec; and STAR Grid G-PS, by Luckenhaus);
- High-tensile aramid fibers to control cracking and rutting in the asphalt (Forta-Fi HMA, by Forta Corp.);
- Maltene-based asphalt rejuvenator to improve pavement longevity (Reclamite);
- Maltene-based asphalt rejuvenator to improve density and longevity of longitudinal joints (Joint Bond);
- High-performance asphalt binder (PG 76-22 PMA) to protect the pavement from oxidation and loss of flexibility;
- Airfield lightning arrestors to protect runway lighting circuit components from lightning strikes. (See left for more details.)

The FDOT State Materials Office approved the final recommendations for products and procedures AECOM specified for the project, and its engineers scrutinized the project during construction. "They were on-site for most of the process, and closely monitored each step," Cloud recalls.

The same office will continue to evaluate the effectiveness of the various products and methods over a five-year period. The agency's hope is that some will prove superior to current pavement rehabilitation options.

Business As Usual

Before construction began earlier this year, GNV focused on preventing service disruptions to its carriers: American Eagle, US Airways Express and Delta Air Lines.

"We have a solid community here, and it is a busy airport," Penksa remarks. "We have scheduled regional airline flights beginning just after 5 a.m. and continuing throughout the day until almost midnight. Canceling or disrupting any of these flights was not an option for our community."

Beyond airline service, the airport accommodates charter, military and air ambulance traffic, as well as flights by the University of Florida's 757s and 737s. "There

State engineers will monitor the performance of test sections for five years.

also are nightly blood flights operated by Life South," adds Penksa. "We needed to maintain enough operational capability 24/7."

In 2014, the airport logged roughly 59,500 operations.

To maintain the airfield's typical pace, runway renovations were divided into six phases. While each phase included three or four different test products and methods, workers used traditional options in areas where Runway 7-25 intersects the airport's main runway and taxiways. "We just wanted to make sure that the demo materials would not interfere with the main runway traffic in any way, and the FDOT was OK with that," Penksa relates.

Crews performed most of the runway intersection work at night to minimize operational disruptions, but project planners still encountered other complications. GNV's main runway (11-29) had to be shortened 1,000 feet, because part of the secondary runway was in its safety area. "It was a very elaborate process," Penksa recalls. "Each night, we installed temporary threshold lights, reshuffled distance remaining signs, shut down our localizer, PAPI (precision approach path indicator) and various portions of the edge light system, etc., in a very short amount of time so we could keep the main runway open all night."

Some nights, GNV had to limit its primary runway to takeoffs only. Other times, officials asked the control tower to remain open longer, and workers set up lighted variable messaging signs in key locations to remind pilots of changes as they taxied.

"We worked closely with the FAA throughout the duration of the project," Penksa comments. "We also regularly communicated with pilots via email, our website and the NOTAM (notice to airmen) process concerning our daily timetables."

Construction took about 165 days, with rainy weather causing minor delays. "There were a lot of cracks that had to be filled and interlayer leveling course that had to be placed. But we opened the reconstructed runway on August 31 this year," he reports.

Total cost to repave the 4,158-foot runway and install new LED lighting and surge suppressors was $2.8 million.

For the next several years, personnel from the State Materials Office will evaluate pavement conditions at least once a year. Demonstration sections were clearly marked during construction to facilitate subsequent friction testing and pavement imaging.

Data collected at GNV could prove highly beneficial. "The FDOT Central Office is very keen to watch the results of this," Cloud says. "In five years, we should have a better idea about the best asphalt mixtures and processes to use for other runways and taxiways at other airports. Eventually, this should save the state money for future construction projects."

Austin-Bergstrom Enhances Service &

factsfigures

Project: Onsite Consolidated Rental Car Facility
Location: Austin-Bergstrom (TX) Int'l Airport
Cost: $155.5 million
Funding: $5.95/day Customer Facility Charge
Facility Size: 1.3 million sq. ft.; 5 stories
Rental Companies Housed: 11
Public Parking: 758 spaces
Rental Vehicle Ready/Return: 1,771 spaces
Quick-Turn Facilities: 48 fueling positions; 12 carwash bays; 270 stacking spaces
Project Timeline: Spring 2013 – Oct. 2015
Owner: Airport
Master Lessee: Austin CONRAC
Ground Lease Term: 30 yrs.
Developer & Operator: Pfeffer Development/ Conrac Solutions
Design/Builder: Austin Commercial
Architect: Demattei Wong Architecture
Electrical: Schmidt Electric
Mechanical, Plumbing, Vacuum System & Windshield Washer Distribution: Young & Pratt
Fueling Systems: Unified Services of Texas
Carwash Systems: Belanger; Rider Wash Systems
Facility Framework: United Forming
Reinforced Steel Installation: Central Texas Reinforcement
Reinforced Steel Materials: CMC
Post Tensioning Cables: Suncoast
Enabling Work, Site Work & Utilities: Chasco Constructors
Parking Control: Associated Time & Parking
Elevators & Escalators: Schindler Elevators
Irrigation & Landscaping: Avery's Lawn Care
Wall Panels: Fish Construction
Key Benefits: Improved customer service; new logistic efficiencies for rental companies; decreased vehicle emissions
Noteworthy Detail: Airport outsources operation of facility

In October, Austin-Bergstrom International Airport (AUS) opened a $155.5 million consolidated rental agency complex (conrac) funded with customer facility charges. Beyond creating a new onsite facility for rental agencies, officials also carved out more space for customer parking at the Texas airport.

The new 1.3 million-square-foot conrac includes roughly 760 public parking spaces on the ground level, topped by four floors of rental car operations. Three levels house ready/return areas and quick turn-around facilities; the top level provides 1,288 storage and staging spaces. An integrated customer service building on the first level of rental operations houses counter operations for 11 rental agencies in a facility the size of a football field.

While AUS owns the facility and garners good will for the added convenience it provides, airport personnel suffer almost no headaches associated with the new complex. Pfeffer Development/Conrac Solutions Project Delivery managed the financing, development and construction of the structure. Conrac Solutions oversees day-to-day operations.


Shane **Harbinson**

Shane Harbinson, assistant director of the airport, notes that the recently completed project began in 2008, when AUS updated its master plan. Back then, ready/return areas were located on the third level of a parking garage near the terminal, but facilities for individual agencies were located farther away. Vehicles had to make a 2.5-mile loop for refueling and cleaning before they were returned to service. "We looked at remote sites for a facility, but the rental car companies preferred an on-airport site to avoid bussing and shuttle operations," Harbinson recalls. Ultimately, a 15-acre site just north of the terminal was selected.

After investigating conracs at other U.S. airports, officials determined the best approach was to have the rental agencies

Avoids Operational Headaches with New Conrac

By Robert **Nordstrom**

intimately involved with developing the project. AUS asked the rental car companies to devise a concept that would protect the airport's interests, including parking revenue, customer service and roadway efficiency.

"We looked at the proposal in somewhat the same way as having a fixed-base operator or cargo facilities at the airport — that is, a private developer would design and deliver the facility and be responsible for operations," Harbinson explains.

Austin CONRAC, the facility's master lessee, was formed at the request of the rental agencies and airport to represent rental car interests. It subsequently contracted with Pfeffer Development and its affiliate, Conrac Solutions Project Delivery, to develop and build the facility.


Jack **Archer**

Personnel from Austin Commercial, the design/builder, highlight the cooperative nature among various participants on the project. "We all owned this project," reflects Jack Archer, the company's Central Texas division manager. "The airport wanted the facility to help modernize the airport and to get their parking spaces back. Pfeffer and the rental car companies wanted a facility that worked for them and the airport. They got what they wanted, and we got a cooperative team effort on the project. And that's what you always want—a team that plays well in the sandbox."

With construction complete, the rental agencies that occupy the facility anticipate new operational efficiencies inherent to the conrac's location and design. Anna Bootenhoff, manager of corporate communications for Hertz, notes that eliminating the need to shuffle cars between the terminal and remote lots is helping the company provide better, faster service at AUS. The facility also reduces roadway congestion and vehicle emissions, she adds.

Better than Aspirin

Mark Pfeffer, president and chief executive officer of Pfeffer Development/Conrac Solutions, credits AUS officials for recognizing the complexities of building and operating a consolidated rental car center. While many airport executives consider such facilities parking garages for rental cars, he contends they are actually more like airport terminals, because both facilities manage waves of arriving and departing travelers. Just as ground crews clean and refuel planes to prepare them for another load of airline passengers, conrac workers clean and refuel vehicles for the next drivers. Both businesses focus on quick turns, and they even serve the same customers.


Mark **Pfeffer**

Dividing a conrac's operating expenses among various tenants can prove prickly, Pfeffer adds. In many cases, airports pass on costs to rental car companies collectively, in equal portions. This works well when agencies hold largely similar market shares, he notes. When one company is struggling, however, some airports expect the other agencies to cover more of the expenses — even though the less successful company has full use of the facility and the opportunity to compete for more business.

"As you might imagine, the rental car companies tend to get extremely animated when this happens," comments Pfeffer.

Hiring an outside operator for the conrac can solve such conflicts and help alleviate other potential issues for the airport, emphasize Pfeffer and AUS officials. "The public-private partnership worked very well here," reflects AUS Project Manager Janice White. "The rental companies formed a group with a single point of contact and contracted with the developer. While we had many issues to resolve, especially getting everybody to agree on the contracts, having a single point of contact was very beneficial."

More Arrivals, More Rentals

AUS has experienced high growth for the last few years; and 2015 seems to be continuing the trend. In July alone, traffic was up 12% compared to July 2014 levels. "The airlines are finding our market is strong and are putting in more service," Harbinson reports. "Austin is turning into a destination for a lot of folks."

Based on the premise that high passenger volume translates into high demand for rental cars, the airport proceeded with plans for an onsite conrac. It signed a 30-year ground lease contract with Austin CONRAC; and Pfeffer Development/Conrac Solutions developed a financing package to pay for design and construction of the new complex with proceeds from a $5.95 per day customer facility charge.

The new structure was built over part of an existing 800-space uncovered parking lot, which was temporarily taken offline during construction. When the new facility was complete, the airport designated 758 spaces on the ground floor for public parking. It gained another 1,200 stalls for customer vehicles by repurposing space in the garage that previously housed rental operations.

AUS's new five-story complex may look like a parking garage, but it serves many more functions, notes Wesley Wong, chairman and principal

Moving quick-turn/fueling stations closer to the terminal will decrease vehicle emissions and roadway congestion.

© Thomas McConnell


Wesley **Wong**

of Demattei Wong Architects. He breaks the rental car portion of the building into two primary components: one area for companies to showcase their product and another for back-of-house operations to process it.

Ready/return areas can accommodate more than 1,770 vehicles. "Rental car companies typically store their fleet offsite," Wong explains. "When we design these facilities, as a general rule of thumb, we try to program a facility that will hold approximately 30% of the total rental car fleet. You don't want to provide space for the entire fleet, because if the company can park all their cars that means they aren't being rented and the company isn't making money."

Quick-turn facilities at AUS' new conrac are outfitted with 48 fueling stations, 12 carwash bays and 270 stacking spaces.

Meeting Code

Dividing the facility's 48 fueling positions equally among three levels allows individual rental companies to process vehicles on a single level; but installing so many stations in the vertical facility presented significant challenges. Prescriptive fire codes typically do not allow more than three indoor fueling positions, informs Wong. To obtain approval for additional indoor, above-grade fueling stations, the firm used an alternate means and methods request.

"Our responsibility is to show authorities how we intend to meet the intent of the code," explains Wong. "Even though the fire codes are very similar throughout the country, the interpretation of the code can be different depending on the jurisdiction."

Design/builder Austin Commercial was also involved in the effort. "One of the challenges is there is no precedent or codes written for (vertical fueling facilities)," remarks Steven Jones, the company's project manager for the AUS project. "We had to work with what the city of Austin refers to as performance-based design, a white paper that outlines the potential hazards of multi-level fueling within a facility." The firm met repeatedly with the Austin Fire Department and developmental services personnel to demonstrate that its design addressed all potential hazards and provided for proper fire containment, recalls Jones.


Steven **Jones**

The design that was ultimately approved and executed keeps the system's three 20,000-gallon fuel tanks below grade and outside the facility. Fuel from the tanks enters the conrac via a single room at ground level, and is then pumped up to individual fueling stations on three levels above. Direct protection measures include a full sprinkler system throughout the facility, flame detection in fueling areas and an exhaust system that is activated when fuel is pumped. The design also limits the fueling rate of individual pumps and the total number of gallons that can be pumped once a pump is activated.

During inspection, fire marshals used performance-based design criteria to determine whether the fueling system met applicable codes.

Artwork added to transitional space between the terminal and new facility also extends onto the plaza of the conrac.

Because the fueling stations also serve as general service areas, each one includes a compressed air station for filling tires, a system to top off windshield washing liquid and other fluids, and a vacuum system for cleaning interiors. After workers fuel and service vehicles, they drive them through one of four car wash bays that are spread throughout three levels of the facility.

Green, With Gallery Art

Aesthetically, the new rental car complex complements the airport's existing Texas hill country architecture, Wong informs. Designers specified indigenous natural materials such as limestone and pearl granite, as well as lighter colored woods, to give the structure a warm feel. As a contrast, glass and stainless steel wall panels reference Austin's high-tech industries.

Airport officials hope that the facility's green features will lead to silver certification from the Leadership in Energy and Environmental Design program. Lighting is monitored and controlled automatically; and water from the car wash bays is reclaimed and recycled. The building core's elevators and escalators are open air, which decreases building heat during the summer. The public parking area includes two charging stations for electric vehicles.

On the rental operations side, designers estimate that eliminating the distance between vehicle prep areas and ready/return lots will reduce carbon dioxide emissions by 411.7 tons per year.

In addition to its environmental features, the complex also includes an art installation titled *Uplifted Ground*. Hundreds of geometric concrete sculptures, some suspended by steel cable, embellish the rental car plaza and the space that connects the facility to AUS' terminal. Relief patterns that highlight the sculptures are adorned with metals, local granite and LED fixtures to reflect light and project a subtle glow. The artist derived the abstract patterns from aerial views of central Texas — an apt source of visual imagery for the growing Texas airport.

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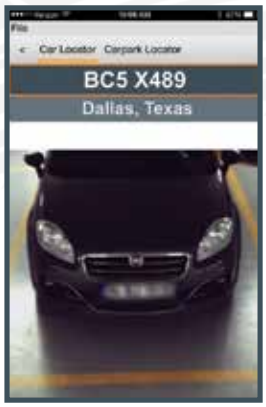

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ELLIS AIRPORT
OAJ

Albert Ellis Airport Sequences Funding to

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Project: Airport Redevelopment

Location: Albert J. Ellis Airport, Richlands/ Jacksonville, NC

Owner/Operator: Onslow County

Main Components: Passenger Terminal with improved roadway access; general aviation facility; taxiways; aprons; runway extension; hangars; rental car quick-turn area

Cost: $43.9 million

Terminal Opened: August 2015

Funding: $20 million from FAA; $2.5 million from state; PFC; airport revenues

Terminal Construction Manager At Risk: Balfour Beatty Construction

Executive Terminal General Contractor: Clancy & Theys Construction Co.

Civil Construction General Contractor: Barnhill Contracting Co.

Designer: RS&H

Subconsultants: S&ME; ECS; JSM Assoc.; Cedric Frank Assoc.; Muhlhausen Design & Assoc.

Passenger Boarding Bridges: JBT AeroTech

Baggage Handling Systems: Grinnell Logan Teleflex

Flight Information Display System: Infax

Paging System: IED

Elevators & Escalators: ThyssenKrupp

Seating & Furnishings: Arconas/Delve

Steel: SteelFab

Roof: BEMO Systems

Heating/Venting/Air Conditioning: Humphrey Mechanical

Concrete Apron: Ace Electric; GLF

Demolition: D.H. Griffin

Access Control, Closed Circuit TV & Fire Alarms: Tyco Simplex

When was the last time you heard about a significant public facility such as a school or stadium being built without dedicated local tax dollars? Albert J. Ellis Airport (OAJ), just outside of Jacksonville, NC, recently pulled it off. The airport's $43.9 million project added new facilities for commercial and general aviation passengers, plus a wide variety of other airside and landside improvements (see list to the left).

Chris **White**

"The new terminal was built using transportation grants and airport revenues, requiring no county tax dollars to complete the project," says Airport Director Chris White, A.A.E. "At the end of the day, the funding was a potpourri of sources: FAA discretionary and entitlement funds, passenger facility charges, state grants, contract facility charges (from rental car operations), airport revenues and local government contributions."

OAJ's new terminal opened in August, with four gates and three boarding bridges serving Delta Air Lines, American Airlines and a full-service fixed-base operator. New passenger amenities inside the two-story, 67,000-square-foot facility include updated security checkpoints, dressing rooms for service personnel to change into military uniforms, and seating with digital recharging stations. Expanded concessions are also in the works. Airfield improvements include a runway extension and new taxiways and aprons.

White, who previously worked at Dallas/ Fort Worth International and Raleigh-Durham International, considers OAJ's recent project

Build Small Terminal with Big-Airport Swag

By Mike **Bernos**

The airport's new four-gate terminal opened in August.

unique because it completely modernized the non-hub airport. Between the new passenger terminals, aircraft hangars and a quick-turn area for rental cars, nearly every facility at the small airport was replaced. Only the fire station and electrical vault remain unchanged.

White is especially excited about the continued boost the new terminals and other airport improvements will offer the regional economy. "In 2013, more than 350,000 passengers passed through the OAJ, creating an economic impact of more than $191 million for the county and contributing to 340 local jobs," he reports. "We will expect to exceed that with these new additions."

Booming tourism and explosive growth in the rural area the airport serves helped fuel the development. (OAJ's new commercial terminal includes the first escalators in the county.) White also cites nearby Camp Lejeune, which houses 50,000 marines, as a primary factor. "That alone drives passenger volume," he notes. "Enplanements grew from 119,000 to 170,000 in three years. We needed a new facility."

From Renovation to Renaissance

Personnel from RS&H, the airport's design consultant, note that the terminal project nearly didn't happen. Six years ago, plans focused on renovating the existing facilities, recalls Steve Harrill, the firm's project manager.

Steve **Harrill**

That sentiment shifted when White became airport director. "Armed with our analysis, (he) realized it was just as expensive to renovate as it was to build a new terminal," explains Harrill. Renovations would have also inconvenienced passengers more and left OAJ with the inherent disadvantages of a 50-year-old structure that was constructed and designed in a different era, he adds.

According to calculations by RS&H, it would have cost the airport $26 million over a 10-year period to renovate its existing 32,000-square-foot terminal. Taking a different tack, the firm developed plans to build a new 67,000-square-foot terminal on a greenfield site — also for $26 million.

The revised capital improvement project ultimately included provisions to reconstruct the entire terminal area with a new general aviation facility, roadway and apron system. White not only wanted to improve the airport's functionality, he also wanted a signature terminal that would reflect well on the community, Harrill remarks.

Initial reviews since the terminal opened this summer indicate the mission has succeeded, he reports. Much of the excitement swirls around passenger amenities, such as USO facilities for service members, a business center, new concessions, flight information displays and free Wi-Fi. "It offers so much more than your average small airport," says Harrill.

Regional cues let arriving passengers know they've landed in North Carolina.

Funding Precedent

The new terminal and other infrastructure improvements would have likely remained on the drawing board without an aggressive plan to finance them. "Albert J. Ellis had not received more than $3 million in discretionary funding from the FAA for capital improvements during its entire (43-year) history," White relates.

As a virtual stranger to the process, OAJ faced a few extra hurdles. White says that FAA officials were hesitant to award the airport money, because they had no idea whether OAJ would secure the matching funds required to move ahead with its plans. "They are reluctant to invest in a project that doesn't make use of allocated money," he explains.

With an administrative staff of three employees, White enlisted RS&H consultants to help. Together, they partnered with Onslow County, which owns and operates OAJ, to secure an $8.5 million loan. Seeing the county's stake in the project, the state of North Carolina subsequently committed $2.5 million to the initiative — a huge increase compared to the $50,000 per year OAJ had typically received, White notes.

After lining up its state funding, the airport then requested $20 million from the FAA. White highlights the role of Tom Slater at RS&H in securing federal funds for the project. "He has long-term relationships with the staff at the FAA and the State Division of Aviation and knows the right approach," White comments.

"We were trying to get them to 'Yes,' and if we showed them the (local and state) money, it would be a lot easier for them to grant it," Slater recalls. "Also, I think the agencies were more generous since we came to the trough so rarely."

White adds that being a county-operated airport helped secure local funds. "At the time we were planning the new airport facilities, governmental leaders were becoming more receptive to redevelopment projects that included a new government center, human services facility and justice complex," he recalls. "They strategically combined the financing of the airport with other projects in order to obtain more favorable financing for all of them."

Low debt service requirements allow the airport to maintain a low cost-per-enplanement, White adds. The enables OAJ to continue improving its facilities without increasing rates and charges to airlines, he explains.

Spring-boarding off that momentum, plans are being made for a new control tower, runway extensions, parking upgrades and other improvements. With the new terminal operational, crews will tear down the original terminal to make room for more parking and a new access road.

Different Delivery Method

OAJ's recent makeover marked a first for the FAA Atlanta Airport District Office, because it was completed by a construction manager at risk. Previously, all projects in the district had followed the traditional design-bid-build method, which requires airports to award projects to the lowest bidders.

Balfour Beatty Construction was selected as the construction manager at risk for the OAJ project based on the firm's qualifications, White explains. As such, it provided input during the design process, assisted with value-engineering and cost estimating, and subsequently used the open bid process to select the lowest-price qualified subcontractors to help complete the project. With its team in place and input added to the design, Balfour Beatty then provided the airport with a guaranteed maximum price.

Using the "at risk" delivery method decreased the amount of change orders needed by creating a more collaborative process, says White. It also increased the participation of small and minority businesses, and ensured that the primary contractor was "100% committed to completing the project on time and within budget," he adds.

Now that the new terminal is open and well received, White realizes what a challenge the project was. "Doing the passenger terminal and the GA terminal at the same time was ambitious, particularly with a small staff," he reflects. "But with the right team of consultants and contractors, we pulled it off."

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Denver Int'l Adds Customized Television Network

By Ken **Wysocky**

Denver International Airport (DEN) is adding a touch of Hollywood to its nature-friendly culture with a customized television network. The project is not about red carpets and entourages; it's simply another program to engage passengers and make their travel more enjoyable. A national media company provides specially modified programming for travelers and ultra-targeted advertising is expected to boost non-airline revenue — another ongoing effort at the busy hub.

Launched in June, DEN-TV is a product of Clear Channel Airports (CCA), an industry-specific vendor with parent company roots in outdoor advertising. The end goal: Entertain DEN's 53 million annual passengers and inform them about things to do and see in Denver. The method: news, entertainment, sports and weather programming. The delivery mechanism: 30 high-definition TV screens sprinkled throughout gate areas.

"Like many airports, we're in the guest-experience business," says Neil Maxfield, the airport's senior vice president of concessions. "We recognize that passengers are on a journey, going from point A to point B for business or for pleasure. We've taken time to understand who our customers are and what they want in terms of services or entertainment, and the answer is unique and interesting distractions during their transportation journey."

But DEN also wants to create new revenue streams. Unlike the airport's previous television network, operated by CNN, Clear Channel's platform can provide hyper-local advertising that is micro-targeted to specific gateholds. Airport concessionaires, for instance, can buy advertising that's shown only at gates near their stores or restaurants.

Neil **Maxfield**

"That's a big change," says Maxfield. "It's a digital platform, so [Clear Channel Airports] can distribute advertising throughout the airport so it hits certain flights and certain gate areas, aimed at certain demographics. It's a very powerful tool for advertisers."

Officials signed a five-year contract with CCA to operate DEN-TV. Per the agreement, Clear Channel provides programming at no cost and keeps most of the revenue produced by the ads it sells that run between segments. The airport receives a portion of all advertising revenue, based on a sliding scale. If annual ad revenue hits $1 million, the airport receives 15%. If advertising produces $1 to $2 million, DEN's portion climbs to 20%. If proceeds surpass $2 million, DEN's piece of the ad-revenue pie is 25% percent, which amounts to $500,000. During the first year, DEN is guaranteed to receive at least $150,000. After that, ads sales completely determine its receipts.

DENVER INTERNATIONAL AIRPORT
DEN

factsfigures

Project: Customized TV Programming

Location: Denver Int'l Airport

Network Name: DEN-TV

Provider: Clear Channel Airports

Contract Length: 5 yrs.

Scope of Service: Customized national & local programming, 24/7

Content: Entertainment; news; sports; weather; local tourism info

Equipment: 30 high-definition 46-inch color monitors

Objectives: Engage passengers at gateholds; boost non-airline revenue

Agreement Details: Clear Channel provides programming at no cost & shares 15% - 25% of associated ad revenues with the airport

"We strive to find new ways to create new non-airline revenue," says Maxfield, noting that their success helps carriers remain competitive at DEN and encourages continued service. If ads on the in-airport TV network prompt passengers to leave their gates and make purchases, concessionaires *and* DEN benefit, he adds.

That's Entertainment

Customized airport TV programming satisfies passengers' desire for variety, says Faith Roland Quilling, business development director for Clear Channel Outdoor Americas. By including local content, airports can also provide "a sense of place" for passengers — whether they're arriving or departing, she adds.

Launched in 2012, ClearVision provides a way for airports to offer passengers popular programs from major networks such ABC, Fox, NBC and others. Airports that partner with the media company can also add local programming and earn a portion of ad revenues. In addition to DEN, five other airports have added Clear Channel TV networks: Louis Armstrong New Orleans International, Cleveland-Hopkins International, Dallas Love Field, Gerald R. Ford International and Raleigh-Durham International.

"We saw a couple other airports where ClearVision has been gaining traction," Maxfield says. "(So) we used an open, competitive bidding process to ask the industry to put its best foot forward — help us gauge and understand where advertising and industry gurus think things are heading." By soliciting proposals that "one-up the customer experience," the airport also hopes to earn non-airline revenue, he adds.

The proposal that prevailed, DEN-TV, is aimed squarely at passengers who go directly from the security checkpoint to their gate — without stopping at restaurants or retail stores along the way, Maxfield explains. According to DEN's research, straight-to-gate passengers account for 20% of the airport's overall traffic. "The rationale for ClearVision is that while they're in that space, you can entertain them," Maxfield notes. "But you also can provide advertising on those screens that can motivates them to got to a retail or food-and-beverage location."

National & Local

About 80% of the content shown on DEN-TV comes from national networks. Clear Channel's programming strategy follows the traditional "day-parting" format used by major networks, which breaks each 24-hour block into morning, daytime, primetime and nighttime segments. Local news, sports and weather (provided by CBS Denver) air at the top of every hour and half-hour marks. Some national news runs with the local content.

The approach allows passengers at DEN and other airports with Clear Channel networks to see many of the same programs they see at home, in similar timeslots — *American Idol* and *Big Bang Theory* during primetime, for instance; *The Tonight Show* and *Jimmy Kimmel Live* later at night. "There's a comfort factor at work here — passengers feel as though they're watching TV at home," says Quilling.

There is one major difference, though: Shows are condensed into five-minute mini-episodes. According to Maxfield, the shorter airport versions provide passengers with just as much enjoyment as 20 minutes watched elsewhere — the approximate length of a half-hour TV show without commercials.

Quilling explains that Clear Channel keeps programming segments short because passengers have diverse preferences for content and limited time to watch. "If they don't like what's on, maybe they'll like what'll be shown in five minutes or so," she remarks.

About 20% of the programs that run on DEN's customized TV network are local rather than national. Content is provided by a variety of entities, including Denver and Colorado tourism bureaus, skiing organizations and attractions such as the Denver Zoo, Colorado Symphony Orchestra and Denver Museum of Nature and Science.

Overall, each hour of DEN-TV includes 45 minutes of programs, 12 minutes of advertising and three minutes of "airport time," when DEN can promote whatever it wants — perhaps a new concessions area, Maxfield says.

Aiming to Please

DEN periodically surveys travelers to support its continual efforts to improve the overall passenger experience and boost non-aeronautical review. Results not only provide

More Screens

The new customized TV network launched at Denver International (DEN) this summer is the second major media initiative the airport has undertaken recently — both with Clear Channel Airports.

Two years ago, the airport teamed with the media company for a large-scale video installation that delivers dynamic advertising and custom content on large, high-definition monitors. Over the next 10 years, it is expected to increase DEN's ad revenue by an estimated 40%, to $95 to $100 million.

The program features four 26-foot high-definition Mitsubishi LED screens, mounted on the two elevator columns in the airport's central Great Hall. It also includes more than 118 LCD screens placed throughout the airport, and eight ultra-thin, bezel-video walls that hang overhead on soffits in the main terminal and post-security areas of three concourses.

airport personnel with demographic data, they also help them learn about how passengers use DEN's current facilities and what travelers think makes an airport great.

Sometimes results spur more amenities, like DEN-TV. While Maxfield considers it too early to determine how customers like the new gatehold programming, he sees positive indicators. "Concessionaires are buying up advertising spots," he reports, reasoning that brisk ad sales mean vendors value the network's targeted approach and feel they can motivate passengers to make purchases.

The new in-airport TV network may also prove to be a customer-service hook. Even though DEN is a major national hub, it still wants to attract more passengers, Maxfield asserts. "Customers have a lot of choices for how they're going to move around the country," he explains, noting the limited availability of non-stop flights. "We're endeavoring to be the hub that people choose to fly through."

Quilling considers customized TV programming a national trend and an effective customer service tool. "Airports want choices — more variety," she comments. "It's all about creating a sense of place and engaging passengers during that 30-minute dwell time — or longer, if they're delayed. It's not just about the money; it's about providing passenger amenities."

Maxfield agrees about the importance of connecting with customers through service. "We want to continue to deliver that experience at a high level," he says. "It's important for us to understand who they are, then create opportunities for them to be wowed. If they book another trip, maybe they decide to book through Denver. It's about putting all those things out there so people see us as more than just a transportation hub."

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Atlanta Int'l Takes Aim at Insider Threats With Full Employee Screening

By Nicole **Nelson**

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Project: Security Improvements

Airport: Hartsfield-Jackson Atlanta Int'l Airport

Operating Entity: City of Atlanta Dept. of Aviation

Cost: $12 million

Funding: City of Atlanta Dept. of Aviation

Primary Components: Full employee screening; reducing access portals; reducing employees with access to areas that require security credentials

Project Stakeholders: TSA; Dept. of Homeland Security; airlines; airport tenants

Employee Screening Lane Oversight: Healthcare Security Services

Noteworthy Details: City-funded improvements were spurred by exposure of a gunrunning ring involving former & then-current Delta employees based at ATL. Airport's improvements supersede recommendations by the Aviation Security Advisory Committee, which reviewed situation at the direction of Homeland Security

As TSA continues on pace to break its all-time annual record for firearms collected at checkpoints, guns continue to aggravate security efforts at U.S. airports. But the problems don't end with the recovery of wayward weapons at passenger screening stations.

Case in point: the highly publicized gun-smuggling ring broken up at Hartsfield-Jackson Atlanta International Airport (ATL). Eugene Harvey, the Delta Air Lines baggage handler at the center of the case, may have unwittingly become the de facto poster boy for full employee screening.

Harvey allegedly used his security clearance to illegally move guns from the sterile side of ATL to an accomplice named Mark Quentin Henry, who posed as a passenger. With knowledge from his stint as a former Delta ramp agent, Henry successfully received firearms from Harvey and smuggled them onto flights in his carry-on luggage. Investigators say Harvey and Henry ran the scheme on at least 20 flights from ATL to New York airports from May 2014 to December 2014, when both were arrested as part of a larger trafficking ring. In total, five people were charged with conspiring to sell 153 firearms, including AK-47 assault weapons and 9-millimeter handguns. Harvey was the member who breached ATL's airside security.

After the operation was exposed, substantial changes followed quickly at ATL, via $12 million of security improvements funded solely by the Atlanta Department of Aviation. A new regimen of full employee screening is one notable component.

Springing to Action

While locally based airline personnel were prime participants in the infamous gunrunning case, ATL itself became the subject of a comprehensive review in January 2015. Homeland Security Secretary Jeh Johnson directed the Aviation Security Advisory Committee (ASAC) to conduct the review.

As TSA performed its own insider threat analysis, ASAC convened a working group of industry experts to examine potential vulnerabilities related to the security of sterile areas at U.S. airports. The group also explored other trends to determine if additional risk-based security measures, resource reallocations, new investments or policy changes were needed.

At the same time, ATL pulled out all the stops to reduce vulnerabilities associated with insider threats. In addition to immediately closing physical loopholes, ATL sent General Manager Miguel Southwell to testify on the topic before the House of Representatives' Transportation Security Subcommittee in February.

Under oath, Southwell suggested numerous ways the world's busiest airport could — and would — improve security screening of employees. By the time ASAC submitted its final report in April about improving employee access control at airports nationwide, many of the fixes Southwell chronicled had already been implemented at ATL.

Bullseye on Security


Richard **Duncan**

Richard Duncan, the airport's assistant general manager of Public Safety and Security, directed many of the changes. "From that time forward, we have been working to put together inspection stations and screening activities to enhance our security," Duncan reports.

ATL addressed employee access issues beyond those associated with smuggling contraband, and it completed corrective measures ahead of schedule, he notes: "We had a target of completing the process by the end of this year, but we put everything in place by August."

The airport, for instance, preemptively instituted ASAC recommendations to increase random and unpredictable physical inspections of employees working in or accessing secured areas of airports. Adding its own twist to the formula, ATL is also enhancing employee vetting and pre-screening procedures by working with the FBI to implement real-time criminal history background checks.

Duncan notes that ATL has effectively revamped previous protocols that are still commonplace at most U.S. airports — particularly credentialing processes and physical access. At ATL, for instance, employees with valid security credentials could use more than 70 access points throughout the large airport — turnstiles, door, elevators, etc. In addition to drastically reducing its access points from 70 to 10, ATL also reduced the number of employees who receive credentials to use them.

"We did an internal audit of all of the airport employees, stakeholder employees and contractors to see exactly which employee groups should have access to those access portals," Duncan explains. "Those deemed ineligible for full access at these locations are now directed to the employee screening area."

The addition of inspection and screening at employee parking lots and within the terminal building is another major initiative ATL added. "The certainty of inspection or screening is the difference between what it was in December and what it is today," Duncan advises.

Full Employee Screening

Superseding ASAC recommendations, ATL held the soft opening of three employee security checkpoints on Aug. 31. In doing so, it joined Miami International and Orlando International as the only U.S. airports screening all employees.

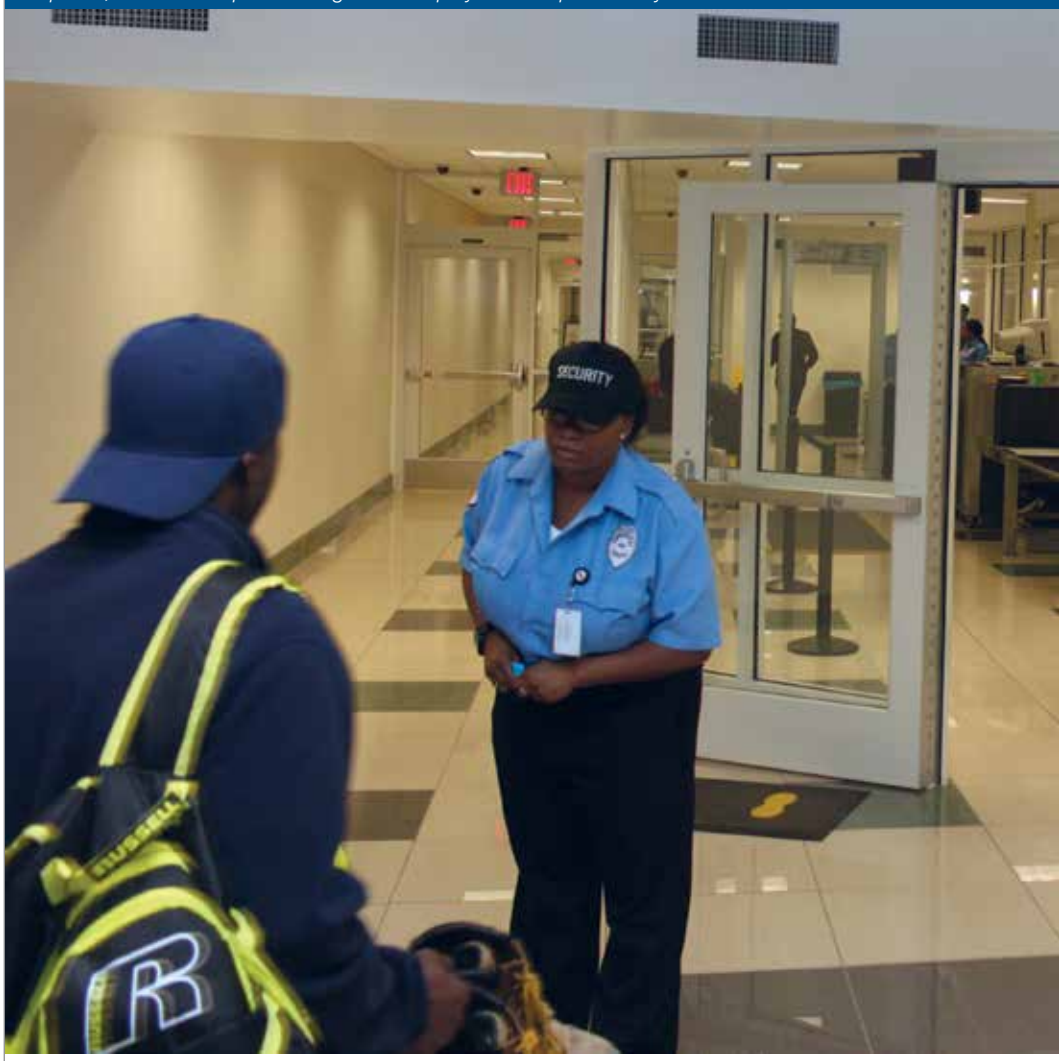
Although the ASAC report concluded that TSA physically screening 100% of airport employees would be an ineffective outlay of significant resources with limited security value, ATL opted to independently initiate full employee screening at its own expense.

The airport's new employee checkpoints largely resemble the neighboring passenger checkpoints, as they both use metal detectors, X-rays and explosive trace detection equipment. Healthcare Security Services provides 24/7 oversight of the new employee screening lanes, per its contract with the city of Atlanta. Currently, up to 2,500 workers are screened at the new checkpoints daily, Duncan reports.

"A benefit of having a screening checkpoint, versus a physical inspection, is that inspectors are not touching the employees nor the employees' belongings," notes Duncan. "We are basically allowing a more humane treatment to the employees by allowing them to go through a screening checkpoint as opposed to physically checking their belongings and their persons."

The method is also inherently more expedient. "Checkpoint screening will save time and save money by continuing to allow employees to get to work as quickly as possible," he explains. "Our integral goal is to process employees in less than five minutes, and I think we have been fairly on target with that since we launched."

Up to 2,500 workers pass through new employee checkpoints daily.



Beyond adding new infrastructure and refining policies, the city of Atlanta has also worked with hub carriers to boost offsite security that addresses the bulk of employees at the airport. Delta has been inspecting airfield-bound employees since the firearms issue was discovered, and the carrier plans to implement additional measures before the end of the year.

At the same time, the airport launched initiatives to leverage intelligence from within the aviation community to identify potential threats and enhance security procedures. The new efforts are designed to make it more difficult for those with harmful or criminal intentions to gain access to U.S. airports.

Word to the Wise

Given the security breaches that have occurred at other airports before and after the gun-smuggling ring at ATL was exposed, employee screening and insider threats are likely topics that are here to stay. In that spirit, Duncan offers the following advice: "Airports must work with the TSA, the airlines and other tenants and develop a plan that best meets their operational requirements. That is what we did. We worked with our airlines, we worked with TSA and our other stakeholders to develop a plan that would not interfere with their operational requirements, but enhance our security."

While TSA is not involved with ATL's employee screening program, the agency seems content with how the new protocols are working within the airport's overall TSA-approved security plan. TSA Spokesman Mark Howell notes that the agency will continue to work with ATL to ensure that its employee screening program is as effective as possible.

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The Show & Tell of Airport Project Work

Appleton Int'l Completes Re-Branding Process

"A rose by any other name would smell as sweet" is certainly a memorable line; but it's not exactly sound marketing advice. After all, Shakespeare was an Elizabethan playwright and poet, not a 21st century branding expert.

With no disrespect to the famous bard, Outagamie County Regional Airport recently decided that its name *does* matter, and the time had come to change it. From August 21 on, flights now arrive at and depart from Appleton International Airport (ATW). The official name change coincided with a celebration of the airport's 50th anniversary.

The airport's new name not only addresses marketing challenges at the northeastern Wisconsin facility, it also reflects the recent addition of a U.S. Customs and Border Protection user fee station, which allows the airport to accept air freight directly from overseas points of origin. ATW can also now accept international arrivals on general aviation aircraft with up to 20 passengers.

Outtawhaty?

Tanya Rabec, the Outagamie County supervisor who led the name change committee, says that the airport's new moniker will help attract travelers who didn't fully understand the facility or its amenities. Having Outagamie County in the name was a point of pride for locals, but it doesn't resonate with many passengers, she explains: "It's very long, it's hard to pronounce (out-a-GAME-me) and meant nothing to people outside our area."

In addition, committee members felt the words "county" and "regional" somehow implied lesser quality.

Adding "international" to the name not only reflects the airport's new ability to handle international passengers and cargo, it also adds a touch of prestige, Rabec asserts. "It's no longer the small, regional airport of yesterday."

The small airfield that opened in 1965 with a single, one-mile runway is now the Badger State's fourth-busiest airport, with two runways, a supporting taxiway and ramps. Currently, ATW offers non-stop service to eight destinations via three carriers: Delta Air Lines, Allegiant Air and United Airlines. Its 1,700-acre campus is home to a Gulfstream facility, FedEx air cargo distribution center, the Fox Valley Technical College Public Safety Training Center and Air Wisconsin, the largest privately held U.S. regional airline. Other tenants include a flight school and fixed-base operator.

APPLETON AIRPORT
INTERNATIONAL

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Project: Name Change

Location: Appleton (WI) Int'l Airport

Previous Name: Outagamie County Regional Airport

Primary Elements: Procuring new logo, signage, employee uniforms; redesigning airport website; updating social media outlets

Estimated Cost: $204,000

Signage: Creative Sign Co.

Strategy: Prepare newly branded elements in advance, but keep them under wraps until the official changeover.

Airport Director Abe Weber retires ATW's old name and logo (left) and unveils the new (right and center).

By Dan **Vnuk**

Technically, the airport is located in tiny Greenville, WI. But Appleton, just three miles east, has long been considered the economic hub of the Fox River Valley, which is home to numerous large paper mills and other industrial holdings. The county committee charged with studying the value of a name change felt using "Appleton" rather than "Greenville" would attract more customers booking flights to conduct business in the Fox Valley. "Those from outside the region often aren't familiar with Outagamie County; they're looking for Appleton," explains one committee member.

The Big Reveal

Pat Tracey, ATW's marketing manager, reports that the airport earmarked $225,000 for the re-branding initiative, but it was completed about 9% under budget. Expenses included a new logo, signage, media launch, staff uniforms, printing and new landscaping.

Results of the self-funded project were largely revealed in one 24-hour period.

"Two weeks before name-change day, it started to get crazy," Tracey recalls. "Every day, shipments of products with our new logo would arrive — uniforms, new airport flags, business cards, T-shirts, promo items like coffee mugs, pens, luggage tags — and we'd have to stop and look at everything. We had so many boxes stacked up that the hallway and marketing office were completely full, with just a tiny path to move about."

Months before the big changeover, Tracey and others working on the name-change initiative began meeting with a wide variety of airport personnel. "I would take daily walks around the airport, and talk to everyone: airline employees, TSA, our car rental vendors, restaurant and gift shop workers, and tell them what we were planning," Tracey explains.

Employees were issued new uniforms the week before the big event so everyone had one ready for name-change day.

Without its new Customs capabilities, ATW's new name would have been "Appleton Airport," but the county and airport officials felt it was important to take the extra steps to add the federal station.

Abe **Weber**

Airport Director Abe Weber says that the Customs upgrade and re-branding projects both go to the heart of the airport's mission. "The airport belongs to the community, and we want to make sure we're taking it in a direction that supports the community," he explains.

Outagamie County Executive Thomas Nelson notes that the regional business community asked the airport to add Customs service. "I think it's great for our airport, but this is a clear-cut sign that the Fox Valley economy is on the rise," says Nelson. "We're not just a regional presence, but have an international footprint."

ATW's name change was also rooted in passenger data and economic development goals. Business travelers make up 70% of the airport's commercial traffic; and those flights generate more than half of its revenue.

"The key for keeping the new logo a secret until name-change day was great relationships with our suppliers," says Tracey. "They all knew the logo was confidential, and there was not one photo of the new logo released until our name-change event, which is pretty remarkable when you think about it."

Team Effort

The name change also became a rally point of sorts. "The biggest part of pulling this off was teamwork by our staff," comments Tracey. "We divided the work among staff so each had responsibility, and we all worked together to get it done. It was really a fantastic team-building exercise."

When the new logo was revealed, we handed out T-shirts to everyone who works at the airport, so they could take the new brand identity home with them that night.

Outagamie County Executive Thomas Nelson compares ATW's growth and success to that of the Green Bay Packers, the NFL football team located just 25 miles northeast. "The Packers' success story is not unlike our own," Nelson muses. "Both have come a long way. Both have built on solid fundamentals. Both have set a standard of excellence. Moreover, the success of each was the result of hard work, dedication and faith in a core mission. Half a century since 1965 (when the airport opened), we say, 'Mission accomplished.'"

As airport director, Weber agrees that teamwork has been pivotal to the airport's accomplishments. "We didn't get here alone," he reflects. "Our ability to grow, thrive and achieve success required the support of many, from the Outagamie County executive to the Board of Supervisors."

The airport's new sign was kept under wraps until the official unveiling.

Weber also emphasizes that tenants and community members who use the airport facilities have always felt secure about the administration's efforts to expand and build the infrastructure.

One of ATW's next growth waves will likely come from a 56-acre Aviation Business Park currently under development. With utilities and broadband service already in place, the airport is already marketing its shovel-ready sites.

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Project: New Baggage Claim System; Reconstructed Baggage Claim Building

Location: General Mitchell Int'l Airport

Construction: Sept. 2013 - July 2015

Cost: $45 million

Funding: Passenger facility charges; airline fees

Primary Elements: Extensive IT infrastructure work; new baggage conveyors & carousels; green roof; 520-foot canopy over roadway & zero-curb sidewalk; public art installation

Architect: Engberg Anderson Architects

Public Arts Administrator: Quorum Architects

General Construction: CD Smith Construction Services

Construction Management Team: M.A. Mortenson Construction, Cotter Consulting, R.P. Mayer & Assoc.

Baggage Handling System Design: Burns & McDonnell Engineering

Baggage Handling System Installation: Jervis B Webb Co.

Civil Engineering: EMCS

Structural Engineering: Bloom Consultants

Canopy Engineering: Pierce Engineers

Fire Protection, Plumbing, Mechanical Engineering: Thunderbird Engineering

Electrical Engineering: IBC Engineering Services

Signage Consultant: Burns & McDonnell Engineering

Commissioning Authority: e3 Group

Daylight & Energy Model Consultant: Seventhwave

Security Consultant: Hinman Consulting Engineers

Cost Estimating: The Concord Group

Roadway Canopy: Novum Structures

Green Roof: LiveRoof Tray System

Skylights: Super Sky Product Enterprises

Metal Panels: Dri-Design

Curtainwall: Kawneer

Glass: Viracon

Baggage Service Offices: DIRTT Environmental Solutions

Wall Cladding Systems: Fry Reglet Integral Graph

Ceiling: Armstrong Techzone; Armstrong Woodworks

Flooring: Wisconsin Terrazzo & Tile; Milliken Carpet

Display System: Forms + Surfaces

Illuminated Signage: Sign Effectz

Programmable Lighting Display: Philips Color Kinetics iPlayer 3

Sustainability Elements: Automated system that adjusts lights & air handling to ambient light, occupancy & CO2 levels; low-flow restrooms fixtures

Of Note: Reconstructed baggage claim roadway & building from steel structure up

Milwaukee's Mitchell Int'l Rebuilds Baggage Claim Building From the Bones Up

By Robert **Nordstrom**

This summer, Milwaukee's General Mitchell International Airport (MKE) cut the ribbon on a newly renovated baggage claim building. The $45 million project stripped the airport's 1950s structure down to its bones and raised up a more open, spacious and light-filled facility — a fitting complement to the inline baggage handling system completed last summer (see Sept. 2015 issue of *Airport Improvement* for more details).

The building, which sits between MKE's ticketing/departure terminal and parking garage, originally functioned as the main terminal building, where travelers were dropped off, checked in and claimed their baggage. Later it evolved into the baggage claim area. As new structures were added, the building's configuration and use changed many times over the years. The last time the structure was significantly remodeled, however, was in the mid-1980s.

A glass canopy between the parking garage and new baggage claim building helps protect visitors from inclement weather.

"Our old inbound baggage system was outdated," says MKE Airport Engineer Jim Zsebe. "It had old mechanical equipment, a hodgepodge of makes and models, and we had a hard time getting parts for it."

The building itself had also reached the end of its design life, and the interior and finish materials were worn out. "At the ground level, we basically erased the building down to its structural steel. And in some places even the structural steel had to be replaced," Zsebe relates.

MKE's new building features a skylight that runs the length of the structure; a 2,000-square-foot gathering space with high ceilings and public art; LED lighting; a 5,000-square-foot green roof; and a dramatic glass canopy that spans the reconstructed roadway running between the building and the parking garage. Operational enhancements include new baggage service offices for airlines and five new slope-plate baggage carousels served by a new conveyor system.

Throughout the extensive renovations and construction work, the airport had to keep the baggage claim building open and operational for travelers. Mark Ernst, partner-in-charge of Engberg Anderson Architects, likens the project to performing "open heart surgery" on a building.

Like medical surgery, the project included unexpected challenges. "(During demolition) we found structures in places where we weren't expecting to find them, which affected some of the office layouts on the second floor," Ernst recalls.

Building a new facility would have certainly been easier and less expensive, he adds. But the existing location required the team to rebuild the facility within the existing footprint.

Phasing & Infrastructure

To keep the building operational and roadway open, planners divided the nearly two-year construction project into three major phases. Work started on the south end of the building, and then proceeded north. In phase one, baggage carousels one and two were shut down from September 2013 to September 2014. During phase two, carousel three was closed from January to March 2014. Carousels four and five were closed throughout phase three, which ran September 2014 to June 2015.

Preliminary plans called for only one baggage carousel to be shut down at a time. Contractors would have put up construction walls and proceeded through the building south to north, from carousel one to five. However, it was determined that the airport could save significant costs by shutting down multiple carousels and keeping contractors onsite. For one three-month span during the project, the airport functioned with only two operational carousels.

"We got through that period and got the third carousel up and running by spring break, which was our goal," Zsebe reports.

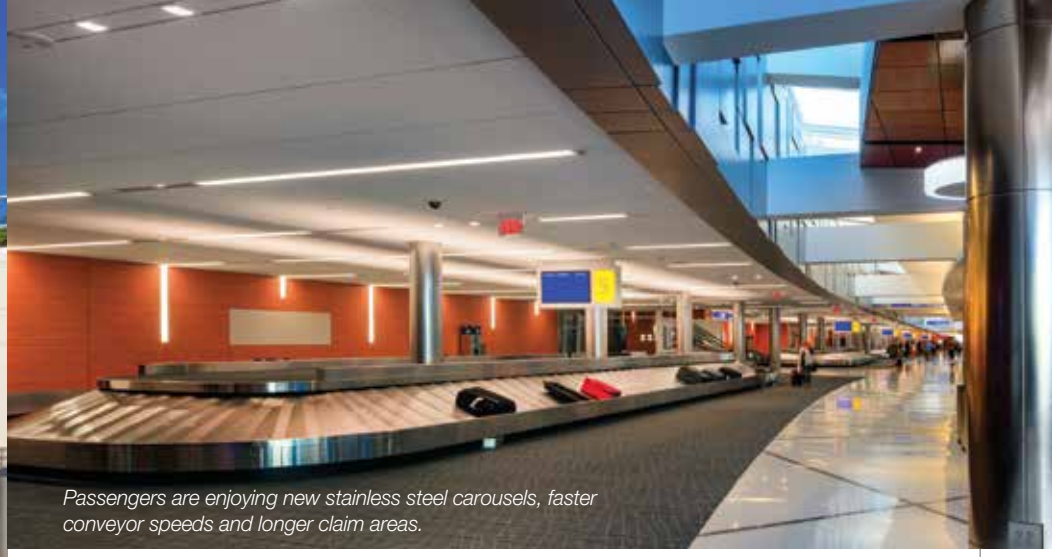
While crews worked on the first floor, contractors on the basement level installed infrastructure to support new information technology (IT) services for the new baggage services offices and carousels. New conveyors that feed baggage up to the first floor carousels were also installed. In the process, MKE maximized the system's overall efficiency and capacity by increasing conveyor speeds, extending load conveyors and expanding claim devices' linear feet of presentation. Soft starters for the load belts and claim devices are expected to extend motor life, and the entire system runs much more quietly than its predecessor. Baggage input consoles and card readers allow personnel to initiate messages on the claim device information display above the new stainless steel carousels. The new system communicates with a computer in the central control room, where employees can monitor overall performance on a video wall.

A new switchgear room was added south of the building to support the newly updated electrical and IT work. In addition, the structure of the building was reengineered to allow for a green roof, second floor office suite and near-continuous skylight.

From Road to Roof

Because a large electrical conduit needed to be installed beneath the main baggage claim roadway, crews needed to completely reconstruct the road. Throughout the project, the roadway remained closed to all private passenger vehicles. Taxi pickup was moved to the limousine lane within the parking garage, and buses and shuttles were diverted to limited sections of the roadway as crews completed the work.

The area designated for private vehicles picking up passengers was temporarily moved to the opposite side of the baggage



Passengers are enjoying new stainless steel carousels, faster conveyor speeds and longer claim areas.

claim building — the same space used for passenger departures/ticketing. "This created a real challenge," Zsebe acknowledges. "We put up a lot of signage and did public information outreach; but people were still confused, expecting the roadway configuration they were used to."

MKE helped mitigate the traffic congestion that ensued by extending its usual 30 minutes of free short-term parking in the garage to a full hour. "That helped," he recalls.

Outside the new baggage claim building, a no-curb sidewalk accommodates visitors with physical mobility challenges. "The sidewalk functions as a continuous ramp onto the roadway," relates Zsebe. "The building now has wheelchair access at any point along the roadway."

While the zero-face curb arose from attention to requirements of the Americans with Disabilities Act, it also helps ease the way for pedestrians pulling luggage, pushing carts or carrying baggage. Visually, the lithocrete concrete/glass sidewalk mirrors the new terrazzo floor used inside the facility. Stainless steel bollards along the roadway provide protection for the building.

A 520-foot-long, 45-foot-wide glass canopy supported by concrete and steel piers spans the roadway between the baggage claim building and parking garage to protect visitors from the inclement weather when exiting the facility. Exterior wayfinding information and paging devices further boost the structure's utility; ceramic frit glaze reduces sun glare; and a programmable color kinetic lighting display adds visual appeal.

Visitors using MKE's two skywalks are now greeted with a little green foliage in addition to blue sky as they traverse between the terminal and parking garage. A new 5,000-square-foot rooftop garden includes hardy plants such as sedum set in 4-inch soil trays.

"In addition to the aesthetic benefits, the green roof adds insulation and energy savings, particularly when trying to cool the building during the summer months," Zsebe reports. "And it's fairly low maintenance."

A stormwater system captures and contains rain from smaller weather events for irrigation. Signage along the skywalks helps educate visitors about the sustainability advantages of MKE's newest green feature.

Finishing Touches

Low ceilings gave the airport's previous baggage claim building a long and narrow feel. To create a sense of spaciousness in the new facility, designers literally "raised the roof" and added a ceramic frit skylight that runs the length of the building.

Midway through the building, a 2,000-square-foot gathering space with a floor-to-ceiling window and large skylight provides

an airy, light-filled environment for the public to wait for arriving passengers. The airport also plans to use the space for staging entertainment and special events.

Debra Sider, project manager with Engberg Anderson, describes the kinetic sculpture that hangs from the area's 20-foot ceiling as a large, transparent scrim or screen. "The title of the work is *Slalom*, as in skiing," Sider explains. "It hangs down 5 or 6 feet from the ceiling and is made of aluminum tubes of varying lengths and thicknesses. Six-inch squares of either translucent Lexan plastic or aluminum hang from the tubes. The work is woven in and out of four stainless steel structural columns spaced 20 feet apart. It floats and moves within the space in response to air circulation and people walking below."

To open the overall space up, planners moved the airlines' baggage service offices to the west wall. Now occupants can see the entire length of the building. The new offices were designed and constructed with a wall system that allows panels, doors and electrical systems to be rearranged, which gives airlines more flexibility to reconfigure their individual spaces within the bag claim area.

The interior color scheme is black and white, though primarily white. Warm wood finish materials were used on walls and ceilings to balance the coolness of the black and white. "The space feels airy and bright," relates Sider.

Crews tore up old carpeted floorcoverings and poured a new black and white terrazzo floor inlaid with reflective chips. Because terrazzo requires an extremely level surface to prevent cracking, extensive preparatory work was performed.

A new air handling system is one of the building's star sustainability features. "The building monitors light, occupancy and CO2 levels and responds accordingly," says Sider. "If there's nobody in the building, the lights automatically dim. If there are a lot of people in the building, the CO2 sensors allow more fresh air in the building."

On bright, sunny days, light sensors react to the ample natural light that flows through the skylights and dims the electric lights. All restrooms feature low-water-use fixtures.

"We have put a lot of energy-saving features into this building," reports Sider. As such, officials applied for Leadership in Energy and Environmental Design certification — a first at MKE.

The facility's improved efficiencies and updated look have drawn compliments from throughout the community. Milwaukee County Executive Chris Abele describes the new baggage claim building as gorgeous. "(It) creates a more inviting, spacious environment for travelers as they arrive in Milwaukee," says Abele. "We are excited to show off this new facility as we continue to provide the best experience for travelers throughout Wisconsin and northern Illinois."

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Port of Seattle
Seattle-Tacoma International Airport

Sea-Tac Reconstructs Center Runway to 40-year Design Standards

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Project: Runway Reconstruction

Location: Seattle-Tacoma Int'l Airport

Owner: Port of Seattle

Runway: 16C-34C

Length: 9,426 ft.

Cost: $95 million

Funding: Received $15 million FAA grants (another $10 million anticipated); $70 million in airport development funds & future revenue bonds

Projected Lifecycle: 40 yrs.

Design: Airport Staff

Onsite Design Consultant: HNTB

Bids Released: Dec. 2014

Construction Closure: May – Nov. 2015

Contractor: Joint Venture of Scarsella Brothers & Acme Paving

Electrical Contractor: Colvico Electric

Asphalt Paving: Icon Materials

Striping & Pavement Markings: Apply-A-Line

Preformed Thermoplastic Markings: AirMark, by Ennis Flint

Automated Foreign Object Debris Detection System: FODetect Solution, by XSight Systems

FOD System Prime Contractor: Varec

FOD System Installation: Leidos

Grooving: Pinnacle Grinding & Grooving

Fiber Splicing: Integrity

Concrete Breaking: Antigo Construction

Concrete & Base Material Recycling: Rhine Demolition

Delastic Preformed Compression Seals: D.S. Brown Co.

Lighting Fixtures: ADB Airfield Solutions/Airside Solutions

Material Volume: 65,000 sq. ft. of preformed thermoplastic markings; 200,000 sq. yds. of new concrete; 16,000 linear ft. of new storm drain pipe

Seattle-Tacoma International Airport (SEA) recently completed the total reconstruction of Runway 16C-34C, giving new life to the oldest of its three runways. And what a life it will be. The 9,426-foot runway that was originally built in 1969 is now projected to have another 40-year lifecycle.


Robert **Kikillus**

"This is a relatively new change," says Airport Operations Manager Robert Kikillus. "The FAA finally recognizes a 40-year life; and for a minimal additional cost, an inch of concrete, we gained 20 years. It's amazing that little bit can double the life of your runway."

SEA's newly reconstructed center runway is expected to reopen this November. Kikillus notes that ongoing concrete panel replacements (more than 600 out of 4,000 in the last two decades) kept 16C-34C functional and safe over the years, but it was time to completely rebuild it.

After this $95 million project and literally tons of other pavement work throughout the last seven years, all three of SEA's runways are either new or newly rebuilt. Runway 16R-34L was added in 2008 and 16L-34R was reconstructed in 2009. (See Nov./Dec. 2008 issue of *Airport Improvement* for more information about the Runway 16R-34L project.)

Future-Forward Design

In-house design for the reconstruction of Runway 16C-34C began in October 2013, and the project was put out for bid in December 2014. The original timeline for the project was accelerated by a full year after 2014 discussions with FAA regarding the condition of the pavement.

The runway was closed from May until mid-November this year for reconstruction, and all air operations at SEA were temporarily directed to its other two runways.

Total cost for the project is estimated at $95 million, and the Port of Seattle received

By Jennifer **Bradley**

$25 million in FAA grants. The remaining $70 million was allocated from airport development funds and future revenue bonds.

The newly constructed center runway contains 8 inches of crushed rock sub-base, 4 inches of asphalt and 18 inches of Portland cement concrete. It includes more than 4,000 panels, each 20 by 18.75 feet in size. While Group 5 runway standards require 35-foot shoulders, SEA chose to incorporate 50-foot shoulders to allow 16C-34C to accommodate larger aircraft in the future.

Airport staff designed the reconstruction project, and HNTB consulted onsite. A joint venture of Scarsella Brothers & Acme Paving executed the design as general contractor.

Ralph Wessels, SEA's Airfield Program leader, notes that the project's front-loaded design schedule was challenging

Ralph **Wessels**

at first, but delivered good results in the end. The design group presented the project to contractors three months before opening it for bids to explain the phasing and share documents about what the bid items/quantities would be.

"This was an advantage to us and them, as they were able to start preparing bids and making contacts to subcontractors and suppliers," Wessels notes.

The modified schedule also helped SEA meet its goal of increasing participation by small businesses. Meeting with the overall contractor community earlier than usual gave the airport an opportunity to encourage small firms to be a part of the large project by providing them with extra time to decide whether they could manage particular parts of the project, explains Wessels.

Continuing the Tradition

Airport engineers worked to make the center runway project environmentally friendly and economically sensible. Recycling concrete, LED lighting and improving water management helped in both cases.

Don **Axt**

LED fixtures were specified in all airfield signs maintained by the Port of Seattle, as well as in edge and centerline lights for the runway. "It was unanimous on the savings, not only on electricity but also maintenance time," says SEA Project Manager Don Axt.

Both members of the contractor joint venture say using recycled concrete was a major highlight of the project. Crews recycled concrete from the existing pavement and crushed it onsite. What would have otherwise been a waste product was then used as sub-base material for the new runway, taxiways, shoulders and blast pads. Dan Rivera, project manager for Scarsella Brothers, notes that the strategy saved SEA a considerable amount of money and allowed the construction team to

optimize its compaction efforts. Meeting the 100% density compaction required for the SEA runways is a challenging feat on such a large project, adds Rivera.


Bryan **White**

Bryan White, project manager with Acme Paving, points out that crews used three slipform paving machines for the entire runway — all 18 inches deep, in 37.5-foot and 20-foot widths and a total of 9,426 feet long. "It really increases the quality of the finished product, and as contractors, is something we're really proud of," he relates.

About 25% of the asphalt was recycled as well, which further reduced transport costs and decreased vehicle traffic on public roads near the airport as well as on and off the airfield.

Water management was another sizable environmental component of the project. No untreated water was allowed to leave the site, specifies Kikillus — a commitment that required an extensive system to divert all water into an existing underground filtration facility. Making sure that 100% of the water used was self-contained and not wasted was especially important given Seattle's dry summer, White adds.

Scheduling Made Simple

Rivera reports that using a single scheduler for the joint venture helped the project run smoothly, despite the inherent challenges of running a worksite sandwiched between two busy airfield areas. "The (aircraft) traffic flow constantly changes from north to south," he explains. "We had to switch the haul routes, use other access points and were constantly moving soft closures."

The Port of Seattle suggested using a joint scheduler to facilitate a collaborative approach for managing work and moving construction forward without inconveniencing travelers. Coordination between all the disciplines and contractors kept the team on a tight schedule, Rivera reports. "If one stumbles, it becomes a domino effect," he remarks.

Kikillus concurs with his construction team, noting that the airport couldn't simply "patch off the whole area and have the contractor go at it." Instead, planners had to phase the project to ensure that taxiways were available so aircraft could cross the construction site throughout the project. "We had to work out safety issues and there weren't any conflicts between aircraft and construction equipment," he details.

Automating FOD Detection

An automated system to detect foreign object debris (FOD) on the center runway at Seattle-Tacoma International (SEA) puts the busy airport at the leading edge of routine airfield inspection and safety. The system uses high-definition cameras and radar technology to constantly inspect the newly reconstructed Runway 16C-34C for debris that can cause major damage if sucked into an aircraft engine.

SEA is only the second U.S. airport to install the FODetect Solution, from Xsight Systems, and is the first to fully fund the project. Logan International Airport (BOS) in Boston was the first to add the automated system.

Even with staff members diligently inspecting the airport's three runways three times per day, a piece of debris can appear just a few minutes after inspection, notes Robert Kikillus, Airport Operations manager at SEA. "An automated FOD detection system is continuously scanning the runway surface; so as soon as something is detected, we receive a notice and can send someone out (to remove it)," he explains.

Loose aircraft hardware, catering supplies, pieces that have broken off luggage and everyday litter are common examples of FOD found on airfields across the globe.

Kikillus notes that the timing was right to add an automated system at SEA: "FOD detection technology has reached a level of maturity, and we saw the value of including it in the runway reconstruction project."

He considers the integrated nature of FODetect Solution to be a major advantage. Monitors are positioned on runway edge lights, so it just takes a bit of extra wiring to use the existing infrastructure, he explains.

The new FOD system also provides wildlife management benefits, adding to the airport's already robust program, informs Kikillus. In addition to flagging inanimate FOD such as pieces of rock or pavement, the system will also be set up to detect wildlife on the runway and in the surrounding area. "The goal is to combine the data with the two avian radars we already have and get a better picture of the bird activity at the airport," he explains.

A team from SEA spent one day at BOS, learning best practices regarding the automated FOD detection system. "The nice thing about airports is we cooperate with each other in the overall avenue of safety," notes Dave Richardson, manager at SEA's Communication Center.


Dave **Richardson**

"There had to be a compromise between the inconvenience of travelers and what is realistic for construction," adds White. "That's a very delicate balance." He credits the Port of Seattle for being flexible and receptive while the team strived to achieve that balance. He also highlights HNTB, for keeping both function and construction in mind during the design process and helping contractors remain cost-effective and efficient throughout the project. "The team designed a runway with both function and construction in mind, allowing everyone to be cost effective and efficient throughout the entire timeline," he adds.

Working day in and day out on the front lines of the project, the joint-venture companies saw a number of opportunities to complete tasks sooner than originally scheduled and help the project as a whole, comments Rivera. "We've always looked at this as a 'mantle' project," he adds.

White agrees about the project's magnitude: "It's pretty rare in the Northwest for an (airport) to completely reconstruct an entire runway at once. This is a very significant piece of infrastructure, and you don't get to do these projects very often."

For SEA's Axt, the most exciting part of completing the large project is its longevity: "No more runways for 30 years!"

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Concrete from previous surfaces was recycled onsite and used as sub-base material for new pavement.

It Ain't Easy Seeing Green

Green is the new black. And the trend sees design and construction industry project teams certifying the "greenness" of buildings through the Leadership in Energy and Environmental Design (LEED) program. But the rating for the environmental impact of horizontal infrastructure such as runways and aprons lags due to the lack of a comparably influential certification standard. That has changed.

One promising universal framework is Envision™, which was developed by the Institute for Sustainable Infrastructure — a joint venture of the American Society of Civil Engineers, the American Public Works Association and the American Council of Engineering Companies. The system has gained tremendous support and interest within the infrastructure industry in the past several years and with good reason.

Companies can leverage Envision by using its project evaluation tools, which are publically available at no cost. They can also seek third-party certification of completed ventures through the Institute for Sustainable Infrastructure. Like other reputable sustainability frameworks, Envision considers projects from conceptual planning through operation. Departments of transportation, public works units and various municipal bodies were among the first to apply its criteria to projects. Some encourage staff members to obtain the associated professional certification, ENV SP, in order to saturate their organizations with an understanding of infrastructure sustainability. A few organizations have even begun *requiring* an ENV SP on certain projects.

Within our industry, the consolidated rental car facility at Logan International Airport earned Envision certification when it was completed in late 2013. The project's innovative design exemplifies the economic, social and environmental sustainability principles that the system evaluates.

Specifically, Envision scores projects on 60 sustainability criteria within five categories:

- Quality of Life,
- Leadership,
- Resource Allocation,
- Natural World, and
- Climate and Risk.

Many organizations use the system as an informal checklist to provide an initial snapshot during the early planning phase of projects. Some apply it more stringently through self-assessment performed by an ENV SP professional. Others seek official third-party review to verify internal findings. Formal evaluation through the Institute for Sustainable Infrastructure allows projects to be recognized at various achievement levels: platinum, gold, silver, or bronze — similar to the LEED system.

Envision was conceived, in part, as a governance tool to help municipalities work effectively across traditional infrastructure silos and ensure that various projects work synergistically to enhance communities. Its use as a stand-alone project evaluation tool is still in the pilot stage. Currently, there are no prerequisites that all projects much achieve. While this would generally cause concern for third-party verifiers, corrections for this discrepancy are currently being developed. In addition, projects that are well-planned can garner good scores, even if a contractor or operator fails to deliver adequate resource efficiency or protection. As more infrastructure teams begin using the framework, the Institute for Sustainable Infrastructure is incorporating lessons learned and continuously improving and streamlining its process and framework.

At present, Envision does not specifiy a particular method for tracking criteria from planning through delivery. In many cases, a cloud-based database may be an appropriate tool, because it can: chronicle pertinent project details; allow multiple points of user access; monitor Envision metrics; store appropriate records and generate reports to demonstrate performance. Many teams already use such cloud-based systems to track compliance with environmental regulations. So adaptating Envision to the cloud should not prove to be an impediment.

So, what does an Envision implementation cost? After a $1,000 registration fee, the costs for smaller capital projects are fairly modest, between $2,400 to $3,000 for projects under $2 million. Costs scale up for larger projects, up to $33,000 for projects in the $100 to $250 million range, to match the complexity and size of larger projects.

Green is the new black. Except that while other colors may fade, being green will never go out of fashion. In that regard, Envision is a beneficial framework for assessing any type of infrastructure — vertical or horizontal. It can be particularly helpful during the planning stages of an infrastructure project, when multi-agency technical advisory teams are at the table. On a broader scale, it provides an excellent set of best practices and helps teams integrate suites of capital projects to achieve added value for the environment, economy and their communities.

Margaret Cederoth

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