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Augusta Regional Receives Masters Traffic on Renovated Runways

San Diego Int'l Keeps it Green During Terminal 2 Expansion Project

3-D Computer Modeling Used to Site & Design New Control Tower at O'Hare

Photo Credit: Michael Gross, Art-Z Graphics

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Why Didn't I Think of That?

You run an airport, and nobody knows its ins and outs better than you do. You know how things get done, what needs to get done, who does what and how. You have your finger on the pulse of safety, efficiency and revenue.

The same is true for airport consultants and suppliers. If anyone has an idea for improvements and enhancements, it should be you, right?

So how is it that someone who doesn't know a single thing about running an airport can provide a suggestion that makes it better? It happens all the time and comes under the heading of *listening* — listening to your passengers, your tenants and perhaps even your spouse or kids.

This happened to me last week, when I received the following e-mail from my friend Roddy Boggus:

"I was thumbing through your latest magazine today on the plane and realized that I have a need, an ongoing need, for much of the information you have in your magazine. Over the years now, you list projects, their costs, who the consultants are, etc. In the past, I've tried to tear out the pages and save them, enter all the information into a database or just keep all the magazines. However, none of that is working.

I would sure like a way to have all of that information at my fingertips. Either on a card that can be filed by airport, or better yet access to a searchable database where I can search by airport three-letter code, consultant, etc. "

Great idea, Roddy! I'm on www.airportimprovement.com every day, and never thought of this logical improvement. Duh!

Our website has always allowed users to search for content by issue, author or key word, but not by airport code. Thanks to Roddy's e-mail, and our webmaster's programming talent, we recently added airport codes as a search option.

I guess it just goes to show: great ideas do come from the head — but sometimes they start in the ears, not the brain.

Cheers!

Paul

San Diego Int'l Keeps it Green During

SAN DIEGO
INTERNATIONAL
AIRPORT

Terminal 2 Expansion Project

By Jodi **Richards**

The Terminal 2 expansion at San Diego International Airport (SAN), a project known as the Green Build, was green on two fronts: environmentally and financially.

Thella **Bowens**

"The whole building is designed with sustainability in mind," comments Thella Bowens, president/chief executive officer of the San Diego County Regional Airport Authority, which owns and operates the facility. "Between the monies that we're generating for the community and the environmentally-sensitive nature of the building, it couldn't be anything but green."

In August, the airport officially celebrated the completion of the largest project in its storied history. Originally estimated to cost $865 million, the long-term project is currently about $45 million under budget. "We think the facility that we have built over the last three to four years will help us accommodate growth that should sustain the airport well into the future," notes Bowens.

The Green Build adds 460,000 square feet of terminal space and includes 10 new gates, all-new shopping and dining, an expanded security checkpoint, a new ticket lobby and new baggage claim area, apron improvements, additional aircraft parking, roadway improvements and a new dual-level roadway that separates incoming and departing vehicle traffic to relieve congestion.

Bryan **Enarson**

The airport authority is financing the mega-project through bonds backed by passenger facility charges, general revenue bonds and airport authority cash, explains Bryan Enarson, SAN's vice president of development. "The airport is a major economic contributor to the region, and we wanted to make sure that what we did was going to enhance the economic contribution to the region," says Enarson.

Planning for the mega-project started long before the recession. At that time, officials were looking beyond 2030 and anticipating a "significant increase" in passenger traffic. "The good news about the recession is that it has modulated that growth to a certain extent," notes Bowen. SAN currently accommodates 17 million passengers per year.

The airport also benefitted from the recession via lower construction costs than originally anticipated and greater availability of labor. Additionally, the cost for bonding came in lower than projected — 3.92% and 4.38% instead of the 6% to 6.5% the airport estimated during planning. "That really saved us a great deal in terms of the cost — both the soft and the hard costs of building this facility," relates Bowens.

Change of Plans

Before the Green Build, SAN had used the design-bid-build delivery method for major projects. Switching to the design-build

factsfigures

Project: Terminal 2 Expansion

Location: San Diego Int'l Airport

Program Name: Green Build

Budgeted Cost: $865 million

Estimated Cost to Date: $820 million

Terminal Architect: HNTB Corp.

Airside Engineering: HNTB Corp.

USO Building Architect: URS Corp.

Landside Roadways, Parking & Landscaping Engineering Assistant Aarchitect: Tucker Sadler Architects

Landside Construction: Kiewit/Sundt Joint Venture

Terminal & Airside Construction: Turner Construction Co./PCL Construction Services/Flatiron Construction Corp. Joint Venture

Concessions: HMS Host; The Hudson Group

Drywall & Interior Finishes: Silva General Construction/West Pac Interiors

HVAC & Plumbing: California Comfort Systems

Trench Digging: A.M. Ortega Construction

Paging System: Audio Associates

Decorative Concrete & Terrazzo: T.B. Penick & Sons

Managing/Implementing Stormwater Compliance: The Land Stewards

Infrastructure to Replace Underground Water Lines: RBF Consulting

Sreetside Lime Stabilization: Pavement Recycling Systems

Construction of Ornamental Metals, Structural Steel Stairs, Glass Handrails, Millwork, Gate & Ticket Counters: ISEC

Steel Art Trees: NatureMaker

Pavement Evaluation: Kleinfelder

Gypsum Wallboard: Component West

Terminal Seating: Zoeftig

method allows the airport to get the designer, contractor and other project partners on board working collaboratively upfront, says Enarson. "We had all the major elements all involved as we designed and set up the initial program," he explains.

Design work for the new space took more than two years and involved frequent meetings with representatives from the airlines, vendors, maintenance staff and others associated with the airport. The meetings resulted in a list of about 1,500 "wants" from various stakeholders. Not all 1,500 items were accommodated in the Green Build, but the list helped the airport put together its programmatic design document and "really directed the design work," explains Enarson.

Bowens characterizes the stakeholder meetings as a "huge benefit" to the project.

Terminal Design

While the existing terminal established the architectural look for the expansion, the list of ideas provided by stakeholders helped the airport "fine tune" what to do with the new architecture and operation, Enarson recalls. Built in the 1990s, the existing facility also provided "lessons learned" regarding elements that needed to be enhanced in the new building, he adds.


Tom **Rossbach**

HNTB Corporation was the architectural firm that helped determine when to follow the existing architecture and when to make enhancements. The front façade is one area where the new expansion matches the previous architecture "word-for-word," notes Tom Rossbach, director of aviation architecture with HNTB Corporation. "We wanted to present it all as one building," he explains.

Inside the terminal, some of the finishes in the existing building were upgraded to match the new interior space. For instance, all of the tile flooring was replaced with terrazzo to match the new space, and passenger holdrooms will receive new carpeting to match the expansion's scheme. Ceiling heights and forms of the new structure, however, were adjusted to create different spaces than the existing terminal.

Art was integrated into the architecture of the new facility, rather than added after construction, says Rossbach. "The owner didn't want applied art — just art thrown in the building at the end of the day," he explains. The architecture team helped select some of the artists and worked with them to incorporate their art into the architecture of the building.

Hand-sculpted palm trees integrate art into the new concessions atrium.

One installation, made with light-emitting diode (LED) technology, flows down the concourse and serves as a wayfinding mechanism for passengers.

Sunset Cove, the new dining and retail area in Terminal 2 West, is adorned with two groupings of 30-foot palm trees created by NatureMaker. The six hand-sculpted pieces include steel trunks covered in hand-painted, hand-sculpted composite bark and internally preserved fronds. The collection took 18 months to design, engineer, handcraft and install, reports NatureMaker president Gary Hanick. Each tree is one-of-a-kind, not a replica, he notes. Seating around the custom trees integrates the nature-themed installation directly into the concessions area.

Rossbach considers SAN a leader in assimilating art into the architecture of a terminal.

SAN Sustainability

Any and all aspects of the Green Build were evaluated to be as sustainable as possible, says Enarson. "We didn't attack one area — we attacked it from all different sides," he explains.

Low-flow water fixtures in the bathrooms and zeroscaping outside the terminal will cut back the airport's water usage. Terminal lighting and the use of natural lighting throughout the space will reduce energy consumption, as will the addition of more efficient equipment to the airport's central plant. The use

of recycled materials and SAN's aggressive recycling program further enhance the sustainability of the new space.

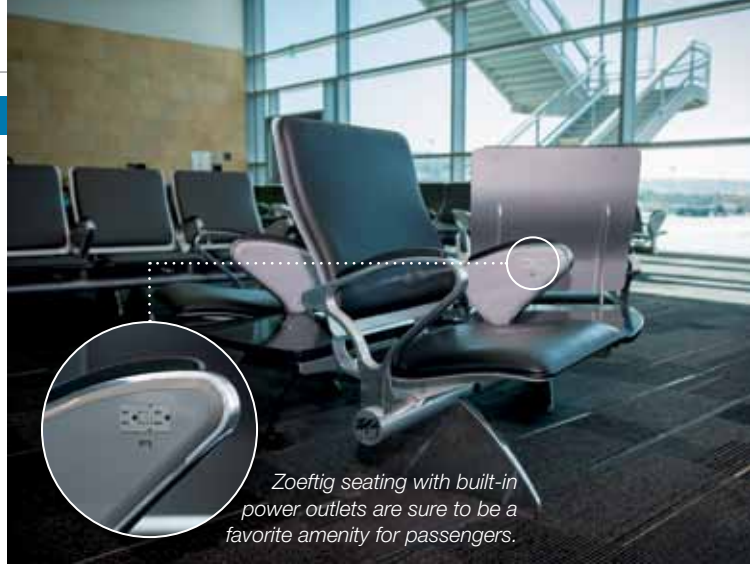
The project team considered every opportunity and studied every building system to make the expansion as energy efficient as possible, adds Rossbach. An efficient envelope is key to its energy conservation measures: a white roof reflects sunlight from the terminal, while a 124,000-square-foot area of solar panels will provide up to two megawatts of power annually, making it one of the largest solar arrays on the roof of a terminal building, he notes.

Other features designed to reduce energy consumption include roof overhangs that eliminate solar gain, daylighting and automatic window shading that combine to reduce the use of electric lights while also minimizing solar gain, and a baggage system with energy-efficient motors.

Sunset Cove, the new dining and retail area in Terminal 2 West, has floor-to-ceiling glass windows that span three floors to allow in plenty of natural light and provide a panoramic view of the airfield. In the parking lot, travelers will have 40 charging stations for electric vehicles at their disposal, comments Bowens.

Even the 2,200 new seats in the terminal include sustainable features. Almost all their components are 100% recyclable and they're designed for longevity, notes manufacturer Zoeftig. In addition, some of the systems are modular, so the seating can be reconfigured if SAN's requirements change. For passenger convenience, every seat has power outlets within reach.

On the administrative side, SAN works to manage the lifecycle costs of its assets — everything associated with maintaining the airport, including new projects and retrofit programs, explains Enarson. "When you build something, that's only 25 percent of the actual cost of that asset over its 30-year life," he says. "The other 75 percent is the lifecycle cost and managing that over time."



Zoeftig seating with built-in power outlets are sure to be a favorite amenity for passengers.

Overall, the terminal expansion is designed to meet the U.S. Green Building Council's gold certification of Leadership in Energy & Environmental Design. Whether the project achieved it will not be known until mid-2014.

Buy Local

Reaching out to local contractors and working to be more business-friendly over years paid off for SAN during its Green Build. Local participation is more than 80%, reports Enarson. Working with two joint ventures — Kiewit/Sundt for landside construction and Turner Construction Company/PCL Construction Services/Flatiron Construction for airside construction — helped the airport break the expansion into smaller bites. Although this made the total project more difficult to manage, it allowed smaller companies to bid on smaller projects, explains Enarson.

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Terminal and airside design for San Diego International Airport's "Green Build" program

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According to Bowens, small businesses were awarded contracts totaling approximately $117 million, while local businesses held contracts worth $415 million. Combined, the two contingents accounted for nearly 90% of Green Build's total contracts.

During the course of the project, there were more than 7,000 workers at SAN. At the height of the construction, there were roughly 1,000 workers at the airport on any given day. The employment creation doesn't stop when construction stops, emphasizes Enarson. "It continues after the facility opens, with all the different job opportunities, with the expanded work opportunities with concessions and airlines," he explains.

"This whole project is about our community," says Bowens. "It's about providing access to the world through our airport, through the best facilities possible. It's about giving local businesses an opportunity to participate here in our concession program, and it's certainly about contributing to the economy of a community we all love and live in and work and play in ourselves."

Local is a key component to the airport's concession development program, she notes.

The Green Build adds more than 30 new concessions at SAN.

In early August, The Hudson Group opened Warwick's of LaJolla, a highly-regarded local bookstore, and Gaslamp Quarter News, a space that celebrates San Diego's popular Gaslamp Quarter on the outside but is essentially a Hudson News with Caffe Calabria coffee and Discover San Diego souvenir sections inside. Eventually, Hudson will operate a total of six newsstands, one bookstore and two specialty retail shops via a joint venture. Other new concepts will include a Tech on the Go electronics store, Lindbergh Field News and San Diego Bay News.

On the food/beverage side, HMSHost recently opened three new restaurants in Terminal 2 West. Tommy V's Pizzeria is a partnership with local chef and restaurateur Tomaso Maggiore. The two others are its own creations: Bubbles Seafood & Wine Bar, featuring boutique beers, wines, champagne and a gourmet small plate menu, and Seaside Stack Shack, a more casual gourmet option that uses fresh, natural and local ingredients.

Between new spaces and the revamping of existing concepts, SAN increased its concession program from 55 to 87 outlets during the Green Build. The number of concession employees is expected to nearly double from 625 to about 1,200 by 2014.

No "Big Bang"

Phasing was strategic throughout the project — even when elements were ready to be premiered. Rather than having a "big bang opening," SAN chose a phased approach to make things easier for customers, explains Enarson.

The phased opening started at the beginning of this year, with the debut of the new baggage handling system, followed by the security checkpoint, six of the 10 new gates, the ticket counters and then final aspects in mid-August.

Breaking the project into manageable bites, while not as glamorous, made the project much easier to manage. "Instead of having to deal with all the problems at one time, we've been able to deal with them in pieces," says Enarson. "Every time you open something — it doesn't matter how well you plan — there's always issues you have to deal with."

The design-build delivery method provides SAN with flexibility during the phasing as well, he adds: "You're designing and changing and phasing as you go." Having all the stakeholders at the table allows everyone to look at the project and identify possible conflicts. For instance, the team originally planned to shut down the roadway to facilitate work on the pedestrian bridge every night for one week. Instead, however, a phasing program was developed that got it done in less than 24 hours. "That was only possible because we weren't stuck in a design-bid-build environment," relates Enarson. "This way, everyone is at the table as we go through the process, so we're not wasting time designing something we can't build."

Housing the design team, contractor and the airport staff together in a single facility also proved beneficial. "Yes, it was expensive — we spent $5 million collocating them — but that collocating meant everyone was together every day working together, talking to each other, working through the issues," comments Enarson.

For Rossbach, another standout feature of the project is the use of building information modeling. The software allows the architect to "fly" stakeholders through the three-dimensional space rather than having them pore over two-dimensional paper drawings, he explains. "We use it as a communications tool among the designer, the owner and the contractor."

The building information modeling also shows potential conflicts between systems and how to resolve them before construction starts. "We can get the contractor and owner to understand every aspect of that," explains Rossbach, noting that they can show them the consequences of changes in 3-D.

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Hudson, in New York's JFK International Airport, Terminal 4. Opened Spring 2013.

Everyone in the industry knows that Hudson News has set the standard for airport newsstands for the past 25+ years. But evolving customer needs have spurred development of a new travel essentials store model, which we call, simply, Hudson.

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San Diego Int'l Bolsters its Technology Backbone

By Jodi **Richards**

factsfigures

Project: Information Technology Upgrades

Location: San Diego Int'l

Cost: $30 million

Contractor: SAIC/SITA/SIEMENS

FIDS Monitors: Samsung DE46C & DE55

Upgrade Specifics: Network capacity increased from 1 GB to 10GB; security, access control & administrative system networks were consolidated into one unified network; common-use passenger processing added; new flight information display system & and airport operational database; expanded use of voice over Internet protocol

SIGNIFICANT TECHNOLOGY UPGRADES — BOTH SEEN AND UNSEEN — FIGURE PROMINENTLY INTO THE GREEN BUILD EXPANSION OF TERMINAL 2 AT SAN DIEGO INTERNATIONAL AIRPORT (SAN), WHICH CELEBRATED ITS GRAND OPENING IN AUGUST. THE $30 MILLION INVESTMENT IN TECHNOLOGY WAS DESIGNED TO ENSURE THAT THE FACILITY OPERATES AT PEAK PERFORMANCE FOR AIRLINES, PASSENGERS AND ITS OPERATOR, THE SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY.

The airport made "significant improvements" to its network to support the technology improvements, relates IT Director Howard Kourik. Technicians upgraded the airport's Cisco systems from a 1-gigabyte (GB) network to a 10-GB, and, in some cases, "dual 10s," which allows for 20-GB performance. SAN also consolidated previous separate networks for security, access control and administrative functions into one unified network.

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"Instead of splitting our resources running multiple networks, we're concentrating on one network that is highly fault tolerant and able to deliver all the modern services," explains Kourik, extolling the virtues of the recent simplification/upgrade. The airport anticipates cost efficiencies with the new configuration, but specific savings have yet to be determined.


Howard **Kourik**

With a "rock-solid network" that includes ample bandwidth in place, the airport is migrating 19 gates in Terminal 2 West to common-use passenger processing system (CUPPS). "We feel it is the wave of the future," notes Kourik. "It's the joint IATA/ACI (International Air Transport Association/Airports Council International) recommended practice, and we feel it's taking us where we need to be." Terminal 2 East operations, which include SAN's international gates and some domestic gates, were also upgraded to CUPPS.

Out Front

SITA deployed more than 150 CUPPS workstations, 250 information display monitors and more than 100 common-use self-service (CUSS) kiosks within the terminal and at the airport's Smart Curb, which allows travelers to check in before entering the airport terminal — a new feature designed to minimize congestion in the terminal.


Thella **Bowens**

Airport Authority President/Chief Executive Officer Thella Bowens says that common-use technology will allow SAN the flexibility necessary to get the most efficient use out of its facilities: "We can use them every minute of every day, no matter who the carrier is, versus having a facility sit vacant because a particular carrier just doesn't have a flight at that time," she says.


Edward **Bauer**

Edward Bauer, senior account manager with SITA, agrees: "CUPPS really allows for an airport to be flexible. Dedicating gates and ticket counters dictate how an airport would operate, whereas common use allows for the scenarios to dictate what's going to be best for that airport and the airlines themselves," he says.

SAN operates its CUPPS on SITA's AirportConnect Open platform, which enables airlines to share ticket and gate counter computer equipment in a secure environment.

"Our common-use technology and network upgrade can handle anything we throw at it, and it's going to enable us to deliver any service we need to deliver throughout the airport," says Kourik confidently.

SAN opted to partially deploy its new CUPPS system nine months before the expansion's grand opening. This allowed the airport to experience how it works and identify potential bugs or issues before it was fully implemented at all 19 gates. Initially transitioning just six gates from common-use terminal equipment (CUTE) to CUPPS was "very beneficial," reflects Kourik. "There were some issues, but they were easy to figure out and take care of and really didn't cause the airlines any problems. But we had all those lessons learned that we were able to apply to the 10 new gates and the nine rehabilitated gates."

The entire "special systems program" — which includes the baggage handling system, security system and all common-use aspects — represents an investment of about $30 million. The CUPPS portion has already proven its worth. When an installation defect caused the motors on some of the new gates to fail, the common-use system allowed the airport to simply move the affected airline to the next gate without disrupting operations.

"I can't tell you how appreciative the airlines are for not having to sit on the tarmac and wait to unload passengers," emphasizes Kourik. "It's marvelous and already paid for itself."

SAN's flight information display system (FIDS) and airport operational database (AODB) were also upgraded, and a resource management system, which includes a gate management system, was added. Additionally, SAN is moving to all Cisco voice over Internet protocol (VoIP).

The gate management system and FIDS are now integrated with the building management system. If a gate changes, the AODB will notify the gate management system and FIDS to identify an alternate gate. As soon as an operator approves the new gate, the FIDS automatically notifies passengers about the gate change. "When you start integrating all these systems, you start deriving the benefits from a fully-integrated database system," says Kourik.

SAN's new common-use passenger processing terminals are designed to power down when not in use to save electricity.

SITA's Airport Management Solution gives SAN "the visibility to better manage its airport in terms of who gets what gates, when and what needs to be where for the airport to operate," says Bauer.

"All of these things are enabling us to be more efficient in our operation and look at our gate scheduling and make sure that we are effectively using the gates," explains Kourik. When a gate becomes unavailable, the gate management system will help the airport determine where aircraft can be reassigned. "You can use that system to intelligently assign alternate resources," he says.

Admin Upgrades

On the administrative side, the airport moved its e-mail to "the Cloud" with Microsoft Office 365, a change Kourik describes as a "major transition." Previously, SAN hosted its e-mail in house, which required multiple servers monitored and maintained by airport personnel. "When we outsourced that to the Microsoft Cloud, we were able to free up a lot of our personnel time to concentrate on the more unique airport applications instead of babysitting e-mail servers," notes Kourik.

SAN previously used the Cloud for other functions, including its Oracle Enterprise One system, employee performance reporting system and learning management system. "All of these things are servers and systems that I don't have to support," says Kourik. "Someone else is supporting them remotely in their data center and they're serving them to us over the Internet."

Switching to the remote e-mail server and eliminating costs associated with specialized software, virus checking, etc., will save the airport roughly $40,000 per year, estimates Kourik. "That's significant," he reflects.

Using a provider like Microsoft allows the airport to leverage the large organization's economy of scale to deliver multiple services that would otherwise eat up the time of airport staff, explains Kourik. In addition to email services, the Microsoft Office 365 service will provide the airport with worldwide video conferencing and other capabilities.

"I can stop worrying about the routine stuff and start concentrating on our core services to our customers," concludes Kourik.

Green Tech

Sustainability played a starring role in the airport's overall Green Build expansion, and technology upgrades were no exception. Existing liquid crystal screens with compact fluorescent lights were replaced with edge-lit light-emitting diode (LED) backlit displays.

Each of the slim-profile 55-inch Samsung displays installed in the baggage claim area and on the back wall of the ticket counter weighs 80 pounds less than the previous LCDs with fluorescent lighting behind them. This makes the new units easier to maintain, notes Kourik.

On average, the LED units also use about 40% less power and generate much less heat than previous screens. "You can hold your hand up to it and you don't really feel heat, whereas with the fluorescent display screens, you can feel that heat," he relates.

With a total of 250 new Samsung displays, the energy efficiencies and savings multiply accordingly. Now, the airport doesn't have to compensate for all those additional BTUs with its cooling system.

The new CUPPS similarly supports SAN's sustainability goals. The SITA kiosks are "one of the greenest, with the smallest physical footprint in the industry," notes Bauer. In addition, both the CUPPS and FIDS systems are designed to power down automatically after an extended period of non-usage, which reduces electricity consumption.

As SAN's new technological investments come online, Kourik and his staff continue to ensure that the airport is leveraging them to the fullest extend possible, to reap the greatest rewards. "We've implemented a lot of things," he says. "All of them take time to become fully institutionalized and for us to start seeing the full benefits of all of it."

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DFW Rolls Out New Parking & Revenue Control System

factsfigures

Location: Dallas/Fort Worth Int'l Airport

Cost: $50 million

Annual Net Parking Revenue: $112 million

Project Management: Kimley-Horn & Associates

General Contractor (Plazas): Thomas S. Byrne Construction Services

Parking & Revenue Control System: SKIDATA

License Plate Recognition System: Inex-Zamir, integrated with SKIDATA's PlateTech.Logic

Design of Premise Distribution System (Terminal A Garage): Ross & Baruzzini

Closed-Circuit TV & System: NICE Systems

Automatic Vehicle Identification Reader Hardware: Sirit

AVI Reader Integration: SKIDATA

AVI Equipment: Flores Technical Services

Dynamic Signage: North American Information Systems

Gates, Card Readers & Pay-by-Foot Equipment: SKIDATA

Key Benefits: Improved revenue control; decreased wait time for exiting customers; reduced emissions from waiting vehicles; ability to accept parking payments via tollway transponders

In August, Dallas/Fort Worth International Airport (DFW) flipped the switch, so to speak, on a new high-tech parking system. The $50 million project includes a new parking and revenue control system, two new entry/exit plazas, command centers at each plaza and extensive information technology infrastructure work.

The new configuration decreases the number of staffed exit booths at DFW from 37 to 13. Moving from a primarily cashiered system to a predominantly automated one is expected to reduce wait times for customers and reduce associated vehicle emissions of carbon monoxide, volatile organic compounds and nitrous oxide by more than 50%.

The changes to the parking system are considered to be a key component in DFW's multi-billion-dollar renovations program aimed at improving customer service. They also introduce new efficiencies to the airport's largest source of non-aviation revenue.

"There were one or two months last year where parking generated as much revenue as landing fees," reports Armin Cruz, vice president of DFW's parking business unit.


Armin **Cruz**

When the airport opened in 1974, it had 12,000 spaces and three parking options: garages, surface lots and economy surface lots. Customers paid with cash or checks, and parking fees were calculated manually as patrons moved through 14 entry and 16 exit lanes. Back then, parking generated $4.3 million per year in revenue.

Today, DFW provides 40,000 spaces and net revenues (after fees and taxes) exceed $112 million per year. Customers currently have four parking options (terminal garages, covered and uncovered express lots, and remote parking areas), and a valet service is forthcoming.

Each parking option is now equipped with readers that record information according to customers' preferred payment method — credit card, cash or an automatic vehicle identification (AVI) transponder purchased from the North Texas Tollway. With all transaction methods, the system

By Robert **Nordstrom**

identifies the lot in which the customer parked and calculates the rate.

The airport also installed pay-on-foot devices in remote lots, so customers can pay parking fees near shuttle drop-off areas rather than at the exit gate. With recent additions, the overall system now includes 25 entry and 43 exit lanes.

Improved Revenue Control

According to Cruz, the new parking and revenue control system leapfrogs the airport into the future. "The system is state of the art, putting DFW in the center of today's technological breakthroughs," he elaborates. "With its open architecture, you can plug and play most anything on the market."

All of the airport's numerous customer entry points are now automated, and can accept payment via AVI transponders that automatically charge customers' accounts as they exit. To encourage AVI use, the airport offers a $1 per day discount to customers using a tollway transponder in any area except its remote lots.

Customers can also swipe a credit card to enter (parking fees are then calculated and automatically charged to the card upon exit), or use the more traditional method of pulling a ticket and paying with cash or a credit card when they leave.

Infrared license plate recognition (LPR) cameras record license plate information at entry, exit and throughout the various parking areas.


William **Flowers**

"LPR helps prevent fraud," explains William Flowers, DFW's vice president of Information Technology Services/chief information officer. "With just under 40,000 transactions a day … that's a lot of opportunities for people to find a way to beat the system. We see the license plate coming in and the license plate leaving. People can't swap tickets or say they just came in when they've been there for a couple of days. We've had that experience with the old system, and it's hard to prove them wrong."


Bill **Johnson**

Bill Johnson, assistant vice president of Information Technology Services, highlights the system's security features and built-in redundancies. "Unless we experience something extremely catastrophic, the parking control system should never have a network outage," he says. "Data are stored in two fully redundant data centers. Each center has a backup generator, uninterruptable power supply, redundant cooling systems and redundant fiber connection feeds to the plazas."

The new system is also designed to run offline, storing transactions until the system is back in service.

Doing Their Homework

Personnel at Kimley-Horn and Associates have been working on DFW's new parking system project for about five years. "There were a lot of challenges, because DFW is such a complex system," explains Project Manager Chuck Reedstrom. "The first couple of years were dedicated to identifying functional requirements, writing specifications, verifying we were meeting all the requirements within the specifications, running it through DFW's legal and procurement departments. Then we went through the procurement process, which took more than six months, and identified three vendors for further evaluation. A small group of DFW staff visited nine different airports, three for each vendor, to ask questions and see the equipment in operation."

Chuck **Reedstrom**

Following a lengthy bid and evaluation process, the airport selected SKIDATA to design, develop and deploy the new parking and revenue control system specified by DFW.

Ross & Baruzzini designed the premise distribution system for the Terminal A garage. The system has more than 20 communication rooms that support a variety of functions, including the blue light emergency stations located on each level of the parking garage, closed-circuit surveillance cameras, the parking guidance system and Wi-Fi service.

While developing its various requests for proposals, DFW invited input from various stakeholders. A subject matter team met once a week to discuss the project, and a core team of employees offered input from the beginning of the design process.

"These teams have been invaluable to the success of the project," says Parking Operations Manager Sherry Carter. "You have to involve your frontline employees. We solicited their input, which helped generate excitement about the project. They are engaged and committed to ensuring its successful implementation."

Sherry **Carter**

After SKIDATA was selected to provide the new parking and revenue control system, company personnel came onsite to verify DFW's functional requirements. Conceptual design, critical design and software design documents were then submitted and evaluated by Kimley-Horn and the DFW team. SKIDATA also performed factory acceptance testing on the entire system.

Thomas Rollo, president and chief executive officer of SKIDATA, describes DFW's management team as very demanding, but fair. "They were very participative," explains Rollo. "Instead of saying 'That's your problem; you have to fix it,' they approached

Automating Availability Updates

With the bulk of its parking system enhancements already complete, Dallas/Fort Worth International Airport (DFW) is currently installing a parking guidance system in its new Terminal A garage. The automated wayfinding system, which will be fully integrated into the airport's new SKIDATA parking and revenue control system, allows customers entering the garage to quickly locate available parking by glancing down the aisles. Sensors over each space display a green light for open spaces, red for closed or purple for handicapped spaces. Dynamic signage provides digital readouts of how many spaces are open throughout the garage.

"It's a huge time savings for travelers," reports Parking Manager Sherry Carter. "The customer doesn't have to waste time going up five floors to find out nothing is available."

Currently, travelers can download a DFW mobile application that provides pricing information for the airport's various parking options and reports the number of spaces available in each, within five minutes of real time. The ultimate goal is to allow travelers to access a color-coded display of parking options before they leave home or their workplace. As customers travel closer to the airport, updated information will become increasingly more specific until they can eventually see the digital readouts of available spaces and lighting over individual spaces.

"The system offers a way to walk customers through the entire parking experience in a very efficient and convenient manner," summarizes Carter.

problems with 'How do *we* fix it? How do *we* deal with the issue?' Of all the airports I've worked with, I've appreciated working with the DFW project team the most."

New Plazas

The original concept for the project was to replace equipment in existing entry and exit lanes and lengthen the lanes to allow for the use of LPR technology. Shortly after selecting SKIDATA's parking and revenue control system, however, DFW decided to construct new entry and exit plazas approximately 35 feet downstream from the existing plazas.

"This created a whole new set of challenges," recalls Reedstrom. "On the one hand, it made it a lot easier to test and verify that the new equipment was working according to specifications, but it also was a challenge to build new plazas while keeping the existing plazas up and running."

Traffic lanes for the new plazas did not line up with the lanes of the existing plazas, which created flow issues. After driving through an existing plaza, patrons then had to negotiate through construction activity for the new plazas.

To remedy the problem, the new plazas were constructed in phases, three lanes at a time. The corresponding lanes in the existing plaza were shut down during construction, and then reopened when the new lanes were ready to receive traffic.

The new parking control plazas were designed with open canopies that visually dovetail with the airport's other architectural features. Uplighting creates a glowing effect at night. Dynamic messaging signs have replaced former static units, allowing for quicker and more efficient changes to a lane's function.

A new command center at the North Plaza houses five staff members who monitor traffic lanes and resolve problems as they arise. Five other employees monitor LPR activity. A separate command center at the South Plaza serves as backup to the North Plaza Command Center and as a training facility for LPR staff.

Only the Beginning

In choosing a parking and revenue control system, DFW management was particularly pleased with SKIDATA's open architecture environment and ability to integrate with the airport's existing hardware and software applications.

"They (SKIDATA) built their system, their software, into our IT environment," explains Flowers. "Our IT backbone remains the same — we just added the parking and revenue control system to it. SKIDATA's system is very adaptable and about as close as you can get to an open system."

With the core system in place, DFW is prepared to integrate new customer service enhancements into the system. Management is currently implementing a parking guidance system (see sidebar on page 21), and a parking reservation is not far behind. Internal valet operations are currently performed offline, but DFW plans to acquire a valet module from SKIDATA to fully integrate valet operations.

The system is also capable of integrating variable pricing based on daily or seasonal demand and/or customer behavior.

"We didn't want to add a lot of bells and whistles to the system initially, because that would add too much complexity as we rolled out the system," explains Cruz. "We wanted to replace our existing system, then begin adding other service modules.

"Right now, less than 40% of passengers on an aggregate basis park at the airport. So we have a tremendous upward opportunity to grow both transactions and revenue. But we can only do that if we have an adaptable system that services our customers' needs, which brings us back to where we started. This project is a customer service enhancement."

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Fort Collins-Loveland Municipal Finds Silver Lining in Allegiant's Departure

By Robert **Nordstrom**

Officials at Fort Collins-Loveland Municipal Airport (FNL) were understandably befuddled when Allegiant Airlines pulled out of the northern Colorado airport last October after a decade of service there.

Inbound and outbound aircraft were often nearly full, and FNL had recently rehabilitated its primary runway and expanded its terminal to accommodate increased passenger traffic. *ReporterHerald.com*, the online arm of Loveland's daily newspaper, chronicled the association between the airport and discount carrier, including news that after Allegiant's first full year of service between FNL and Phoenix, FNL ranked in the top 10% of the fastest-growing U.S. airports. The Phoenix service led to a 26% increase in enplanements at FNL, pushing the airport's total enplanements to nearly 45,000, according to FAA figures.

Given all the positive signs, airport and community officials were shocked when the airline announced in August that it would suspend operations in October.

Jason **Licon**

"It really came as a shock to us — something we really weren't prepared for," recalls Airport Director Jason Licon. "A month before they made their decision to pull out, Allegiant was touting us as a model airport within their 80-airport system. Everything seemed great, and we never saw the writing on the wall."

Allegiant officials explain the seemingly abrupt about-face as an "internal decision."

While FNL holds the return of commercial service as its highest priority, airport officials understand that current economic conditions will undoubtedly make it a lengthy process.

"All the mergers and bankruptcies make this a difficult time in the airline industry," elaborates Licon. "While we have great numbers and all of the facilities in place, initiating air service is a big investment with a lot of moving parts. Airlines don't make these decisions easily."

One-Two Punch

FNL wasted no time confronting the problem. Within two months after Allegiant's departure, the airport contracted AvPORTS, a company with more than 80 years' experience managing airports, to help it develop a new strategic marketing/business plan. The goal was twofold: reevaluate the needs of airport stakeholders and develop a strategy to eventually attract commercial service back to FNL.

The airport's first order of business, however, was to confront the financial strain created by the loss of revenue previously generated by Allegiant (landing fees, parking fees, passenger facility charges, etc). The single category of fuel flowage fees associated with the commercial service accounted for approximately 35% to 40% of FNL's total revenue.

The airport faced daunting questions: How can we protect existing revenue streams? How do we

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Project: Strategic Marketing/Business Plan

Location: Fort Collins-Loveland (CO) Municipal Airport

Consultant: AvPORTS

Primary Goals: Enhance service to existing airport stakeholders; attract new airline to restore lost commercial service

Of Note: Allegiant Airlines unexpectedly discontinued service Oct. 2012. Aviation, business & public communities have rallied with airport to help attract a new carrier.

remain financially sound and continue to grow and develop services and facilities?

Shifting gears quickly, FNL reduced its staff by about 20% and its budget by approximately 15%. The cities of Fort Collins and Loveland, which jointly own and operate the airport, also reacted promptly, each approving a 108% increase in annual contributions for airport operations to help offset the revenue loss.

Complicating matters is the likelihood that this year FNL will drop below 10,000 annual enplanements — FAA's minimum threshold for a commercial service facility, which qualifies it to receive $1 million of airport improvement program (AIP) funds per year. Losing its status as a commercial service facility could prove to be devastating.

"Without the 10,000 enplanements," explains Licon, "AIP entitlement funds are reduced to $150,000 per year. That's a drastic decrease. It would be nice if the FAA had different levels of funding based on a sliding scale, but you either make the enplanement minimum or face an 85% reduction in FAA grant funding."

Maintaining FNL's facilities to the regulatory standards of a commercial airport without the associated funding will be tough, he acknowledges.

The funding hit will be delayed, due to the two-year lag between enplanement counts and AIP grant distributions. FNL will continue at its current $1 million level in 2013 and 2014, but anticipates a dramatic funding decrease in 2015.

Making Lemonade

Still reeling from the sudden and unexpected loss of commercial service, FNL and its surrounding communities have rallied together to tackle the problem.

Bruce **Tarletsky**

"Sometimes your darkest days can end up being an opportunity waiting to happen," relates Bruce Tarletsky, AvPORTS's director of marketing. "All of the stakeholders in both the private and public sectors have realized that they need to take action to make the airport a world-class facility that meets the aviation needs of the communities going forward. If Allegiant was still at the airport, these kinds of conversations most likely wouldn't be taking place."

The airport reached out to its city sponsors, Fort Collins and Loveland, to increase their financial contributions. While Licon knows that dealing with public funding can be difficult, he

Reasons for Optimism

With more than 550,000 people living within a 30-mile radius of Fort Collins-Loveland Municipal Airport, officials are confident that commercial service will eventually be restored at the northern Colorado airport. FNL's official catchment area is a 16-county region that spans northern Colorado, southeast Wyoming and southwestern Nebraska.

Based on passenger booking data compiled by AvPORTS, FNL's catchment area produces 19% of the total origination and destination bookings at Denver International Airport — more than 5.2 million passengers. Its total catchment area generates an estimated 7,500 passengers daily each way, and its primary catchment area (within a 30-minute drive of FNL) generates 3,000 passengers daily each way. In addition, approximately 68% of travelers utilizing Cheyenne Municipal Airport in Wyoming originate from the FNL catchment area, which equates to 26,472 more annual origination and destination passengers.

Colorado Springs, a community south of Denver that resembles Fort Collins/Loveland's population and demographics, boasts 600,000 to 800,000 enplanements per year. Population data and household demographics such as discretionary income are important factors in where airlines set up shop, notes Bruce Tarletsky, AvPORTS's director of marketing.

FNL's airfield and the convenient access to a variety of recreational amenities, including Rocky Mountain National Park, are other factors working in the airport's favor, he adds. Its 8,500-foot runway is serviced with high-intensity lighting and an instrument landing system (ILS) and has direct, no-delay, all-weather air traffic control approaches with full ILS, VOR/DME and RNAV (area navigation).

Allegiant operated with load factors in the mid-90% range to Las Vegas and upper 80% to Phoenix throughout 2012, and the airport still gets six to 10 calls per day from customers inquiring about flying from FNL to Las Vegas, reports Airport Director Jason Licon.

"The market is here," summarizes Tarletsky. "Northern Colorado is one of the fastest growing areas in the country. There's a lot of energy here, and it's just a matter of time before an airline makes a commitment to serve these communities directly."

acknowledges that it also offers more resources.

"We had to analyze the problem from various perspectives: an operational perspective, corporate and general aviation perspective, a business community perspective and how the airport serves as an economic generator for the communities it serves and the airport's value to residents in northern Colorado," elaborates Tarletsky.

Educating FNL's various communities and stakeholders was critical, he adds. People needed to understand the value of the airport to their individual needs and activities. But before FNL and AvPORTS could educate the community, they had to educate themselves on the activities and aviation needs of various business and public stakeholders throughout northern Colorado.

In January, FNL and AvPORTS hosted a meeting of leaders from the

public and private sectors to elicit input for a comprehensive air service development and marketing plan. Representatives from more than 45 corporations, as well as stakeholders from public, private, tourism and economic development organizations attended the meeting.

Walt Elish, president and chief executive officer of the Northern Colorado Economic Development Corporation, described the meeting as "a unique opportunity for our region to join together as one voice to support the mission and vision of the Fort Collins-Loveland Airport."

"The bottom line is education," emphasizes Licon. "Once you get members of the community educated, once people understand how an airport is funded and the challenges we now face, they become advocates. A company may use the airport for its corporate jet but not understand how the services and infrastructure that support (its) activities at the airport are funded."

Additional efforts were made to educate smaller general aviation users. "Sometimes they view the larger aircraft as a hindrance, without understanding that those aircraft bring in resources that allow the airport to maintain facilities and make improvements that benefit them as well," explains Licon.

Since January, FNL and AvPORTS have been holding meetings on a monthly basis. In doing so, they are creating grassroots support for the airport from Loveland and Fort Collins administrators, the Northern Colorado Economic Development Corporation, Estes Park (a popular tourism destination and headquarters for Rocky Mountain National Park), members of the business sector and regional tourism entities, as well as general and corporate aviation users. Most importantly, a wide variety of communities came together for the wellbeing of the airport — not just in the interest of securing commercial air service, stresses Tarletsky.

The airport promotions team modified a famous John Kennedy quote to guide its community education efforts: "Ask not what the community can do for the airport; ask what the airport can do for the community."

"We learned that once we engage the community from this angle, the paradigm shifts completely," explains Tarletsky. "At the end of the day, that's our message: How can the airport help the communities grow in the areas in which they wish to grow?"

"We're not concentrating just on air service," adds Licon. "We're focusing on the airport as a whole, figuring out ways to diversify our revenue streams by improving services to all of our stakeholders. We haven't had any infrastructure cutbacks, and we are growing our numbers for airport operations. We've added corporate jets to our locally-based aircraft count and that trend continues to show growth."

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Augusta Regional Receives Masters Traffic on Renovated Runways

By Dan **Vnuk**

Augusta Regional Airport

factsfigures

Project: Runway Reconstruction

Location: Augusta (GA) Regional Airport

Runways Improved: 17-35 (primary); 8–26 (crosswind)

Cost: $13.67 million — 4% under budget

Project Manager: Campbell & Paris Engineers

Installation Contractor: APAC–Tennessee, Ballenger Paving Div.

Project Duration: 163 days

Project Completed: Dec. 2012

Progression of Work: Crosswind runway was temporarily configured to accommodate commercial traffic while primary runway was rehabbed, crews repaired existing bituminous structure & adjusted longitudinal and transverse gradients on primary runway,updated markings were applied to both runways

Of Note: Project won major awards from the American Concrete Paving Association & Georgia Airports Association

Before the world's best golfers hit the well-manicured fairways at Augusta National Golf Club for the Masters Tournament each year, many fly into the well-maintained Augusta Regional Airport (AGS). This year, its runways were in especially good shape for the April event, because the east Georgia airport had just completed renovating its 8,000-foot primary runway a few months earlier.

The airfield improvements were enjoyed not only by pro golfers and major sponsors flying in on private aircraft, but scores of fans and behind-the-scenes tournament personnel taking advantage of increased commercial service added each year around Masters time. (Delta Air Lines, Delta Connection and US Airways Express serve AGS.)

Originally budgeted at $14.26 million, the runway reconstruction project was completed at 4% under budget for $13.67 million, and also included work on AGS's 6,000-foot crosswind runway and four taxiways.

Increased traffic throughout the year, not just during Masters season, spurred the series of runway improvements. "Augusta Regional Airport has seen tremendous growth over the last six years," explains Executive Director Gary LeTellier. "As a result of this growth, it was imperative for the airport to ensure adequate facilities and infrastructure to accommodate current needs as well as future needs."

A new passenger terminal and comprehensive property renovations that premiered in 2007, combined with price-competitive airfares from carriers, combined to foster sustained growth, including record increases in passenger levels for the past two years. With traffic on the rise, AGS management took care to structure its master plan runway project strategically.

"We worked closely with the airlines throughout the construction process in order to make the process as seamless as possible," notes LeTellier. "We were happy to see the project completed not only on time, but also under budget. With the completion of this project, we

The airport and its contractors committed to an extremely compressed construction schedule to minimize disruption to airline operations.

now have a runway that can accommodate our needs for many years to come."

First This, Then That

The project was divided into four phases. Phase 1 involved modifying and configuring Runway 8–26, the airport's crosswind runway that is typically used by smaller general aviation aircraft, to temporarily serve commercial aircraft while the primary runway was renovated. In order to do so, crews widened 8-26 and installed temporary lighting, added new markings and relocated guidance signs.

Originally, 8-26 had been 150 feet wide. Then, years ago, the FAA funded a project to reduce its width to 75 feet, for general aviation aircraft only. The edge lights were moved for a 75-foot-wide runway, but the original pavement was left in place along the edges. To accommodate the reconstruction of Runway 17-35, 8-26 was reconfigured and marked to 150-foot width, and the runway edge lights were moved out to the edges of the original 150-foot-wide surface. The reconfiguration allowed air carrier aircraft to use the shorter Runway 8-26 while pavement reconstruction was completed on the main ILS runway, 17-35.

Phase 2 of the project included the complete rehabilitation of 17–35, AGS' primary runway. In addition to repairing the existing bituminous structure, crews adjusted the longitudinal and transverse gradients to meet current FAA standards and installed cable and conduit under the runway and shoulders. Prior to installing the new concrete overlay, crews profile-milled the existing asphalt surface. By specifying that millings be captured for use in future projects, Campbell & Paris Engineers boosted the current project's environmental quotient and front-loaded material savings for subsequent projects.

In all, more than 141,00 square yards of P-501 Portland cement concrete pavement were placed on the mainline runway and four taxiways, reports Kerr Chase, P.E., the project manager's resident engineer on the project.

Kerr **Chase**

The application of preformed thermoplastic markings was one of the final steps in the multi-phase runway project.

Phase 3 returned Runway 8-26 to its more typical 75-foot-wide configuration, and during Phase 4, crews added saw-cut grooving to Runway17-35 and reapplied its permanent markings.

Phase 2, the most significant portion of the project, was scheduled to last 97 days, with airport management and key contractors committing to an extremely compressed construction schedule to minimize disruption to airline operations.

Although the construction team didn't meet its original schedule, the overage was not an issue with the airlines or airport, given the overall quality of the job, says Chase. Phase 2 was completed in 114 days and no liquidated damages were pursued. Because other phases were completed ahead of schedule, crews met the overall project duration of 163 days, he adds.

Green Jacket Project

Just as Aussie Adam Scott received the coveted green blazer for his triumph at the Masters this year, AGS and its contractors were recognized for their winning performances during the 2012 runway work. The project not only won a gold award in the Airport Overlay category from American Concrete Paving Association, it was also named Commercial Project of the Year by the Georgia Airports Association.

Completing the job on time and under budget was like birdieing a tough par four for the installer (APAC – Tennessee, Ballenger Paving Division) and project management firm (Campbell & Paris Engineers).

H.D. **Campbell,** Jr.

H. D. Campbell, Jr., P.E., owner and co-founder of Campbell & Paris, notes that the company's hands-on management approach has resulted in hundreds of successful commercial and general aviation airport projects in the last 31 years.

"We provide our clients with practical, cost-effective solutions to complex planning and engineering problems," says Campbell. "It is our philosophy that today's airport professional must have experience in airport planning, environmental studies, engineering design, cost estimating, construction management, airport operations and finance — the total program."

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3-D Computer Modeling Used to Site & Design New Control Tower at O'Hare

By Victoria Soukup **Jensen**

CHICAGO CDA DEPARTMENT OF AVIATION

factsfigures

Project: Air Traffic Control Tower Siting & Design

Location: Chicago's O'Hare Int'l Airport

Siting: FAA

Design: exp

Cab Size: 440 sq. ft.

Tower Height: 219 feet (to the top of rooftop antennas)

Construction Start: June 2013

Scheduled Commission: Fall 2015

Of Note: FAA used 3-D model to virtually site the tower, architects used Building Information Modeling software to design it, tower neck is square shaped vs. circular

Kevin Markwell clearly remembers how officials determined the final site for the main air traffic control tower at Chicago's O'Hare International Airport (ORD) in the early 1990s. "Several tower employees went up in a helicopter at the proposed locations and altitudes, sat there and spun the helicopter around in all different directions," recalls the support manager for tower plans and procedures. "They wanted to see if there were any problem areas for line of sight."

Kevin **Markwell**

Flash forward 20 years to the siting process for ORD's new South Tower that's currently under construction. Planners performed the same initial legwork to identify site possibilities — examining taxiways/runways and determining functional requirements — but instead of using a helicopter when making the final selection, FAA officials created a virtual 3-D model of ORD and its surrounding environs.

"The computer lab is much more efficient and does a much better job than the old way," says Markwell. "It offers a 360-degree view from the proposed tower site and lets us see the elevation the tower needs to be to see everything. There are a lot of little adjustments we can make in the lab to be sure we can see what we need to see."

Specialists at the FAA Airport Facilities Terminal Integration Laboratory (AFTIL) constructed the 3-D model at the William J. Hughes Technical Center near Atlantic City, NJ. The model includes all current and proposed buildings, runways, taxiways and other airport features. Using simulation software, FAA officials were then able to digitally view the airport surfaces as if they were in a real control tower.

The virtual siting process typically takes about five months from start to finish, and AFTIL has completed more than 100 control tower evaluations during the past decade.

Crews broke ground for ORD's new tower in June, and the facility is scheduled to be

ORD's square-shaped control tower is scheduled to be commissioned in 2015.

commissioned in fall 2015 with the airport's new south runway, Runway 10R-28L. With five air traffic control stations/positions, the tower will manage all air traffic on the new runway. Both the tower and runway are part of the $6.6 billion O'Hare Modernization Program which was approved by the FAA in 2005.

The South Tower will be ORD's third. The Main Tower opened in 1996 and the North Tower was commissioned in 2008. The South Tower became necessary with the addition of a new 7,500-foot south runway. "We couldn't see about two-thirds of the south runway from the center tower," explains Markwell. "So we knew something had to change, and the only thing available to us was another tower."

A small group of ORD air traffic controllers and supervisors determined what was necessary for the new tower and funneled suggestions to the FAA. About the same time, the City of Chicago provided the FAA with detailed descriptions of the new runway, including elevations and length.

AFTIL specialists then created a virtual 3-D model of the airport, using terrain and building data, aerial photography and information about aircraft and vehicle movement to realistically replicate airport operations, explains an FAA spokesperson.

Markwell's team went to the Hughes Technical Center twice — first to review physical locations and then to review airspace requirements. "Not only did we have to make sure that we could see all of the concrete that we needed to see and all the taxiways, but we also had to make sure we were looking at the airspace that needed to be protected for approaches and departures into and out of the airport," recalls Markwell.

Once the final site was determined and controllers "zoomed in" on the location, they discovered that a small corner of a proposed building was going to make it difficult for controllers to see part of one taxiway. Cooperation between the building owner and city, however, resolved the problem. In the end, the building was modified slightly, and the City of Chicago moved the taxiway 50 feet to make the location work. "It was that kind of work that made it all happen," recalls Markwell.

The sheer size of the airfield and the large number of buildings, runways, aircraft, vehicles and other objects on it made the ORD tower a demanding project for the technical center team. "The higher number of objects, the slower the computers will update," explains an FAA spokesperson. "Chicago O'Hare is one of the largest and most complex airports in the world, and replicating its surfaces and operations correctly was challenging."

Square vs. Circular

Like the siting team, the design team also used sophisticated computer technology. Architects from the Chicago office of exp used Building Information Modeling software (BIM) to design the new tower.

"Our integration with the engineering side and use of BIM was a critical part of the design process and the design evolution," says Thomas Hoepf, FAIA, vice president/principal design architect at exp. "The modeling of the building and literally every conduit, pipe, duct and piece of equipment in it was done very methodically and in a very integrated and coordinated way."

Thomas **Hoepf**

Hoepf describes the building as a "machine that serves the FAA." He explains that in most buildings, designers specify only general routing of ducts and conduits. "(Exact routing) is usually up to the tradesmen, the installers and the subcontractors. But that coordination often is not adequate for what you need in a building of this nature; and often times, it creates conflicts, depending upon which trade got in first to run their ducts or conduits," elaborates Hoepf. "With BIM software, we can actually show where everything should be located and routed and prescribe that they build it that way."

Initially, the FAA wanted ORD's South Tower to be an adaption of its asymmetric North Tower, but a change in city code required the South Tower to have two exit staircases instead of one. "The minute we added another staircase, we began to think it through differently," recalls Hoepf.

The result is a sleek, symmetrical, square-shaped tower, with the facility's electrical, mechanical and electronic components located just below the cab in the middle of the building. Stairs, elevators and shafts are located along the interior perimeter.

In contrast, most traditional towers are circular, with the elevators and stairwell in the center, and electrical and mechanical components positioned along the interior perimeter walls.

Computerized 3-D modeling helped flag potential line-of-site issues.

"This simple inversion solved many of the technical challenges of the building type," says exp Project Manager Kristen Armstrong, AIA, LEED AP. "It addresses the primary functional concerns of the mechanical and electrical systems and even more importantly, the electronic components," explains Armstrong. "The project really is about the electronics room that serves the cab."

The new design resolves many of the issues faced by other air traffic control towers, adds Hoepf. "Trying to put all that big clunky rectangular equipment in a room that is shaped like a donut is not very efficient or easy," he explains. "All that stuff has to find its way up the neck into the cab, and there are distances to those cable runs that cannot be exceeded."

ORD's new tower, which will be 219 feet to the top of the roof antennas, will have glass on the two sides with stairwells and concrete on the remaining two sides. The cab floor will be 440 square feet.

Hoepf says he hopes the FAA uses the new design as a prototype for future two-stair control towers. In the meantime, he is pleased with its visual appearance and with what he believes will be improved functionality.

"The shape is very unique in terms of construction," says Hoepf. "The architecture is the structure. It's a very simple scheme, but at the same time, it gave us and the city a design and appearance that is just different than other towers. Aesthetically, we think it is iconic and unique to Chicago."

Rosemarie S. **Andolino**

Chicago Department of Aviation (CDA) Commissioner Rosemarie S. Andolino cites cooperation between the city and FAA as a key factor in the project. "The success of the O'Hare Modernization Program and the outstanding progress we have made on this historic project are due in large part to the great working relationship we have with the FAA," she says. "The collaborative process between the CDA and FAA on the design of the South Air Traffic Control Tower promises to yield fantastic results when the tower is commissioned at O'Hare International Airport in 2015."

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Ongoing Landside Development at Louisville Int'l Benefits Airport, City & UPS

By Ken **Wysocky**

factsfigures

Project: Commercial Landside Development

Location: Louisville (KY) Int'l Airport

Name of Development: Renaissance South Business Park

New Site Size: 18.4 acres

Proposed Structure: 300,000 sq. ft.

Purpose: Light manufacturing, warehousing, distribution, logistics

Private Developer: Dermody Properties

Of Note: A separate but airport-affiliated entity that qualifies for Tax Increment Financing was formed to support commercial development of airport property

A pending $2.3 million land sale at Louisville International Airport (SDF) in Kentucky marks another step in converting 700 acres previously populated with residential properties into commercial developments that benefit the airport, greater Louisville economy and United Parcel Service (UPS), the region's biggest employer and airport's largest tenant. The properties are being voluntarily vacated through an airport noise relocation program.

The Louisville Renaissance Zone Corporation (LRZC), an airport-affiliated agency that oversees development of the airport's Renaissance South Business Park, has agreed to sell 18.4 acres of airport land to Dermody Properties LLC, a private industrial property developer headquartered in Reno, NV. Funds from the expected sale will pay for infrastructure improvements in the business park, says Skip Miller, executive director of the Louisville Regional Airport Authority.

Skip **Miller**

Dermody plans to build a 316,481-square-foot building on speculation. The new structure, which will be designed for warehousing, distribution, light-manufacturing and/or logistics-related use, should be ready for occupancy next

spring, reports Brian Quigley, Midwest Region partner for the developer.

While a tenant has yet to be announced, one thing is certain: SDF's status as the global air hub for UPS Airlines served as a strong catalyst for the development. From a sheer physical standpoint, UPS facilities occupy more than half of the airport grounds. The delivery giant's Worldport package handling center is as big as 80 football fields. From an operations standpoint, UPS accounts for more than half of SDF's takeoffs and landings, and provides the backbone of its ranking as the third-busiest cargo airport in North America and seventh-busiest in the world. Moreover, the company is the largest employer in Louisville, with roughly 20,000 full-time-equivalent workers.

In short, the airport, UPS and the city of Louisville have a symbiotic relationship, explains Miller. What benefits one generally benefits the others.

Case in point: the proposed Dermody development will stand across the street from the UPS Centennial Hub, the company's regional ground sorting operation and the business park's largest commercial development. Built on a 60-acre site, the facility features a 258,000-square-foot distribution center and 1.1 million square feet for parking and staging.

The strong UPS presence at the airport is what Dermody considers a "sustainable demand driver" — and also what makes SDF's business park the right place for one of the company's Class A industrial developments. "The location definitely motivates us to build this building," explains Quigley, noting that the airport development will be Dermody's second construction start in Louisville this year.

Airport-Compatible Development

The airport authority created LRZC in 2003 as a means of encouraging airport-compatible development on land at the south end of the airport. "When airports try to (develop property) under FAA rules and regulations,

it becomes much more difficult. So we set up a separate organization that allows us to function more as a private developer than an airport operator," explains Miller.

Importantly, LRZC can receive revenue generated via a Tax Increment Financing (TIF) district, but the airport cannot. Members of the airport authority's board of directors also serve on LRZC's board.

Qualifying for TIF district participation provides a strategic funding mechanism for landside development at SDF. Approximately 80% of any increases in tax revenue generated by development within the roughly 3,000-acre TIF district that encompasses the airport business park can be used to pay for infrastructure improvements for the development. Property, employee withholding and state sales tax revenues are all considered in the formula. The airport authority, Louisville-Jefferson County government and the state authorized the TIF district under a cooperative agreement.

"We're not real-estate developers, so we didn't want to be in the business of marketing property," explains Miller. "Plus, airports do not have TIF authority, so we had to establish an agency with TIF authority. The TIF district provides seed money that allows us to fund incremental infrastructure development on a pay-as-you-go basis — things like roads, street lighting, sewers and stormwater detention."

In addition to leveraging the land's revenue potential, the airport authority wants to develop it in ways that support the airport and add to its role in the community, he adds.

Land for a business park was acquired parcel by parcel from homeowners, via a voluntary airport noise relocation program.

Formerly a residential neighborhood, the land currently being developed was vacated through a voluntary relocation program associated with the airport's noise mitigation program. From 1996 through May 2013, more than 1,000 families elected to move from homes near the airport, making SDF's initiative one of the largest airport noise-relocation efforts in the United States, Miller notes. Most of the $165 million program was funded by FAA grants, but the airport paid for some expenses, he adds.

Nationwide Trend

Rick **Crider**

According to Rick Crider, many U.S. airports use strategies similar to SDF's. Crider is general manager of Kelly Field at Port San Antonio, a redevelopment authority that has transformed the Texas airport into an aerospace/logistics/industrial platform. Crider also served as the principal investigator of "*Guidebook for Developing and Leasing Airport Property*," an Airport Cooperative Research Program publication.

"Airports are a magnet for commerce," says Crider. "A lot of airports are using TIF districts, development corporations and redevelopment authorities to turn fallow land and/or underutilized facilities into revenue-generating property. Such practices generally enhance economic development and job creation for the community, in addition to generating new revenue for the airport sponsor. That revenue can then be used to offset airport operating costs and relieve some of the pressure on rates and charges applicable to aviation users and activities."

Through 2009, the TIF district that includes SDF's business park has raised about $8 million in revenue. "So far, there's been very little TIF revenue generated," reports Miller, noting that the prolonged economic recession slowed the expected pace of development in Renaissance South. LRZC has invested more than $17 million in infrastructure improvements in the business park, including more than 20 building sites, ranging in size from two acres to 77 acres. Flexible zoning allows the sites to be used for retail, commercial and industrial purposes.

After Centennial Hub was built in 2008, major development within the park was quiet until last year, when Ford Motor Company leased 15 acres of land to build a 1,400-vehicle storage and staging lot to support its nearby assembly plant. Also in 2012, UPS Supply Chain Solutions, the company's warehousing arm, purchased 117 acres for $9.4 million for an expansion that could include up to six warehouses.

In late April, LRZC signed a letter of intent to sell almost 84 acres to Chicago-based Verus Partners LLC for $10.4 million. Verus eventually plans to build two 625,000-square-foot buildings, suitable for logistics and warehousing operations.

Room for Growth

In all, about one-third of the 700 acres of land remains undeveloped, reports Trish Burke, LRAA's director of public relations. In all likelihood, only about 150 acres of that is suitable for development because of its topography. Wetlands mitigation and infrastructure improvements such as a detention pond and roadways initially used up approximately 150 acres.

Both LRAA and LRZC benefit directly from the land development. LRAA, which sells land to the development corporation whenever it has purchased enough contiguous parcels through the noise-relocation program to make development feasible, invests the proceeds in other noise mitigation projects. LRZC uses the funds generated from land sales to developers to pay for infrastructure improvements.

"Initially, the business park looked like Swiss cheese — a lot of missing pieces," says Burke. "But as more people raised their hand and said they were ready for acquisition, we've been able to pull together parcels large enough for actual development."

UPS and the local metro government also benefit, because there's more land available for further logistics expansion. That's critical because the mere presence of UPS attracts businesses, notes Miller. Statistics from the greater Louisville area's chamber of commerce show that 155 companies have moved to the city since 1993 to locate near the company's ground- and air-delivery services.

The airport also plays an increasingly significant role in the area's economic development. In 2011, its economic impact included 64,000 jobs, $2.3 billion in payroll and total business expenditures of $7.1 billion, reports Miller.

"What's good for UPS is good for the community and the airport," he says.

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Baggage Identification System Eases Connections at Toronto Pearson

By Rebecca **Kanable**

factsfigures

Project: Baggage Image & Weight Identification System

Location: Toronto Pearson Int'l Airport

Owner & Operator: Greater Toronto Airports Authority

Estimated 2012 Passengers: 34.5 million

Key Elements: Bag room input stations, passenger waiting kiosks, flight processing displays, SmartDrop BIWIS server database, passenger waiting area management terminals, Customs terminals, baggage recall system

Timeline: Discussions began in 2010, system went online in Jan. 2013

BIWIS Software, Hardware, Controls Work, Consulting: Brock Solutions

Conveyor Electrical & Mechanical Work: Vanderlande Industries

Key Benefits: Improved customer experience, less space devoted to queuing, increased security; competitive advantage for airport & airlines

Passengers connecting to U.S. destinations in Terminal 1 at Toronto Pearson International Airport (YYZ) no longer have the hassle of claiming and rechecking their baggage, thanks to the airport's new multimillion-dollar baggage system. The Baggage Image and Weight Identification System (BIWIS), which streamlines the Customs process by capturing image and weight information for each bag inducted into the system, went live in January.

"It's improved the customer experience," reports Amaury Godin, manager of guest flow and facilitation for the Greater Toronto Airports Authority.

With YYZ ranking as Canada's largest airport and a Top 10 global port of entry into the United States, the scope of the change is significant. During the busy summer travel season, YYZ handles an average of 2,500 connection bags per day, reports Mark Hamilton, the Terminal 1 baggage services manager.

Until earlier this year, passengers connecting through to the United States had to claim their bags at YYZ's in-transit preclearance facility, carry them through Customs, then place them on a conveyor. To make matters worse, a baggage carousel took up much of the room inside the in-transit preclearance facility. "Passengers were cramped waiting around the carousel to get their bags," recounts Godin.

When the new BIWIS was installed, the airport removed the carousel and added seating — some with coveted power outlets. Now, passengers and their mobile devices can recharge while bags are inducted into the BIWIS system. An airports authority new release estimates that 800,000 guests per year will benefit from the baggage system upgrade.

Discussions regarding the complex project began about 2½ years ago. Brock Solutions was selected to provide consulting, BIWIS software, hardware and controls work (for the conveyor reconfiguration). Vanderlande Industries performed the electrical and mechanical work.

Janet MacMillan, Brock Solutions' account manager for Greater Toronto Airports Authority and Air Canada, outlines key reasons why it makes sense not to have passengers pick up their bags:


Janet **MacMillan**

- Passengers have to be rescreened, and if they touch their bags, then the bags also have to be rescreened. (Depending on which country the bag is coming from, screening may still be required.)
- Less queuing space is required in the Customs Hall if passengers aren't lugging baggage with them.
- Security is enhanced in Customs areas if passengers don't arrive with bags.


Jason **Odey**

Not having to pick up bags is especially beneficial for families with small children and passengers in wheelchairs who require additional assistance, adds Jason Odey, Air Canada's manager of general operations baggage and hub connection performance.

He also acknowledges more widespread benefits. "We see far less baggage mishandlings with the BIWIS process, and BIWIS has sped up the connection process here in YYZ when connecting to the U.S.," he says.

Before BIWIS

Needless to say, airlines were not fans of YYZ's previous system that required passengers connecting to the United States to recheck their bags. "It was a very onerous connection process," recalls Paul Loyen, Air Canada director of resource planning and hub strategy.


Paul **Loyen**

With such transfer passengers representing "a very large growth opportunity" for Air Canada, the carrier is enthusiastic about process improvements at its hub airport. YYZ, in turn, is pleased to be able to offer more seamless connections — a move designed to accommodate growth, including an increasing amount of global connecting traffic. From a competitive standpoint, project stakeholders wanted to align YYZ with other Canadian airports that already have BIWIS service for originating and connecting passengers.

Those airports also don't have the same quantity of transfer passengers that Toronto does (nor do they need an area to hold passengers until their bags have been processed), notes Alex Peirce, Brock Solutions' project manager.

Alex **Peirce**

"Basically, we needed a solution that would allow CBP (U.S. Customs and Border Protection) to positively match the bag with the customer," explains Loyen.

The fix was a complex project that included the many entities (the airport authority, YYZ's airlines, CBP) and affected many parts of the passenger transfer experience.

"Getting everyone on the same page with what the system would do, understanding everyone's process so we could tailor the system to fit their needs or helping them understand how they might need to change some of their processes, was a challenge," recalls Peirce.

Even though other airports have similar transfer BIWIS equipment, officials still had to review the process at YYZ to ensure it met all CBP requirements. "That can take time," notes Peirce. "Anytime anything changes, they have to review the process again — that's the nature of it."

Devising the specific strategy and configuration was no easy task. "There were probably an infinite number of combinations of how we could have put this system together," explains MacMillan. "Trying to narrow it down to the solution we put in and have all the different stakeholders buy into this vision, it just speaks again to the complexity of the project."

Ultimately, the team agreed on retrofitting the airport's current system within its existing footprint. YYZ already had an inbound induction belt. To upgrade with BIWIS capabilities, system planners added a camera, tag reader, scale and shortened the conveyor belt by six feet to accommodate new components.

A conveyor belt was also added from the bag room to the back of the Customs screening area to expedite the process of sending bags to Customs.

Continuing to serve passengers in the airport's in-transit preclearance facility while the BIWIS was being installed was a major test — one the team passed with no baggage delays, reports Godin.

CBP and the three main carriers that fly to the United States tested the new BIWIS with 15,000 to 20,000 bags before the system went live. "The trials, which began in the third quarter last year, allowed us to tweak some of our processes," relates Odey.

The Passenger Experience

With the new BIWIS in place, passengers arrive in the same area where the claim unit used to be and scan their outbound boarding pass at a kiosk. The system then asks several questions which vary from passenger to passenger. One common question is: Are you traveling with family members? (If the answer is yes, the kiosk prompts them to scan their boarding passes.) The system also often asks if passengers are members of NEXUS, a cooperative U.S./Canadian program for pre-approved, low-risk travellers entering either country at designated ports of entry.

After responding to the questions and confirming the number of bags they have, passengers are directed to wait in a designated area until their names appears on an overhead flight processing display.

Two banks of flat screen have five displays showing guest status, flight status, instructions ("scan, look, go") and information about Toronto and the airport. A third bank of screens has the same five displays plus an additional screen that shows a live feed of one section of the baggage belt, so passengers can watch bags flowing through the system.

When a bag has passed through the input station, the name of its corresponding passenger appears on the guest status screen. Algorithms running in the background of the BIWIS determine the order that names appear, based on various criteria including flight time. If a passenger is traveling with two bags, his or her name won't show up on the display until both bags have gone through the input station.

Airline agents are posted at "management terminals" in the passenger waiting area to help passengers with missing bags and resolve other issues.

After passengers' names appear on a display, they scan their boarding pass again, which lets the BIWIS know that they are leaving the waiting area. Impatient passengers who scan their passes prematurely are automatically instructed to wait.

Passengers then line up for the primary inspection line where Customs officers scan their boarding passes. Officers in baggage review stations at primary and secondary inspection stations can see each passenger's information, as well as information about his or her checked bag(s), such as the image and weight. Officers use that information (instead of the actual physical bags) to decide whether to send each passenger with bag(s) for additional screening or to clear them for entry into the United States.

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After transfer passengers are cleared, they must pass through security before going to their gate. This policy was the same before and after the BIWIS installation, because passengers arriving from international flights mix with passengers arriving from domestic flights that are connecting to the United States.

The Baggage Experience

Transfer bags are loaded from arriving aircraft into one of two BIWIS input stations, where their tags are scanned and the bags are photographed, weighed and checked for radiation. Each file of baggage information is associated with its corresponding passenger information and stored in the SmartSuite database.

"That's all automatic," says Peirce, noting that operators are also on hand to scan bags manually or pull them off the conveyor if there are any problems, such as unreadable tags.

Oversized items or objects that are not conveyable, such as large electric wheelchairs, are processed through special input stations.

From the input stations, bags are conveyed to a sortation system, which sends them directly to specific gates for loading onto outbound flights.

If a passenger gets flagged for more screening, the Customs officer can request that passenger's bag(s). Screens above the makeup units in the bag room display information for recalled bags, and operators place them on a conveyor that delivers them to Customs.

"There are tracking points to make sure the bags are coming up to Customs in a timely manner and alerts if bags get lost in the sortation system going back up to Customs," notes Peirce.

Just as the BIWIS tracks passengers until they leave the Customs area, it also tracks bags from the input station until they are sorted to a pier or called upstairs for secondary screening.

Because passengers must wait until their bag is inducted at an input station, Peirce says that the BIWIS doesn't really speed up the passenger process. It is, however, expected to reduce delayed baggage for transfers to the United States, because the baggage no longer travels upstairs to the passenger.

International to Domestic

Air Canada is confident with the new BIWIS, and, in fact, wants it to be expanded, says Loyen.

YYZ and other Canadian Class 1 airports are working with the Canada Border Services Agency to introduce an international to domestic connections program, reports Godin. The process would be similar to the one used for passengers and bags connecting to U.S. destinations through YYZ.

"We want to remove the bag from the passenger's hand if they're connecting from an international flight to a domestic flight," explains Godin.

With compliments from passengers flowing in about YYZ's first process enhancement, another change seems likely.

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Orlando Int'l Speeds Customs Process with

Airport operators can spend millions on new construction, renovations and the latest customer amenities, but none of it affects a traveler's satisfaction more than an extended wait time.

Of course, air travel is full of opportunities to wait — from the time it takes to find a parking spot or catch a shuttle bus … to checking in, clearing security and finding the right gate … to flight delays, missed connections and reclaiming checked baggage.

Waiting is an airport traveler's unwelcome, yet constant, companion. If any point in the process takes longer than expected, the airport's complaint meter will likely start to spike.

Former Harvard professor David H. Maister has devoted his career to the study of lines and the psychology of waiting in them. He has found that it's not just a matter of losing patience. Waiting can make an individual feel demeaned, dismissed and even humiliated.

Maister's *First Law of Service* maintains that Satisfaction = Perception – Experience.

Orlando International Airport (MCO) has spent more than a decade improving customer satisfaction, through several pioneering programs under an initiative it calls "*The Orlando Experience.*®

In addition to enhancing its terminal design and amenities, MCO has integrated several key programs designed to reduce wait times and streamline U.S. Customs and Border Protection (CBP) functions for international travelers. While the changes will no doubt increase customer satisfaction, transforming the way international passengers are processed is also crucial to MCO's operations.

Growth in the airport's international traffic has set records for the past four years, and this year is no exception. With increases currently trending in the double digits, 2013 is expected to be the biggest year yet for MCO's international passenger traffic. More than 3.8 million people are expected to pass through its CBP facilities.

factsfigures

ORLANDO INTERNATIONAL AIRPORT

Project: Automated Passport Control Systems

Location: Orlando Int'l Airport

Cost: $500,000

Funding: Airport Research & Development

System Design & Manufacture: SITA

Components: 10 Free-Standing Kiosks

Size: 300 mm long, 300 mm wide, 1,900 mm tall

Weight: Up to 150 Kg

Administration & Mgmt: U.S. Customs & Border Protection

Automated Kiosks

By Kathy **Scott**

Warming the Welcome

In April, airport and CBP officials announced that MCO would be the first airport in the nation to automate I-94 forms. The new process pulls in information already input into international travelers' records, shaving off at least 20 seconds per passenger, say CBP officials. The change is expected to save millions of dollars for both CBP and the travel and tourism industry.

MCO was also previously at the forefront of using technology to expedite security procedures for domestic passengers through the CLEAR and TSA Pre-check programs.

More recently, the airport was designated to participate in the Department of Homeland Security and U.S. State Department's Model Port initiative. As such, it was challenged to develop a "warmer welcome to travelers and provide a more intuitive process by improving signage, communications, and using technology to facilitate entry." One of the program's specific goals is to "create a calm, pleasant Customs waiting area and streamline the customs process."

MCO chose to answer the challenge with new technology and services.

R & D Pays Off

In "*The Psychology of Waiting Lines*," Maister points out a powerful source of line anxiety —that "unfair waits" seem longer than "fair waits."

Even though it's commonly accepted that citizens of a port country have much shorter lines than international entrants, the Greater Orlando Aviation Authority is working to make those lines more equitable. Executive Director Phil Brown is investing $500,000 from MCO's research and development fund to streamline non-U.S. residents' experience in Customs.

While Brown would have preferred to secure federal funding for the project, he acknowledges that there are "enormous benefits" for the airport in developing a system that will shorten wait times for international passengers and save money in the process.

"It's three-pronged: move personnel, improve the ability to process, allow more people to be processed," he explains.

The result of the aviation authority's initiative was dubbed Automated Passport Control (APC). SITA, an air transport communications and information technology company, developed the

new system, working in concert with CBP. MCO will become the first airport in the United States to incorporate this self-service technology into its international arrival process.

In the coming weeks, crews are scheduled install 10 APC kiosk prototypes in the U.S. Customs area of MCO satellite terminals 1 and 4. For users, the process is similar to the Global Entry program currently available to U.S. residents. Individuals are vetted in advance, and interview questions are not required at the airport.

"Wait time can be a serious issue," says Sean Farrell, SITA's product portfolio director. "The sooner you can get passengers through Customs the better, as no one wants travelers kept on the airplane."

Extended waits, Farrell adds, affect everyone — passengers, the airport, airlines and CBP.

The freestanding APC kiosks will scan non-U.S. residents' passports, take their photographs, read biometric data such as fingerprints and transmit the data to CBP. After the information is captured, the kiosks print a bar-coded receipt, which passengers present to a CBP officer. The officer scans the bar code and completes the immigration process.

Customer service representatives from SITA will be on hand initially to help users through the learning curve associated with using the new APC kiosks. MCO will also post multilingual ambassadors to help passengers.

Beyond saving time and money, MCO may have one other compelling reason for expediting international travelers through Customs: for thousands of children, it's one of the last things between them and "the happiest place on Earth." That might be the *best* reason to keep lines moving.

Stay Tuned

With Orlando International Airport leading the way in expediting the Customs process for non-U.S. Citizens, O'Hare International Airport is breaking similar ground with automated processing for travelers with U.S. passports. Watch future issues or *AirportImprovement.com* for full coverage of the initiative in Chicago.

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Baltimore/Washington Int'l Terminal Catches Up With Passenger Growth

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Project: Terminal Improvements

Location: Baltimore/Washington Int'l Thurgood Marshall Airport

Architect: Skidmore, Owings & Merrill Joint Venture with AECOM

Mechanical, Electrical & Plumping Engineer: Johnson, Mirmiran & Thompson

Program Management: URS, with Airport Design Consultants Inc.

Construction Manager & Owner's Inspector: Parsons Transportation Group

Owner: Maryland Aviation Administration

Cost: $105 million

Completion: Late 2013

B/C Connector: 675 ft. long, 40 ft. wide

New Retail Space: 8,500 sq. ft.

New Security Checkpoint: 9 lanes

Steel Used: 2 million lbs.

New Glass: 1/2 acre

Electrical Wire: 40 miles

This year, Baltimore/Washington International Thurgood Marshall Airport (BWI) is completing a $105 million terminal project to provide more room for current and future passenger traffic. Built in 1950, the facility was originally meant to serve small aircraft and small populations. Tremendous growth has since brought great opportunity to the airport, but also a great need for renovations.


Paul **Wiedefeld**

"BWI is designed to be extremely tight," explains Paul Wiedefeld, BWI's chief executive officer, noting the very short walk between concourses in the U-shaped terminal. Connecting the concourses on the secure side — one of the project's main elements — eliminates restrictions in terms of growth and utilizes all of the airport's space for that growth, explains Wiedefeld.

In addition to the "B/C Connector," upgrades to Concourse C and a new security checkpoint are the other primary elements of the program. Another project, renovations to the airport's observation gallery, was also added along the way. (See sidebar on Page 54.)

All three of the main initiatives were finished in a tight timeline amid business in full operation, notes Wiedefeld. "We made our decisions and we went," he recounts. "We felt we needed to do these things, so we went very aggressively and pushed designers and construction companies to meet schedules."


Paul **Diez**

Paul Diez, an architect at AECOM, testifies to the schedule pressure, speed and intensity of the project. Two or three all-day design meetings were held each week with the project team and Maryland Aviation Administration (MAA) stakeholders. "We did a lot of design work very fast," recalls Diez. "All design work, from concept to bid documents, was completed in less than a year."

The project was a major step in connecting all the terminal concourses airside, increasing the capacity of security screening checkpoints and making direct egress from the concourses safer and more direct, he chronicles. “The success of a project like this is really a testament to the cooperation of the owner (MAA), program manager, the design team and the construction team,” notes Diez. “It was a hard project and it took real teamwork to get it done.”

Themis **Haralabides**

Meeting New Needs

More than a dozen renovations have occurred since the facility opened decades ago as Friendship International Airport. That left Skidmore, Owings & Merrill (SOM), lead architect for the current project, with a few extra twists and turns. Themis Haralabides, a senior designer and associate at SOM, says that the first major challenge was the building itself. Different systems and materials on top of one another “can get messy,” he explains.

Laura **Ettelman**

“We looked at those aspects to understand them, and built on them as we took our design forward,” says his colleague and SOM Director, Laura Ettelman.

CONTINUED ON PAGE 56

By Jennifer **Bradley**

Observation Gallery Reopens With New Features

When redesigning the C Concourse at Baltimore/Washington International Thurgood Marshall Airport (BWI), planners realized that a set of stairs from the top floor observation deck went directly through the footprint of the new security checkpoint. That discovery, however, led to significant upgrades for a nostalgic element of the historic airport.

"Most people in this community, their parents and grandparents remember that observation deck," says BWI Chief Executive Officer Paul Wiedefeld, referring to the airport's original, open-air observation deck. Eventually, it was closed during security-related renovations. It was later reopened in 1995, with an inside view onto the airfield, cross-sections of a Boeing 737-200 and a children's play area.

The gallery's entertainment features took an even bigger leap forward last year. Since the gallery had to be modified in order to provide the necessary egress below, BWI officials took the opportunity to enhance the well-regarded area. In addition to improved views of the airfield, the new gallery has binocu-lars lining the window that allow visitors to watch aircraft and

ground equipment more closely, and iPads with simulations that mimic air traffic control tower action.

Another new amenity is Sky Azure, an 800-square-foot cocktail lounge that serves local craft beers, international wine and seasonal foods.

The airport also worked with a variety of aviation groups to bring the observation gallery to a whole new level. (See list, right.) NASA provided a sounding rocket, like the ones launched off Wallops Island, on Virginia's eastern shore. The 28-foot-tall rocket, which stretches from the departure level floor into the main gallery, has proven to be a popular draw.

A half-sized model of the Solar Probe Plus satellite from Johns Hopkins Applied Physics Laboratory hangs in the ticketing lobby. Its full-size mate will explore the sun's corona when launched in 2018.

"We wanted to increase the gallery's visibility," explains Chris Donahue, design manager at URS Corp. "One of the ways to do that was to have exhibits come into the terminal more." An aviation buff himself, the observation gallery is one of Donahue's favorite places at BWI.

Naturally, there's also an exhibit about the airport's namesake, Baltimore native and former associate Supreme Court justice Thurgood Marshall.

After being closed for construction since June 2012, the newly renovated observation gallery reopened in mid-July. The result was a "win/win for everyone involved," says Donahue.

Wiedefeld is sure that passengers will enjoy the observation gallery's new features — hopefully enough to keep the next generation reminiscing about the historic feature for years to come.

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Project: Observation Gallery Renovations

Location: Baltimore/Washington Int'l Thurgood Marshall Airport

Exhibit Designer: Faster Kitty

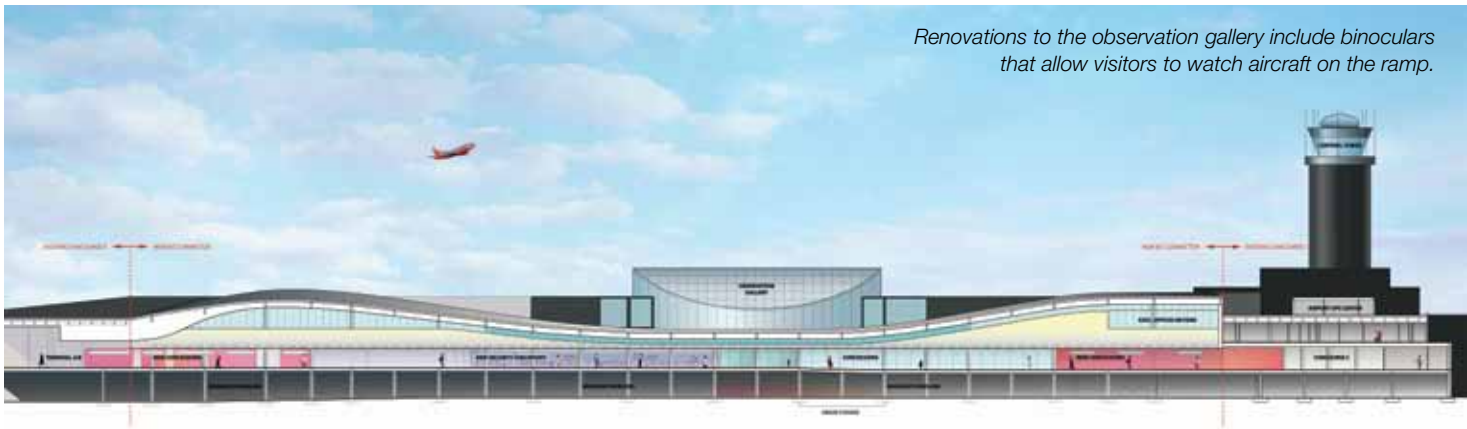
Images & Scale Models: Glen L. Martin Maryland Aviation Museum

Satellite Model: Johns Hopkins University Applied Physics Lab

Images: Ann Arundell Historical Society, College Park Airport, College Park Aviation Museum, Maryland Air National Guard, Missouri History Museum Library & Research Center, U.S. Air Force Thunderbirds

Images & Objects: Hagerstown Aviation Museum, NASA Goddard Space Flight Center, NASA Wallops Flight Facility, Patuxent River Naval Air Museum

Art Video: *Flight Paths* by Aaron Koblin



Renovations to the observation gallery include binoculars that allow visitors to watch aircraft on the ramp.

CONTINUED FROM PAGE 53

Chris **Donahue**

Chris Donahue, design manager at URS Corp., was amazed at how intertwined previous elements were. "We had to unwind the yarn before even starting to figure out where to go," quips Donahue. URS, which served as program manager for the terminal work, has history with BWI that spans more than 30 years. The firm's long-standing knowledge proved invaluable to the airport and other players, as they carried forward a theme that began when concourses A and B were built and the ticket lobby renovations were completed. The central objective became finding a way to add value and a more unified look and feel to a terminal that had become segregated due to evolution within the airport and industry, explains Donahue. Bringing BWI up to current FAA standards was also a top priority.

Another key issue facing the airport was the merger between Southwest Airlines and AirTran Airways, adds Haralabides. The new B/C Connector allows the carrier to expand its reach by adding more gates without interruptions for passengers between flights. With exclusive use in concourses A and B, Southwest is now expanding into Concourse C.

The new ease for Southwest passengers is part an overall focus on passenger experience — something that was never drifted from throughout the project, he says.

Opening Up

One important part of the passenger experience occurs as security checkpoints, and the need to upgrade them is currently a common thread at many airports, says Ettelman. The new screening area at BWI includes marked improvements for passengers and staff alike.

The previous C Concourse checkpoint was moved to a substantially larger location, between concourses B and C. It now boasts nine wider lanes, better lighting and a welcome view of the airfield. Wiedefeld considers the improvements an important undertaking and says that with more lanes, the checkpoint process proves to be much better for passengers than it used to be.

The improved environment makes a big difference for the staff working there, too. The previous area was very constrained, causing congestion and line issues, explains Haralabides. "We tried to make the experience more comfortable for everyone," he notes. Wait times have dropped significantly, reports Diez.

Passengers can now choose one of three checkpoints at concourses A, B and B/C to reach gates in any of those areas. "This enables flexibility for the airport long-term and accommodates the growth of Southwest," says Ettelman. "If a passenger is using the airport as a hub, they don't have to go out and come back through security."

The new open space created with the checkpoint dovetailed with the need to widen BWI's C Concourse to comply with changes in egress codes — just one of the legacy issues the airport had to face, notes Donahue.

It also, however, provided a cost-effective opportunity to replace aged carpet and ceiling tiles while keeping most of the existing infrastructure. The finish changes refresh the entire space with a modern feel, he relates. The comprehensive rehab of Concourse C currently underway will give the area a very similar look to the newer spaces.

"Passengers love it," says Wiedefeld. The space has been transformed from a window-

Connecting the B and C concourses was a primary element of BWI's $105 million terminal project.

less space with low ceilings to a more open area with higher ceilings and airfield views, reminiscent of days gone by. "The whole experience is different," he adds.

Making Connections

After 2001, the idea of having airside connections between concourses has become an important feature in airports. BWI opened its B/C Connector in April, when its new security checkpoint went live. This connection offers an open path for passengers between the 14 gates in Concourse C and the 26 gates in A and B, says Wiedefeld.

It also provides a vital precursor for future growth. "Southwest has leased two additional gates in the C Concourse, so this was important from a business perspective," he says. The new connector also allowed for additional food/beverage and retail space, enabling the airport to increase its offerings for passengers.

From an architectural standpoint, Ettelman notes that the new design provides more natural light through a large window. "It becomes a space," rather than just functioning as a corridor, she explains. While the ceiling is lower in the middle, it sweeps up on the sides, tying to the existing roof and bringing in daylight. Holdrooms were relocated to provide extra space, and new ceiling tiles, flooring and architectural features such as a skylight bring further consistency to the space, says Haralabides.

BWI's newest initiative, a D/E Connector, will cost approximately $125 million and provide benefits similar to recent changes. D is the airport's largest concourse, and Wiedefeld says BWI needs to address growth in its international market by increasing capacity and securing the entire post-security side of the airport. The project also will include a new checkpoint and fix additional building code issues.

"This is for a long-term benefit," says Donahue. While bringing the building up to current codes was the original goal, the building now functions in response to how the aviation industry operates, he explains. He says that the best approach for BWI was to go beyond the minimal, correcting the evolving life and safety codes, but also finding ways to capitalize and maximize operational efficiencies.

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Airport health stations debuted in Europe are making their way into the U.S. market.

Detroit Metro Adds Health-Oriented Retail Options & Self-Testing Kiosks

By Nicole **Nelson**

With a sizable portion of airline travelers working to reduce their size, airports across the globe are responding with everything from calorie-conscious concessions to in-terminal workout facilities.

In North America, Detroit Metropolitan Wayne County Airport (DTW) is at the front of the pack with numerous health-oriented initiatives, including plans to install a series of "health stations" that will allow airport visitors to measure their own blood pressure, body mass index and other key health indicators.

According to surveys conducted by Wayne County Airport Authority the last few years, 35% to 40% of DTW's passengers are interested in more services or amenities related to a healthy lifestyle.

"These days, we hear from our passengers and see our passengers emphasizing healthy lifestyles and healthy living," says Peter Gargiulo, IAP, director of strategy management for the airport authority. "They are looking for healthier eating options and gravitate toward retail that has a healthier bend."

Peter **Gargiulo**

The airport authority kept local and societal trends favoring healthy options in mind when developing concessions for the new McNamara Terminal, notes Gargiulo.

Be Relax Spa is currently offering wellbeing and relaxation services such as massages, facials and oxygen therapy treatments to DTW patrons. Z Market, a partnership between locally-based Mills Pharmacy + Apothecary and HMSHost, is anticipated to open in the fall. Soon to follow will be Running Fit, an Ann Arbor athletic apparel and shoes concept expected to open under the Paradies umbrella in spring 2014.

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WAYNE COUNTY AIRPORT AUTHORITY

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Project: Health-Oriented Concessions

Location: Detroit Metropolitan Wayne County Airport

Retail Additions: Be Relax Spa, Z Market, Running Fit

Concession Partners: HMSHost, The Paradies Shops

Testing Kiosks: World Health Networks

Tests Administered: Blood pressure, weight, body mass index, body fat content, heart rate

Of Note: Health stations are installed at no cost to airport; tests are provided to airport visitors at no cost

Beyond Retail

While DTW has made great strides in appealing to its health-minded consumer base, Gargiulo reports that more initiatives are under review. DTW is currently negotiating an agreement with World Health Networks to install self-service "health stations" that provide non-invasive tests. The freestanding kiosks will allow airport visitors to measure their blood pressure, weight, body mass index, body fat content and heart rate. The stations focus on tests that allow for early detection of a number of risk factors related to heart disease and stroke.

"The health kiosk offered by World Health Networks fits in with the airport's desire to offer our passengers a variety of healthy amenities and services," explains Gargiulo.

The airport's first glimpse of the device was at Passenger Terminal Expo in Geneva earlier this year. In July, the airport authority began testing one of the stations in its administration building — a move that garnered enthusiastic response.

"For the first few days, the machine was in continuous use," recalls Gargiulo, noting the wide appeal of free tests in just three minutes. "From an employee standpoint, there was a tremendous response. When we put it in the terminal area where passengers have expressed that desire for healthy options, it is going to be a great fit."

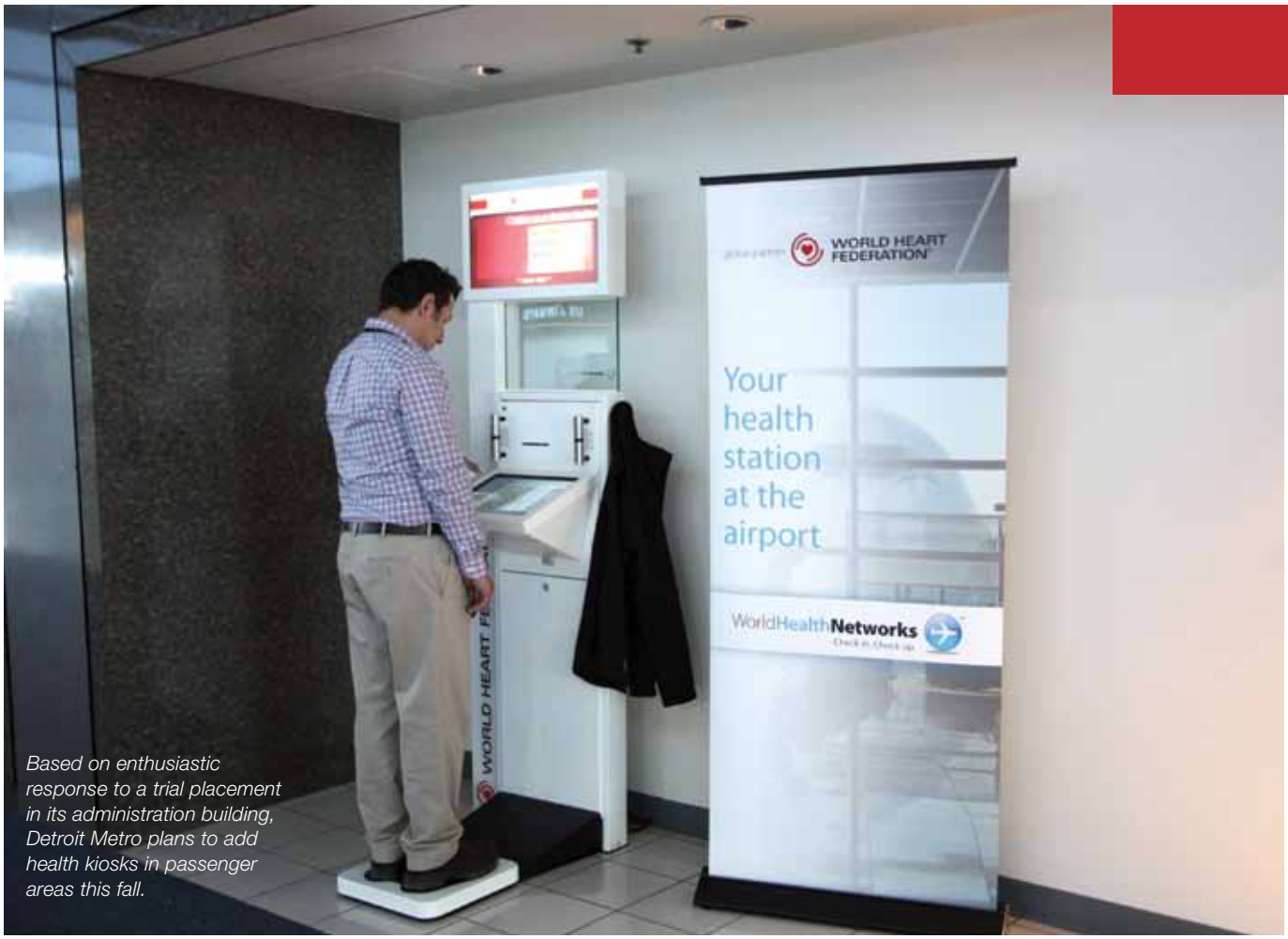
With plans to install World Health Networks Health Stations in passenger areas this fall, DTW will be among the first deployments in the United States. John F. Kennedy International (JFK) in New York and George Bush Intercontinental (IAH) in Houston were the earliest U.S. adopters.


Lon **von Hurwitz**

The initiative, which places health stations in airport free of charge, was recently launched globally, based on the resounding success of a pilot program conducted at Amsterdam's Schiphol Airport, explains Lon von Hurwitz, chief executive officer of World Health Networks.

Passenger usage at U.S. airports — an average of 500 users per week at each station — is far surpassing projections, reports von Hurwitz. Worldwide, more than 10 airports are actively evaluating the program, with Sacramento International and Mineta San José International among the stateside airports, he notes.

DTW's test experience is apparently typical. "The process for us is very straightforward," says von Hurwitz. "We bring a unit in, plug it into a conference area or lobby of administration headquarters, and the employees experience it for themselves for a few weeks. So far, in every case where we have done that, the airport has decided to go ahead and put it into the passenger side."



Based on enthusiastic response to a trial placement in its administration building, Detroit Metro plans to add health kiosks in passenger areas this fall.

Fatter Bottom Lines

World Health Networks has taken a very deliberate strategy to align itself with the mission of cardio societies around the world through the World Heart Federation in Geneva, explains Von Hurwitz. The federation works to lead the global fight against cardiovascular disease — primarily heart disease and stroke — via a united community of more than 200 member organizations from 100 nations. It is the only recognized cardiovascular, non-governmental partner of the World Health Organization.

From a financial standpoint, World Health Networks returns a royalty to the World Heart Federation under sponsorship underwriting that supports the federation's cardio educational efforts. Airports have the opportunity to earn revenue as part of the process via branding and sponsorships from likes of global healthcare leaders such as Johnson & Johnson and Merck — new and non-traditional sources for airport revenue, notes von Hurwitz.

Cross-promotion is another avenue for participating airports to generate additional revenue, he adds. World Health Networks has entered an agreement to pilot its health stations with Max Wellness-branded automated retail boxes in several airports, including JFK and IAH.

"Max Wellness was a perfect fit, because the boxes contain products for motion sickness, support socks and a lot of travel-related health and wellness items," explains von Hurwitz. "It became a natural marriage."

"We also have stand-alone locations, so the model is not to be vending box adjacency," he clarifies. "But that is an example of where we are ideally suited because those vending boxes are already driving revenue for the airports."

ZoomSystems Airport Account Vice President Mark Rickoff says that the placement of World Health Networks Health Stations near Max Wellness units in the C South Terminal at IAH and Terminal 5 at JFK have resulted in additional interest the self-service retail stores.

"We haven't seen tremendous revenue difference yet, but additional touches per machine," reports Rickoff, noting that graphic user interface screens measure where in the sale cycle people conclude the purchase or leave. "It is more important that the service is there, and hopefully it saves a life or two or three," he says.

Von Hurwitz sees similar commercial potential at DTW, especially given the airport's recent commitment to providing health and wellness options for its visitors. World Health Networks' testing stations could cross-promote healthy choices found within the McNamara Terminal's new concessions, he notes — perhaps pedometers or travel exercise equipment.

Gargiulo acknowledges the prospect for incremental revenue, but views it as a secondary factor at best. "There is certainly an opportunity for advertising or cross-promotion with other health-related products and services, and that is something we are working through in the agreement process," he explains, noting that the airport authority has not yet decided on the specific number or placement of stations it will implement. "The revenue is an added benefit — but for us, it is not the main selling point. Our primary reason centers around the healthy lifestyle component."

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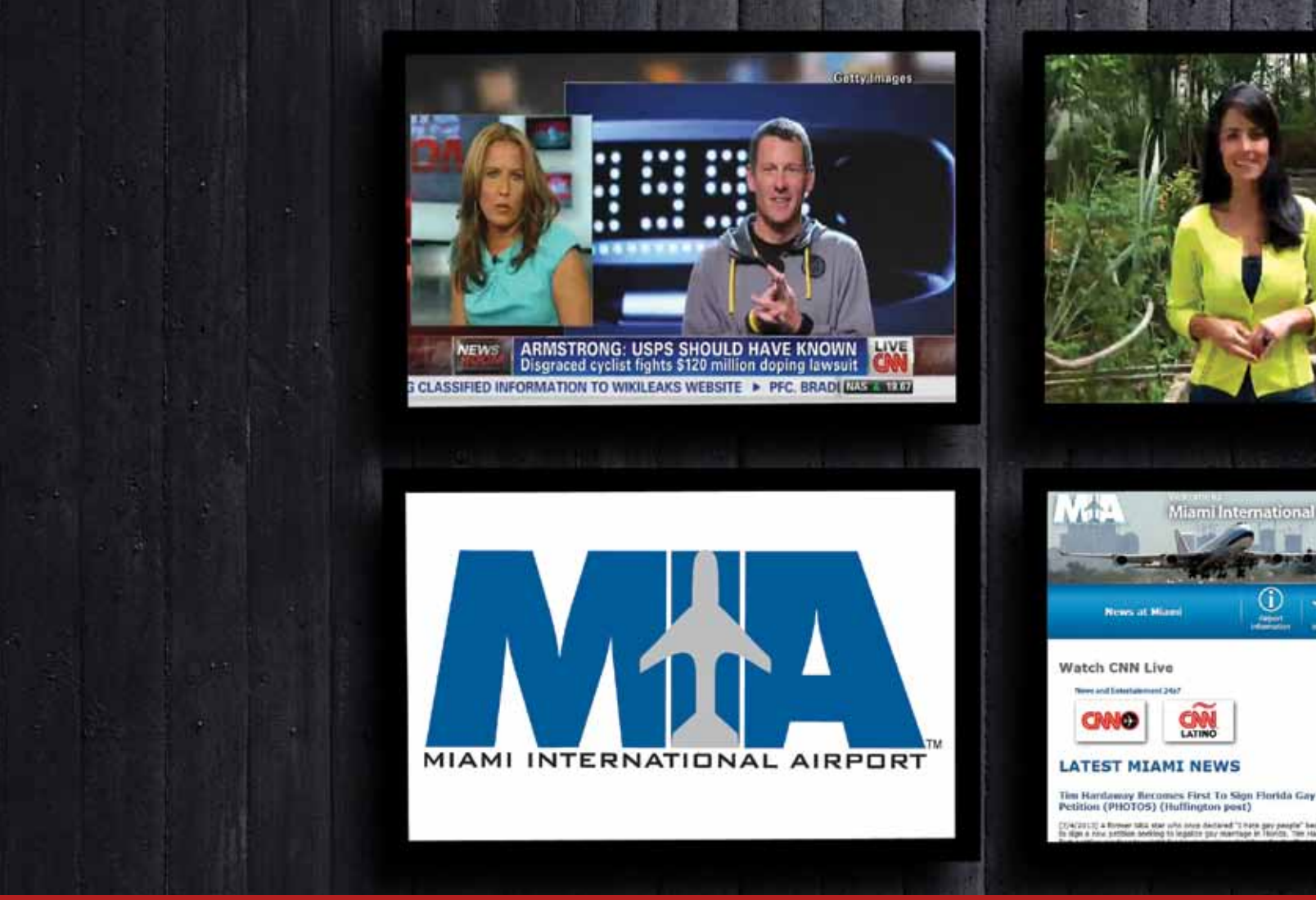

Miami Int'l Debuts Free Video Streaming

Miami International Airport (MIA) has provided news, weather and stock market updates to visitors in gate holdrooms via the CNN Airport Network for roughly two decades. Airport officials have long realized that the service wasn't serving one of MIA's dominant demographic groups: Spanish-speaking customers.

This summer, the airport rectified that when it began video streaming free content in English and Spanish. Since June, customers at the largest U.S. gateway for Latin America and the Caribbean have been using cellphones and other mobile devices to watch CNN Airport Network and CNN Latino, a broad-spectrum programming block that includes news, lifestyle, documentary, talk and debate.

MIA's latest customer survey provides statistical support for bridging the language-based service gap. Recent data indicates that 33% of the airport's departing passengers identify themselves as Latino or Hispanic.

While MIA officials recognize the value of the airport's satellite television news service, they also acknowledge its limitations. "If you are in a holdroom an hour before your flight and you are looking at entertainment to keep yourself or your kids busy, you are going to watch CNN in English, with both audio and closed captioning. But if you don't speak English, how much of a value-added service are we offering?" queries Maurice Jenkins, MIA's division director for Information Systems.


Maurice **Jenkins**

Rather than change the CNN Airport Network content it broadcasts on monitors in gatehold areas, the airport leveraged wireless technology for its foray into providing Spanish-language news and entertainment programming.

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Project: Video Streaming

Location: Miami Int'l Airport

Airport Authority: Miami-Dade Aviation Dept.

Partners: AWG/EMS; CNN Airport Network

Debut: June 2013

Cost: Free service for passengers with personal wireless devices

Key Benefits: Providing news and other content in English and Spanish

— in English and Español

By Nicole **Nelson**

"We have been seeing everyone — from kids to grown adults — carrying PDAs, iPads and Android devices with wireless capabilities, and we decided to go ahead to see what we can actually do to enhance that," explains Jenkins. "We put out news, as current as we can make it that is being pushed by CNN, to wireless devices as a complimentary service so our patrons can have an experience before they take off."

Why Wireless?

While MIA owns and operates its Wi-Fi network, Advanced Wireless Group (AWG) operates its public Wi-Fi service. As such, the company furnishes the components and expertise required to provide internet access to airport visitors.

AWG President and Chief Executive Officer Scott Phillips approached the airport with the concept of video streaming as an additional customer amenity. He presented CNN Airport Network as the logical partner to provide English content, as well as Spanish-language content from CNN Latino, a custom network for the U.S. Hispanic market that was created as an extension of CNN en Español, the Spanish-language news network pay TV leader for the past 15 years in Latin America and the United States.


Scott **Phillips**

AWG has provided information technology consulting to MIA and other U.S. airports since the late 1980s through its parent company, Electronic Media Systems (EMS). Phillips, who founded EMS in 1988, was key vendor to CNN during the rollout of CNN Airport Network.

Throughout the years, Phillips has had a front-row seat as MIA considered

MIA visitors who don't want to watch screens in concession areas or gate holdrooms can now stream free video on their cellphones or other mobile devices.

various strategies for providing relevant news to its Spanish-speaking customers. One idea, he recalls, was using the airport's Flight Information Display System to deliver Spanish content. Another was contracting a system that would automatically switch programming on the CNN Airport Network from English to Spanish in holdrooms with flights departing for South America.

"Wi-Fi became the natural solution to that problem, with far greater abilities to serve those passengers," explains Phillips.

Given the tremendous growth in consumer use of Wi-Fi equipped mobile devices, Phillips considers it a logical evolution for MIA to move into that arena from an information technology engineering standpoint. Expanding the reach of MIA's premier video content beyond the fixed gate televisions eventually emerged as the answer.

"Generally speaking, both public Wi-Fi and CNN Airport Network are customer service amenities," reasons Phillips. "Streaming content is a natural extension of that customer service element."

Jenkins describes it this way: "Given the industry as it stands today and the panacea that exists around Wi-Fi, we got together with AWG and CNN to leverage and enhance the passenger experience through wireless."

Phillips sees the now executed video streaming as an important new perk for the large, international airport. "Since the early 1990s, airports have offered only English-speaking news — but there is a tremendous Spanish-speaking-only population flying out of MIA to multiple markets," he explains. "The fact that we can now give them Spanish-speaking content for free is a great addition to MIA's well-established customer service offerings. And this is only the first step with a broader range of content, including entertainment and sports, yet to come."

Debbie **Cooper**

CNN Airport Network President Debbie Cooper notes that the inclusion of CNN Latino programming in streaming content enables the network to extend its reach to an important and growing segment of air travelers.

"Over the years, CNN Airport Network has continued to evolve to meet the changing

needs of the busy traveler," says Cooper. "We are thrilled to take the viewing experience to the next level with the launch of live streaming. And by offering a new tier of content, we will connect the tech-savvy air traveler with a diverse array of content whenever and wherever, anywhere in the airport."

No Charge

MIA's decision to make streaming video of both CNN Airport Network and CNN Latino a free service for airport patrons is a continuation of its hybrid system. Visitors are similarly not charged to use the airport's wireless network to access its website and the sites of related partners, such as tenant airlines, rental car agencies, area hotels and the Greater Miami Convention and Visitors Bureau. They are charged, however, to use it for all other purposes such as reading/sending e-mail, visiting unrelated websites or streaming video from non-partner sources such as Netflix. Airport visitors can pay $4.95 for the first 30 minutes of access or $7.95 for 24 continuous hours.

When MIA launched its some-free/some-fee model last spring, Miguel Southwell, deputy director of the Miami-Dade Aviation Department, explained that it's simply cost prohibitive for an airport with MIA's passenger volume and physical footprint to provide unrestricted Wi-Fi service to customers. Complimentary access to select travel-related websites was deemed a "customer service enhancement."

Video streaming news in English and Spanish is now considered another. "Money is one thing, but customer service is another," says Jenkins of the distinction.

Given the state of the airport industry, MIA uses Wi-Fi fees to generate non-aeronautical revenue — primarily through paid access, but also by leveraging sponsorships and advertising.

"We have a fee-based model that offers our patrons great customer service, great bandwidth and great functionality," explains Jenkins. "With the amount of people we touch, we are working to increase more premium sponsorships and advertising to leverage it back to our customers."

MIA recently provided customers with several months of complimentary Wi-Fi through a paid sponsorship by Google. Similar discussions have also occurred with American Express and other companies with premier brands that want to reach MIA's consumer base. "As we start to push out more content, and we have the ability to monetize that leverage to be able do sponsorships in advertising, you are going to see more complimentary services roll out," predicts Jenkins.

For now, however, officials are hoping to enjoy softer returns on the airport's recent refinement of its wireless program. "We look at the provision of this streaming content as a good customer service offering in addition to other complimentary services we offer via CNN and our Wi-Fi portal," says Jenkins.

AWG sees it as the wave of the future. Phillips reports that following the success at MIA, streaming video versions of CNN Airport Network and CNN Latino will be rolled at 15 other U.S. airports the company serves, and potentially other CNN Airport Network venues as well.

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Florida's Runway Maintenance Program Gets High Marks from Participants

By Mike **Schwanz**

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Project: Florida Statewide Runway Markings Contract

Purpose: Provide Florida airports with pre-established pricing and contract terms for runway/taxiway markings and maintenance

Primary Vendor: Hi-Lite Markings

Program Timeline: Nov. 2010 – April 2013

Participating Airports: Boca Raton, Crystal River, Daytona Int'l, Fernandina Beach, Fort Lauderdale-Hollywood Int'l, Hernando Co., Key West Int'l, Lauderdale Exec, Leesburg, Marathon Key, Naples Municipal, Northwest FL Regional, Ocala Int'l, Orlando Int'l, Pensacola Regional, Punta Gorda, St. Petersburg-Clearwater Int'l, Sebastian Municipal, Southwest FL Regional, Tallahassee Regional, Umatilla Municipal, Vero Beach Municipal, Zephyrhills Municipal

Key Benefits: Airports saved time previously spent securing multiple competing bids and secured a pre-vetted vendor

Most airport executives agree that dealing with governmental bureaucracy is the most frustrating aspect of their job. Between local, state and federal requirements, vital projects can take months, even years, to get approved, not to mention up and running.

The state of Florida, however, is trying to change its part in the process. Three years ago, it launched a program designed to reduce the hassle of getting airport runways, taxiways and other airfield pavement repainted and remarked.

The program ran from early November 2010 through this April, and according to a sampling of the 23 participating airports, the Florida Statewide Runway Markings Contract was a big success.

In bureaucratic language, the program's mission was "to provide a cost-effective contracting method for Florida's public airports to maximize public investment in preserving aviation infrastructure." Bottom line: it saved budget-conscious airport managers time and money by providing pre-established pricing for standard painting and marking services from a vetted supplier.

Hi-Lite Markings won the business over several vendors that responded to the state's request for proposals.

Although no definitive decision has been made to continue the program, it appears likely to be reinstated. "As long as Florida airport managers indicate the program has value, the department will continue to support the statewide effort," says Aaron Smith, state aviation manager for the Florida Department of Transportation Aviation Office.

Maintenance services covered by the contract spanned three main categories: surface preparation (including removal of existing paint, dirt, laitance and loose materials); painting of numbers, markings and stripes on runways, taxiways and aprons; and other miscellaneous maintenance.

Vero Beach Municipal (left) and Naples Municipal (right) both saved time by using the Florida Statewide Runway Markings Contract.

Airport managers who used the program enjoyed fixed pricing for various services. Perhaps the biggest advantage was avoiding the time-consuming bidding process — the state had already completed that. In most cases, the process satisfied local budget committees with oversight over airfield maintenance and saved the airport considerable time and money.

Field Reports

The speed and efficiency of using a pre-negotiated contract made the Florida program a perfect fit for Vero Beach Municipal Airport (VRB), a general aviation facility with 160,000 to 165,000 operations per year. "We are very busy and need to have maintenance jobs such as runway markings done very quickly," explains Assistant Director Todd Scher.

Tod **Scher**

"I took contract pricing from the state to the Vero Beach Purchasing Department, and they approved it relatively quickly. Without the state contract, we would have had to hire an engineering firm, then get bids. It would have required us to spend at least 50 percent more time to get this accomplished."

VRB was also pleased with the service it received from the state-selected vendor. "Hi-Lite Markings was a pleasure to work with and were very flexible on scheduling," notes Scher. "Their workmanship was second to none."

At VRB's request, Hi-Lite scheduled its work in December, when the airport is "slightly less busy." Using three separate trucks to reduce the total project time, Hi-Lite crews repainted its runway chevron markings in one day.

"One (truck) did yellow paints, the other did black outlines, and the third used roofing shingles to outline paint," recalls Scher.

Services covered in the contract span surface preparation and runway markings to mildew removal and other maintenance.

"They worked sunup to sundown, which I appreciated."

With another runway in need of work this fall, VRB hopes the program is approved for continuation. "Overall, we had a very positive experience, and would definitely consider using the state contractor again, if the state reinstates this program," relates Scher.

Tallahassee Regional Airport (TLH), a facility that serves 680,000 passengers and handles 10,000 tons of cargo per year, also used the program — to clean its concrete apron and remark several sections of airfield pavement, including airport containment lines and enhanced hold position markings. American Airlines, Delta Air Lines, US Airways and Silver Airways are among the carriers that use its two runways.


Sunil **Harman**

Director of Aviation Sunil Harman estimates that using the state contract saved TLH 60 to 90 days when completing the projects. He also gives Hi-Lite high marks for addressing extra weather-related challenges that emerged during the work: "We had significant rains here in Tallahassee in the last few months, so we had a lot of mildew out in the airfield," he says. "They cleaned that up nicely."

Overall, Harman describes the state contract as "user friendly" and notes that it helped his airport a great deal.

The state program saved Naples Municipal (NPF) from having to secure three separate competitive bids when restriping its 5,800-foot primary runway, 5,000-foot crosswind runway and taxiways.

"It is not always timely to go out and find striping companies," explains Kerry Keith, NPF's director of airport development and

Kerry **Keith**

facilities. "First, you have to meet with prospective vendors in person. Then you have to get them out into the field to see what is there. After that, you have to wait for the bids to come in and evaluate them. It can take several weeks. If we can piggyback on someone else who has done the work, that qualifies as getting a competitive bid."

Hi-Lite performed the airport's restriping and other runway marking projects in four days, completing work on the main runway in three to four hours to reduce downtime.

"The state contract was good for us," says Keith. "In early April this year, we had another vendor lined up to do some work, but that deal fell through, so we had to get a replacement within our timeframe."

Removing some of the uncertainties involved with contracting airfield pavement work was a big plus at Pensacola International (PNS). "With state contract pricing, you are likely to get a fair price with a respectable vendor," explains Dan Flynn, assistant director for operations. "We used Hi-Lite Markings for two years, for rubber removal and airfield painting services. They did a wonderful job. I have used them in the past for other projects as well. "

Dan **Flynn**

With about 110,000 operations per year and major airline service schedules to maintain, getting the work done in a timely manner was also crucial at PNS. "We do rubber removal on part of the airfield every year, and we have to constantly maintain our two main runways," reports Flynn.

"Using the state contract cut down on the lead time considerably," he continues. "Going

Pensacola Int'l schedules striping and rubber removal around its carriers' schedules.

through the official bidding process for a given project makes it more difficult to keep a timetable. Here in Pensacola, if we don't have a state contract to use, we are required to get competitive bids from several vendors, which must be approved by the Pensacola City Council. Going through this process can add several months to a project."

There also can be hidden costs associated accepting a low bid, cautions Flynn, citing rubber removal as an example. "The company with the lowest bid may not do the best work," he says. "If they use high-pressure removal (methods) and are not experienced in this type of work, they can damage the pavement, which will have to be fixed at extra cost."

Provider Perspective

It took a great deal of planning on the state's part to implement the runway markings contract program, recalls Smith. "Due to the complex nature of the state procurement process, the original contract took more than two years from inception to execution," he explains, noting that the next contract should only take three to six months to advertise and execute

"The project was the genesis of the Continuing Florida Aviation System Planning Process (CFASPP) committees," he continues. "The CFASPP is a method used within Florida to continually monitor the aviation environment and determine the development requirements to best meet projected aviation demands."

The process, he adds, is a component of the FAA Continuous Airport Systems Planning Process.


Brad **Dunn**

From Hi-Lite's point of view, bidding a contract for a program with nearly 130 eligible airports was a bit tricky, relates Brad Dunn, the company's Southeast division manager who oversaw the Florida program. A tiered pricing schedule provided graduated costs for various sized projects — airports with less than 5,000 square feet of work, 5,000 to 20,000 square feet, and more than 20,000 square feet.

"That evened the playing field," relates Dunn. "Not all jobs are equal, but the state contract did a good job of qualifying bids."

Hi-Lite's nationwide staff of 120 workers helped service the new business. "If we had a big job in Florida, we had the manpower to do it on schedule," says Dunn, who is convinced that his company has proven itself to the state and its airports.

"After spending the last few years talking to our clients, I think all of them appreciated the fact that we saved them time, money and hassle, and did quality work," he explains. "But I think one of the best benefits we offered was that airport executives could plan ahead and budget several years in advance with set pricing. That was good for their airport and for them."

Working under the state contract kept the company consistently busy for the last 2½ years, he reports. "For us, it was well worth it. I know we would do this again if the state decides to reinstate the program later this year," he says.

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Airport Policing in the 21st Century

Duane P. McGray

Duane P. McGray is executive director of the Airport Law Enforcement Agencies Network (ALEAN). His 40 years of public safety experience include 12 years as chief of public safety for Nashville International Airport and four years as commander of the Aviation Division at Orlando International Airport. McGray is also a long-standing member of the Aviation Security Advisory Committee that was chartered after the 1988 Pan Am bombing.

As air travel makes the world smaller, the dangers airports must manage have increased significantly. Every day, airport police face new and emerging challenges — from fighting the war against terrorism to limiting the spread of a worldwide pandemic. They're also an important force in stemming the flow of illicit narcotics, illegal immigrants and bulk cash, not to mention an integral part of any major aircraft accident.

Ever-changing passenger screening requirements and security procedures, employee theft rings and evolving Explosive Ordnance Disposal procedures are standard elements of the profession. A proposed federal policy requiring airports to staff security concourse exit lanes could become a new unfunded mandate for both airports and their police forces.

The landscape of airport policing clearly isn't what it used to be. Prior to the 1970s, U.S. airports were innocent places where people gathered for business travel, to take vacations or visit relatives. Few crimes were committed in airports and minimal law enforcement was consequently deployed there. Then, several high-profile hijackings in the late 1960s demanded improved security measures.

In 1973, the FAA began requiring all airlines to screen passengers and their carry-on baggage. Screening was generally contracted to private security companies, with personnel focused on detecting potential hijacking weapons. When FAR Part 107 required airports to allocate sworn police officers to support passenger screening, a new form of specialized law enforcement was born: airport policing.

The bombing of Pan Am Flight 103 over Lockerbie, Scotland, later added another frightening dimension to aviation security — the use of explosive devices to commit mass murder.

In the 1980s, airline passenger volume grew significantly amid federal deregulation and the introduction of cheaper airfares via discount airlines. As traffic increased, so did airport crime such as distraction theft, auto burglary/theft, shoplifting and sex crimes in airport terminals and aboard aircraft.

The Airport Law Enforcement Agencies Network (ALEAN) was formed in April 1990 after law enforcement officials from the Port Authority of New York/New Jersey and several other large U.S. airports met with Interpol to discuss the need to facilitate the exchange of information concerning terrorism and emerging airport crime.

Over the past 20 years, ALEAN membership has expanded to more than 100 U.S. airport agencies and numerous foreign associate member agencies in Canada and the United Kingdom. Many government law enforcement agencies also hold adjunct memberships, including the TSA, Federal Bureau of Investigation, Interpol, U.S. Secret Service, Immigration and Customs Enforcement Service and several international regulatory agencies.

Transient criminals such as pickpockets, distraction thieves and con artists are a significant problem at some airports. Bands of highly-trained criminals victimize the flying public for a few days at one location, then move on to another unsuspecting area. ALEAN addresses this challenge with a system that allows members to share suspect information and intelligence. Through this process, airport investigators are better able to track such activities and proactively identify potential targets. Several large facilities now deploy specialized Anti-Distraction Theft Units. Armed with information shared by ALEAN members, airport police now place known criminals under surveillance as soon as they arrive.

From its inception, ALEAN has partnered with the National Explosives Detection Canine Program to deploy top-quality explosives detection teams throughout the aviation system. Today, airport police handlers manage more than 400 bomb dog teams at U.S. airports, creating a model system of much-needed federal and local partnership.

Given terrorists' propensity to choose aviation as a target source, many airport police agencies also belong to Joint Terrorism Task Forces and participate in state and local fusion centers. ALEAN supports such efforts with a member-driven IntelNet to facilitate the flow of information, including monthly teleconferences for criminal investigators. The exchange of real-time intelligence and incident information is facilitated via our CommandNet system.

Spring and fall conferences allow member departments to learn about model policing programs and discuss matters of concern with officials from the Department of Homeland Security and TSA. Our national benchmarking project provides law enforcement executives with details about current best practices,

Airport police provide vital safety services in unique and challenging environments. However, we are inexorably linked to other police agencies in a common purpose of protecting citizens in the ever-dangerous and globalized world of the 21st century.

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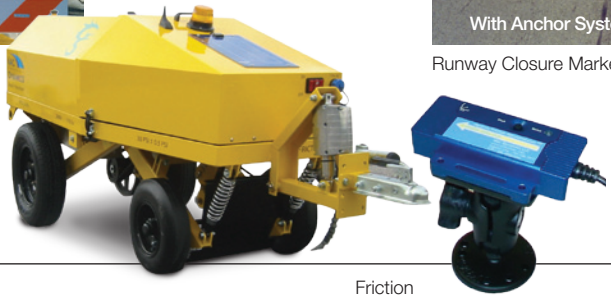

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