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## INSIDETHEFENCE

Joe Petrie  
Editor-in-Chief



# Hospitality Goes a Long Way

*Independent airport lounges not only build revenue, but connect airports to the business community.*

**A**irports across the nation vary in size, shape and makeup, but some things are universal.

And probably the biggest tie that binds each facility is the daily quandary of how to meet the needs of passengers and make the process of traveling a little less daunting.

I was given a tour of the new Escape Lounge at Minneapolis/St. Paul International Airport. Located in Terminal 1, the lounge opened in December to give passengers who might not qualify for airline lounges a chance to escape the bustle of the terminal.

When I got up to the lounge and waited for Manager Jessica McGlynn to meet me at the desk, it took about 30 seconds to notice the top selling point of the facility — silence. The heavily trafficked terminal seemed miles away and I was no longer in an airport. Inside, a custom furniture setup decked the lounge along with local photography to give the spot its own identity.

Passengers waiting for their planes sat on their mobile devices connected to Wi-Fi while others perused complimentary food while digital flight boards kept them up-to-date on flight info.

I saw the ultimate payoff for the lounge when one passenger jumped in to tell Jessica "great job," and "thanks," for what there is to offer.

Looking at the lounge from a hospitality lens and not just an airport facility makes the lounge a place you want to be, not a place you have to be.

This is another great tool for airports to grow revenues and serve the passengers. Getting people to forget they're at an airport and enjoy their travel is key to building repeat customers.

Working with local community groups to awareness about the facilities also grows a connection with the community and brings airports closer to the people who travel through.

Getting this access and building these bonds will go a long way in making sure our airports keep meeting the needs of passengers.

MAG USA, which created the Escape Lounge, will open similar facilities at Oakland International Airport and Bradley International Airport later this year. Both of them will have the same design, but with their own local flair.

It's exciting to see this grow in the industry. And as a traveler, I hope to see one come to my airport in the future.



YNG Airport @

YNGAirport Jul 5

"It's gratifying that I can look at the display and see 'Chicago' up there, but this is when the work starts.

Wichita Airport ICT

@FlyICT Jun 29

Did you know? @FlyICT is ranked the 4th best small airport.

Mark Kirk @Sena-

torKirk July 13

Americans shouldn't have to wait in 2 hour lines at the airport - #FAA reauthorization will cut the wait and increase safety & security



## AVIATIONPROS.com ONLINE EXCLUSIVES

### ► OTG Management Joins in on the Pokémon Go Craze

When the Pokémon Go craze hit North America in July, OTG Management used it as an opportunity to get in on the game and find a way to bring the nation's hottest craze into airport terminals and to its restaurants.

[www.AviationPros.com/12234275](http://www.AviationPros.com/12234275)

### ► ATC Privatization Fight Far From Over

James Burnley, former secretary of the U.S. Department of Transportation (DOT), told *Airport Business* that he sees the issue moving forward when Congress debates authorization again next year as the current bill runs the course of its 14 month extension.

[www.AviationPros.com/12231969](http://www.AviationPros.com/12231969)



## Airport Authority Takes Control of Gerald R. Ford International Airport

The Gerald R. Ford International Airport Authority (GFIAA) is officially operating. The authority transition was approved by the Federal Aviation Administration (FAA) July 1, with support from Kent County Commissioners and government officials.

"This is a historical day for our region, our county, and our airport," said Roger Morgan, GFIAA board chairman and Kent County commissioner. "The transfer to an authority has been a goal of our board's for several years, and to see the teamwork, the collaboration of organizations, and the FAA's support has been truly remarkable. We had a smooth process along the way, and we are grateful to each and every person who assisted us in this transition."

The transfer to an authority creates an independent governing enterprise whose sole purpose is the future development of the airport, greater levels of economic development and proactive commercial revenue development, a stronger regional focus to respond to air service needs, and a more entrepreneurial, business, and hospitality management focus - driven by customer service. [www.AviationPros.com/12228838](http://www.AviationPros.com/12228838)



San Francisco International Airport

Retiring Airport Director John Martin, newly-appointed Airport Director Ivar Satero and San Francisco Mayor Ed Lee at the groundbreaking event.

## Terminal 1 Renovation Breaks Ground at SFO

San Francisco International Airport (SFO) held a groundbreaking ceremony June 29, to celebrate the renovation of Terminal 1. The \$2.4 billion project, slated to be completed in phases from 2016 to 2024, will also create a new centralized security checkpoint, a new consolidated baggage handling system, new dining and retail concessions, and post-security connecting walkways.

[www.AviationPros.com/12226916](http://www.AviationPros.com/12226916)



## Kansas City Runway Project Begins Phase 2

The Runway 1R-19L rehabilitation project at Kansas City International Airport has advanced to phase two.

The intersecting Runway 9-27 will be closed for 90 days, shutting down two of the airport's three runways. Since the airport will be down to one operating runway, the work will be on a fast track to ensure all runways will be open by winter.

[www.AviationPros.com/12229704](http://www.AviationPros.com/12229704)

## TSA and American Partner on New Screening Technology

The Transportation Security Administration (TSA) and American Airlines, through a joint initiative, will install new screening technology, including automated security screening lanes and computed tomography (CT) scanners, at select American Airlines hubs nationwide this fall.

The automated screening lanes incorporate technology and screening station modifications that enhance security effectiveness while decreasing the time travelers spend in security screening by approximately 30 percent. TSA and American Airlines anticipate deployment of these lanes to Chicago (O'Hare), Dallas/Fort Worth, Los Angeles and Miami.

American Airlines and TSA also plan to deploy CT technology at a Phoenix TSA screening checkpoint — as a pilot program set to begin by the end of 2016.

"Our foremost priority is the security of the traveling public," said TSA Administrator Peter V. Neffenger. "To ensure that we remain up-to-date in an evolving threat environment, TSA continues to test and deploy state-of-the-art technologies. This collaboration with American Airlines is an important step in enhancing the traveler experience while maintaining effective security."

Clear Channel Airports CCA signed a 10-year partnership with the Metropolitan Airports Commission (MAC) for the advertising concession at the Minneapolis-St. Paul International Airport (MSP).

The enhanced advertising program implemented by CCA at MSP will include iconic, state-of-the-art digital assets, terminal-wide digital networks, product enhancements and highly marketable inventory consistent across all concourses visible to MSP passengers. The new contract began July 1. [www.AviationPros.com/12225826](http://www.AviationPros.com/12225826)



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# INDUSTRY NEWS

## Air China...

Launches San Jose to Shanghai service Sept. 1.

## Air Serbia...

began service to John F. Kennedy International Airport on June 23, ending a 24-year absence in the U.S.

## AirMall...

opened three new stores at Baltimore/Washington International Thurgood Marshall Airport.

## Alaska Airlines...

is building a \$40 million maintenance facility at Ted Stevens Anchorage International Airport.

## Albany International Airport...

saw its TSA security checkpoints open earlier to accommodate earlier flights and increased traffic.

## Bahamasair...

added nonstop service between Orlando International Airport and Freeport.

## Baltimore/Washington International Thurgood Marshall Airport...

partnered with the Transportation Security Administration (TSA) to construct an additional screening lane at the security checkpoint for Concourse D.

## Billy Bishop Toronto City Airport...

reported more than 250,000 passengers in June, its busiest month on record.

## Cathay Pacific Airways...

will launch twice-weekly scheduled freighter service to Portland International Airport Nov. 3.

## Charlotte Douglas International Airport...

set a new local passenger record on June 13 when 30,668 passengers originated their flight at CLT.

## Cleveland Hopkins International Airport (CLE)...

reopened its red and blue parking lots with new LED canopies.

## Coastal Carolina Regional Airport...

named Col. Andrew Shorter its new airport director.

## Columbus Regional Airport Authority...

named Kristen Easterday director, government affairs.

## Condor Airlines...

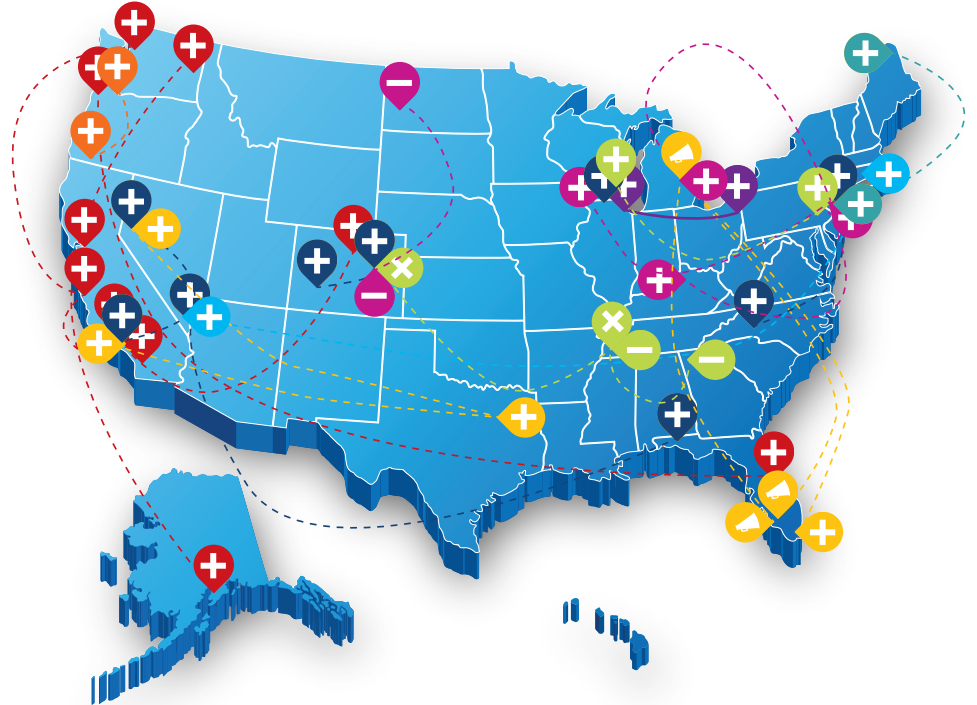
began service from Munich, Germany to Seattle.

## Delta Air Lines...

added service between Munich and Detroit Metropolitan Airport.

## DuPage Airport Authority (DAA)...

selected CH2M as its engineering consultant for the ongoing Capital Improvement Program (CIP).



## Flight Tracker

### Aerodynamics Inc.

- ORD — YNG added

### Alaska Airlines

- ANC — GEG added
- PDX — MCO added
- SAN — SBS added
- SEA — SBP added
- SJC — SNA added

### Allegiant Airlines

- AVL — EWR added
- DEN — MTJ added
- RNO — LAX added
- VPS — LAS added

### American Airlines

- BDL — LAX added

### Elite Airways

- BHB EWR added

### Frontier Airlines

- MEM — DEN expanded
- MEM — ATL cut
- MKE — PHL added

### PenAir

- PDX — LMT added

### Southwest Airlines

- BUR — DAL added
- FNT — RSW announced
- FNT — TPA announced
- FNT — MCO expanded
- RNO — DAL announced

### United

- DIK — DEN eliminated
- FNT — EWR added
- MSN — EWR expanded
- LEX — EWR added

## The Federal Aviation Administration...

awarded a \$344 million contract to Lockheed Martin to develop NextGen.

## Fort McMurray Airport Authority (FMAA)...

named R.J. Steenstra president and CEO.



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## TappCar Begins Service at Edmonton International Airport

TappCar and Edmonton International Airport have finalized an agreement allowing passengers who subscribe to TappCar service to seek transportation through their smartphone application or through a telephone dispatch system. EIA is the first of Canada's major airports to license a private transportation provider of standard vehicle service (excluding limousines).

"Our goal is to offer travellers more choices so they can select the ground transportation that best suits their needs. This agreement with TappCar gives our passengers a new

transportation choice so that along with public transportation, private rides, taxis, limousines, rental cars and more, we have a full suite of options available to passengers," said Brett Bain, director of ground transportation for Edmonton International Airport.

Under the new agreement, TappCar vehicles are now licensed to drop off passengers anywhere on EIA property including the departures level of the main terminal. Passengers may be picked up for prearranged service only, from the hourly level (P2) of the parkade on the north end. [www.AviationPros.com/12227386](http://www.AviationPros.com/12227386)

### General Mitchell International Airport...

baggage claim project got LEED Certification.

### Great Falls Airport Authority...

was awarded a \$7.1 million AIP grant for improvements to runway 16/34..

### Hartsfield-Jackson Atlanta International Airport (ATL)...

was named the world's most efficient airport.

### HNTB...

hired Isaiah Johnson and Stacy Talmadge in its Arlington, Va. Office.

### Humboldt County Airport...

saw traffic rise 27 percent in the first five months of the year.

### Los Angeles International Airport...

launched Data Comm on June 24.

### Louisville Airport Authority...

named Mike Ford human resources director.

### Lufthansa...

began non-stop service between Frankfurt, Germany and San Jose.

### Memphis-Shelby County Airport Authority...

promoted Joe Claiborne to senior manager of business diversity development.

### Metropolitan Airports Commission (MAC)...

named Eduardo Valencia vice president/chief information officer.

### Metropolitan Nashville Airport Authority (MNA)...

unveiled a nearly \$1 billion plan to improve Nashville International Airport.

### Miami-Dade Aviation Department (MDAD)...

received a 2016 Telly Award for its MIA Airport Official 2.0 mobile app video.

### Midway International Airport...

received a perfect score from the FAA for its Part 139 airfield safety inspection.

### Minneapolis-St. Paul International Airport (MSP)...

began a 5-year renovation project to Terminal 1-Lindbergh.

### Norfolk International Airport...

saw a 10 percent increase in passenger traffic during the month of May.

### Orlando International Airport...

saw 40.2 million passengers pass through the airport from April 2015 to April 2016.

### Paradies Lagardère...

was awarded eight stores at the Phoenix Sky Harbor International Airport (PHX).

### Pocatello Regional Airport...

saw 6,594 passengers in June.

### Port of Portland...

will reduce the Troutdale Airport runway from 5,400 feet to 4,500 feet.

### Sacramento International Airport...

added two automated Global Entry kiosks.

### Savannah/Hilton Head International Airport...

awarded a 10-year contract extension to HMSHost.

## HDOT Opens New Hilo ARFF Station

The Hawaii Department of Transportation (HDOT), Airports Division, celebrated the opening of the new Aircraft Rescue and Fire Fighting (ARFF) station at the Hilo International Airport on July 29. The new two-story, 21,000 square-foot facility includes an emergency operations center, four drive-through truck bays, a fueling area, along with improved work and living quarters for firefighters. The facility will also accommodate larger sized ARFF vehicles and provide training facilities to help firefighters perform at their highest capabilities.

"Keeping airport users safe is an enormous responsibility that we take to heart. This new and improved fire station will help our dedicated state firefighters and emergency medical



*The new facility will accommodate larger sized ARFF vehicles and provide new training facilities and upgraded work spaces ensuring airport firefighters are well equipped to respond to emergencies.*

Hawaii Department of Transportation (HDOT)

responders with their day to day responsibilities, which includes responding to emergencies," said Ford Fuchigami, Hawaii Department of Transportation director. [www.AviationPros.com/12238612](http://www.AviationPros.com/12238612)





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# The Wonders of Wayfinding

*With a lot of different wayfinding options available, airports focus their efforts on the best technology for them.*

**T**he potential of wayfinding and location-based technology at airports has been on the air transport industry's agenda for a few years now. SITA's 2015 Airport IT Trends Survey revealed that the vast majority of airports are exploring different ways of exploiting wayfinding in their terminals, with 91 percent planning on adding it to their mobile apps by 2018 for instance.



SITA



A number of tools and approaches have featured on the location-based services landscape, including Wi-Fi triangulation, Indoor GPS and Bluetooth. Each has its own strengths but it was with the arrival of beacons that the location services scene came to life. Simple and cheap to install and operate, beacons were a no brainer for those looking to harness the potential of proximity sensing.

Very simply, beacons are indoor proximity devices which come in various shapes and sizes. They can be as small as a USB stick or larger and more visible. They transmit a signal using Bluetooth low energy - BLE for short - and the signal contains a unique identifier for that beacon.

When a BLE-enabled device, such as a smartphone, moves within range of the beacon's signal it can trigger an action, such as displaying a contextually relevant message on the phone. Beacons have made a whole new range of user interactions possible.

The beacon can trigger an app on passengers' smartphones to send notifications to direct them to areas of interest and provide additional information about their flights, such as boarding alerts and directions to the gate or baggage collection area. It can also send promotional coupons as they enter a specific zone, such as a shop, cafe or airport lounge.

Beacons can help reduce congestion and bottlenecks, improving the passenger flow in airports by giving passengers accurate and timely information. In turn, that leads to smoother boarding and more on-time departures. Providing wayfinding information also means that passengers know how long it will take to get to the gate, increasing the time they spend in the retail area, which is good news for the airport's tenants.

## MAKING BEACONS ACCESSIBLE FOR ALL

When airlines, airports and other airport vendors started exploring beacon technology, it became very clear that the industry would need a consistent deployment for beacons in airports across the world.

That's why SITA set up the Common-Use Beacon Registry for the air transport industry. Working with leading airports, airlines and industry bodies like IATA and ACI, SITA is helping to define standards around how to deploy and use beacons for maximum interoperability.

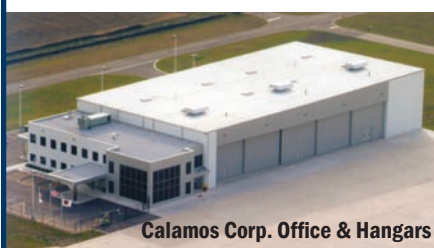
For those using the registry, it means beacons can be operated using the common-use approach that's proved so successful with other shared services and infrastructure at airports across the world. The Registry provides app developers with information about beacons deployed at airports, and contextual information for airline/airport apps to create amazing passenger experiences.

For example, the registry can tell app developers if a beacon is at a lounge, check-in, security area, baggage carousel or gate and specifically which gate. Combining this indoor-location information with passenger itinerary data creates a wide range of use cases that can be implemented by app developers.

The registry solved the problem of multiple airlines wanting to install separate beacons at a facility's shared gates or throughout the airport.

It is also open to commercial tenants such as retailers, facilities management and catering establishment that also want to use beacons. It has simplified the process of connecting multiple airports' beacons together in a cohesive way for all interested parties. The registry is beacon-vendor agnostic and ensures devices use a common form of data sets based on industry standards. This enables all industry players to leverage existing

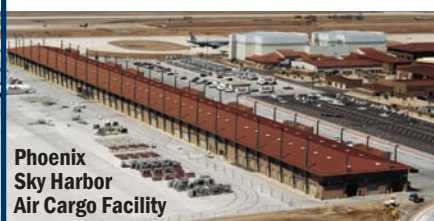
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# WAYFINDING

common-use beacon deployments at airports throughout the world – including developers looking to create new apps for use worldwide.

Thanks to the efforts of a few pioneering airports and airlines, passengers and staff can already experience the benefits of wayfinding technology. So what do the real life examples look like?



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## MIAMI INTERNATIONAL AIRPORT

Miami International Airport (MIA) is one of the best examples of an airport using technology to improve the airline and passenger experience. One of its great initiatives has been its location-aware airport app. Traditional airport apps don't know when you're flying or where you are, how you're getting to the airport, or what you want to do once you arrive. They're passive. Not so with Miami's app.

MIA became the first airport in the U.S. to use location-aware technologies in a mobile app – including Bluetooth beacons – to get the right information to the right people, when and where they need it.

The new mobile app, designed for passengers and all airport users, gives travelers personalized updates, directions and tips based on their location and needs – all through an intuitive interface. Described by the airport as “Your Personal Travel Assistant,” the MIA Airport Official app can be used on iOS and Android devices from anywhere in the world. Once opened, it offers options based on location, so a user in Miami will get a different experience than someone opening it in London, Bogota or New York.

As travelers make their way through the airport, the app provides information and support relevant to their individual journey. It includes updates on gate, flight times and baggage collection,



SITA

as well as nearby food and retail outlets, prioritizing suggestions based on current location.

The app presents accurate and up-to-date indoor maps. And with “blue-dot” functionality, map rotation, turn-by-turn directions, “walk times” and a ‘near me’ feature, they allow passengers to quickly locate virtually anything inside the airport.

SITA took the initiative to develop an app that offers a personal experience and incorporates the latest technologies, including Miami's beacon infrastructure and a selection of SITA industry APIs, enabling a context and location-aware experience.

Anyone who uses Miami International Airport will find this app useful. SITA was able to draw on decades of experience with airlines and airports and worked very closely with the team in Miami to deliver a technologically advanced airport app.



## NICE AIRPORT

In October 2015, Nice Côte d'Azur Airport opened the first part of the refurbished Terminal 1 retail area with a wider range of outlets and more circulation areas, making the area more enticing and welcoming for departing passengers. The airport took this opportunity to create a new multifunctional app which leverages beacon technology to put personalized information at passengers' fingertips. The app will also support the refurbishing of the commercial area of Terminal 2.

Nice Côte d'Azur Airport is using beacons and SITA's Common Use Beacon Registry to provide passengers at the airport with real-time, relevant information each step of the way. As well as wayfinding, retail information and offers relevant to location for all airport users, Airport Premier Club passengers using the app will automatically earn points as they pass through the airport.

Nice Côte d'Azur Airport has acknowledged

the increasing amount of control passengers crave over their airport experience. Passengers want more personalized services from airports to match their individual requirements and the new airport app offers a tailored experience to passengers. For example, the new technology will facilitate access to Fast Track Security for Airport Premier Gold members, allowing them to use their frequent flyer card automatically.

## AMERICAN AIRLINES

American Airlines used SITA's Common Use Beacon Registry in a pilot program at Dallas/Fort Worth International Airport. It aimed to provide passengers with up-to-date information on their mobile devices.

American is building beacon support into its app to give a personalized response to its Admiral Club members entering its lounges to help them avoid queues at busy times. As part of the service, as members enter, their photos and

flights details will appear on attendants' screens.

In conjunction with Singapore Airlines and mobile app vendor MTT, the SITA Lab deployed 30 beacons around the airline's lounge in Terminal 3 of Changi Airport. An app was designed to show the location of passengers within the lounge enabling staff to quickly locate them should they be late for a flight.

Read more on beacon technology at [www.AviationPros.com/12221838](http://www.AviationPros.com/12221838)

## ABOUT THE AUTHOR

**Mathys Serfontein,**  
Vice President Airport Solutions,  
SITA





# TOGETHER

## TOWARDS THE FUTURE

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# What is IATA Resolution 753?

**R**esolution 753 on baggage tracking comes into effect in June 2018. The full details of Resolution 753 are available on the IATA website but, put simply, it says that “IATA members shall maintain an accurate inventory of baggage by monitoring the acquisition and delivery of baggage.”

## WHAT DOES IATA RESOLUTION 753 MEAN FOR AIRLINES?

IATA members have committed themselves to:

- Demonstrate delivery of baggage when custody changes
- Demonstrate acquisition of baggage when custody changes
- Provide an inventory of baggage upon departure of a flight
- Be capable of exchanging these events with other airlines as needed

This part of the IATA compliance, which would allow interoperability between airlines, is being looked after by the Passenger and Airport Data Interchange Standards (PADIS) Board. PADIS is governed by Passenger Services Conference Resolution 783 to develop and maintain Electronic Data Interchange and XML message standards for passenger travel and airport-related passenger service activities.

In addition to requiring airlines to demonstrate the delivery and acquisition of bags, it also specifies three key checkpoints where this should happen – aircraft loading, arrivals inject and transfers inject. Taking effect from June 2018, the resolution is mandatory for all IATA airline members.

## WHAT IS THE AIM OF RESOLUTION 753?

It aims to reduce the number of lost or delayed baggage by tracking it at every stage of its journey using intelligent tracking capabilities.

This will lead to a better customer experience and at the same time reduce the costs involved in tracing, retrieving and delivering missing or delayed bags. It will also reduce baggage fraud.

When a passenger checks in for a flight, a bag source message (BSM) is generated, which includes the date, flight number, destination, registration number and a unique barcode – this is typically referred to as an IATA License plate. The barcode on the tag is checked against a computer database of departing flights and set for delivery to the correct terminal and gate.

Following the security check, the baggage moves through the airport system on a series of conveyor belts or tray (tote) conveyors until it reaches the correct loading bay. Prior to being loaded onto the plane, the unique bar code is scanned or otherwise registered to make sure the bag has reached the correct flight.

Research has found airlines with a good system in place for tracking passenger baggage throughout this process have significantly less mishandling incidents than other airlines.

Courier companies have been tracking the whereabouts of parcels throughout their delivery journey for years and now airlines will be able to do the same thing with passengers' baggage.

## WHAT DOES IATA RESOLUTION 753 MEAN FOR AIRPORTS?

By 2018, IATA member airlines will need to ensure that the airports they work with have the necessary IT systems and infrastructures



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in place to be able to support them in complying with Resolution 753. This means that all airports (existing or new) will need to assess their baggage handling infrastructures and fill in any gaps where necessary.

While baggage is handled by many different parties throughout the process - for example, airlines, the airport and baggage handling companies - one thing they all have in common is the Key Performance Indicator that they have committed to in order to provide the best possible service for their passengers.

IATA Resolution 753 will enhance the registration of baggage and collection of accurate information, which not only reduces mishandling, but also helps to speed up reconciliation and flight readiness for departing flights. The end result is information to help measure performance against service level parameters.

According to Resolution 753, airlines bear the ultimate responsibility for delivering the correct bag to the correct passenger, so they will have to ask airports and ground handlers to make various technological and system features available to them to meet the resolution's requirements.



Although the airports can turn compliance into a competition parameter, there is also an underlying business case for saving money.

Once Resolution 753 takes effect, it will drive down the number of reports of lost baggage, especially the fairly high percentage of reports which are made while baggage is still being transferred to arrival reclaim while the passenger is reporting it as missing. Bags will be recorded at arrival reclaim, thus demonstrating that the bag really did arrive in the arrival baggage hall after being removed from the air-craft. The scanning and documented receipt of arriving baggage will play an important part in the airport driving down the cost of making baggage reports, not to mention the cost of running the lost bag procedure after the report has been filed. The airport will have more cost transparency and know who to charge for the cost of tracing and retrieving lost baggage if it does go missing.

## BENEFITS OF IATA RESOLUTION 753

- ▶ **Increases** the sharing of data across all interested parties (airlines, handlers, BHS owner/operator)
- ▶ **Enables** proactive metrics
- ▶ **Reduces** mishandling
- ▶ **Determines** custody of every bag during different phases of the baggage handling process
- ▶ **Improves** customer service
- ▶ **Reduces** the possibility of baggage fraud
- ▶ **Improves** baggage reconciliation
- ▶ **Reduces** number of lost bag reports
- ▶ **Extended possibility** to communicate bag status to passengers via airline/airport app

### HOW CAN IATA RESOLUTION 753 BE IMPLEMENTED?

As a minimum, the resolution requires some level of manual scanning, but automated solutions should also be considered in the process.

The main purpose is simply to make sure that the bag has reached its destination and is reconciled with its rightful owner at the right time.

Bags need to be tracked by either automated readers or staff using mobile devices.

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# BAGGAGEHANDLING

Other technology such as Global System for Mobile (GSM) communications/Global Positioning System (GPS)-enabled devices, Radio-Frequency Identification (RFID) and beacons could also be used.

There are several options, which are already widely used at aircraft loading and transfer inject but rarely seen at the arrivals inject:

- Manual scanning – can be done without an automated baggage handling system, but requires extensive staff resources and handheld terminals. Every item of baggage must be handled manually and the process can be slow.
- Laser Scanning of Bag Tag – this is a widely used Automatic Tag Reading (ATR) technology found across most automated baggage handling systems, although it cannot guarantee 100 percent readability. Because barcoded tags are so easily damaged during handling, their readability is almost always reduced by the time the bag arrives at a destination.

## BAG MISHANDLING: LONG-TERM TRENDS

**GLOBAL** investment in new technology has seen the airline baggage mishandling rate reduced by 61.3% since 2007. As a result, airlines have been able to save a total of US\$18 billion (according to the SITA 2015 Baggage Report).

After peaking at 18.88 bags per thousand passengers in 2007, mishandling of baggage in 2014 totaled 7.3 bags per thousand. In 2014, more than 80% of mishandled bags were delayed, due primarily to transfers between connecting flights. Mishandled transfer luggage comprised 49% of the 11.81 million delayed bags.

Each time a bag is handled, the bag tag gets more distressed and wrinkled. The automated laser barcode scanners may not be able to read the bag tag number and it will then have to be diverted to a manual check.

- ATR technology can be complemented or replaced by cameras. This type of Optical Character Recognition (OCR) technology and Video Coding System (VCS) are used in the parcel industry, and OCR and VCS





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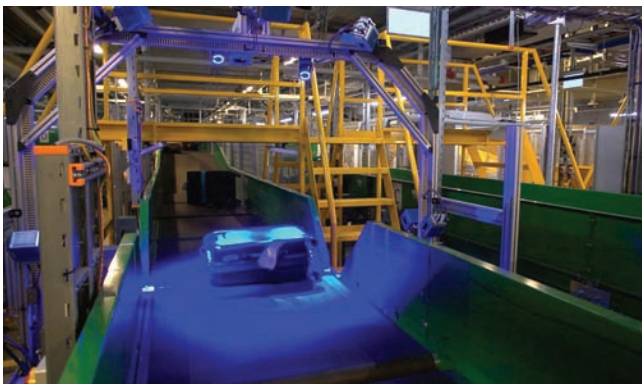
software can help to identify the flight numbers and airport codes. The integration of a VCS into the outbound Baggage Handling System (BHS) allows bag source information to be encoded while the bag remains in motion within the main BHS. This saves time by ensuring baggage flow is not interrupted, in addition to freeing operations staff from manning a fixed Manual Encoding Station position. An optional OCR can also be integrated at server level as complementary technology to minimize the number of no-read tags. For Resolution 753, cameras can be installed on all arrival and transfer belts in the airport for non-readable barcodes to be processed remotely from a central VCS coding room. One video coded scanning system can resolve bag tag reading for an entire facility.

- RFID – this includes RFID chips containing electronically stored information embedded in a tag and they offer very high readability, almost 100 percent. RFID is similar in concept to bar coding, but instead of a printed tag with static information that requires line of sight scanning, it contains a dynamic, application-specific integrated circuit (ASIC) which can be read at, and/or written to, every step along the chain. It does not require line of sight scanning. If airlines follow the IATA Recommended Practice 1740c, this will ensure the compatibility of the technology with airline data systems for RFID tags to be used in the interline baggage handling environment. RFID tags are superior in this regard, but the main barrier to their use has always been cost, but while airlines would have to pay for it, airports would also be the main beneficiary.

RFID tags have already proved successful on transfer baggage because the “read rate” is higher. They are still readable even if crumpled or wet and the price for a tag can be justified by the reduction in baggage having to be routed for manual encoding.

Resolution 753 may boost the use of hybrid paper bag tags with both an RFID antenna and a barcode; or an alternative would be the use of permanent RFID tags, which are either permanently embedded in the suitcase or permanently attached as a tag. Major international airports such as Hong Kong and McCarran have already carried out this type of upgrade and now utilize this type of technology.

- Where to install the equipment – By 2018, all airports will need to establish if they have the appropriate infrastructure in place to support the requirements of Resolution 753.



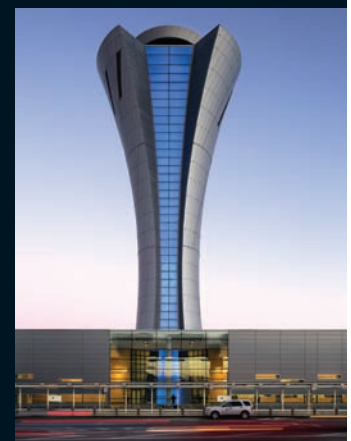
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When considering how to demonstrate the delivery and arrival of bags at the three specified places – aircraft loading, arrivals inject and transfers inject - there are a number of scenarios to consider:

- Arrivals unload/inject – The main challenge here will be to find a solution that fits all airlines’ needs, especially if half the airlines serviced by the airport choose RFID while the other half settle for manual scanning.



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

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# BAGGAGEHANDLING

Two parallel systems will need to be set up to manage both sets of baggage.

- Transfers inject – Most airports are already supported by Automatic Target Reader solutions (ATR), Manual Encoding Station (MES) and Baggage Reconciliation System (BRS) technology.

For efficient transfer of baggage, the future lies in sharing data to make it easier to anticipate possible risk and then target it for reduction or elimination. A transfer baggage monitoring software will enable baggage handlers and operators to detect potential problems allowing positive action to be taken. The system displays detailed information about selected flights and transfer connections and shows flights with the most critical connection times at the top of a priority list.

- Aircraft loading – This is supported by ATR technology and BRS. Some airlines scan as late in the baggage handling process as directly in the hold, which is the last change of custody.

## PHYSICAL CHALLENGES IN AIRPORT BUILDINGS

Another aspect of Resolution 753 is the physical challenge that lies in the infrastructure at airports where the conveyors or claim carousels might not be designed for attaching scanner arrays. Many older airports are not designed with these requirements in mind and so additional infrastructure will be needed.

The implementation of Resolution 753 promises to bring benefits to everyone involved because accurate information about the whereabouts of baggage not only reduces mishandling complaints, but can also help to speed up reconciliation and flight readiness for departing flights and help measure performance.

Although IATA Resolution 753 is primarily the responsibility of the airlines, there will be no quick-fix solution for airports. Co-operation between airlines, handlers and airports is essential to ensuring that every party involved

shares the responsibility of making the new regulations work and equally benefits from their implementation.

Airlines will consider using more advanced technology such as cameras to help the airports read the information and airports may have to invest in more sophisticated scanner systems, and IT and controls upgrades.

This cooperation likely to be fruitful in other areas. The enhanced tracking and tracing of bags should lead to more transparent processes where problem areas and bottlenecks can be identified. This will make it easier to pinpoint process areas in need of improvement.



## ABOUT THE AUTHOR

Philip Heacock

Philip Heacock is vice president of airport controls integration for Beumer Group.

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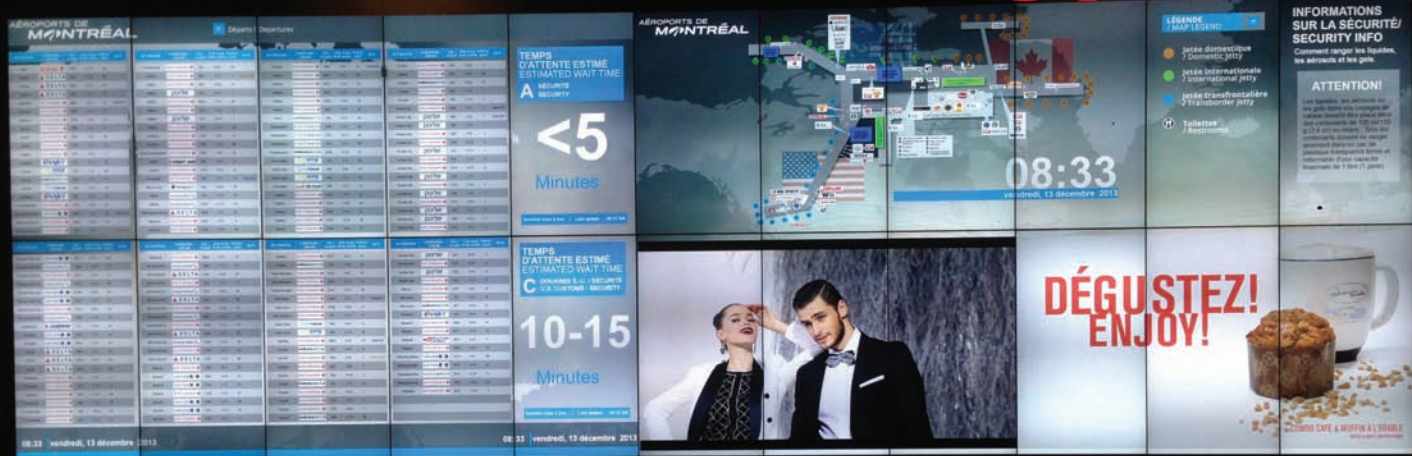
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# Airport Technology:

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## Building the Customer Experience, Concessions & Retail, Going Green

*Strategic use of digital signage in airport terminals offers a valuable way to increase customer experiences and increase revenues.*

**W**ith technology continually improving, one of the best ways to apply it is in ways that make our lives easier. Certainly, that's often the goal with most technologies, yet with travel often being one of the most stressful experiences for people, streamlining the process is ever so important.

One way to simplify this process is through digital signage. By utilizing digital signage, airports can reduce perceived wait times, utilize wait times to share information and ease travel stress with directional signage and trip updates, all of which contribute to increased customer satisfaction.

Moreover, beyond the traditional uses of digital signage for travel updates, signage technology in airports can be used not only to garner advertising revenue, but at a minimum, also enhance concession and retail shopping experiences.

### BUILDING THE CUSTOMER EXPERIENCE: COMMUNICATION AND ACCESSIBILITY

The entryways to airports tend to be the heaviest areas of traffic. These locations are where guests check in and out, where they enter and exit the airport, and oftentimes, where they meet their friends, family and co-workers. These ingresses are the perfect places to share pertinent information. However, with so much activity concentrated at these points it can also be difficult to get travelers' attention. Through eye-catching displays and consistently changing content, digital signage provides travelers with up-to-date travel information. Displays can also be used to provide ticketing, navigation, emergency alerts, and entertainment.

By implementing way-finding and self-service kiosks, travelers can check themselves in, print tickets, locate facilities and more.



# DIGITALSIGNAGE

These kiosks also enhance the customer experience, reduce staffing costs and more efficiently utilize resources.

Airports can offer greater convenience to travelers by focusing on mobility. By developing an app or incorporating mobile integration, the convenience factor is even more prevalent and valuable to the traveler, especially at airports. Through mobile integration, benefits like checking in and out, checking flight information, submitting a cancellation and requesting services are readily available giving the traveler better control of their experience.

## ADA COMPLIANCE

In 1990, the Americans with Disabilities Act (ADA) was signed into law to prohibit discrimination and ensure equal access and opportunity for those with mental and physical disabilities in the areas of employment, public entities, public accommodations, commercial facilities, telecommunications and more.

In 2010, additional provisional regulations were signed into effect to revise the area of Accessible Design, enhancing the lifestyles of the over 54 million disabled Americans. These regulations ensure public spaces have, among other accessibility features, clear pathways and curbed ramps.

For airports, this law affects the planning of many digital signage applications including kiosks that sell tickets and video wall displays. For example, video walls that are between 27" and 80" off the floor must be less than 4" off the walk to allow for the visually impaired to easily walk past.

In the past with large and bulky displays, ensuring compliance in this area was a bit more complicated. This required integrators to recess displays into the wall, which took more time and was often more complicated and expensive. Now, displays are slimmer and lighter, which helps to accommodate this requirement.

ADA regulations also apply to the construction and functionality of digital signage kiosks. If your device has touch features, the maximum height off the ground is 48" with a max reach of 10".

With a reach larger than this, it requires a shorter kiosk.

Integrating ADA compliant kiosks has become easier. Advanced IR sensors are used to determine height and cater the placement of touch capabilities on displays in accordance with ADA regulations.

A multitude of additional options exist for compliance in digital signage, including voice responsive software, Braille keyboards and tactile signs.

By making all signage engaging and accessible, each and every traveler can be the beneficiary of new technologies.

## CONCESSIONS: MENU BOARD BENEFITS

Digital signage offers a multitude of benefits for concession stands in airports, particularly when compared to the static signage used by a large portion of food stands today.

- **Flexibility:** Digital menu boards offer the flexibility needed to update content instantly and remotely. (e.g., Promo items and menu content including new items, prices, sold-out items, calorie counts, etc.). This ability smoothly accommodates day-parting, the ability to change the breakfast menu to feature the lunch menu – from a remote computer.
- **Increase in sales:** Animated menu content is more eye-catching than static signage, which further entices customers to make additional purchases. This too offers concession stands the chance to visually promote new, healthier options.
- **Decrease in operational costs:** No need to regularly pay to update the signage due to wear and tear, or for updates on the menu items, nutritional details, promos, etc.

Most importantly, new digital menu boards offer the opportunity to feature nutrition details, a great solution for frequent travelers who are trying to maintain a healthy lifestyle and/or those with food sensitivities. Individuals will no longer need to avoid restaurants or food providers with foods they feel are "bad,"

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while they look to reduce calorie, carbohydrate, and/or fat intake, depending on their dietary needs and health goals. The ability to have this information while on-the-go is a great way to attract business from health-minded travelers.

By offering nutrition information in an engaging way, concession stands at airports can:

- Create food awareness, allowing customers to feel confident in what they are purchasing by making an informed choice.
- Help customers to make purchases based on the quality of food over quantity or price.
- Increase customers' chances of weight loss success as visually seeing calorie counts helps individuals maintain mindfulness of their dieting goals.

By offering further nutrition information to customers in an engaging way, both the customer and airport concessions can see benefits.

## RETAIL DIGITAL SIGNAGE

Utilizing digital signage in retail shops throughout the airport too offers vast benefits:

- **Stock levels:** Airport retailers can utilize kiosks to offer digital customer service. Offering in-store kiosks allows customers to search inventory online for out of stock items. By offering free standard shipping for orders placed at these kiosks, retailers can negate lost sales due to sold-out items. Kiosks can also be used to print out coupons for these items to be purchased at a later date when the individual is traveling again.
- **Sales:** Inside the store, digital signage can be used to feature videos and/or stills suggesting some of the very best items or deals to help generate sales. Signage here helps consumers come up with gift ideas and informs them of sales and promotions. The signage can also benefit the retailer. For example, retailers can look to supplier-sponsors to offset some digital signage maintenance costs.
- **Modeling:** New large-scale displays are changing the retail landscape as a whole. Travelers who wish to purchase clothing at the airport no longer have to simply wonder how something will look on them. Large format displays now allow individuals to see clothing on life-size models who appear nearly 3D on 4K screens. Prior to these screens, retailers would utilize a combination of smaller screens to achieve this experience, though not seamless due to the screen bezels.

When used in store windows, these large screens allow retailers to forgo the lengthy process of changing window displays. Additionally, content can quickly be updated with new sales or models' attire can be tailored to the current weather conditions or even for the weather conditions for nearby flights' destinations.

## GOING GREEN AND REDUCING COSTS

The pressure to reduce both costs and go green can be quite substantial for airports. But, where can airports afford to cut corners? The real answer is nowhere. However, with some strategic decision-making, there is money to be saved in operational costs.

There are many variables to be considered when analyzing possible operational costs reductions in digital signage. Purchasing cheaper quality screens can hurt both the traveler's experience and the airport. If airports anticipate signage to last for three years, there are clear considerations such as upfront pricing, the cost of service, maintenance and software updates. Cutting corners on screens or any of the hardware can cost airports more in the long run.

Location can also impact ongoing support costs. Where will the display be located? How high is it? How easy is it to access the signage? Can it be accessed and updated remotely? The answers to these questions affect operational costs. Even so, in terms of functionality and return on objective (ROO), access to a display can often make or break a digital signage installation, particularly if corners are cut upfront. For example, "secure" airport locations may not be quickly and easily accessed for service.

There are smart choices that can be made with indoor digital signage to reduce operational costs related to energy consumption. This lies in the choice between the LCD and LED display. LCD displays, which utilize the light modulating properties of crystals, do indeed use less energy than traditional tube displays. By moving to LED displays rather than LCD displays, airports can find anywhere from a 30 percent to 60 percent reduction in energy and power consumption. This can be a huge savings for applications with multiple displays, particularly those that must run continuously. LED displays can also be incorporated into energy efficient and green certified buildings.

Beyond hardware, the way to reduce maintenance costs is simple: perform maintenance.



**Peerless-AV self-serve kiosk implemented in airport QSR application**

Peerless-AV

A proper service package/regimen is the best way to reduce costly malfunctions. A remote monitoring system can keep an eye on signage, while negating the cost of the man-hours needed to physically come out to check on displays. Airports can remotely check if the display turned on and off and it will alert airports when something goes wrong. Each display in a network can be checked to ensure that it is up and running. Knowing something is wrong before the traveler does is the best-case scenario.

*Peerless-AV is a member of the Digital Signage Federation, the only independent, not-for-profit trade organization serving the digital signage industry. The DSF supports and promotes the common business interests of worldwide digital signage, interactive technologies and digital out-of-home network industries. To learn more, go to [www.digitalsignagefederation.org](http://www.digitalsignagefederation.org)*



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**Nick Belcore**

**Executive VP Peerless-AV**

Belcore is responsible for all Sales and Business Development initiatives generated from the company's worldwide headquarters. In this role, Belcore oversees the development of strategic business relationships and oversees the Business Development team, which manages global Digital Signage installations and programs for large-scale retail and commercial customers. Belcore also works closely with the Product Management team to ensure the success of each product launch.





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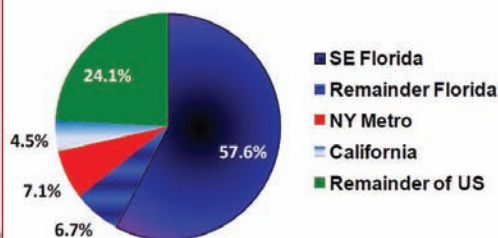
# CUBA SERVICE BRINGS

# BIG

# QUESTIONS

*Airlines are restarting service from the U.S. to Cuba for the first time in 50 years, but questions remain about demand and how airports will be impacted.*

Cuban-American Distribution



# W

ith geopolitical relations quickly evolving in the western hemisphere, some U.S. airports will become beneficiaries to these changes.



U.S. to Cuba air service is set to begin again as the final relics of the Cold War come down.

Michael Boyd, president of Boyd Group International, said during a July webinar the present demand for Cuban travel is relatively unknown, but one thing is certain — in coming years it's going to be “a whale of a destination.”

“We think Cuba could be a mini version of what happened in China where 30 years ago you couldn't walk down the street without getting shaken down by a red guard, but now today, you can't walk down the street without getting hit by a BMW,” he said.

Airlines service from the U.S. to Cuba will start up by the end of the year under an agreement signed by the federal governments of both countries in February. The agreement allows for up to 20 roundtrip flights per day between the U.S. and Havana, and up to 10 daily roundtrips between the U.S. and each of Cuba's nine international airports.

In June, the U.S. Department of Transportation (DOT) approved the applications to provide service to Havana to Alaska Airlines, American Airlines, Delta Air Lines, Frontier Airlines, JetBlue Airways, Southwest Airlines, Spirit Airlines and United Airlines.

In July, DOT announced the services would originate from Hartsfield-Jackson Atlanta International Airport (ATL), Charlotte Douglas

International Airport (CLT), Fort Lauderdale-Hollywood International Airport (FLL), Houston George Bush Intercontinental Airport (IAH), Los Angeles International Airport (LAX), Miami International Airport (MIA), Newark Liberty International Airport (EWR), John F. Kennedy International Airport (JFK), Orlando International Airport (MCO) and Tampa International Airport (TPA).

Destinations from the U.S. into Cuba include Jose Marti International Airport in Havana; Sierra Maestra Airport in Manzanillo; Frank Pais International Airport in Holguin; Santa Clara Abel Santamaria Airport in Santa Maria; Antonio Macoa Airport in Santiago de Cuba; Jamie Gonzalez Airport in Cienfuegos; Juan Gualberto Gomez Airport in Matanzas; and Ignacio Agramonte Airport in Camaguey.

JetBlue set its first flight to Cuba on Aug. 31 from FLL at a cost of \$99.

Boyd said there's a demand that could be built for the future.

A projection showed 850,000 potential passengers to Cuba on an annual basis, but he called it conservative due to the makeup of the country and the potential for tourism. However, it will not be immediate due to political issues.

“There's so much there that it's a place that people are going to keep coming back to,” he said. “There's a lot of stuff happening there.

“It's also very close. You can practically see it from Key West, so it's very easy for people to get to.”

Some people have stressed concerns about the infrastructure in Cuba to handle U.S. flights, but Boyd said it's not necessarily a concern as airports have built out runways and many of them have modern terminals.

There have also been concerns about security issues, but Boyd said the rest of the world has continued traveling to Cuba and they have not had any issues.

“The problem I have with people from Congress who oversee this that want to look at Cuba, I want to know why they didn't go to Omaha first when they had the 96 percent failure rate,” he said.

#### QUESTIONS ON INITIAL DEMAND

Boyd said the makeup of the initial travelers to Cuba are likely to be Cubans and those who are more adventure travelers. Despite media reports of people wanting to build factories in the country, he said there will not be any business travel to the nation as the government doesn't want foreign investment. Traffic will also be entirely inbound to the nation as well.

“It's entirely inbound traffic just like it was in China in 1975,” he said. “If you wanted to get outbound, you had to hijack a MiG to get out of town.”

One of the biggest issues will be the initial demand. People who left the nation 50 years ago are now retired, Boyd said, and second generation Cuban Americans might not care.

Also, the vast majority of Cuban immigrants live in Florida, with half of the population in Miami-Dade County alone.

Boyd said its important airlines pursued these routes to get them now, but he doesn't anticipate a lot of people transferring in places like Charlotte to get to Cuba for the time being.

He said airlines are also planning on running bigger planes like A320s into Cuba, so they're going to be under pressure to make the routes work, which means at least 1.3 million passengers need to travel to Cuba per year.

“After the first six months, I think a lot of them are going to pull back on these operations,” he said.

Jonathan Keane, head of aviation for Accenture Travel, said even with the potential for growth in the Cuban market, airlines



**Miami International Airport has added 108 self-service passport control kiosks to its facility in recent years.**

*Miami-Dade Aviation Department*

will still need to keep the routes in line with current standards that make them profitable. Flights will still need a 75 percent load factor and they will still need to be tightly organized.

Creating new service to an emerging market means challenges with infrastructure and customer experience, which Keane said continues to evolve.

Keane said the service could serve as a catalyst for the two nations and building interconnectivity, but it will be interested to watch given how fast the service is being developed.

"Other services normally spend a year on just the normal processes and this has been much shorter," he said. "That adds a lot of pressure to the airlines to ensure it's profitable."

Alaska Airlines will have flights from LAX to Cuba, but Boyd said he questions how the airline will fill seats now.

In 2015, there were 3,000 specialized flights between the U.S. and Cuba, Boyd said, and only five of those originated from west of the Mississippi River.

"They will really need to stimulate the growth," he said. "Will there be a lot of connecting traffic in Charlotte? I don't think so, but southeast Florida will have service out the Wazoo."

Airlines getting routes to Cuba have "a license to print money," in the long-term, Boyd said, as the country will continue evolve.

"In 1977, if someone told you that we'd have 3 million Chinese people coming to the U.S. and going back to China, they would have called you crazy," he said.

## PREPARING AIRPORTS FOR THE UNKNOWN

FLL was awarded the most flights to Cuba by DOT with about 122 going to various cities on the island per week. While there's a strong Cuban population in the metro area, there's little idea about what's going to actually happen in terms of need and demand.

"We haven't had service there, there's no data out there and no other markets like this," said Steve Belleme, business development manager for the airport. "We've talked to the carriers and they're not quite sure how to address this or how it's going to shake out."

Between FLL and MIA there will be 31 flights per day from southeast Florida to Cuba, so there's no projection if they can fill the

planes, Bellame said. JetBlue had run charters from FLL to Cuba a few years ago from the airport that were pretty full, but he said it was only one flight per week.

"Some of this, talking to JetBlue is a lot of times based on the possibility of connectivity from people coming down from the Midwest to go to Cuba," Bellame said. "I think the airlines are looking to a certain extent to be serving more than the local market."

Greg Chin, communications director for the Miami-Dade Aviation Department, said MIA already handles an average of 16 daily charter flights to and from Cuba for a total of 907,263 passengers in 2015, which makes Cuba one of its 10 busiest international markets. Passengers to and from Cuba grew 30 percent in 2015 year-over-year and that growth rate has continued.

Overall passenger traffic at MIA has grown 24 percent since 2010, with eight percent growth in 2015 alone.

"In the last five years, MIA has prepared for projected growth with improvements such as: opening a new 66-lane passport clearance facility; adding 108 self-service passport control kiosks and 24 Global Entry kiosks; being the second U.S. airport to offer Mobile Passport, an app that helps speed U.S. and Canadian citizens through the clearance process; and being the first U.S. airport to partner with CBP in a pilot program that allows the majority of its passengers arriving from abroad to clear passport control and exit the Customs area without a second inspection by CBP officers after collecting their luggage," he said. "Thanks to these improvements, more than half of our international passengers now receive expedited passport screening electronically, and MIA has the capacity to handle continued passenger growth."

FLL is preparing all entities for the unknown amount of service about to start by the end of the year. Bellame said U.S. Customs and Border Patrol officials need to figure out how to handle an increase in processing flyers from Cuba, how to fit the extra flights into the airport and how to fit all the planes at the terminal.

The airport has six international gates, but a construction project will drop it to five when service starts before five more gates open in 2017.

Nancy Suey Castles, public relations director for LAX, said in an email that Los Angeles World Airports (LAWA) officials are very



## CITIES GETTING AIR SERVICE TO CUBA

- ▶ Atlanta
- ▶ Charlotte
- ▶ Fort Lauderdale
- ▶ Houston
- ▶ Los Angeles
- ▶ Miami
- ▶ Newark
- ▶ New York City
- ▶ Orlando
- ▶ Tampa

## AIRLINES OFFERING SERVICE TO CUBA

- ▶ Alaska Airlines
- ▶ American Airlines
- ▶ Delta Air Lines
- ▶ Frontier Airlines
- ▶ Jet Blue Airways
- ▶ Southwest Airlines
- ▶ Spirit Airlines
- ▶ United Airlines

pleased LAX will be part of this resumption of scheduled air service to Cuba.

American Airlines began weekly charter flights in December that runs on Saturday's and success on this route reflects this great local demand, she said.

"Because LAX is already serving Cuba, albeit once a week with a charter flight, airport operations are not expected to be significantly affected," she said. "Federal inspection of international arriving passengers is well-established at LAX, as well as with the weekly charter flights by American. Alaska Airlines' lease gives them several preferential gates at Terminal 6, where they already operate several international flights, mostly to Mexico."

In terms of the actual number of daily international flights, Suey Castles said Alaska Airlines would be considered the busiest international airline at LAX.

"LAX is an 'open port,' we don't allocate slots," she said. "So, if new flights are operated by permitted airlines, we're confident that LAX will be able to address any additional needs



**Mobile Passport helps speed U.S. and Canadian citizens through the clearance process.**

*Miami-Dade Aviation Department*



the airline may have and accommodate the new flights.”

Sun Country was awarded charter flights to Cuba, which will run from Minneapolis/St. Paul International Airport (MSP). Patrick Hogan, director of public affairs and marketing for the airport said Cuba makes a great addition for the cold weather community.

“Sun Country hasn’t announced its plans for the approved Cuba service yet, but from an airport standpoint, we’re ready when they are,” he said. “In fact, we have four new common-use aircraft gates coming on line at Terminal 2, where Sun Country operates, this October.”

Southwest has never flown internationally through FLL, Bellame said so it’s learning now.

“You know, I worked for an airline about a million years ago that had Cuba service and every night you never knew when the flight was going to come back,” Bellame said. “Every night there could be problems like ground handling problems or whatnot. There’s a lot of unknowns and even going in the middle of the day, there are a lot of snags with the infrastructure and it could come back and all of a sudden it’s two hours late and in a congested area, which created operations issues.”

Bill Peacock, consultant for Robinson Aviation Inc. and former director of air traffic

for the FAA, said airports that could see service impact include Key West International Airport (EYW), Miami-Opa Locka Executive Airport (OPF) and Naples Municipal Airport (APF).

“We’re not taking any special precautions at this point,” he said. “We’re going to be watching the traffic mainly at Key West, Opa-Locka and Naples. There’s a lot of corporate jets coming in and out of Naples with a lot of wealthy people and some of those folks might want to go to Cuba, so we’ll be watching those airports and seeing if we need to take action.”

Peacock said Cuban air service was done at one time, so he said it really just involves updating procedures and protocols.

“The folks over at Miami Center and in Cuba have a lot of common challenges and already talk to each other routinely when flights are flying over Cuban airspace,” he said. “We have a working relationship with Cuba already, so it’s not we’re starting from scratch.”



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# A New Level of Passenger Comfort

**I**ndependent airport lounges have been a regular thing outside the United States for more than 10 years, while U.S. travelers have always relied on gaining access to airline-branded airport lounges. But that is now changing.

Companies like Airport Lounge Development (ALD), Escape Lounges and Graycliff are showing up at airports including Phoenix Sky Harbor, Cincinnati/Northern

Kentucky International and Minneapolis-St. Paul International. Some are offering alternatives to existing airline clubs, while others are filling what they see as a gap in service.

Henry Harteveltdt, founder and travel industry analyst for San Francisco-based Atmosphere Research Group, notes that several factors have contributed to the growth of independent airport lounges in the U.S. "First and foremost is that the real estate is available. Airlines had lounges and vacated them and airports wanted to find new ways to use them, so these operators stepped in," he said.

Dwell times in airports have increased, Harteveltdt said. "Passengers are spending more time at airports because sometimes TSA lines work well and sometimes they don't. So travelers get to the airport earlier and once they



Manchester Airports Group USA (MAG)



pass security, they have time to kill until their flights," he said. "Significant numbers of business and leisure travelers are willing to spend extra money to have a more comfortable trip, and lounges are part of that comfort."

## DEMAND GROWS

Nancy Knipp is the senior vice president at Airport Lounge Development Inc. (ALD), which operates The Club at eight facilities: Atlanta, Cincinnati, Dallas/Fort Worth, Las Vegas, Orlando, Phoenix, Seattle and San Jose. She believes that there are now forces at work in the U.S. fueling demand for independent lounges.

"The airlines dominated the lounge industry for years. But as they make changes, they are becoming a lot more exclusive when it comes to who gets into their lounges," said Knipp, who was previously president and managing director for American Airlines' Admirals Clubs. "They are making a lot more investment in their lounges, and that investment has really driven them to try and differentiate the experience for their most important customers. The airlines are becoming a lot more exclusive in deciding who gets in."

Another issue driving the growth of independent clubs is the rise of international travelers and airlines coming into the U.S., Knipp said, who noted there has been a nearly a 20 percent increase.

"You have people coming over to the U.S. who are used to having access to lounges," she said. "They are coming to the U.S. and demanding them. And as international airlines fly into the U.S., they are looking for a lounge product, but unfortunately, there just isn't the room to have each airline have their own lounge. All of this has led to a sort of the perfect storm for independent lounges to really take off."

Rosemarie Andolino is president and CEO of Manchester Airports Group USA (MAG) who previously served as commissioner of aviation for the city of Chicago, including O'Hare and Midway airports. MAG, which operates independent lounges in the U.K., opened the Escape Lounge at Minneapolis-St. Paul International Airport's Terminal 1 in November 2015, and is opening outlets at Oakland International and Bradley International later this fall.

Andolino believes that independent lounges have grown in the U.S. because customers want more choices in their products.



Manchester Airports Group USA (MAG)

"There was 5,000 square feet of space on the mezzanine level of Minneapolis-St. Paul with beautiful natural light, great views of the airfield and a great location that was being used for storage," she said. "It's just another option that airports can offer customers, because they do want choices. Airports are serving thousands of people a day and it's finding the mix of what those customers desire. Independent lounges like Escape offer one-stop shopping."

Paolo Garzaroli manages outlets of the Graycliff Boutique & Divans at Cincinnati, Nashville and the Bahamas' Lynden Pindling International airports. "Travelers are looking for alternate options to airline lounges for flexibility," he said. "We have agreements with Priority Pass as well as other programs, so their members are frequent users and they get special benefits with us. They also are not locked into a single program that if you fly another airline you cannot use the lounge."

That's where shared lounges come in, said ALD's Knipp.

"Our lounges can be very beneficial for airports because you can actually have airlines that can use that lounge and they don't have to build their own," she said.

But it is a sell to airports in the beginning. "Airports have to believe that a properly run independent lounge is an essential service. We took over old smoking lounges in Cincinnati and Nashville, upgraded them and made them a civilized place to be," Garzaroli said. "In Nassau, there is no airline lounge, so with the new airport it was the ideal thing for us. We offer a premium service to the airport and the passengers. It allows them to escape to our oasis."

## THE RIGHT FIT

MAG meets with airports and educate them on what it has to offer, said Andolino. "It provides the airport with revenue and customers a convenience and an option," she said. "Not everybody is a frequent traveler, so they do not have membership to airline clubs. With Escape, they can access it anytime they travel."

Knipp said ALD focuses on the benefits of an independent lounge to airports.

"It helps them better utilize real estate and serve international airlines that want to offer a lounge to their customers," she said. "It also provides options to airlines that may want to offer a lounge product without having to build one. And the airport gets needed revenue from space

# LOUNGE DEVELOPMENT

that may not be otherwise utilized and offer travelers a welcomed service.”

The biggest audience for independent lounges is with customers that already have a Priority Pass card — a partner of ALD — in their pocket, Knipp said. “That membership gives them access to lounges around the world. Passengers can arrive early at the airport, where they spend money in the terminal, then go to the lounge to unwind,” she said.

Airports are looking for that right mix of products, which can include independent lounges, Andolino said. “And it’s a great amenity that airports can offer. Travelers get all the food they can eat and all the drinks. We have charging stations within our furniture and all over the

The U.S. economy has improved and people want to take the edge off travel and lounges help do that

**HENRY HARTEVELDT, FOUNDER AND TRAVEL INDUSTRY ANALYST FOR SAN FRANCISCO-BASED ATMOSPHERE RESEARCH GROUP**

lounge,” she said. “There are quiet places to read, people can then watch TV or do work. They have access to iPads or print documents they may need.”

All three operators have criteria they use to determine which airports are ideal for independent lounges. For Graycliff’s Garzaroli, it’s simple: airport traffic. “That’s followed by the location of the lounge in the terminal. As each airport is run differently we adjust our criteria to the location,” he said.

As for space needs, it depends on the size of the lounge, Garzaroli said. “In Nassau’s U.S. departures, we offer a full-service lounge with food, a full bar and three seating options: indoor air conditioned non-smoking, indoor air-conditioned smoking and an outdoor sundeck, at about 10,000 square feet,” he said. “In Nashville and Cincinnati, the size varies from 500 to 700 square feet, as we only offer smoking lounge options.” One of the first things ALD does is look at the profile of an airport relative to domestic and international travel, said Knipp.

“Ideally we want the optimum location in

a market that draws international travelers because they tend to be a lot more lounge savvy,” she said. “If an airport comes to us and says we’re looking at adding a lounge, we have a model that we use to determine if it will fit, looking at things like space, traffic mix and enplanements. We actually map it out, so we can show them the peaks and the valleys based on their flight schedule, and tell them the optimal size of the lounge.”

ALD builds lounges to accommodate not just peak travel, but at least 20 percent above that, said Knipp. “In your lounge, you don’t want travelers sitting on top of each other,” she said. “Our average lounge size is about 5,000 square feet, but we have gone to as high as 7,000 to 8,000 square feet, so it depends on the airport.”

MAG looks at airports where it sees some voids, said Andolino. “Oakland put out an RFP for a lounge and we responded to it and were selected. Ideally, we’re looking all airports, but they all have facilities and terminals that are unique and different,” she said. “So we access them one by one to determine what makes business sense and if there’s capacity and a market.”

A typical Escape Lounge is around 5,000 square feet, said Andolino. “But we have the ability to adjust and be flexible, delivering anything from 1,000 to 10,000 square feet.”

## AN IMPROVED CUSTOMER EXPERIENCE

ALD charges \$40, while Graycliff lounges range from \$6 to \$11 in its U.S. lounges and \$15 to \$25 in the Bahamas. MAG charges \$45 or \$40 if you pre book a space.

The Club customers get complimentary beverages that includes alcohol, premium beers and wines, said Knipp. “In the morning, we have yogurt, cereal, and some pastries, along with coffees and teas. As the day progresses, we put out selections of pastas, an olive bar, cheese sandwiches, fruit, and snacks,” she said. “One feature that has become popular is our gourmet popcorn selection, with flavors including dill pickle and sour cream and chives.”

Escapes Lounges offer have exceptional food and drinks with a local flavor, said Andolino. “There is always some selections of charcuterie, cheeses and salads. We serve breakfast, lunch and dinner and snacks are served all day long,” she said. “There’s also a menu where somebody can elect to purchase something of more substance, like shrimp and

grits or a big burger.”

The Graycliff lounges offer Wi-Fi, televisions, newspapers and magazines, said Garzaroli. “All of our smoking lounges offer clean air through a sophisticated air filtration system that does a complete air exchange every 30 to 35 seconds,” he said. “In Cincinnati we include a drink.” Nassau offers one free soft drink and offers alcoholic beverages and sandwiches for sale.

Looking toward the future, ALD and MAG see growth, while Graycliff’s Garzaroli said his company is happy where it is for now.

“We have seven lounges in the U.S., we opened up one at London Heathrow Terminal 5 and we have a few more we are planning on announcing in the next couple of months,” said Knipp. “We are confident that we will have a minimum of 20 lounges in the next year as we continue to grow the brand. More and more airports are seeing the value of it. We are a sister company to Priority Pass, and we are the only lounge operator that guarantees access for those customers.”

MAG is now coast to coast, but there are so many airports that are ideal for an Escapes Lounge, said Andolino. “In five years, we hope we’ll be in 10 to 20 more airports, creating a network of lounges that traveler could enjoy no matter what airport they are in the United States,” she said. Harteveldt sees an enormous opportunity for independent lounges. “There are some airlines, like Southwest and JetBlue, have a national route network but don’t want to get into the lounge business,” he said. “So that creates opportunities for airports and entrepreneurs to serve an unserved market.”

There may be airports where an airline has a lounge but can’t justify it because of high costs or not enough traffic, said Harteveldt. “San Diego and Baltimore-Washington airports are great examples of this. The American Airlines Admirals Club in San Diego closed and United’s Red Carpet Club in Baltimore closed, so Airspace stepped in and took over both.” The Airspace Lounge in Baltimore has closed and ALD will take it over this fall.

The U.S. economy has improved and people want to take the edge off travel and lounges help do that, said Harteveldt. “Independent operators see an opportunity to serve underserved passengers in fragmented cities like Las Vegas, where it doesn’t make sense for airlines to operate a lounge,” he said.





# DIGITAL SIGNAGE & BEYOND

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# A True World Connection

*Since CNN Airport Network was founded 25 years ago, it revolutionized how passengers spent time at the gate and now looks at the future of travel information.*

During the first Gulf War in the early 1990s, airports found themselves in a predicament.

Passengers were interested in learning more about the events going on overseas, but found themselves isolated from the rest of the world while waiting for their flights inside of terminals. At the time Deborah Cooper was with Airports Council International (ACI), when she was contacted by CNN in finding a way to fill this demand.

Cooper came on board and helped launched the CNN Airport Network. What started out in a handful of airports has boomed into more than 250 million viewers at 47 U.S. airports in the past 25 years.

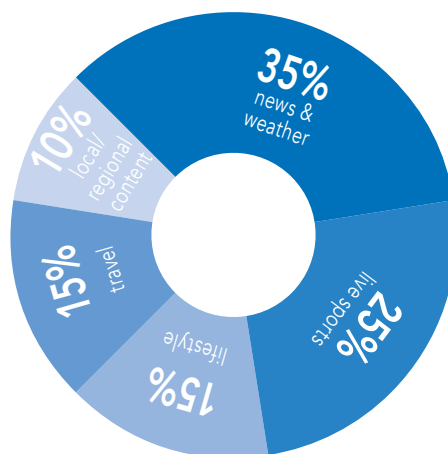
Cooper, who is still president of CNN Airport Network, took the time to speak with *Airport Business* and explain how the network has evolved and what airports could be in store for in the near future.

**AB:** Can you tell me a little bit on how you've seen the market change for the network?

**Cooper:** What happened is it started out as a 30-minute wheel with anchors. And of course before they launched full-blown airport network, there were these five airports that had agreed to be the pilot airports and the service grew from there. Research was conducted and what we found is people really wanted breaking news so they wanted to know, obviously what was going on with the stock market, weather — they could never get enough weather if it was domestic or international — so the service evolved and

with that we spend millions of dollars per year on research, so we know what our passengers want. Our service evolved from the 30-minute wheel to one hour to then two hours to then a live service. And now we're a live service that has gone from being predominantly news to now about 35 percent news and weather, 25 percent live sports, 15 percent lifestyle, 15 percent travel and then 10 percent local and regional content. So things have evolved pretty dramatically. With the introduction of

CNN Airport Network is a 24/7 live news network delivering national news, entertainment, weather, live sports, business and lifestyle features:



handheld and people traveling with on average 1.5 devices per person, that really has changed the atmosphere in the gate area.

**AB:** Can you tell me how CNN Airport Network looks at competing or complimenting the mobile devices given how that has changed the makeup of the gate area?

**Cooper:** As you know, with the mobile devices, people get news and information pushed to them whereas through our research we have shown people are at the gate for on average more than an hour and they're watching for 53 minutes. Does that mean they're watching intently for that full 53 minutes? No, but, if they're sitting in a zone that is the viewing zone they're hearing the audio so they're engaged with their devices — they may be on their computer, they may be on their phone, they may be reading a magazine — but when something of interest is introduced, they look up and they watch. We find that there is a compliment to that. Plus, if there's a story on CNN that they want to know more about, they can dig deeper into CNN.com and get

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& Exposition

# SYNERGY:

**DRIVING INNOVATION  
& COLLABORATION**

14 – 16 NOVEMBER 2016

SYNERGY | sinərjē | noun | The interaction of elements that when combined produce a total effect greater than the sum of the individual elements, contributions, etc. From Greek sunergia meaning 'cooperation' and sunergos, meaning 'working together.'

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 #ACC38

# CUSTOMER EXPERIENCE

more on that story. So, we feel that there is a back-and-forth and a complimentary relationship there.

**AB:** Can you tell me about what it is that's driving the content and the research you do to reach passengers on a monthly basis or weekly basis?

**Cooper:** Well, we day part, so we know that in the morning, at 6 a.m. we have CNN programming and at 7 a.m. we have Rob and Me,

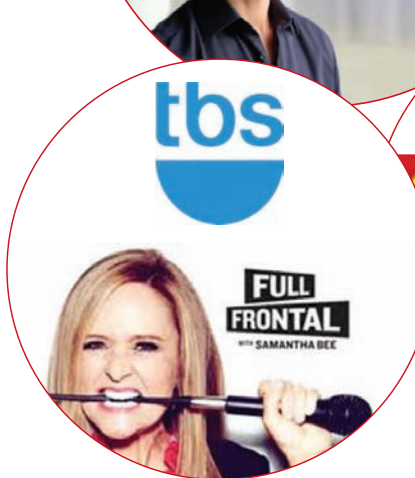
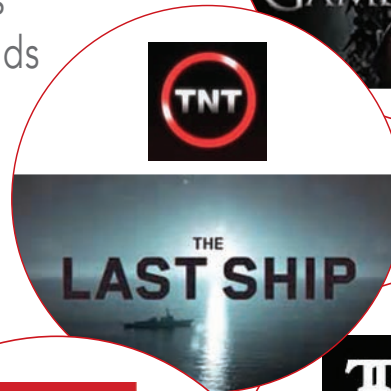
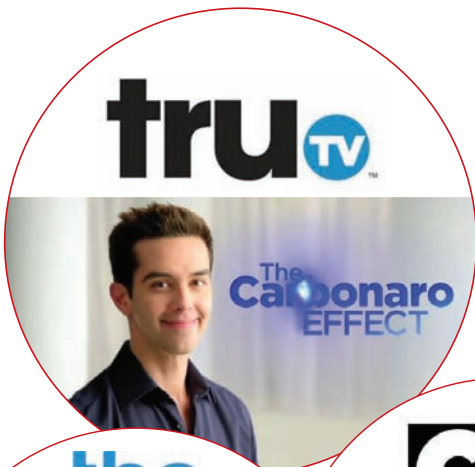
which we have until 10 in the morning, then we go into lighter fare. The lighter fare can be our feature pieces, whether it be Anthony Bourdian or Morgan Spurlock. We have custom pieces produced by airport network, which include guides to gorgeous destinations all around the world and who doesn't want to sit in a gate hold and dream about your next vacation? We have travel tips for frequent flyers, how to stay fit when you're in the road, highlights to the

latest trends at airports around the country so when they're traveling they know there's a putting green here, there's a spa there, you can get your nails done in Atlanta on X concourse. There's lighter fare during the day then around the 4 p.m. hour we're going back to Jake Tapper and Wolf Blitzer and so we have the harder hitting news around that afternoon early evening peak time. Then in the overnight hours we do CNN International.



## AIRPORT

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**AB:** Your network does a lot to respond with social media. Can you tell me a little about how that works and how you're looking to engage the audience to build or create content?

**Cooper:** I wouldn't say it's the response to social media in particular. We certainly catalogue all the tweets that we get about our programming and mostly it's thumbs up when there are live sporting events. We've got all the NFL games and the Super Bowl and the NBA and the NCAA so I would say a lot of our tweeting goes on during those live sporting events. What I'm looking at here, something they wrote that says "flight is delayed, riots averted we're all watching the Carbonaro Effect on CNN Airport Network..." (A) irport Network does filter its news. We focus on family-friendly programming. You can have children and grandparents watching and we want to be sure there's nothing frightening or disconcerting that upsets passengers when they're sitting in the gate hold. Clearly there's not going to be anything about airline crashes, hijackings, nothing of a violent or sexual nature that we include in our programming.

**AB:** What are airports asking from your network?

**Cooper:** Airports really want to No. 1 keep their passengers informed and entertained. No. 2, they like the idea of giving a flavor of the city or town that that traveler is in. With that, we have six minutes of local time that is given to every airport

where they can promote themselves, the city, the region, events that are happening either in the airport or in the community. I think using that local time is a way for the airports to convey the sense of what that city, town or region is all about. We've found now that about 26 airports use that now — the local promotional insertion — to promote themselves and sometimes they even promote their concessions.

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CNN Airport Network



CNN Airport Network



# CUSTOMER EXPERIENCE

**AB:** Looking at where you are now and where you want to be for the future, are there any areas you really want to see the service grow or improve from where it is today?

**Cooper:** I think the interesting thing is technology is always rapidly expanding and changing and we have gone from originally bicycling tapes out to airports to satellite delivery of content and now to IT delivery and function. With that, there are myriad things that can be accomplished whether it's delivering specific information to a gate hold area or allowing some interactivity through the TV. I think that's the area we're really focused on — what are the exciting and new things we can deliver on with technology. With our Wi-Fi partners in Miami, we're delivering a version of CNN in español because 65 percent of their travelers are Spanish speaking. While we can promote that on airport network it is a Wi-Fi delivered service that allows Spanish speaking people to enjoy our Spanish programming.

**AB:** Given the different technologies out there how do you decide what to go with when installing in a new airport or improving service at an existing airport installation?

**Cooper:** You can imagine the engineering staff we have here at CNN. It's call Best. They really are the best in researching and determining which technologies to go with. Just like an airport, whenever there's an opportunity to upgrade or install new technologies, Best engineering will do all that researching for us and come up with a short list of three candidates who we then work with to determine who is the best. (A)nother area we look into expanding is

we look into the international arena because as you're aware, CNN is a global brand and certainly well respected around the globe. We have discussions underway with a couple of international airports that I can't mention at the moment, but that's certainly always on our horizon.

**AB:** Can you tell me when it comes to programming what it is that the network will be delivering in the next 10-20 years?

**Cooper:** Not being a technology person, it's hard for me to opine out, but we always want to reinvent ourselves, so obviously we're looking at how do we become more interactive. Is there a way with beacon technology that we can perhaps deliver more information about how to get the information that you really want as a traveler, whether it's about a news story or its about a destination that you want to find about what to do, whether it's restaurants to visit or places to visit. How will that interactive technology work? That's the kind of thing we're looking into as well as with IT delivery there's a lot of data that can go back and forth that we will learn a lot more about passengers and they can get in-depth information that they're interested in. The other thing I've noticed as I fly — and I'm a frequent flyer — is that people love games. Even when we did the CNN quiz show I noticed people looking up and trying to beat the experts. Well, how would we go about making that really an interactive opportunity where they really would be playing with Anderson Cooper and Jake Tapper and some of our anchors? That would be of interest.

CNN Airport Network airs some of the most exciting events in sports:



- NFL: The network airs more live NFL games than any other network, from the pre-season to the playoffs, including the Super Bowl.



- NBA: Travelers won't miss a beat with weekly NBA games, with nightly games during the playoffs.

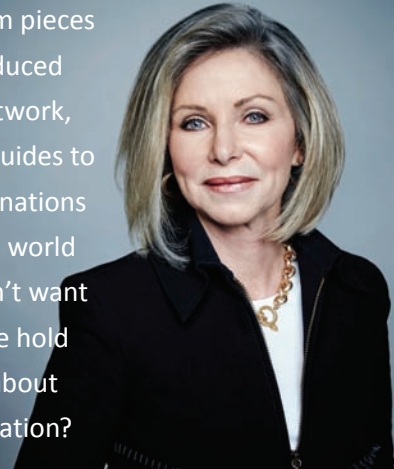


- MLB: During October, baseball fans can cheer on their favorite teams with the MLB post-season from both the American and National League games that air live on CNN Airport Network.



- NCAA: Air passengers can keep their March Madness brackets up-to-date while on the road with select live NCAA college basketball tournament games

We have custom pieces  
that are produced  
by airport network,  
which include guides to  
gorgeous destinations  
all around the world  
and who doesn't want  
to sit in a gate hold  
and dream about  
your next vacation?



**AB:** What do you think CNN Network has done to contribute to the overall airport experience and for passengers?

**Cooper:** I think it's connectivity. The idea that airports are there to make connections and we have provided that connection to the rest of the world that before you had devices and before you had CNN Airport Network you didn't have. That's why I believe this service came out of a passenger demand. They felt isolated in a terminal and wanted to know how do I connect with things that are important to me — world events, domestic events weather, the stock market, sports updates. It's connectivity and making that connection. Let's face it, airports are all about connection.

**AB:** Outside of the technology aspect, is there anything on the near horizon in the near future for new types of programming?

**Cooper:** We're always looking at new programming and CNN is always creating new programming. One of the things, the Great Big Story, which just came out in this last year is really driven by social media with these mini videos that's not about cute kittens and listicles. It's about stories of interest but done in very sort segments. We recently have included that in our programming and it has been extremely popular. We're always on the lookout with CNN and Turner Broadcasting...so we're creating little miniseries of things that are on TBS and TNT that are of great interest to the passenger because they're just enough to keep you interested but you're not going to miss your flight.





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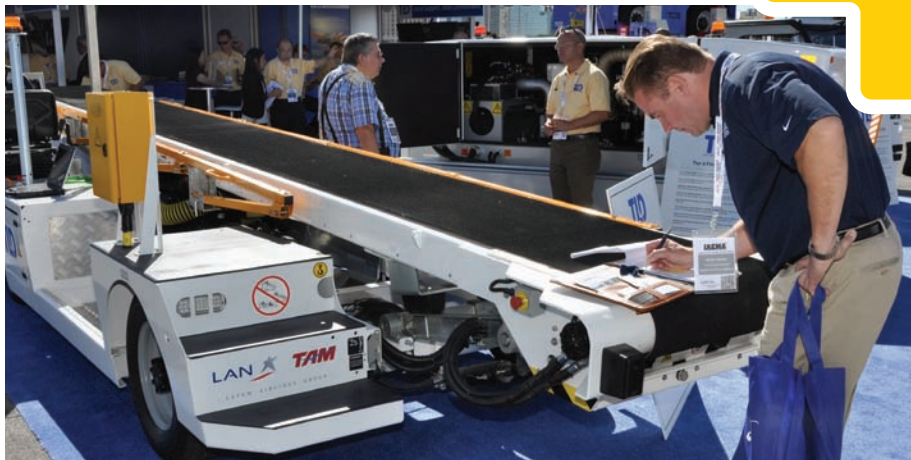
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NEWS

# How Airports Handle Non-Aeronautical Revenue

**A**s airlines have consolidated and worked to cut their airport costs, facilities large and small across the country continue to chase after nonaeronautical revenue to fill the gap. *Airport Business* took a look at what three — Dallas Fort Worth International, Jacksonville International and Boise — are doing to keep their facilities in the black as the industry's revenue model continues to evolve.

Rebecca Hupp has been Boise's airport director since March 2012. Smaller airports like hers have really felt the impact as airlines have reduced the number of 50-seat jets and turboprops and the schedules that accompanied them.

"The challenge is always to diversify, because it wasn't that long ago when Boise saw a significant decrease in airline operations during the recession that started in 2008," Hupp recalled. "We saw flights decrease by 25 percent and our money also dropped."

The challenge was how to keep costs low when a key revenue generator — airlines — dropped, said Hupp. "We didn't want it to lead to a spiral of greater costs and less service, but we rebounded," she said.

Boise currently derives 68 percent of its revenue from non-aeronautical sources, said Hupp. "We brought in just over \$19 million in revenue in 2015," she said. It also won two awards for its food and beverage programs in the 2016 ACI-NA Airport Concessions Awards.

The airport's largest income generator is parking, which accounts for about a third, said Hupp. "Then there's car rentals, concessions and

"Boise currently derives 68 percent of its revenue from non-aeronautical sources."



REBECCA HUPP,  
BOISE AIRPORT DIRECTOR







hangar rentals," she said.

One of Boise's top non-aeronautical sources is property rentals on the facility's more than 5,000 acres of land, said Hupp. "We rent our land for a variety of different nonaeronautical uses, everything from horse pastures and farm land to warehouses," she said. "We also lease space to cell phone towers."

Steve Grossman has been the executive director and CEO at the Jacksonville Aviation Authority (JAA), where he oversees four airports: two general aviation facilities, a former Navy air station and Jacksonville International.

Jacksonville International Airport's split is 70 percent non-aeronautical revenue, which brought in \$52 million in 2015, driven by parking, rental car and concessions, he said. "We've already maximized our concessions program, operated by Paradies, which is where it starts with most airports," said Grossman. "We don't overwhelm passengers with concessions, but we have a balanced program that generates close to the maximum from our customer base."

You build out a non-aeronautical program from there, said Grossman. "Next is parking, a common large revenue generator for airports. We've aggressively priced parking to gain the maximum revenue and market share from off-airport providers," he said. "We've gained back 20 percent of our revenue in the past five years."

When he took over JAA, Grossman found his GA airports were in the red and the naval base was breaking even.

"The first thing we did was have their staff do business plans so they could be break even or cash positive," he said. And five years later, they are, he added.

One of JAA's GA airports leases property to auto dealerships to store cars, said Grossman. "There's also an RV lot on property that had zero revenue before. Our airports can take advantage of the city's growth, and we're ready to handle development for offices, commercial spaces or whatever is needed," he said.

Jacksonville International Airport has two hotels on site, said Grossman. "We have lots of acreage that is not airside and we have plans for it. When you have property like that, you do compete for office space, warehouses and research and development," he said. "We've already done the prep work, so when the market is ready, we'll be ready. As the area around Jacksonville airport grows, we can take advantage of those market opportunities."

Ken Buchanan is the executive vice president of revenue management for Dallas/Fort Worth International Airport, the fourth-busiest facility in the country in 2014. The airport's non-aeronautical revenue falls between 65 to 69 percent of total revenues, bringing in \$383 million in 2015. It was named winner of Richard A. Griesbach Award of Excellence in the 2016 ACI-NA Airport Concessions Awards. "Look at how diverse our revenue streams are. We're getting almost \$4 million from natural gas. We have more than 100 operating natural

**"Jacksonville International Airport's split is 70 percent non-aeronautical revenue, which brought in \$52 million in 2015, driven by parking, rental car and concessions."**

**STEVE GROSSMAN, EXECUTIVE DIRECTOR AND CEO, JACKSONVILLE AVIATION AUTHORITY (JAA)**

gas wells on our airport. And I don't know of another airport in the country other than maybe Denver is maximizing on the natural resources of their land," said Buchanan. "DFW sits on 18,000 acres, which is more than 50 miles of space."

DFW has three hotels on the property, with more than 1,000 rooms, said Buchanan. "We have an 800-plus room Hyatt Regency that handles conferences, a luxury Grand Hyatt hotel with approximately 300 rooms and we have opened a Hyatt Place hotel next to the rental car center."

The airport is surrounded by significant highway frontage roads, said Buchanan. "So last year we opened up our first car dealership at the airport. We have an Infiniti dealership, which I believe is the largest Infiniti dealership in the U.S.," he said. "We have plans to open up three to four other dealerships on our airport. So there's a tremendous amount of opportunity to grow our non-aeronautical revenues, unlike other airports that are landlocked or that may not be centrally located in their metroplex." In 2015, DFW did \$135 million in parking and \$74 million in concessions, he added.

# NONAERONAUTICALREVENUE

All three airports have faced challenges and achieved victories with non-aeronautical revenue. Grossman said his big challenge is attracting aerospace businesses to the airport.

"We're not the only community going after them, because it depends on the incentive packages that a state can offer," he said. "In the past years, Florida was not aggressive in that area and lost big deals because of it. But Gov. Rick Scott has been aggressive in going after businesses."

Grossman said he doesn't lose sleep at night over missed opportunities. "I focus on our biggest opportunities, because there is so much to focus on. We're trying to develop a commercial spaceport, which is a brand new industry, and that will contribute to non-aeronautical revenue," he said. "I do not waste time and work with a lot of local partners, including Visit Jacksonville and the economic development arm of the chamber of commerce, to respond to RFPs."

Boise Airport's biggest victory is its concessions program, said Hupp. "We did an RFP in 2014 when that contract expired. We selected two new companies, Delaware North and Paradies. We based our selection on revenue generated for the airport, investment in facilities, the ability to have it create sense of local presence and the ability to execute and manage

the concessions," she said. "Our program now has several marquee concessions that allow local restaurants to showcase their brands, and the response by the public has been tremendous."

The airport's challenge — and success — was its parking garage, said Hupp. "Before my time, the airport was going to build a parking expansion, but there were delays over local policies and the airport's authority to issue bonds," she said. "Then the recession happened. But after the recession, we were able to proceed and we got very favorable rates for our bonds and construction costs, which worked to our benefit. We're now experiencing an unprecedented use of our parking lot and revenues have exceeded projections."

Buchanan said understanding the consumer needs, wants and desires is a big challenge. "We conducted a customer segmentation study three years ago and we really dug deep into what the customer expectations are," he said. "And of our 64 million passengers at DFW airport, we dug deep into what is it that each segment expects in the airport. What drives and motivates them in an airport? And we've nailed our program around what they say they want."

Revenues increased because the airport is giving passengers more of what they want, said Buchanan. Technology obviously is a

huge challenge, said Buchanan. "But it's one that we embrace. It's definitely changing how the consumer interacts at the airport. For example, when you look at our international passengers, over 70 percent of [them] use an electronic kiosk to enter into the United

States. That's a huge," he said. "So we have 70 kiosks that replaced 25 stations with an agent in those stations."

DFW introduced a mobile app that handles things like finding parking spaces and restaurants within five minutes of where they're located. "Our research shows that our average customer travels with more than two electronic devices. And they want to be connected. And so it gives us the opportunity, we're fortunate to be the home of AT&T world headquarters," he said. "So we have a relationship with them and offer free Wi-Fi to all of our guests in DFW airport. We're able to leverage that technology company to provide a service to our passengers at the airport. So technology is changing so fast and staying ahead of that is a challenge. But it's one that we embrace."

As a result of industry changes, airports have had to change the way they do business over the past 10 years. "I've been in Boise for four years, and airline consolidation has changed the industry. Bag fees have changed the way we handle luggage. Security screening has changed," she said. "Back in 2000, we had 10 airlines. Now we have four that carry more than 90 percent of all domestic travel, so we've seen less of a need for things like ticket offices and other kinds of things."

In the past 10 years, DFW moved away from the typical landlord-tenant mentality to a more of a business relationship, said Buchanan. "Most airports have a Minimum Annual Guarantee (MAG) as base rent and they also get a percent of sales that concessionaires produce," he said.

"What we've done at DFW is reduce the actual MAG and the amount of rent that our concessionaires pay us and increased the amount of percent that we get on sales, which changes the dynamic in our relationship," said Buchanan.



"Our research shows that our average customer travels with more than two electronic devices. And they want to be connected."

**KEN BUCHANAN, EXECUTIVE VICE PRESIDENT OF REVENUE MANAGEMENT FOR DALLAS/FORT WORTH INTERNATIONAL AIRPORT**





## NONAERONAUTICALREVENUE

"I'm no longer that landlord saying, 'give me my rent. The rent is due. Pay me the rent and I'm happy.' Instead, we say we'll work hard to create a business environment that is conducive for you to maximize your sales. Therefore, since I'm getting my revenue based on your sales, I will get more revenues.

"If our concessionaires aren't doing well in generating sales, then our revenue aren't going to come in strong," he stated. "And so I've got to do everything I can to create an environment where they can maximize their sales, because that's where our revenues come from. In 2016, we view our concessionaires as business partners."

Jacksonville's Grossman said his airport has seen a similar philosophical shift in the past 10 years. "We evaluate everything on a business-like basis and don't allow politics to get into it," he noted. "We're not here to make deals with friends or sign below-market deals. We're more like a bank, evaluating revenue potential."

Like DFW, Jacksonville looks at what it can do to make companies successful, said Grossman. "We will take less money on the front end to make more on the back end. For example, one of our airports had a golf course that was doing terribly," he said. "We struck a deal with a new golf course management company, gave them the flexibility to run the course and good financial terms where they didn't have to pay us a significant amount of rent right away. But the rent went up as they did better."

Looking ahead to the next 10 years, all three agree that non-aeronautical revenue will continue to grow in importance for airports. "Airports learned a lesson during the recession as airlines cut capacity and flights, and passenger numbers decreased," said Hupp. "We all now see the need to diversify our revenue sources so we're not tied to one stream."

In 2015, Boise Airport opened a 130,000 square-foot aircraft maintenance facility for

SkyWest Airlines. "It's been a huge success for us and the community, bringing in 100 jobs and leasing 12 acres of land that hadn't been utilized," Hupp said. "It's complementary to our revenues and it's an investment that has paid off."

Jacksonville will continue to grow in everything it's doing, along with growing non-aviation land for commercial development, said Grossman. "In 10 years, I see that as upwards of 20 percent of non-aeronautical revenue. The city will continue to grow and 10 years from now, the airport will have a fair amount of that development. And the commercial spaceport will also generate a nice profit for us."

Buchanan said the next 10 years will be incredible for DFW because of commercial development. "In the next 10 years, we could find ourselves in a situation where we're generating more non-aeronautical from the business relationships that we have with our land versus our terminals," he said.



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# The Evolution of Airport Concessions through Mobile Apps and the Impact on Airport Facility Design

*The advent of apps for airport concessions opens a new way to reach customers and provide a better traveler experience.*

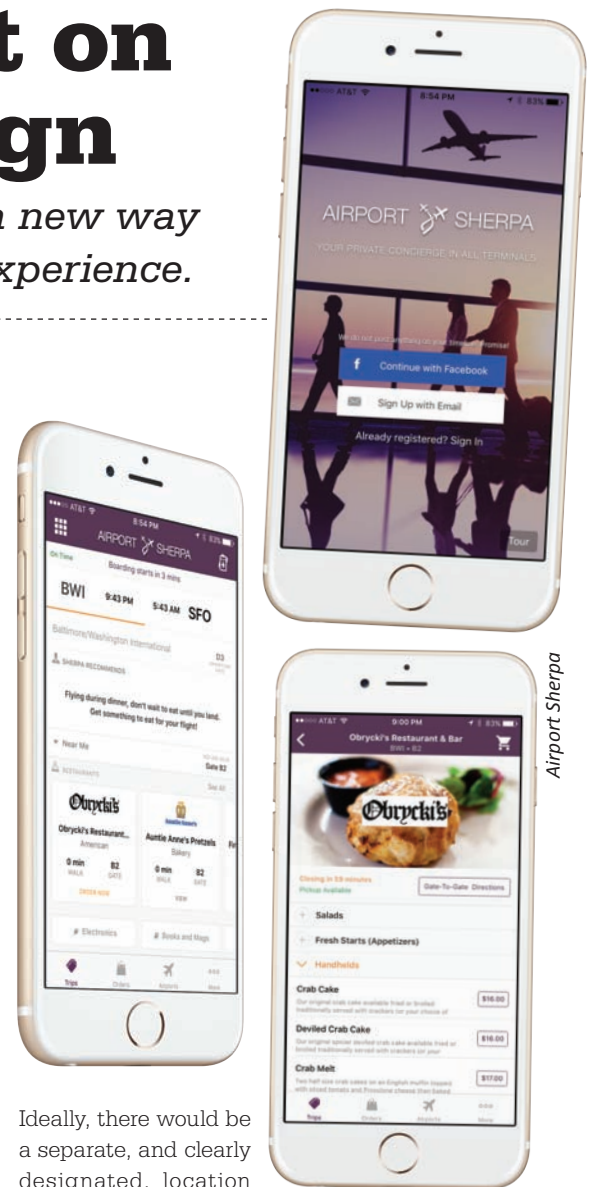
Few people have regular telephones or even regular cellphones anymore. Most telephones and cellphones have been replaced by smart phones. These smart phones, regardless of which operating system they run (iOS or Android), provide incredible capabilities that were not even dreamed of a decade ago. We have entered the age of “swipe left, swipe right” and consumers can now get anything they need or want at a touch of a button.

Except in the aviation industry, where technology has lagged significantly in its application. Some airports have developed, or are developing apps. These apps, however, have limited value, except to a person who flies through that single airport frequently. Some companies, like Chipotle or Starbucks, have developed their own Apps, which work for iconic brands (although not always for these brands locations in an airport). However, for lesser known brands, or those with only a limited geographic presence, branded Apps offer limited value to travelers and have minimal impact on the consumer and concession experience at the airport.

Consumers have grown to expect on-demand access anywhere they happen to be. To meet the tremendous demand to offer the convenience of mobile ordering that consumers have come to

expect, including providing recommendations and delivery, some third party companies have designed applications which will work with airport concessions to provide additional convenience to passengers. There are two which are currently leading this new segment of the market, Airport Sherpa and Grab. These applications have the potential to positively impact customer service and customer satisfaction, increase revenue from concessions and potentially, require changes to facility design in the future.

Grab allows customers to order food service concession products and the customer can then “jump the line” and pick up their order without waiting in the queues that often develop at concession locations. The potential impact on airport facilities would primarily occur in the design of the concession locations.



Airport Sherpa

Ideally, there would be a separate, and clearly designated, location for customers to pick up their orders. This is a change as most quick service locations have limited counter space, and minimal space behind the counter where prepared orders can be kept at the correct temperature. The appropriation of the valuable space up front in these locations will need to be reconsidered to optimize the facility, the



revenue resulting from use of the technology, and to positively impact customer satisfaction. Order pick-up full-service restaurants may occur at bars or hostess stands; however, maintaining food at the right temperature will be challenging, as customers may not proceed to pick up their orders as rapidly as they might have hoped for when the order was placed.

Airport Sherpa varies from Grab in a number of ways. One primary point of differentiation that impacts facility design is that Airport Sherpa offers delivery of food service and retail products to customer locations anywhere in the airport. These delivery locations may include employee breakrooms, airport offices, and, most importantly, holdrooms. Orders may be placed anytime, up to a week in advance of the day of travel and Airport Sherpa tracks the location of the customer's flight to ensure delivery to the correct location at the proper time. A second differentiation is the use of data analytics to create a personalized experience for the customer. Airport Sherpa gathers flight itinerary information and then provides recommendations based on the flight time, gate and user preferences as well as adjusts to unforeseen situations like delays or gate changes. There are many customer segments and scenarios where who would benefit from concession pre-ordering and delivery service including:

- The business traveler, who has her journey from car park to holdroom timed out exactly and who does not include time to visit a concession, but who might be interested if they could pick up their purchases as they board their flight
- Families, which have significant amounts of hand luggage, strollers, backpacks, etc. These people often find it difficult to move all their belongings into a restaurant, and further, there are often differences in the types of food each person wants. Delivery services can solve for both these issues by bringing orders, possibly from different stores and restaurants, to the family's holdroom
- Gate-huggers, who immediately head towards their gates as soon as they pass through security and who then are fearful of journeying out of eye-sight of their holdroom. These travelers can now enjoy any concession products that they want (as long as they pre-order, or there is sufficient time for the order to be brought to them)

- Airport employees, who may not have the time to go through security in order to order the foods that they want. Instead of grabbing a candy bar from a vending machine, they can simply open up their smart phone and the airport is brought to them
- Airline employees, where a 25-minute turn does not allow them the time to reach a large variety of concessions. These people can pre-order, even in flight, if the aircraft offers Wi-Fi, so that their orders are waiting for them when their aircraft arrives.

There are potentially a significant number of impacts to facilities that should be considered. The first impact will be in the need for customer queuing space. Traditionally, concession planning requires that significant space be dedicated to Disney-style queues for customers. Apps will lessen the demand for this space by taking customers out of lines. This should also help the flow of passengers through food courts and allow concessions to generate additional revenue while using staff and space more efficiently.

Another direct impact of apps will be reducing the need for additional concession space to serve a growing passenger market. By removing customers from the queues and seating areas, concessions can meet increased customer demand without requiring more seating or preparation space. Similarly, concessionaires will be able to serve more people with the same current levels of staffing, as Airport Sherpa deliveries are done by Airport Sherpa, not concessionaire, employees. Concession financial metrics, such as sales per square foot, will need to be reconsidered over time as the current standards may no longer be applicable.

A further aspect of terminal planning that will be impacted by the growth of concession ordering and delivery services, such as Grab and Airport Sherpa, is the shape, size, and facilities in holdrooms. While traditional terminal planning has held that concession space, to some extent, may substitute for holdroom space as it holds passengers before flights, this will change as more people actually dine in holdrooms. As a result, the demand for holdroom space will likely increase to some extent. It will be necessary to ensure there are sufficient receptacles for trash and recyclables as the need for these will increase to help to ensure that the holdroom areas remain attractive and sanitary. Holdroom seating will also need to be reconsidered.

While the current trend towards seating at high level counters with charging facilities will remain a viable option, additional seating targeted towards group dining should be considered. This may be accomplished by a center table surrounded by chairs which can be rotated either to face toward the center for group dining, or away from the center for regular use, or through the addition of other flat surfaces to accommodate dining.

There is one final facility impact, specific to those services, which provide product delivery. When an airport has unit terminals (such as FLL) or unit concourses (as is currently the case at BWI), delivery personnel and product orders will need to pass through security checkpoints, if the product is only offered in a separate terminal or concourse adding additional demand through often strained facilities. One possible solution would be to create employee checkpoints, such as those available at Chicago O'Hare International Airport and many airports located outside the U.S. This solution would benefit the delivery services and any employer whose workers must pass through security checkpoints. It will also remove two frustrations for travelers: having to wait while products are scanned; and/or having airport badged workers cut ahead of them in lines. Cost and space limitations have likely impacted the consideration of providing employee security lines and delivery services by themselves, are not going to be the reason to add these facilities. They should add additional weight to the argument for adding separate security screening.

Mobile ordering provides an opportunity to increase customer service and satisfaction as well as revenue from concessions. While subtle, the complete implementation of these services will impact terminal planning, and these impacts should not be ignored.

## ABOUT THE AUTHOR

**Alan Gluck, Chief Revenue Officer, Airport Sherpa LLC**

Gluck has over 22 years experience in airport terminal and commercial planning and operations, and has been a member of numerous planning teams. He served as the commercial manager at both BWI Marshall Airport and Fort Lauderdale Hollywood International Airport, and has participated in facility planning projects throughout the US, in Canada, and overseas.



# Are Electric Vehicles a Good Buy?

**F**or fleets looking to reduce their carbon footprint, diversify their vehicles and save money, electric vehicles (EVs) can be a viable alternative to conventionally fueled vehicles.

"Electric drive vehicles provide documented benefits in emissions reduction and performance," says Genevieve Cullen, president, Electric Drive Transportation Association (EDTA). The EDTA ([www.electricdrive.org](http://www.electricdrive.org)) is the cross-industry trade association which promotes the advancement of electric drive technology and electrified transportation.

"Because the technology allows for flexibility in how electric drive solutions can be applied across different vehicle platforms, manufacturers are able to meet the increasingly diverse operational demands of consumers and businesses," she adds, "These solutions have been applied in light duty cars and trucks, buses, utility vehicles, medium and heavy duty transportation and mobile equipment, just to name a few electric

drive vehicle options, and these are available at a variety of price points."

EVs start to look good when you look at emissions, says Alexander Barton, director of accreditation development, National Association of Fleet Administrators (NAFA) Fleet Management Association ([www.nafa.org](http://www.nafa.org)), a not-for-profit association for professionals who manage fleets. "EVs have zero emissions from the tailpipe and use an electric grid as a power source that is readily available. Sometimes that power source is clean, whether that is produced by solar or wind (power). Sometimes it is produced by coal power plants, so you'd have offsets there."

He says that in terms of fleets, efficiency and time and monetary savings, EVs are a "nice way to go" if the vehicles stay close to their domicile

and don't go any further than 40 miles. Drivers would be able to go about their daily jobs and charge the EVs overnight. Or, if the has a quick charge station, vehicles can be charged for an hour or two over a lunch period.

## TYPES OF EVS

There are currently a few different types of EVs available on the market. These include:

- Standard electric vehicles (EVs), powered only by one or more electric motors. These receive electricity by plugging into the grid and storing energy in batteries. They consume no petroleum-based fuel while driving and produce no tailpipe emissions.
- Hybrid electric vehicles (HEVs) combine an internal combustion engine (ICE) or other propulsion source with batteries, regenerative braking and an electric motor to provide high fuel economy. They rely on a petroleum-based or alternative fuel for power and are not plugged in to charge. HEV batteries are charged by the ICE or other propulsion source and during regenerative braking.
- Plug-in electric vehicles (PEVs) derive all or part of their power from electricity supplied by the electric grid. They include EVs and PHEVs (plug-in hybrid electric vehicles). PHEVs, which use batteries to power an electric motor, plug into the grid to charge and use a petroleum-based or alternative fuel to power an ICE or other propulsion source.

## MARKET AVAILABILITY

Almost every major vehicle manufacturer has at least one plug-in vehicle in the market now, or one in the works, and more are on the way, says EDTA's Cullen. "By the end of 2016, approximately 40 plug-in electric drive vehicles will be on the market."





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Advanced Li-Ion technology delivers a solution that addresses many (if not all) costly regulatory mandates for most motive applications, minimizing or even eliminating their overall financial impact.

## ● COST

With a properly designed and constructed Li-Ion battery system that is tailored specifically to the application, commercial viability is not only possible but in most cases this new technology provides bottom line improvements. With the federal grants that are currently available, the cost to convert is very attractive.

## ● PERFORMANCE

Li-Ion provides a constant (very flat) voltage curve which translates to consistent power delivery, so there is immediate power and torque when the operator requires it. Li-ion battery systems are up to three times more energy dense than their lead acid counterparts.

## ● RELIABILITY

Li-ion battery systems have no moving parts and require no periodic maintenance. Li-ion battery systems tolerate low temperature extremes, ensuring that support equipment is still ready to run when temperatures drop. Redundancy with a properly configured module/pod strategy also offers the benefits of vehicle reliability and performance.

## ● SAFETY

There are three levels to consider: the cell, module, and system level. All three Li-ion chemistries (LTO, LFP and NMC) are safer than lead-acid systems. Discussion areas to cover with your battery system developer should include: over pressure devices, internal fuses, advanced construction materials, thermal management and phase changing material, on board BMS and remote communications, IP ratings, energy management, and optimal sizing. Voltabox's software configuration tool addresses key characteristics and configures the proper solution for each customer's specific application.

## ● INTELLIGENT ENERGY SYSTEMS

Voltabox's Li-ion battery management system adds an advantage to an industry where fleet status is critical: fleet performance monitoring. This enables fleet managers to continuously monitor the state of charge, state of health, battery usage data, energy consumption, detailed load cycles, charging times, usage times, operation times and service notifications.

Automated daily, weekly, and monthly reports are available to monitor metrics in real time, so it becomes easy to optimize charging activity or maintenance and repair activities to minimize fleet or vehicle performance impact. This ability alone has the potential to save millions of dollars per year across domestic fleets.

## ● ENVIRONMENTAL CONSIDERATIONS

Li-ion batteries have no outgassing or emissions during normal operations as do their lead acid counterparts.

Li-Ion offers a near perfect technology for alternate energy storage to be commercially viable by providing a path where end-of-life cells can either be repurposed or remanufactured for continued life in the stationary energy market.

For more information, request our detailed whitepaper, *"Seven Things You Should Know About Converting Your Fleet to Green Energy"* at [http://www.voltabox.com/fileadmin/images/Downloads/voltabox\\_green\\_energy.pdf](http://www.voltabox.com/fileadmin/images/Downloads/voltabox_green_energy.pdf).



# GREENTECHNOLOGY

NAFA's Barton notes that EV makes and models are increasing in the market and fleets are starting to pay more attention to this type of vehicle. "Everyone knows about Tesla," he says, because the company has gained a lot of excitement because of the way its vehicles look and perform.

Because the same lithium-ion battery technology that Tesla uses is now open sourced, other OEs, such as GM and Nissan, are breaking into this technology to considerably extend the range of EVs. For instance, he says the "Chevy Bolt is a pure EV model with 200-mile range."

## BARRIERS AGAINST EVS

Lack of awareness of the variety and benefits of electric drive options is a market challenge that the EDTA and its members, among others, are working together to address, says group's Cullen.

NAFA's Barton says range anxiety plays a large part for fleets that are worried about EV

adoption. He describes range anxiety thusly: When a driver is in the vehicle, they're always watching the power gauge and wondering where they can get the vehicle charged up and not be stranded somewhere, unable to work.

He adds that just as with any other new vehicle, there is a learning curve. Once the drivers get into the vehicles and drive them, they will get used to trusting the EV range.

Mark Goody, manager, electric vehicle programs for FleetCarma ([www.fleetcarma.com](http://www.fleetcarma.com)) – a connected car platform that helps organizations effectively deploy, utilize, monitor and smart-charge electric vehicles – , says there are three key barriers to EV adoption:

- Lack of charging infrastructure. "This results in the phenomenon of range anxiety, in which consumers fear running out of range, and thus look electric vehicles as a risk."
- Availability of different EV models. "While OEMs have recently made a huge push

towards growing the number of electric vehicles available to the market, there are very few electric SUVs or trucks, which would be very appealing to different fleet needs or applications.

- Uncertainty. "When considering the purchase of an electric vehicle, I believe most people raise too many questions or concerns that they are not able to satisfy, leaving them skeptical and unsure of how the technology would work for them."

Goody adds that additional concerns can include:

- What will my electricity costs be?
- What is my operating cost per mile?
- How long will I need to charge for?
- Will I need an EV or a PHEV?
- What is my payback using my criteria?

By answering these questions before considering an EV, the fleet will have more confidence in the capabilities of an EV and be more likely



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to invest, as they will know how it will perform, rather than hoping for the best, he says.

## IDENTIFY YOUR NEEDS

To determine whether or not an EV makes sense for your fleet, you have to look at application, says NAFA's Barton, and know what job are you trying to do with it and what is this vehicle is going to be used for? It is helpful to find a partner – such as a fleet management company or someone with knowledge with EVs – to help with the decision. If EVs are a fit, they “can’t be beat in terms of the emissions and GHG reduction and petroleum consumption reduction that they offer.”

To determine if an EV makes sense, fleets must do their homework, adds FleetCarma's Goody. “This includes understanding how many miles will be driven each and every day, as this will help determine if an EV or PHEV is more suitable. Look up the different models on the



internet to evaluate which particular models are best suited for your particular needs.

“It is also important to understand how much charging your vehicle will need, if you will be able to charge at work and what your electricity costs will be. In a fleet application, the answer to this question is more complex. There are more vehicles to consider and bigger

spending budgets, which mean a lot more risk to the bottom line.”

FleetCarma offers an EV suitability assessment technology to automate fleet total cost of ownership calculations custom to each of the fleet's duty cycles, and uses this data to model and simulate the suitability of different plug-in vehicles in each of those duty cycles. This allows the fleet manager to evaluate EV risk and reward, identifying areas for EV adoption and total cost of ownership savings, says Goody.

The EDTA offers a similar guide (<http://goelectricdrive.org/home/plug-in-roadmap>). The group's Cullen says: “As with any other vehicle purchase, consumers need to identify their driving needs (use, size, cost) and match the options to their needs.”



See the full version of this story from Fleet Maintenance magazine at [www.VehicleServicePros.com/12182483](http://www.VehicleServicePros.com/12182483)



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## 'We'll Never Return. No, We'll Never Return'

**T**he older I get the more things change, and — it seems to me — the faster things change. I used to wonder, "What's new?" Now I wonder "How in the world will we ever adapt fast enough?"

I spent some time at the library last week, with Fortune, Forbes, and The Economist. Scary stuff! Far scarier than

Chainsaw Massacre or that Scissorhand guy. I went straight back home and read Dead Wake, a great book about the sinking of the Lusitania. It was comforting — at least I know how that one works out.

Today, automobiles are changing so fast that we, as the circus ringmaster says, "may never see the likes of this again!" We've got Uber and Lyft, just for starters, one of which proclaims that car ownership as we know it today will vanish. Cars will most probably be smaller — too small to drive to the airport with luggage maybe — so pax may ride Uber/Lyft to the airport, which would also save them from parking in airport lots.

Will future cars be hybrid, electric, or something totally new? I dunno, but if what I read is just half true, cars will never be the same and that will affect parking, fueling, and other things we "have not dreamed of." My mother would chastise me for ending that sentence with a preposition, but the quote comes from the great aviation poet John Gillespie Magee.

The financial industry will change. Just think — have we ever before heard of "negative interest?" By golly, we have now. Banks are actually making customers pay to store money with them. Will this continue or reverse? The bankers seem to have a new buzzword, "fintech," and some refer to the coming changes as a "revolution."

Funny, we hear so much about change making new things possible, but we often forget that change also makes more change necessary. One

article that I read, BTW, pointed out that work itself will change. Another seems to prove that in the past about 50 percent of companies demanded the applicant have an MBA for certain jobs. That percentage has dropped to something like 1 percent since 2012. Now that's change in action and was a surprise to me.

**Times are changing  
fast and reactions must  
change faster and faster.**

Even politics is changing. One pundit pointed out that it has been literally decades since an election-year national convention — Republican or Democrat — was of big interest. It was instead "almost irrelevant." That wasn't true this year. What will happen four years from now? I wonder if the biggest growth in voters this year has been in the two "Anybody But" groups. I'm in one of those groups, myself, but I'm not saying which one.

BTW, the most frequent accolade I hear about airports is praise for the cell-phone waiting area, which came as a result of a change — the ubiquity of the cell phone.

Seems to me that airports will be affected by all of the changes above. Airports buy, sell, finance and deal with a cross section of local and transient customers. Times are changing fast and reactions must change faster and faster.



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# Best Practices in FBO Management: High Density Operations

**I**n the wake of the recent Republican and Democratic National Conventions in Cleveland and Philadelphia respectively, there was an obvious story the news media missed entirely: How busy the surrounding airports and by extension the local FBOs were during the events. Occasionally referred to as “High Density Operations” in FBO industry parlance, special events such the presidential inauguration, the Super Bowl, the Final Four and yes, the aforementioned conventions, require an enormous amount of planning on an FBO’s part.



Planes lined up at the Cleveland Jet Center during the recent Republican National Convention in Cleveland.

Cleveland Jet Center



A similar amount of planning is required at the airport level to smoothly handle the influx of aircraft associated with a special event, especially when that influx is expressed in the hundreds. By way of example, it's not unusual for an airport to experience 200, 300, or more business and general aviation aircraft arriving and parking for major events- in addition to its standard complement of air traffic.

Moreover, most of these special events are "compression" type operations, meaning the event itself is only three to four hours or so. This dynamic means hundreds of aircraft will arrive in a 24-36 hour period preceding the event and then want to depart simultaneously after the event. How then, does an FBO plan for the impending mayhem?

While the checklist for an FBO handling a special event is longer than can be properly described in a brief article, a few best practices are worth mentioning. First, though it's usually folly to start with an assumption as the basis of planning, it applies to special events. An FBO is wise to assume that they need to start planning

should assume the existing procedures they use to handle their standard, daily complement of transient traffic will break down and fail in a high density event. For example, if an FBO dispatches fuel orders from a front desk in the lobby of their FBO via a customer service representative, or alternatively, has line service fuel aircraft as they receive requests ramp side, these methodologies will fail when hundreds of fuel or service requests are fed into that system. FBOs will want to centralize service and fuel dispatching in a dedicated area away from customers behind the curtains so to speak- a nerve center of sorts.

FBOs will also need to bring in additional employees and equipment to handle event traffic. While the former may seem difficult for an independent FBO with one location, the reality is the FBO industry as a whole comes together in these situations. The subculture of FBOs means that an independent FBO in Florida for example, likely has FBO industry friends in California, Arizona and Washington, and just by putting the word out early, those far afield and unaffiliated FBOs will happily send their employees to work in Florida for a few days. It is a badge of honor for an FBO employee to work special event and to be chosen to assist a distant FBO and wear a different uniform for a few days is special indeed. In terms of equipment, FBOs should plan to lease additional equipment, such as tugs, passenger vans, fuel trucks and if in the winter, deicing units just in case. With respect to fuel trucks, they'll need to arrive early, as several inspections are usually required prior to entry into services, such as those from the airport fire department, or that state's department of weights and measures.

Speaking of fueling, it is highly recommended that an FBO request its customers receive fuel on arrival as opposed to departure. Due to their flight department's SOPs, many flight crews are required to be present for aircraft fueling. To that end, and especially with compression-type events, fueling on arrival will prevent delays that could become hours long on departure- no matter how many additional employees or fuel trucks the FBO used to augment their operation.

Finally, an FBO must consider the softer side of customer service during a high density event. While the logistical details of event planning tend to focus on personnel, equipment and

infrastructure, proper care of passengers and pilots alike is paramount. As most- but not all- business aircraft are flown with two pilots, and special events can easily attract 300 aircraft on the ground at any one time, the loose translation means an FBO could have 300-600 pilots milling about in their lobby a few hours before departure. Rare is the FBO lobby designed to handle such numbers, so an FBO should plan to dedicate a nearby hangar as an additional seating area- complete with complimentary beverages and snacks, and if say, the event is the Super Bowl, a large projection screen TV to provide flight crews visibility as to the game's timing- and outcome. Similarly, as many will arrive a night or two before an event, FBOs should arrange hotel room blocks with nearby hotels a year in advance of the event or more. Other "soft" considerations such as additional refrigeration for aircraft catering, large volume coffee urns, and hundreds and hundreds of bags of ice- or a second ice machine on the premises is also warranted.

While complex, high density operations can be some of the most rewarding and memorable experiences for FBO personnel and flight crews alike. Planning, patience and the understanding that regardless of the depth of either something will go wrong, makes for much needed levity during an otherwise stressful time for an FBO. For those desirous to learn more about a handling high density special events, the National Business Aviation Association often holds educational sessions at their annual Business Aircraft Conference and Exposition (NBAA-BACE) each year in which speakers comprised of FBOs and aircraft operators provide lessons learned, tips for future events, and answer questions about the previous year's events. To learn more, visit <https://www.nbaa.org/events/>



**While complex, high density operations can be some of the most rewarding and memorable experiences for FBO personnel and flight crews alike. Planning, patience, and the understanding that regardless of the depth of either something will go wrong, makes for much needed levity during an otherwise stressful time for an FBO.**

early- very early. A year or more is not unusual to begin the initial planning meetings with local airport stakeholders for special events- administrators, tower, Tracon, and customs, to name a few. Airport administrators may need to plan to shut down taxiways or events other runways for aircraft parking- not an easy task if not planned ahead. Secondly, an FBO

## ABOUT THE AUTHOR

**Doug Wilson**

**President & Founder of FBO Partners LLC**

Wilson is the president and founder of FBO Partners LLC, an aviation consulting firm that provides asset management of hangar facilities for FBOs, and offers specialized consulting in due diligence, contract life-cycle management and other FBO disciplines. Wilson can be reached at [douglas.wilson@fbopartners.com](mailto:douglas.wilson@fbopartners.com).

# Protecting Aircraft in Hangars:

## Six Keys to Successful Fire Detection and Mitigation

**H**igh-performance systems that detect fires and actuate supplemental suppression systems safeguard costly aircraft assets, as well as hangar structures and human life.

Aircraft hangar fire detection and protection systems are critical to protect the contents of the hangar and the facility itself. While a regional fixed base operator hangar might price out at

\$150,000 and a commercial jet airliner hangar at a few million, the commercial or military aircraft inside hangars can easily cost hundreds of millions of dollars.

When it comes to aircraft hangar fire detection, there are a number of standards, certification and regulatory agencies to satisfy. Fire protection codes like NFPA 409, military standards, insurance companies and authorities having jurisdiction (AHJs) may require or strongly recommend a high-performance fire detection and suppression system to protect aircraft assets, the hangar structure and human life.

Protecting valuable aircraft assets requires addressing a hangar's unique site challenges:

- **Large detection expanse and obstacles.** Hangars are spacious buildings and aircraft bodies and wings stretch out to create sizable obstructions.
- **Large hangar doors.** Tall doors create variable conditions. When they're open, a detector's field of view (FOV) may include the runway and detect non-threatening flames that can potentially trigger false alarms — from sources like the afterburners of jets or auxiliary power units (APUs) in parked aircraft.
- **Radio frequency interference (RFI).** Hangars are also subject to RFI from avionics, ground-seeking airport radar and various communication devices, all of which can cause false fire alarm conditions to occur.

Hangars vary in size, type and number of aircraft they hold, and how they are equipped. Each hangar can be classified as belonging to one of four hangar group types, in compliance with NFPA 409 and the International Building Code, depending on construction, door height, building dimensions and the types of hazardous materials stored. When it comes to fire detection and mitigation systems, one size doesn't fit all.







*When hangar fire suppression includes deluge or high-expansion foam systems, rejecting false alarms from friendly fire is a critical function of a fire detection system. U.S. Air Force*

Each system must take a facility's unique characteristics and requirements into account.

Following are six considerations essential to the planning, design and implementation of any aircraft hangar fire protection system:

## DETECTING FLAME IN ADDITION TO HEAT AND SMOKE

With aircraft getting larger, hangars are also getting larger. Historically, heat and smoke detectors have played the pivotal role in fire detection systems in hangars. The challenge is that in open or drafty areas, smoke and heat from a fire can dissipate, which can significantly delay detection or evade it altogether.

Traditional smoke and heat detection systems are intended to provide protection for the hangar structure. Optical flame detectors provide an earlier notification of the presence of fire, which in turn provides better protection of the costly assets inside. High-performance optical flame detectors with a wide FOV and long detection range can sense a 2 ft. x 2 ft. fire from up

## HOW TO SELECT AN OPTICAL FLAME DETECTOR AS THE SIZE

and cost of aircraft increase, hangars are looking more and more to optical flame detectors for high-performance fire protection. Following are attributes to look for when selecting an optical flame detector:

- ▶ **Flame detectors** should be third-party approved to detect fires from jet fuel at the distance that is required.
- ▶ **Maximum coverage.** Detectors with the greatest range and field of view provide the greatest coverage at the lowest cost.
- ▶ **Resistance to false alarm sources.** Flame detectors should be resistant to electromagnetic and radio interference, welding torches and reflective sunlight.
- ▶ **Support.** Detector providers should offer the expertise, guidance and software tools to help hangar owners navigate compliance and complicated configuration requirements.

to 235 feet (71.638 meters) away, which enables detection and notification much more quickly than traditional protection schemes.

The NFPA 409 Standard on Aircraft Hangars refers to NFPA 72 for detector installation guidance and NFPA 72 states that the spectral response of the detector to be installed must be matched to the spectral emission of the fire. It also states that an engineering evaluation shall determine the location and spacing of the detectors. This evaluation is based upon the fuel involved, size of the fire and performance attributes of the flame detector. Using optical flame detectors that are third-party approved for the detection of jet fuel fires helps to satisfy this requirement.

U.S. military branches have recently specified optical flame detectors as part of the fire protection systems for new military hangar construction. There are also ongoing discussions about updating the Engineering Technical Letter (ETL) 02-15 Fire Protection Engineering Criteria – New Aircraft Facilities to include optical flame detectors or even triple infrared detectors.

## SPEEDING DETECTION AND DECISION MAKING

Automatic activation once heat or flame thresholds have been reached is a very effective way to speed detection and decision making. An aircraft fuselage skin can be damaged in as little as 45 seconds after initial contact with fire, so automatic activation can be critical for protection.

The time that it takes an activated suppression system to extinguish a fire depends on a number of factors and can be quite variable,

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# FIREPROTECTION

ranging from just a few seconds to several minutes or more. What does this mean for the accurate detection and activation sequence, and how quickly does it have to be carried out? The best answer is as quickly as possible and obviously the less time spent here means more time available for suppression. A system that can receive and analyze data from multiple detectors, make error-free decisions and dispatch activation and alarm messages — in no more than 12 seconds — leaves over 30 seconds for the system to deluge the flame.

## LOCATING FLAME DETECTORS—AND THE ROLE OF 3D MAPPING

Expansive areas like hangars require comprehensive fire coverage, so a flame detector's range and FOV are critical. Generally speaking, the greater the detector range and FOV, the fewer devices you will need to achieve full coverage. However, there may be situations where the detector's area of coverage needs to be controlled to prevent it from picking up signals outside of hangar doors, such as those from the after-burners of jets or APU's in parked aircraft.

Adjustable swiveling mounting brackets, laser aiming devices and FOV limiters add precision to the aiming process and can be used to ensure that the top portion of the FOV ends at the hangar apron and does not extend out onto the tarmac, airfield, or runway.

Optical flame detectors must be positioned so they have a view beneath the aircraft's wings and fuselage. Therefore, detector mounting heights are often dictated by the smallest aircraft stored in the hangar. It is equally important, however, to consider possible movable obstructions such as toolboxes and ladders.



**The U.S. military is currently reviewing its fire protection criteria for new aircraft facilities to require flame detection.**

U.S. Air Force

**Certified Fire Protection Engineers and other hangar experts use 3D flame mapping software to assist in determining detector placement so that the area of coverage is maximized and meets project specifications; the example here shows the FOV of the detector positioned at the front of the plane.**

Det-Tronics

For this reason, wall-mounting of flame detectors at an optimal height is preferred over ceiling mounting. Areas where flammable solvents are used and stored are also typically monitored by gas, flame and smoke detectors.

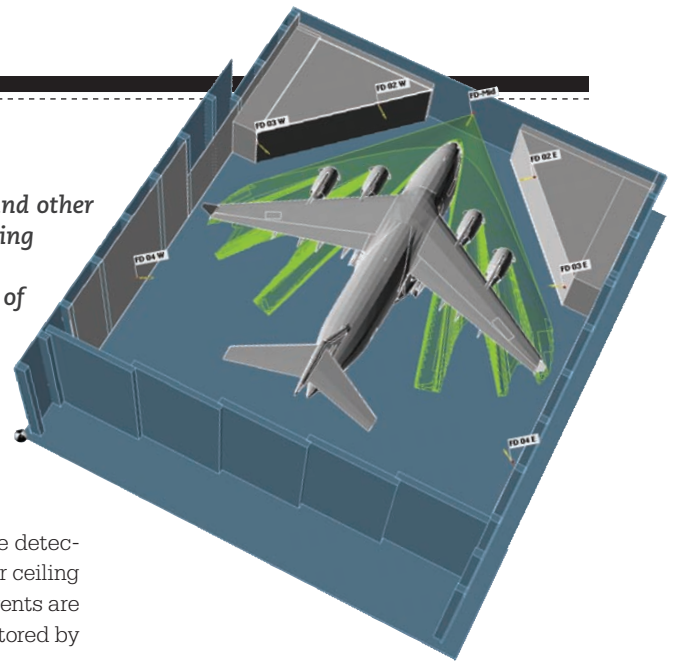
To ensure compliance with NFPA 409, it is critical to use a performance-based design that adheres to the standards. This includes determining the specific mounting locations for optical flame detectors and typically requires a detailed analysis.

Ideally, large hangar installations will involve 3D flame mapping to determine nominal placement and aiming so that detector coverage is maximized and blind spots are eliminated. In addition to providing a highly illustrative three-dimensional diagram of the installation, a detailed software-driven approach generates in depth-quantitative statistical analyses that help raise the safety level of the site. 3D mapping can also provide reports and data essential for ongoing maintenance and for satisfying regulatory agencies, insurance claims and audits.

## REJECTING FALSE ALARMS

Hangars typically include sources of friendly fire that must be filtered out. For example, in cold climates, gas fired heaters are often used to heat hangars. When these heaters start up, a flame may momentarily exist within the heater which could possibly be within the FOV of a detector. An APU is another example of a potential friendly fire that could occur. These typically come from aircraft parked just outside of the hangar doors, but still within the detector's FOV. These "real fires" can become a source of alarm. As such, flame detection systems must be equipped with processing algorithms to ignore short-duration flames, while still providing optimal detection capability to liquid pool fire type hazards.

In order to reduce the probability of false alarms and unintended activations, it's



- ▲ – Fire and Gas Safety Controller
- – Flame Detector
- ◆ – Notification Appliance
- – Foam Deluge

**As an example of a proprietary supplementary fire protection system, the diagram above shows placement of Det-Tronics multispectrum infrared flame detectors, notification appliances and a Det-Tronics fire and gas safety controller. Upon detection of a fire, this system automatically generates a signal that can be used to activate a fire suppression system.** Det-Tronics

imperative to use detectors that are highly resistant to false alarm sources and also proven to be unaffected by electromagnetic interference/radio frequency interference (EMI/RFI) energy.

False alarms can result in the unwarranted deployment of a fire suppression material. Foam deluge systems are designed to coat the hangar floor and large aircraft very quickly. Under normal conditions, sensing an actual fire and extinguishing it is a very good thing. If a deluge is triggered by a false signal, it comes at a price. Significant costs are incurred to clean up and remove discharged foam, recharge the suppression system and repair damages to the aircraft.

## BUILDING IN REDUNDANCY

Using multiple detectors to monitor the same area in order to validate the detection of heat or



flame, is a proven way to build in fire detection system redundancy. Redundant coverage of a hangar floor provides a more reliable means of ensuring a fire is detected, particularly in the face of commonplace detection obstacles such as maintenance activities. The presence of tool cribs, fork lifts and temporary storage can create temporary obstructions in an area monitored by a single flame detector. By utilizing additional detection, this issue can be overcome.

It is often typical to activate notification appliances and notify authorities upon the first detector detecting a fire and if a second detector detects the same fire, the automatic activation of the suppression system is commenced. This methodology adds the protection benefit of redundant detectors while also bolstering the false alarm rejection performance of the system.

## INTEGRATING FIRE AND GAS DETECTION AND SUPPRESSION

Any effective fire and gas detection and suppression system must be capable of interfacing with

and integrating flame, gas and smoke detectors, fire suppression devices and notification appliances. The detection range of any given device that triggers the system to take notice should be configurable.

The system must be able to initiate audible and visual alarms and dispatch signals to start pumps, open deluge valves, close heating, ventilating and air conditioning dampers and notify authorities.

These considerations cover the fundamentals for planning aircraft hangar fire protection. As hangars and aircraft raise the bar on size and value, the fire detection and suppression systems protecting them have to keep pace by applying the most advanced technologies and strategies. This includes enhancing heat and smoke detectors with an optimized flame detection system. It also means using the best tools available, such as high performance optical detectors and 3D flame mapping and analysis software.

Ultimately, determining the specific detector types, locations and mounting options for your

site and building them into an effective fire protection system is a task for the experts. This is why it makes sense to work with professionals who have the experience and knowledge to deal with code requirements and complicated applications. Expect detection and suppression systems providers to step up with this kind of support.



## ABOUT THE AUTHOR

**Michael J. Hosch**  
**Det-Tronics**

Hosch is employed by Det-Tronics in Minneapolis, Minnesota as the flame detection product line manager. He has worked with optical flame detection for Det-Tronics for over 25 years and has recently been focused on providing support to the company's customers in applying optical flame detection within commercial and military aircraft hangars.



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# FINAL ANALYSIS



## LNAA HELPS LOCAL STUDENTS

To recognize this year's senior students participating in the Project Take-Off program, the Lehigh-Northampton Airport Authority donated \$1,800 from their high school scholarship fund.



**KERRY KEITH**  
Director of airport development and facilities for the city of Naples Airport Authority, has been named chair of the Southwest Florida Regional Steering Committee of the Continuing Florida Aviation System Planning Process.

“The safety and security of passengers are our top priorities. This tragedy in Istanbul and the one in Brussels earlier this year show that there is a growing challenge for governments to keep people safe in the ‘landside’ parts of the airport. Moving people ‘airside’ more quickly can help to mitigate risk. The industry has a number of initiatives in place to achieve that aim and we are working with governments and airports to implement them.”

**TONY TYLER, IATA DIRECTOR GENERAL AND CEO**

# one hundred thousand dollars

HOW MUCH THE SEVENTH ANNUAL PIEDMONT TRIAD INTERNATIONAL AIRPORT 5K/10 RUN ON THE RUNWAY RAISED TO FIGHT HUNGER ON JUNE 4.

16 of 19:  
the number of  
years Midway  
International  
Airport has  
achieved a  
perfect score  
from the FAA  
for its Part 139  
inspection.

# 91%

The amount of airlines planning to invest in cyber security programs over the next three years.



**HOWARD ENG**  
President and chief executive officer of the Greater Toronto Airports Authority, has been elected chair of the Canadian Airports Council.



**CHRIS CURRY**  
Director of aviation for the city of Tallahassee, was named Aviation Professional of the Year by the Florida Department of Transportation.





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<sup>1</sup>Available feature. <sup>2</sup>Air bags are only a supplemental restraint system; always wear your seat belt. Rear-facing child restraints should not be placed in the front passenger's seat. All children 12 and under should ride in the rear seat properly secured in child restraints, booster seats or seat belts, according to their size. Air bags will only inflate in certain accidents; see Owner's Manual for more details. <sup>3</sup>Claim based on years/mileage (whichever occurs first) covered under the 2016 New Vehicle Limited Warranty basic coverage. NV200<sup>®</sup> Taxi is covered under a separate limited warranty with a different level of coverage. Comparison based on *Ward's* Light Vehicle segmentation: 2016 Nissan NV<sup>®</sup> Cargo Passenger vs. 2016 Large Van class; 2016 Nissan NV200<sup>®</sup> vs. 2016 Small Van class. Comparison based on publicly available information on manufacturer's website. Nissan's New Vehicle Limited Warranty basic coverage excludes tires, powertrain coverage, corrosion coverage, and federal and California emission performance and defect coverage (applicable coverage is provided under other separate warranties). The powertrain coverage is 5 years or 100,000 miles (whichever occurs first). Other general exclusions, terms and conditions also apply. For complete information concerning coverage, conditions and exclusions, see your Nissan Dealer and read the actual New Vehicle Limited Warranty booklet. Warranty claim is current at time of printing. Always wear your seat belt, and please don't drink and drive. ©2016 Nissan North America, Inc.