"IET system has revolutionized the employee training procedures for the Metropolitan. The automatic record-keeping alone has saved hours previously spent tracking training results manually, not to mention the staff hours saved by eliminating training classes. More than 135,000 training sessions for employees and vendors at Dulles and National have been conducted using the IET, reducing the per session cost to $7.50."

"AAAE’s Interactive Employee Training (IET) system has dramatically reduced our training costs while improving the consistency of our training message. We are pleased that our training costs have dropped below $18 per employee with the use of the IET system."

Mark Reis  
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Seattle-Tacoma International Airport

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COMING UP IN

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Focus on Concessions (April/May 2008)

Cover design: Joacir Soto
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Maximizing Resources

Editor’s note: The June/July Inner Marker generated much conversation—and the following letter...

In response to Inner Marker (June/July 2007), a letter from a former Florida Institute of Technology graduate writes of his frustration with never having had the chance to do what he always wanted to do: manage airports.

In response to Glenn Clinger, I say first, congratulations! You have written and addressed your letter to one of the finest organizations in the aviation industry and you recognize that AAAE is a resource and a premier organization of dedicated airport management professionals with the knowledge, credentials and expertise to run the world’s airports. I trust that you will become an active member — if you aren’t — already and tap this resource.

Second, you do have an excellent education. In case you haven’t checked out your alma mater lately, Florida Institute of Technology, affectionately known to us as FIT, and now, Florida Tech, continues to be a premier educator in aviation industry with an emphasis on both the technological and the business side of airport and airline management. The College of Aeronautics at Florida Tech has been preparing aviation professionals over its 40-year history and there are 3,853 alumni employed in all facets of our aviation industry. The new dean, Dr. Kenneth Stackpoole, has been reaching out to the alumni of the College of Aeronautics since his arrival this year. He is committed to working with many of the alumni and extends a personal invitation to contact him directly at kstackpo@fit.edu for those that want to stay involved. Keep in touch with your alma mater and give back.

Lastly and most importantly, you have the passion. It’s the number one qualifier in all of us — aviation is in our blood. Those of us in aviation usually stay in the industry or, if away, we eventually come back. You have the passion, so use it to keep yourself involved and motivated.

Get out there and take advantage of the tools you have access to. Give back and you will get back, in many rewarding ways. Avail yourself to an industry network. You never know who you will meet and where your next opportunity is!

Theresa H. Schatz, A.A.E.
Properties & Commercial Development, LaGuardia Airport
The Port Authority of New York & New Jersey
Florida Institute of Technology, College of Aeronautics, Class of 1984

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Sean Broderick
Editor
sean.broderick@aaae.org
Chicago Advances Lease Of Midway

The city of Chicago has reached “a preliminary understanding” with Southwest Airlines regarding the potential terms of a long-term lease of Midway International Airport to a private company.

“This is a meaningful first step toward what we believe to be a historic opportunity for the city and the airlines operating at Midway Airport,” said Chicago Chief Financial Officer Paul Volpe. “These potential terms would substantially reduce the airlines’ risk, result in lower operating costs and provide millions in net savings to the airlines.” The city now will move forward to reach terms with other carriers that operate at Midway, he said.

Potential terms of the agreement provide for an airline pricing and use agreement through 2033, Volpe said. The terms also would provide millions in savings to the airlines over 25 years when compared with the current rate-setting mechanism, and would transfer the risk of operations and maintenance costs from the airlines to the airport operator, he added.

The terms also stipulate that the airlines would continue to retain control over the capital investment projects they would fund and would be empowered to enforce all service quality and operating standards on the private sector airport operator.

NTSB Expands Runway Safety Improvement Call

The National Transportation Safety Board (NTSB) has placed the issue of runway safety at the top of its latest Most Wanted List of Safety Improvements.

The agency said that six near-collision incidents at several major airports in the past six months led to the decision to focus greater attention on the immediate need for runway safety upgrades.

The board expanded its existing recommendations for runway safety to include runway excursions – incidents in which aircraft on the ground depart the runway environment. Three additional recommendations were added to this area, which was renamed “Improve Runway Safety.” Two of the recommendations ask FAA to require that aircraft not be allowed to cross any runway without specific authorization from air traffic controllers. The third recommendation, addressing the danger of runway excursions, requests that airline pilots be required to incorporate a 15 percent safety margin into landing distances calculations.

“While the FAA is in the process of developing and testing new technologies to make ground operation of aircraft safer, runway safety incidents continue to occur with alarming frequency and consistency,” NTSB said in early November.

NTSB also added three safety recommendations on air traffic controller fatigue to the safety board’s existing aviation proposals that address human fatigue. The safety board asked FAA to develop a program to educate controllers and those who schedule them about the causes, effects and safety implications of fatigue. In addition, the board asked FAA to work in conjunction with the National Air Traffic Controllers Association to devise work-scheduling policies to reduce the incidence of fatigue on the job.

Congress Approves AIP Funding, But Not Authority To Spend

Just prior to leaving for the year, Congress packaged the fiscal year 2008 DOT appropriations bill and 10 other pending spending measures for the federal government into a $555 billion omnibus spending bill – H.R. 2764. The omnibus was passed by the House and Senate and sent to the President for his signature on Dec. 19.

The omnibus package contained good news for airports with the inclusion of $3.515 billion for AIP, some $765 million above the President’s request. The omnibus also extended most FAA programs and the aviation taxes that support those programs until Feb. 29, 2008 – a move that was made necessary by the fact that Congress has yet to approve a long-term FAA reauthorization program to this point.

Unfortunately, Congress failed to extend contract authority for AIP as part of the omnibus or separate legislation, leaving FAA without the ability to issue AIP grants early in the year. In essence, Congress put $3.515 billion in the bank for AIP grants in fiscal year 2008, but failed to provide FAA with the ability – at least early in the year – to issue checks that would draw upon that funding.

The inability of Congress to approve the AIP contract authority had little to do with airport funding and instead was the result of a disagreement among various Senate committees over aviation excise taxes and a potential budget gimmick that may enable lawmakers to claim credit for billions of dollars in new revenue next year. On a positive note, Congress will be forced to address this issue early in 2008 due to the Feb. 29 expiration of aviation taxes and other program authority.

Groundbreaking Held For New Fla. Airport

The Panama City-Bay County (Fla.) International Airport and Industrial District held a groundbreaking ceremony Nov. 1 to initiate the construc-
tion phase of its new state-of-the-art international airport.

The new facility is being built in the 75,000-acre West Bay Area Sector on 1,300 acres of a 4,000-acre site donated to the airport authority by The St. Joe Co. The new airport is being built on a greenfield site with ample room for current operations and space to grow to meet requirements for the next 50 years, the authority said. The new facility is scheduled to open in late 2009 or early 2010 and will have one 8,400-foot runway, a 5,000-foot crosswind runway, seven gates and a 100,000-square-foot terminal building.

The new facility will be the first air carrier airport built in the U.S. since 9/11, replacing an existing airport that was built in 1948 and that is constrained by residential and business development and North Bay. The current airport’s Runway Safety Areas do not meet current federal standards, airport officials said.

Relocation of the airport also triggers the creation of the West Bay Preservation Area, a 41,000-acre conservation area designed to permanently protect West Bay, one of the most environmentally diverse ecosystems in the world. The preservation area ultimately will protect 44 miles of undeveloped shoreline and an additional 33 miles of creeks and tributaries.

The airport authority announced it has selected a new purchaser for the current airport site after questions arose regarding financing and performance details in an earlier bid by PCA Development of Pittsburgh.

In March 2007, the airport authority said PCA Development was the “probable high bidder” for the current airport site, but noted that talks would continue with other bidders in case negotiations with PCA failed to reach a satisfactory conclusion. “As negotiations continued, questions arose
TSA has named Richard Stevens as the general manager of operational plans and programs for the Office of Security Operations. Previously, Stevens was TSA’s senior field executive for Georgia, Florida and the Caribbean. From July 2002 to February 2007, he was the deputy federal security director at Tampa International. Prior to joining TSA, Stevens worked for FAA, where he managed the Federal Air Marshal Program, the K-9 Explosives Program and both foreign and domestic security operations. He also was on the TSA transition team, working to smoothly move aviation security responsibilities from FAA to TSA in the wake of 9/11.

Jim Bennett, A.A.E., president and CEO of the Metropolitan Washington Airports Authority and secretary/treasurer of AAAE, was elected vice president of the Aero Club of Washington at the organization’s recent meeting. Among the persons elected to the Aero Club Board of Directors for the 2008 term were Tim Campbell, A.A.E., executive director, Baltimore/Washington International Thurgood Marshall Airport; Spencer Dickerson, C.M., senior executive vice president of AAAE; and Deborah McElroy, senior vice president, government affairs of ACI-NA. … Bonnie Allin, A.A.E., president and CEO of the Tucson Airport Authority; Jim Morasch, A.A.E., director of Tri-Cities (Wash.) Regional Airport; and Jim Koslosky, A.A.E., director of Gerald R. Ford (Mich.) International Airport, are new members of AAAE’s Policy Review Committee (PRC). PRC members serve as an advisory panel to the AAAE Board of Directors on association and industry issues.

FAA Tests PC-Based RVR System

A PC-based Runway Visual Range (RVR) System was installed for operational testing in August at Pennsylvania’s Wilkes-Barre/Scranton International Airport.

The RVR installation consists of two visibility sensor sites at each end of the main runway and a data processing unit installation at the air traffic control tower equipment room. Five controller displays will be installed at various airport locations to monitor the RVR data.

“This installation is significant for Vaisala,” said Geoff Bing, director of North American aviation sales and marketing for Vaisala, the developer of the RVR system. “This operational test comes after two successful years of collaboration with the FAA.”

The Vaisala system incorporates visibility and other sensors to provide an accurate picture of runway visual range — an estimation of the distance a pilot can see down a runway. When an aircraft lands in less-than-ideal weather, one of the most important factors is runway visibility. The rapidly updated information provided by the RVR system eases the workload of air traffic control and allows an efficient flow of air traffic in poor visibility, according to Bing.

This first installed RVR system will be used by FAA to conduct further product testing in an operational environment until spring of 2008. A successful test period will lead to certification of the system for use in the National Airspace System, allowing installations at other airports to commence. Development of Vaisala’s PC-based RVR system began in mid-2005; the first production shipments are scheduled for August 2008.

Denver Seeks More Efficient Checkpoints

Denver International Airport early in 2008 will implement a program called Total Queue Management (TQM) to ensure that the airport’s security-screening checkpoints operate as efficiently as possible.

TQM will be operated by HSS, which already provides contract security guards at the airport. Airport officials said that TQM will involve various aspects that should contribute to the goal of more efficient checkpoints:

• Diverting: HSS will monitor wait times at each checkpoint and divert passengers to the checkpoint with the shortest wait time. HSS will use technologies that provide better real-time information about wait times at each checkpoint;
• Diverting: HSS will encourage travelers to remove keys, coins and other metal objects from their pockets and take laptop computers out of their cases so they will be ready to go through the magnetometers when their turn comes.
• Queue Management: HSS will manage the lines to make sure passengers are in the proper queue.
• Registered Traveler: HSS will subcontract this program to Verified Identity Pass, the company that operates the Clear Registered Traveler program.

Regarding important financing and performance details in the PCA bid,” stated Bill Cramer, vice chairman of the airport authority and lead negotiator for the property sale.

The airport authority now has approved a contract to sell the current airport site to a subsidiary of Leucadia National Corp. of New York for $56.5 million in cash and revenues from transfer fees from the sale of future properties developed on site.

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AAAE Chair Krys Bart, A.A.E., along with other airport representatives, testified Nov. 15 before the House aviation subcommittee on the preparations airports are making to accommodate the record number of passengers expected to fly during the 2007 Thanksgiving and Christmas holiday season. Remarks excerpted from Bart’s testimony can be found on page 20 of this issue.
PANY&NJ Takes Over At Stewart International

Officials from the Port Authority of New York and New Jersey (PANY&NJ), along with New York Gov. Eliot Spitzer (D), on Nov. 1 marked the port authority’s takeover of Stewart International.

In a ceremony at the Newburgh, N.Y., airport, officials pledged to develop the underutilized facility into a strong regional airport serving the travel and business needs of the Hudson Valley, while also helping to alleviate congestion and ease delays at the New York and New Jersey metropolitan-area airports.

The port authority in July signed an agreement with National Express Group that outlined the reassignment of National Express Group’s lease for Stewart International to the port authority. The airport’s land is owned by the New York State DOT and was leased to National Express Group for 99 years. The PANY&NJ agreed to pay $78.5 million to take over the 93 years remaining on the operating lease.

Skybus announced it will launch nonstop service to Stewart from Columbus on Jan. 6, 2008, and from Greensboro/Winston-Salem/High Point, N.C., on Feb. 25, 2008. CEO Bill Diffenderffer commented that the takeover of Stewart by the port authority “will only accelerate Stewart’s importance as a regional airport. We think our service from Columbus and from North Carolina’s Piedmont Triad International Airport beginning in early 2008 will contribute to that growth and give Skybus customers an exciting new destination.”

Getting Charged At Detroit

Detroit Metro is offering travelers in the Smith Terminal free use of Laptop Pitstop charging stations. The airport is rewiring and converting unused phone banks into charging stations. Each area has a seat, a shelf and four electric outlets, and a clearly visible Laptop Pitstop sign.

“Previously, the best way to find an electric outlet was to creep along behind the custodian with the vacuum cleaner,” said airport authority CEO Lester Robinson. “You know they are headed for a wall outlet. Today, all you need to do is look for the Laptop Pitstop charging station sign.”

The prototype Laptop Pitstop charging station was commissioned at the Smith Terminal near Spirit gates C-7, C-9 and C-11 within hearing range of the boarding announcements. Another station is located near the Smith Terminal restrooms on the main level behind the check-in counters. Phone bank to charging station conversions also are taking place on Concourses A and B.

Happy 40th Anniversary Smarte Carte

Smarte Carte in 2007 marked its 40th year of providing self-service luggage cart services to air travelers, and announced that it has been awarded contracts at several major airports.


While luggage carts are a popular passenger service today, in 1967 (with the exception of a few international arrivals areas) luggage carts were not available at U.S. airports. Smarte Carte initially provided the service at the airports in Minneapolis/St. Paul, Salt Lake City and Los Angeles.
Denver International announced that a two-megawatt solar energy system will be constructed at the airport. Upon its completion in 2008, the photovoltaic system is expected to generate 3.5 million kilowatt-hours of clean electricity and support Denver’s commitment to environmental sustainability by reducing carbon emissions into the atmosphere by more than 5 million pounds each year.

MMA Renewable Ventures LLC, a subsidiary of Municipal Mortgage & Equity LLC, and WorldWater & Solar Technologies Corp., formerly WorldWater & Power Corp., will construct the project. The project is part of the Xcel Energy Solar Rewards program and will receive a rebate to offset the upfront construction costs. Xcel
Energy will purchase the renewable energy credits from the clean electricity produced in support of Colorado’s Renewable Energy Standard, which requires large utilities to generate 20 percent of their power from renewable energy sources by 2020.

Airport Massage Goes Mainstream

Getting a massage in the public area of an airport terminal and in front of passers-by was an unconventional thought back in 1994. Thirteen years later, what started as a small, six-seat kiosk at Seattle-Tacoma International is now part of 10 locations at airports nationwide.

The Massage Bar, the creation of Cary Cruea of Seattle, celebrated a milestone on Aug. 24 by greeting the company’s one millionth customer, who received a free massage plus an assortment of celebratory gifts.

“When we first started, people would, literally, just stare,” explained Cruea, “An in-public massage was not something people had ever seen before. Now, accessible, affordable and convenient massages are part of the landscape of an airport.”

Originally launched at the Washington State Convention and Trade Center in 1993, Massage Bar has expanded from its first airport bar in Sea-Tac’s Concourse C to serve airports from Newark to Nashville and Sacramento. The 10 locations include eight airports and 120 employees.

Memphis To Gain New Control Tower

FAA in January 2008 will break ground for a new air traffic control tower and facility at Memphis International to meet the airport’s activity demands and work space needs. The current tower was commissioned in 1977.

The new tower will be 336 feet tall, approximately 150 feet taller than the current tower. The tower’s design will provide air traffic controllers with maximum visibility of airborne traffic patterns; a clear, unobstructed and direct view of the approaches to runway ends; and a view of all airport surface areas used for movement of aircraft under their control.

The tower cab will be 850 square feet compared with 200 square feet in the existing cab. In addition, the new facility will include a 25,000-square-foot Terminal Radar Approach Control (TRACON) building with administrative offices, and a 3,000-square-foot engine generator support building.

Construction is expected to take slightly more than three years to complete and will be performed in three phases, the airport said. Both the tower and base building have been wind tunnel tested and designed to meet the latest security, seismic and force requirements.

Williams Gateway Begins Commercial Development

The Williams Gateway (Ariz.) Airport Authority has begun commercial development on 52 acres of non-aviation land near the south end of the airport that officials predicted could generate up to 1,500 jobs.

Reliance Companies recently broke ground for a 60,000-square-foot, multi-tenant office/warehouse structure on the property’s first 4.2-acre lot. Construction on this building is expected to be about nine months. Including the initial multi-tenant building, Reliance will develop over 500,000 square feet of new commercial space.

“Reliance’s groundbreaking represents an innovative approach to job creation at Phoenix-Mesa Gateway Airport,” said airport Executive Director Lynn Kusy. “This public-private partnership will result in significant job growth as Gateway continues to expand as a major job center and commercial airport for the Phoenix-Mesa metropolitan area.”

Meanwhile, Phoenix-Mesa Gateway Airport became Williams Gateway Airport’s new name effective Oct. 15. “Changing the name is critical to ensure the airport reaches its highest potential in creating jobs and commercial service development,” said Lynn Kusy, A.A.E., executive director for the Williams Gateway Airport Authority. Visit the airport’s new Web site at www.phxmesagateway.com.

International Air Cargo Center Set For LA/Ontario

The Los Angeles Board of Airport Commissioners in December approved a lease agreement with Aero Ontario RFP, LLP (Aeroterm) to develop and manage an international air cargo center at LA/Ontario International.

Under the terms of the 40-year lease agreement, Aeroterm will construct 1 million square feet of cargo facilities, the first phase of which will be complete and operational within two years of the lease commencement. As part of the agreement, Los Angeles World Airports will receive an on-going revenue stream in the form of ground rental payments.

The lease agreement is subject to final approval by the Los Angeles City Council.
The year 1991 was when the Soviet Union broke up, apartheid ended in South Africa, Terminator 2 was the top grossing film at the box office and Eastern Airlines stopped flying. One other piece of history: it was the last time the AAAE Board of Directors authorized a dues increase for airport members of AAAE.

The AAAE Board recently authorized a 2008 preliminary budget of more than $39 million that once again maintains AAAE member dues at $225 annually. While dues have been stagnant since 1991, the association has been anything but. Representing more than 3,000 airport executive members and with a staff of more than 80, AAAE is the largest organization of its kind in the world.

The association uses its resources and staff to provide members with unmatched services and exceptional representation in Washington, D.C. Examples include AAAE’s enhancement of basic services by more than $1.5 million each year beyond the revenue produced by member dues, and $3 million per year more for representing members’ interests in Washington, above and beyond what airports provide in voluntary payments for government representation.

During the past decade, the association’s supplement to airport-provided funds for Washington representation exceeds $20 million. As a result, AAAE is able to field one of the most highly respected teams in aviation lobbying circles. The association’s staff has more than 100 years of combined Capitol Hill and lobbying experience, together with a decades-long track record of delivering for airport interests in Washington.

AAAE uses the “cafeteria” approach to its services for training, specialized information, technology and other optional services. Rather than bundling all services in dues and making all members take (and pay for) everything, AAAE has grown into the ranks of the nation’s largest and most influential non-profit associations by allowing members to pick and choose services they want at their airports.

AAAE’s success at offering this cafeteria approach to dues and services is evident in the fact that AAAE receives just 3 percent of its revenues from member dues.
compared with the association average of 40 percent. Among AAAE’s most prized successes has been the organization’s commitment to assisting students with higher education. During the past two decades, the AAAE Foundation has awarded college scholarships to more than 1,000 students for a cumulative total of $2 million and has set aside another $2 million in the Greg Isbill Endowment fund that uses its investment earnings to perpetually fund student scholarships. AAAE intends to fund scholarships in the future at the rate of more than $200,000 per year under the standards set by the AAAE Foundation Committee and AAAE Board. All of this has been done with the support of AAAE chapters, members, corporate supporters and the AAAE Board’s management of programs that provided additional funding for the Foundation scholarships.

“AAAE leaders and staff are proud of the exceptional value offered by our association’s membership and optional programs,” said AAAE President Chip Barclay, A.A.E. “We all work very hard to keep dues low, value high and programs optional, so members can pick and choose those services they want to purchase because they suit their needs. At AAAE, we believe our growth and success have been the result of a culture established by an outstanding string of voluntary leaders elected by the AAAE members. That culture is centered on the principles of professionalism, member service, entrepreneurship and what we call ‘Financial Performance with a Purpose’: 1) Pass along a financially strong organization to the next generation of members; 2) Provide airports exceptional representation in Washington; and 3) Continuously improve the member services we provide to airport executives and airports. Our thanks to all the leaders who have set us on the nominal dues, services as options path, and to the members who have supported AAAE over so many years.”

In 1991 the Dow Jones Industrial Average was at 3,000, a gallon of gas cost $1.09 and a ticket to a major league ballgame was under $9. So what can you think of that hasn’t increased in price since 1991?

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FABRIC ABOVE: Abilene and Fresno airports are adding FabriTec Structures tension fabric covers for weather protection over key pedestrian areas, parent company USA Shade & Fabric Structures reported. The Abilene contract, worth about $500,000, calls for a 11,500-square-foot structure at the airport’s main entrance. The cover will include a main arch leading into five arch systems that will protect the airport’s pickup/drop-off area. Fresno’s project, valued at $542,000, will cover a 600-foot walkway between the airport and the consolidated rental car facility. Several other airports have recently installed FabriTec covers, including Dallas Love (pictured), Dallas Executive Airport and New York Kennedy.
Airports Rise To Customer Service Challenge

Editor’s note: AAAE Chair Krys Bart, A.A.E., testified Nov. 15 before the House aviation subcommittee, chaired by Rep. Jerry Costello (D-Ill.), on the preparations airports are making to accommodate the record number of passengers expected to fly during the 2007 Thanksgiving and Christmas holiday season. The following remarks are excerpted from Bart’s testimony.

Mr. Chairman, I would like to commend you, Ranking Member Thomas Petri (R-Wis.), Chairman James Oberstar (D-Minn.) and Ranking Member John Mica (R-Fla.) for all of the good work that you did on H.R.2881, the FAA Reauthorization Act of 2007. Airports are particularly grateful that the four-year bill would raise the PFC cap from $4.50 to $7 and authorize $15.8 billion for AIP during the next four years.

Both funding provisions would help airports build the infrastructure they need to accommodate increasing passenger levels and the spikes that occur during the busy holiday travel season. Increased funding for airport infrastructure projects coupled with the transition to the Next Generation Air Transportation System will go a long way toward helping reduce delays and passenger complaints.

Airport executives realize that increased funding and improving the air traffic control system are not enough to address the problems related to commercial air service and the rise in passenger complaints. That is why my colleagues and I at airports around the country are committed to helping passengers by providing top-notch customer service and by helping airlines and federal agencies carry out their vast responsibilities.

In addition to adding more capacity to accommodate increasing passenger levels in the longer-term, airports are taking numerous steps in the short-term to help passengers during the upcoming holidays.

Examples of the steps airports are implementing include:

- The Chicago Department of Aviation works closely with all of its tenants to ensure that O’Hare and Midway airports are prepared to accommodate increased passenger levels during the holidays. Department representatives also meet with TSA officials to review the agency’s staffing plans in an effort to reduce long lines at security checkpoints.

- Des Moines International Airport works with the airlines and TSA to compile a spreadsheet to highlight daily passenger loads and charter activities during the holiday season. The Metropolitan Washington Airports Authority similarly distributes projected passenger loads at Ronald Reagan Washington National and Dulles International airports to airport police, authority staff, Travelers Aid and TSA to assist with their staffing plans.

- Airports also use their websites and the media to disseminate helpful information to passengers before they leave their home or office for the airport.

- Airports around the country are using a combination of new technology and more personnel to help passengers navigate their parking facilities and to reduce the amount of time it takes them to enter and exit parking facilities during peak travel times. Last year, we installed a Credit Express parking system at Reno-Tahoe airport that is reducing wait times by allowing customers to use a credit card upon entering one of our parking facilities and by using the same card upon exiting. Baltimore/Washington International Thurgood Marshall uses SMART Park — an impressive system that includes ultrasonic sensors above each parking space and electronic signs to efficiently guide customers to open parking spaces.

Congress can help airports accommodate increasing passenger levels and the spikes that occur during holiday seasons in the future by approving a multi-year FAA reauthorization bill that raises the PFC cap to $7 and authorizes $15.8 billion for AIP funding.
Port Columbus International Airport uses volunteers to operate an additional information kiosk during the holidays to help answer passenger questions.

Since 2003, San Diego International Airport has relied on its Checkpoint Passenger Assist program to help passengers during the holiday and peak summer travel season. Mineta San Jose International Airport similarly uses its Ambassador Program to provide passengers with customer assistance.

A number of airports also use the Registered Traveler (RT) program to reduce wait times and passenger frustration at security checkpoints throughout the year and during peak travel times.

Many airports are using the Passenger Advisory at Security Screening (PASS) system to help expedite passenger screening throughout the year and during peak travel times. The PASS system, which was developed by AAEE, helps reduce congestion and delays by preparing passengers to properly divest themselves before they pass through security checkpoints.

Airports have extensive snow removal plans in place should they be hit with severe winter storms over the holidays. Further, a number of airports have emergency contingency plans in place should long on-board delays occur during the holidays.

Congress can help airports accommodate increasing passenger levels and the spikes that occur during holiday seasons in the future by approving a multi-year FAA reauthorization bill that raises the PFC cap to $7 and authorizes $15.8 billion for AIP funding. Airports are now waiting for the Senate to pass its version of the bill so that lawmakers can iron out their differences and send an FAA reauthorization bill to the President’s desk.

It is critical that Congress approve a multi-year FAA reauthorization bill. Delays in distributing AIP funding would impact airports of all sizes and be particularly hard on small airports that rely on federal funds and those airports with short construction cycles.

Krys Bart, A.A.E., is Reno-Tahoe International Airport’s president and CEO and chair of AAEE.
Pressured by the steady growth in airline passenger traffic, airports increasingly are expanding, modernizing or replacing their terminals. While the size and style of the revamped terminals vary, nearly all of these projects are incorporating environmentally sustainable features as their architectural baselines. Put another way, airport terminal projects are going green.

While no airport-specific guidelines regarding sustainable design have been established, many airport authorities now mandate that new projects should — where possible — conform with the well-regarded, but generic, Leadership in Energy and Environmental Design (LEED) standards developed by the Washington, D.C.-based U.S. Green Building Council (USGBC). LEED now is considered the premier standard of environmental design in the U.S.

Although the guidelines are available to anyone at no cost, some airport authorities are asking that their projects formally be registered with the USGBC — which does involve a fee and extensive documentation — in order to attain one of the council’s four levels of LEED certification. Each level is based on a specific number of points achieved for design and materials that are compatible with, or promote, environmental sustainability: Certified (26-32 points), Silver (33-38 points), Gold (39-51 points) and Platinum (52-69 points). The points correspond to five areas of sustainability — site design; water efficiency; energy and atmosphere; materials and resources; and indoor environmental quality.

The USGBC based this grading system primarily on office building design, but airport authorities and architects have not found it difficult to apply the LEED criteria to airport projects.

“Although the guidelines are pretty straightforward, the USGBC does have a process to modify the credit requirements for individual projects, using (what it calls) a ‘credit interpretation process,’” explained Chris Schaffner, a principal in the Green Engineer, a Concord, Mass.-based environmental design consulting firm, and a member of the USGBC’s Indoor Environmental Quality Technical Advisory Group.

“Each credit is based on a goal or intent you want to achieve for any type of structure you are building. Since the goals will vary by building type, there is a lot of room for interpretation,” he said.

Al Michejda, director of aviation architecture for HNTB Architecture, Inc., in Washington, D.C., agreed that the USGBC is recognizing the unique issues with airport design. “Starting about two years ago, we have been seeing greater flexibility with LEED certification guidelines, when applied to airports,” he said. “Each project is being examined on a case-by-case basis.”

**Boston Logan First**

When it opened in March 2005, Boston Logan International’s Terminal 4, which serves Delta Air Lines, became the first LEED-registered new airport terminal project in the U.S. The 22-gate, 860,000-square-foot facility attained the Certified level.

Currently, the Indianapolis Airport Authority is replacing its 1950s-era terminal complex with a 40-gate, 1.25 million-square-foot facility slated to...
The project, dubbed “The New Indianapolis Airport,” has been registered with the USGBC for the Certified level.

Good Management
Greta Hawvermale, senior director of engineering and environment for the Indianapolis Airport Authority, stated that LEED often results in the creation of “good management practices,” such as recycling, and improved indoor environmental quality.

“Getting the points has been a trade-off to a certain degree,” Hawvermale noted. “For example, with an airport, you have to be careful with what you can do with wildlife management and water capture and reuse. A roof planted with vegetation and water ponds would have gotten us points. But because they would attract birds, they would present an aircraft hazard.”

The Indianapolis terminal is being built on vacant property between two parallel runways, which have a 10,000-foot separation. It will be the first post-9/11 sustainable, greenfield airport terminal in the U.S., according to project architect Ripley Rasmus, design principal with the St. Louis-based architectural firm HOK, Inc.

Rasmus said that energy efficiency is probably the key feature with sustainable design today and is considered even more critical with an airport terminal. “Unlike an office building, an airport is generally a 24/7 operation,” he remarked. “You have to have a high-performance building envelope in terms of the roof and wall construction, which both conserves and preserves energy.”

The roof, in fact, presents an excellent opportunity for maximizing energy efficiency at an airport terminal, since it covers a tremendous amount of space, Rasmus said. “At Indianapolis, the roof will incorporate a very high level of insulation and reflect heat from sunlight away from the building to provide energy-efficient climate control,” he said. “At the same time, it will save energy by providing a maximum amount of natural daylight.”

He added that the energy savings at the new Indianapolis airport is expected to be as much as 30 percent greater than a non-sustainable design.

Indianapolis also will incorporate a sophisticated stormwater runoff management system. This is an essential part of green building for today’s airports, since the runoff contains literally tons of hydrocarbons, and often glycol, an aircraft deicing chemical, Rasmus said. “The hydrocarbons and glycol will be separated out of the runoff water; the glycol will be recycled; and the hydrocarbons will be disposed of in an environmentally sound way,” Rasmus explained. “The (filtered) water will then be discharged into the waterways around the airport to support plant and animal life.”

One way to add LEED points is by using recycled materials in the facility’s construction. That, in fact, is one of the key design elements of Sacramento International’s new, 675,000-square-foot, 19-gate Terminal B project. Scheduled to open in June 2011, the facility will replace an aging, 215,000-square-foot structure that will be demolished.

Brent Kelley, a principal in the Sacramento office of Dallas-based Corgan Associates, the project’s...
prime architectural contractor, explained that Terminal B will incorporate an extensive amount of recycled concrete and glass procured from area building demolitions, along with carpeting made with recycled content. He said that the Sacramento County Airport System also has purchased a retired road bridge dating back to the 1930s that is constructed of old-growth redwood. “The bridge will give us nearly 100,000 board feet of (lumber) that will make up the interior ceiling’s finishing on the central landside portion of the terminal,” he said.

Along with its extensive use of recycled material, Terminal B is designed to decrease energy consumption through the maximum use of natural daylight and ventilation. Kelley said. For example, at the building’s highest point, activated louvers will be used to vent hot air, taking advantage of the “chimney effect.” In conjunction with this, natural shading provided by panels and large overhangs on the outside of the building will reduce heat build-up and glare.

**Energy Savings**

In fact, such energy conservation measures are not limited to the building’s design. “We are working with the Sacramento Municipal Utility District to provide a natural gas-powered, co-generating plant, which would supplement the power grid,” Kelley stated. “We investigated solar, but cannot provide enough structural area to make it a viable option.”

Kelley said that, based on current calculations, Terminal B is expected to exceed by 15-20 percent the minimum energy conservation requirements mandated by California Title 24 Energy Consumption Requirements for Building Design. “Separately, we estimate a day-to-day energy savings of 30-35 percent over that of a conventional design approach,” he said.

While Sacramento’s Terminal B has been USGBC-registered for the LEED Certified level, Santa Barbara’s Airport Terminal Improvement Project is striving to be even greener, with the Silver level as the goal. According
to airport director
Karen Ramsdell,
construction of the
60,000-square-foot, six-gate structure
is projected to begin in the fall of
2008, with completion by early 2011.
The plan also calls for preservation
of the original, 7,000-square-foot
terminal opened by United Airlines
in 1942, which will function as the
airport’s operations center.

Existing Building Upgrade

Along with the USGBC registration,
Ramsdell explained that the airport
formally has applied for participation
in the Southern California Edison
Savings By Design program, which
provides rebates for reduced energy
usage. In fact, the California utility is
assisting with the project’s design.

“The building will include an array
of skylights, which will minimize
the use of artificial light during the
daytime and direct natural light into
the core of the building,” Ramsdell
said. “Also, artificial lighting will
be automatically controlled to adjust
the level of light to the requirements
of the time of the day, so that no
more than necessary will be used.”
In addition, the terminal’s air
conditioning system will be adjusted
for specific areas of the building,
based on cooling requirements.

LEED registration is not restricted
to new construction. A major terminal
renovation and expansion project
now taking place at Los Angeles
International has been registered
for the Certified level under LEED-
EB (Existing Building) upgrade,
modification and maintenance
standards. According to Roger
Johnson, deputy executive director
for Los Angeles World Airports
(LAWA), the project, officially known
as the Tom Bradley International
Terminal Interior Improvements and
Baggage Screening Facilities Project, is
scheduled for completion in the first
quarter of 2010.

Johnson noted that, while there are
no specific LEED-EB guidelines for
airports, LAWA has found no inherent
difficulties in adapting the existing
standards to the terminal’s renovation.

“What helps is the fact that it
has to comply with California state
energy efficiency and materials
recycling laws,” Johnson said. “State
law requires us to meet energy
efficiency standards that are, in some
cases, more strict than the LEED
requirements. Additional laws, such
as California’s source reduction and
recycling program, require significant
recycling of waste materials.”

Gordon Phillips, a principal in the
Los Angeles office of Leo A Daly, the
LAWA project’s architectural firm
of record, explained that the $575.6
million project will result in the
renovation of more than 60 percent of
the 1 million-square-foot facility and
add 50,000 square feet of new space.
The new construction will include a
In early 2010, the Panama City-Bay County (Fla.) Airport (PFN) and Industrial District will open the first totally new air carrier airport in the U.S. since Denver opened its signature international airport in the mid-1990s. The new $330 million facility, which will include a 105,000-square-foot terminal, will totally relocate and replace the existing facility in the state’s panhandle area.

According to Randy Curtis, A.A.E., executive director of the Panama City-Bay County Airport and Industrial District, the project will include 9,600 acres of land preservation as part of the environmental mitigation requirements, with an additional 4,000 acres to be occupied by the airport site. The new airport site, in fact, was used for years by commercial lumbering interests. Under the plan, the 9,600 acres being preserved will be allowed to revert back to their natural state. Curtis also noted that strict environmental standards are mandated by Florida’s Ecosystems Team Permitting process, which requires the LEED Certified level at a minimum.

“We have volunteered to register the project under the Silver level,” said Curtis, who noted that the airport agency also has volunteered to enhance the stormwater runoff filtration by as much as 50 percent above state mandates. “We are working with our architects, HNTB, to identify areas that could become more energy efficient, in order to help the environment further,” he said. “Right now, we are looking at a 20-30 percent greater energy efficiency with the terminal building.”

Curtis added that Panama City-Bay County is benefiting from the fact that this will be a totally greenfield airport. “That opens many opportunities to be more environmentally beneficial and efficient,” he said.

The five-story North Matrix building, which will house offices, as well as an inline baggage screening area used for explosives detection. A two-story South Matrix building will be added for the inline screening of baggage transferred from international to domestic flights. A new addition to the terminal’s existing concourse, dubbed the “New Large Aircraft (NLA) North Building,” will accommodate the Airbus Super Jumbo 380 with a dual bridge loading system. The NLA will have five additional gates for other wide-bodied aircraft.

To gain some of the LEED-certified points, LAWA will upgrade the terminal’s environmental management system significantly, including automating the building’s lighting control system, and install a new, more energy efficient heating, ventilation and air-conditioning system. “We will use direct digital controls for air volume and climate,” said Phillips. “We will also replace the building’s existing variable air volume control boxes. Along with this, one of the most important areas in which we expect to gain LEED points involves the installation of high-efficiency fluorescent lighting with dimmable ballast.”

In addition, the project will focus on materials and resource conservation, with more than 75 percent of construction and materials being recycled and utilizing native vegetation, said Curtis. “This is the first greenfield airport in the Panhandle, so there are a lot of opportunities here.”

LEED often results in the creation of “good management practices,” such as recycling, and improved indoor environmental quality.
demolition waste recycled or salvaged. For instance, terrazzo floors and metal ceilings, comprised of 80 percent and 70 percent recycled material, respectively, will be installed.

**Multi-Package Bidding**

Phillips said that about 95 percent of the project’s construction will be done within an existing building, which he said makes gaining LEED points a little more difficult than it would be with a new-build project. “With new construction, you have the opportunity to gain LEED points in the design of the walls and roof for greater energy efficiency,” he said. “With the Tom Bradley Terminal project, we will have to work with the existing structure, which is why we feel that going for the Certified level is the most practical approach.”

Another issue, said Phillips, concerns the heating, ventilation and air conditioning (HVAC) system. “When you work with a new building, you may approach the design of the entire HVAC system differently, in terms of the components, and the way you deliver air into the building,” he explained. “The best we can do on the Tom Bradley Terminal is to replace the HVAC main air handling units and the variable air volume control boxes, with more efficient components.”

One important aspect of new and renovated airport terminal construction is that multi-package public bidding with many different contractors often is involved. This can present yet another challenge when striving for LEED certification, according to Doug Jones, design manager of San Jose ( Calif.) Mineta International’s Terminal Area Improvement Program (TAIP).

“Under those circumstances, some contractors do better than others when it comes to earning LEED points,” Jones noted. “For instance, one contractor may provide steel that contains 90 percent recycled material, while another may offer steel with just 20 percent recycled content. Also, some contractors may be able to procure their materials locally — which gets LEED points — while others may not. All of that is figured in, and you come up with an average number of points.”

Under TAIP, a 500,000-square-foot terminal is scheduled for completion in mid-2010. The airport has hired LEED-accredited professionals to monitor the construction project. It requires a lot of paperwork on the part of the contractors, who have to document what they are doing to gain points. The LEED-accredited professionals help them to do this, Jones said.

All of that has its costs. USGBC’s Schaffner pointed out that registration costs for a project are relatively modest, at 3.5 cents per square foot of building space, with a top-out of the fee predicated on 500,000 square feet. “The real cost involves hiring the consultants or devoting staff time to assemble the documentation needed to gain LEED points, which could be as much as $40,000 to $50,000,” he said. “Then, there’s the equipment that you would install to help you comply with LEED standards, but that would vary by the building.”

That’s why some airports may not want to incur the costs involved in registering for a LEED certification level, stated HNTB’s Michejda. “But they can still reap the benefits by building to the guidelines, which are a ‘cook book’ for building to sustainable standards,” he said. Still, Michejda added that LEED certification has its panache. “It’s a badge of recognition that you care about the environment,” he said.

Despite the issues, sustainability has become a permanent part of airport facilities design. “Airports are jumping on the LEED bandwagon,” said Leo A Daly’s Phillips. “But it will still be up to the USGBC to develop a category applicable to airport operations. There are people working on this, but very frankly, it will be a long stretch before this happens.”

Paul Seidenman and David Spanovich are freelance writers based in San Francisco, Calif.
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* includes America West CRJs
CRJ: Canadair Regional Jets (all series)
ERJ: Embraer 135/140/145 series
EMJ: Embraer 170/190 series
ARJ: Avro RJ series

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A Positive GA Airport Story

Those flying to northern Virginia on a business jet have a good selection of airports from which to choose. Dulles boasts fairly easy access to Washington, D.C., two good FBOs and a certain amount of prestige. However, catering almost exclusively to general and business aviation are the airports in Leesburg, Manassas, Winchester, the relatively new Stafford Regional Airport in Prince William County, and perhaps not as well known, Warrenton-Fauquier Airport, located just a few miles southeast of Warrenton. The county seat for Fauquier County, Warrenton is situated about 45 miles west of Washington, D.C. — the outer edge of the commuteable distance to the nation’s capital.

Warrenton-Fauquier Airport has been in business since 1964 and recently has experienced substantial growth, primarily due to extensive residential and commercial growth in Fauquier County in the past 10 years, mirroring to a lesser degree the enormous growth that has taken place in all of northern Virginia. As recently as 10 years ago, Warrenton was a sleepy little country town known more as a stopping-off point on the way to Charlottesville and the University of Virginia. Not any more. “Big-box” stores have moved into town together with carefully planned residential development. FAA built its new consolidated Potomac TRACON in Vint Hill, the now-shuttered military base on the north side of Warrenton, in 2002.

The airport is positioned seven miles west of the ADIZ surrounding the airspace around Washington, D.C. — an attractive feature for many general aviation pilots who prefer to remain clear of the Air Defense Identification Zone (ADIZ.) (The airport is actually located in Midland, just a few miles south of Warrenton.) The county bought the airport in 1992 from a private owner and since then has expanded the footprint of the field from 130 acres to more than 400 acres. At the time of the acquisition, the county mandated that the airport be self-supporting, which it has been, according to Mike Anderson, the airport manager since 2000.

“Most of our revenue is from land leases and hangar leases,” said Anderson. “But our biggest issue is storage for these aircraft,” added Anderson. “We just finished two rows of new T-hangars, which gives us 40 new T-hangars.”

The first major part of an expansion outlined in the airport master plan was a runway extension for the sole runway, 14/32, from an original 4,300 by 60 feet, to 5,000 by 100 feet. “That 5,000 feet is a magic number — a minimum number for a lot of insurance companies,” said Anderson. And an acceptable runway length for most business jets. “Our whole goal has been to attract additional corporate traffic,” added Anderson. “We had three bizjets come through today, which was unheard of previously.” The airport averages about 114 operations a day.

Warrenton-Fauquier Airport has about 150 based aircraft, primarily a mix of single-engine pistons and light twins. “Our first turbine aircraft based on the field — a King Air — was purchased a few months ago by a local car dealership,” said Anderson. “We’ve also added a lot of new single and light twins in the past 18 months.”

Another major part of the expansion is the addition of an ILS for Runway 14. The equipment for the Instrument Landing System already is in place but will not be commissioned by FAA until sometime next year, after some trees surrounding properties near the airport have been removed.

The county completed construction of an above-ground Jet A fuel tank in 2005 and took over the fueling from a private FBO in May of this year, serving both avgas and Jet A. Chrissy Kirby, who has been with Fauquier County for 22 years and served as the administrative specialist for the airport for the past five years, said that traffic definitely has increased over the last year. “From May through November of this year we pumped 13,737 gallons of Jet A and 56,811 gallons of avgas, a 40 percent increase from last year in total gallons pumped. It’s clear that the amount of jet traffic has increased.” Kirby added that the airport saw a big increase in staff when it took over the FBO and the fueling.

Are there any plans to allow private companies to bid on an FBO at the airport? Kirby said that for now the county will continue to do the fueling but added, “We’ve built out our master plan for the airport and are in the process of updating a new master plan.”

A smattering of small flight schools and maintenance operations are based at Warrenton-Fauquier. Skyworld Aviation offers flight training, Midland Aviation, Airfield Services and Phoenix Aviation offer aircraft maintenance, and SR Aviation also operates a flight school and offers aircraft rentals.

Anderson said that the next step for the airport is to build some corporate aircraft hangars, and that the county will most likely look to a private developer for that. “I’d like to see the county involved with it but I think we need a private developer,” stated Anderson.

Warrenton-Fauquier is well positioned to be a first-class general aviation facility for a high-growth area, and as has been reported in this column before, it’s nice to see a general aviation airport that is growing — instead of being demolished. 
Celebrate Life At Airports! By Melissa Babula

You’ve seen them around. Jake, his dog Rocket, and various other cheerful characters have been quietly populating T-shirts, backpacks, coffee mugs and water bottles for years. Hudson Group, travel retailer best known for its national newsstand brand, Hudson News, recently tapped into the Life is good line, bringing Jake and his friends to the airport retail experience.

The clothes are colorful, the message is optimistic, and the appeal is broad. “Life is good” is a statement just about everyone can get on board with, and the company’s ever-widening product line of apparel, toys, and various other merchandise sport the optimistic declaration. “In fact, we have experienced great success with this brand in every airport where we have opened stores,” said Joe DiDomizio, executive vice president and chief operating officer, Hudson Group. “Airports keep calling us to inquire how they too can add ‘Life is good’ to their retail lineups.”


HMSHost and airport technology retailer Airport Wireless Thursday announced the opening of the first Techshowcase at Oakland International Airport’s Terminal 2. A high technology airport retail store developed and operated by Airport Wireless, Techshowcase incorporates multiple leading brand technology manufacturers into one easy-to-shop store. Each store is designed to convey the atmosphere of a “please touch” science museum, with live technology demonstration units mounted on interactive display fixtures. ...Reno-Tahoe International Airport recently celebrated the opening of a new wing of the Ponderosa Pines gift shop dedicated to Brighton handbags, jewelry and accessories. The Ponderosa Pines and Brighton shop held a special opening Nov. 29 through Dec. 1 featuring free one-hour parking with a purchase of a Brighton product or a product from the PGA Tour Golf Shop. In an effort to appeal to both male and female shoppers, customers will find special sales during the opening at both the Brighton store and the nearby PGA Shop. The Brighton store at Reno-Tahoe International is operated by The Paradies Shops.
Magal-Senstar, Inc. is a group of veteran organizations - Perimeter Products, Senstar-Stellar and Magal Security Systems Ltd. - that now operate as one super power. Magal-Senstar delivers the largest selection of advanced security systems and solutions - from the perimeter to the control room. The company’s products are the result of 130 years of combined experience protecting airports, borders, nuclear facilities, maximum security prisons, military bases and other sensitive installations in more than 75 countries around the world.
Avoiding Ambiguities in Concession Agreements

At most airports, concessions are a critical element of revenues that subsidize diverse projects and fund general and administrative operations. Concessions include rental cars, parking, food and beverage, gift shops and other business ventures. While concessionaires can review draft agreements and make requests for alteration prior to signing them, the airport is generally the drafter of the agreement. If contract law stipulated that what was not expressly permitted was not permitted, the process of drafting concession agreements would be much simpler. Unfortunately, that is not the path the courts have chosen. Rather, that which is not expressly prohibited either by contract language, statutory law or case law, is generally considered to be permitted. Thus, it is the airport’s responsibility to include all necessary contract provisions that protect its interests. Although certain contractual issues may seem obvious and implicit to the drafting party, the best policy is to err on the side of meticulous detail. For example, what if the agreement does not mention discounts? If it is not expressly prohibited in the contract the concessionaire may interpret and probably will be able to include discounts in its computation of revenues subject to concession. Given these factors, an airport will want to spend a considerable amount of time when it updates or prepares new agreements with concessionaires to ensure that concession fees are paid in accordance with the airport’s expectations.

Different approaches are used to ensure all revenue streams the airport wants included for concession are covered by the agreement. One method is to use wording such as “Gross Receipts shall include all amounts received from customers except the following...”. The assumption here is that if there is a revenue source that is not mentioned in the list of exceptions, then it is subject to concession. The wording can be phrased differently, but the idea is the same — that is, everything is subject except what specifically is listed as exempt. This approach has the advantage of simplicity in that it doesn’t specifically limit the revenue streams that are subject to concession. Such an enumerated list could be construed as exhaustive and complete. But this approach also has limitations. For example, a concessionaire may consider that certain receipts merely are reimbursements of cost, such as fuel charges or even property tax recoveries on rental cars. Given the rule that all ambiguities are the responsibility of the party drafting the agreement, the airport should consider whether certain receipts should be listed expressly as subject to concession.

If the airport decides to list all revenue streams subject to concession, a comprehensive data-gathering process should be undertaken. This should include participation of the departments of finance, internal audits, and properties. The airport also should consult with industry associations as there typically are new sources of information and mechanisms to capture additional revenue from concessionaires that other airports have noted. An example of this in rental cars concessions is language that allows the airport to apply a concession percentage to insurance payments for business losses. Some airports have included this as part of their standard contracts for several years, but many airports still do not include this language. The same principle can be applied to other concessionaires. Also, the airport may want to include contractual language as to whether revenues as defined by the contract are in accordance with generally accepted accounting principles (GAAP). If this wording is left out of the contract, once again this may be interpreted against the drafting party and, as a result, the airport may not be able to use GAAP as a model for revenue inclusion. Conversely, if the airport does not want GAAP applied to the computation of revenues, that should be stated in the contract. A mechanism sometimes used when concessionable revenues are listed is also to include examples of revenues not subject to concession with the proviso that those are the only revenues not subject. In addition, contracts may include a list of prohibited reductions from revenue such as discounts, rebates, coupons, bad debts and out-of-pocket expenses.

Of course, all considerations regarding revenues also apply to expenses in the event that the contract allows the vendor to apply operating or other expenses to offset revenues. Numerous restrictions will have to be contemplated to avoid a situation where the contract allows the vendor to apply expenses that were not the intent of the airport.

Airports also should consider adding a clause to the contract that “each party and its counsel have participated fully in the review and revision of the agreement.” This precautionary measure establishes the general rule that “ambiguities are to be resolved against the drafting party shall not apply in interpreting this agreement,” and that “the language in this agreement shall be interpreted as to its fair meaning and not strictly for or against any party.” This may assist the airport in the event the language of the contract is not completely clear on all points. However, enforcing this clause is by no means a certainty. Depending on the interpretations and evidence presented by both sides and the authority hearing those arguments (judge, jury, mediator), it may or may not prove to be dispositive. There also is a possibility that the concessionaire will request removal of this clause in the drafting stage because it creates a significant advantage for the airport.

In addition to considering all
possible revenue streams that the airport wants to include as part of the concession, the airport also is typically responsible for enforcement of the contract through audit. Some contracts require the concessionaire to obtain an audit in compliance with GAAP from a third-party CPA, but there are problems with using that as a safe-harbor approach. Typically the focus of an audit done by a CPA will be to ensure that the overall amounts shown in the basic financial statements of the company are correct. These include year-end amounts for assets, liabilities and other accounts that may have no relevance to the concession agreement. Generally, the airport will want the option of using its own resources to audit the concessionaire. The contract should include provisions that address records retention, financial accountability, and timeliness of data provided by the concessionaire. A contract may include a provision that if audit requests are not satisfied within a specified time period, a penalty is assessed. Generally, the penalty is a per-day fine such as $10 or $100. Airports that include this clause will want to carefully apply audit procedures to mark the date of each request. Sending all requests by e-mail can accomplish this task efficiently. In addition, contracts often include penalties and interest provisions for concession revenues recovered through audit. As is the case in other venues, penalty clauses often are used as bargaining chips in negotiations when the concessionaire is challenging the findings of the audit.

Ambiguous or incomplete contracts can cost an airport substantial concession revenue every year those contracts are in place. As lease agreements expire and are updated, airports would do well to remember the responsibility they have in the process of updating those agreements to ensure that revenue expectations are met and included. The resources the airport uses to write a clear, unambiguous contract will pay dividends and enable the airport to pursue additional projects.

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We’ve heard this story before: illegal aliens are caught and arrested at airports for using fake airport identification. Although TSA mandates that airports must verify identity before issuing airport access credentials and a Security Threat Assessment must be completed, the problem hasn’t gone away.

In early November 2007, at least 23 individuals were arrested and another 75 were being sought in the Chicago area for using fake airport security badges. According to the Chicago Sun Times, investigators found that 110 of the 134 badges issued to Ideal Staffing Solutions, which has contracts at Chicago O’Hare International, did not match the individuals who carried them. Additionally, the 110 badge applications carried false Social Security numbers.

After 9/11, the Aviation and Transportation Security Act called for the government to develop biometric standards for access control systems. Biometrics is now rapidly spreading throughout the State Department’s ePassport and US-VISIT programs and the Transportation Worker Identification Credential (TWIC) program and is in wide use overseas. However, with few exceptions, airport access control remains largely unchanged.

Biometric systems identify a person using his/her unique characteristics. The use of fingerprints as a unique identifier has been around for more than 100 years, but there are numerous other systems, including behavioral traits like signature and voice recognition and physiological traits like facial recognition and hand geometry. Of these, face, fingerprint and hand geometry are the most popular.

For the airports that have biometrics incorporated into their access control systems, most use either fingerprint or hand geometry readers.
San Francisco International first incorporated biometrics in the early 1990s. “We took the access control requirements quite literally,” explained Paul Foster, the airport’s aviation security manager. San Francisco uses a hand geometry system that to date has worked on all but two people, so the enrollment rate has been phenomenal. Some fingerprint-based systems have been plagued with enrollment problems, particularly for masonry workers and those with grease, oil and other contaminants on their fingers.

Kim Dickie, assistant deputy director for San Francisco, said that frequent maintenance and keeping the hand readers clean was a problem early on, but that most of the bugs have been resolved. Since 9/11, several airports, including Denver International, Minneapolis-St. Paul International, Seattle-Tacoma International and Boston-Logan International, have installed biometrics into their access systems.

TSA Guidance
To help airport operators, in 2005 TSA published guidance on selecting biometric access control technology. The document provides information on the minimum features and performance standards and offers guidance on the right questions to ask when requesting a proposal for a biometric-based access control system. TSA recently published its Qualified Products List (QPL) for airport biometric access control systems. All four of the products initially approved are fingerprint readers.

A Biometric Primer

There are about 14 types of biometric systems that operate on similar principles to identify the unique traits of individuals. This process generally involves measuring data points that can be both physiological and behavioral, converting the data points to a numerical code and comparing that code to a known database.

Systems are differentiated by their resilience, particularly in harsh airport environments, their performance (speed and accuracy) and their ability to avoid being circumvented. Airport Magazine reviewed some of the more popular technologies to provide you with a biometric primer.

Fingerprint Scanning: Fingerprint scanners use either optical or capacitance scanners to capture an image of the ridges and valleys that make up a fingerprint. It works when an individual places his/her finger on a reader. Optical scanners use light to capture a photo of the fingerprint and compare it to a known database. Capacitance scanners sense electrical current to capture fingerprint images. Oil, grease, dust and other elements can affect the ability of the technology to work, but fingerprint readers are by far the most popular form of biometrics. Some systems also have heat sensors to prevent someone from using a severed finger.

Hand Geometry: This was one of the first biometric systems to be developed. Hand geometry works by measuring various distances, often through the use of a laser, on the hand,
According to TSA spokesman Jim Fotenos, “The QPL was not a solicitation for specific technologies; any biometric provider can apply. This time around only four products were submitted and they happened to be fingerprint devices.”

Airports with existing biometric access control systems that are using hand geometry or another technology, or that are using fingerprint readers that are not on the QPL, should have their product provider submit the technology to TSA for approval. The technologies are tested by the National Institute of Standards and Technology (NIST).

The four products initially approved include products from Bioscrypt, Cogent Systems and two products from Lumidigm.

“The most important thing people should look for in a biometric is that it works, and it works in your environment,” said Bill Spence, vice president of transaction systems for Lumidigm. “We have to look at the airport environment, which is a dirty, dusty environment. You need to look at biometrics that work around that.”

Lumidigm already has had success with one of its fingerprint products, which is installed at the entry gates to Walt Disney World.

The system installed at Walt Disney World has had more than 38 million enrollments. The system is used at the entry gate, and visitors are immediately enrolled the first time they pass through the gate. The enrollment process takes seconds and ties the individual’s fingerprint to his/her park pass.

Spence said that the biggest problem with fingerprint readers in the past was with false rejection rates when the reader falsely rejected an approved individual due to foreign substances on his/her fingers. “All conventional fingerprint systems work on the premise that there are ridges and valleys,” explained Spence. “When you put your finger on the sensor, the ridge makes contact and you’re trapping air in the valley. Optical sensors then record the fact that air is trapped and ridges are in contact. What we do is very different. We not only look at the surface of the fingerprint but also the internal fingerprint, which is below the surface, buried 2 mm deep in your finger. It’s the capillaries that supply oxygen to the tip of your finger.”

Iris and Retinal Scans: Iris scanners use a digital camera to take a clear high-contrast picture of an individual’s eye. The scanner then analyzes the patterns in the eye and converts the results to a numeric code. There are more than 200 points of reference in the iris as compared to 70 in a fingerprint. Laser surgery, eyeglasses and contact lenses generally do not affect the iris. Retinal scans are an older technology that involved a camera using bright light to take a photo of the back of an individual’s eye. The process was quite uncomfortable for users. Pilots are generally leery of any technology that shines anything into their eyes, so iris scanning, while already in use at London’s Gatwick Airport, may have more of a sociological hurdle in the U.S.

Vein Scanners: An individual’s veins are as unique as the iris. An infrared scanner takes a photo of the hand or arm. Blood hemoglobin absorbs the light, making veins appear black in the image. The image is converted to a numeric code.

Voice Recognition: This technology is already in wide use in word processing and in computer and telephone customer service lines. To use VR as a biometric, an individual must create a voiceprint. A computer analyzes the spectrogram, which shows the frequency of a sound along a vertical and horizontal axis.

Signature: We’ve all seen those credit card readers in the store that will accept just about any scribble as “your” signature, so thinking that a signature could be used as a biometric to verify identity is a stretch. Plus, given enough practice time, many people can duplicate another individual’s signature. However, biometric signature readers also measure the pressure, speed and rhythm of the writer, which can be very difficult to duplicate.

Gait Recognition: This technology is still in the developmental stages, but there is some research indicating that an individual’s gait may be as unique as his/her fingerprints or other biometric features. Gait recognition could be used in conjunction with facial recognition to identify a criminal or terrorist in a crowd.

— Jeff Price
Interoperability Critical

Lumidigm’s products use a silicon sensor that looks at electrical properties. Skin is a conductor and air is an insulator, so you measure different electrical properties when you see skin touching the sensor versus air touching the sensor.

“All of the existing systems are based on the physical or external fingerprints,” Spence explained. “If water gets onto your finger, then you have more water in your valleys and, to the reader, it’s going to look just like skin and not match the print that’s on record. Or, if it’s really dry and your skin doesn’t make the contact with the sensor, it looks like air to the sensor and it doesn’t see the difference. Lumidigm’s products use a photographic process and different angles to go deeper into your finger and pull out internal information. You get a reflected-refracted signal of blues and greens and the system analyzes the light to determine a match.”

A critical issue for airport security coordinators today is interoperability. They need to ensure that a future biometric access control system will integrate with the airport’s existing access control system and with the new federal standards for identity cards, as well as with other systems that may be installed in the airport, such as at ticket counters, gates and security screening checkpoints.

Some future U.S. security screening checkpoint plans call for implementing biometrics, and they may soon be in place at ticket counters as airlines move toward self-service kiosks and bag-drop services. Fingerprint technology already has moved into the maritime community with portable fingerprint readers in use by the U.S. Coast Guard during boarding operations. Within minutes, Coast Guard personnel can determine if an individual found in the water is a migrant or a possible terrorist or criminal.

Airport security coordinators also need to keep a watchful eye on the development of TWIC, ePassport, the US-Visit program, Radio Frequency Identification (RFID) and programs such as the Smart Card Alliance, HSPD-12, FIPS 201 and ISO 14443.

Federal Standard

Through HSPD-12, the federal government has been working to develop a standard form of identification for federal employees and contractors who need access to secure federal facilities. As a result of HSPD-12, the NIST developed Federal Information Processing Standards Publication 201 (FIPS 201) to meet the technical requirements of the Presidential Directive and establish the Personal Identity Verification (PIV) standards for federal employees.

Now let’s bring in RFID, ISO 14443 and the Smart Card Alliance. The Smart Card Alliance is a non-profit organization consisting of 170 members, including product providers and users of identification technology. The alliance provides guidance on the development of Smart Cards, which are a device, or card, with an embedded integrated circuit chip capable of being used for access, financial transactions, transportation, the storage of critical health care information, telecommunications and secure identification. Smart Cards are either contact or contactless, in which case they use either proximity systems or RFID technology. ISO 14443 is the international standard for contactless smart cards.
RFID is similar to a proximity system with longer range. However, RFID can penetrate clothing and can grant access without the user ever touching his or her identification. In the airport environment, RFID also allows security personnel to track individuals wherever they are on the airfield. To ensure that RFID signals cannot be intercepted and duplicated, some systems are incorporating cryptographic keys into the signals.

So what does this all have to do with TWIC? While TSA has maintained that TWIC is on the back burner for aviation and mostly has focused on maritime to roll out the TWIC initiatives, aviation industry experts are keeping a close eye on the situation.

“For general consumption we need to be sure that TSA works with airports and comes up with a program that makes sense, is sustainable and uses technology and processes that already exist. We don’t need big integrators to take over what the (AAAE) Transportation Security Clearinghouse already has established,” said Lori Beckman, A.A.E., security director for Denver International.

“The most important thing people should look for in a biometric is that it works, and it works in your environment.”

Beckman noted that, in the maritime industry, TWIC badges aren’t produced in-house. “Can you imagine an airport that issues 60,000 badges a year waiting for them to be processed and returned instead of immediate issuance?” she commented. “The Security Threat Assessment changes have already slowed the system down for badge issuance, which would pale in comparison to what TWIC could do if not done right. Many airports don’t disagree that aviation TWIC should happen, but we need to have a say in what it looks like.”

So far, only illegal aliens have been caught obtaining and then loaning airport badges to each other, as well as airline workers smuggling guns and narcotics on board commercial flights. Are these incidents early warning signs? How soon before a criminal or terrorist exploits this known weakness? Airports can be proactive by reviewing TSA’s QPL for biometric-based access control systems and integrate these products into the next access control RFP. Airports that already have a biometric access control system should request that the manufacturer submit the technology to TSA for approval. Ensure that the individual, not just the badge, is the one authorized to be on the ramp.

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Jeff Price is the owner of Leading Edge Strategies, an airport management training and consulting firm. He is also a full-time professor at the Metropolitan State College of Denver and is publishing a textbook on aviation security titled Practical Aviation Security, which is due to be published in 2009.
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Althought Peru’s Jorge Chavez International (JCIA) isn’t a large airport, it shares much of the complexity, hazards and risks of many bigger facilities. On its one Category II runway, JCIA supports the operations of 23 airlines, which in 2007 transported some 7.2 million passengers to 24 nonstop international destinations. Due to its advantageous location, over the past three years JCIA has become one of the region’s main international hubs and in the process has had to learn to deal safely with the intense performance pressure demanded of successful airport hubs.

The International Civil Aviation Organization (ICAO) in November 2005 amended Annex 14, Volume I (Aerodrome Design and Operations) to require the certificated international airports of its member states to establish an SMS. Most of these airports already had in place numerous safety-related programs and procedures, including apron control, FOD control, access control, and procedures for fueling operations, aeronautical information reporting, and airside construction procedures to highlight just a few. The aerodrome SMS, as envisioned by ICAO, pulls these programs together around a central safety policy and set of goals, so that they become proactive (goal oriented) and inclusive (involve all airport users). Progress is systematically reviewed with the aim of creating ever-safer conditions for air traffic.

LAP officials, effective with the company’s 2001 takeover of JCIA’s management, developed a safety policy that presented safety as a core value and an integral part of the business, equal in importance to financial objectives. The LAP safety policy is applicable to all employees, including non-airport workers. Further, the policy outlines the responsibilities and accountability for directors, managers and employees, sets a specific safety goal and provides direction for implementing the policy.

As part of the adoption of the safety policy, LAP implemented an apron or ramp safety goal tied to European averages for intermediate airports. According to statistics published by Airports Council International, in 2004 those airports had an average of 0.42 apron accidents or incidents per 1,000 operations. LAP management instituted the same reporting format so that results consistently could be compared. In 2005, the first year of systematic reporting at JCIA, the index was more than 50 percent above the mark of 0.42 per 1,000 operations. However, by the following year, after implementation of the airport’s SMS, JCIA reached the 0.42 mark. LAP then set the 2007 goal at 0.38, in an effort to reduce the accident/incident rate by another 10 percent.

LAP established goals for other categories of apron accidents and incidents, which has helped JCIA move from a reactive mode of safety management (focused on accident investigation and implementation of corrective action) to a proactive mode in which all members of the airport community actively look for ways to reduce risks, with the result that accident and incident levels are lowered.

Despite a phenomenal increase in passenger and air traffic from 2006 to 2007 over the same airside footprint, JCIA was able to stay on track with its 2007 safety goals. This was possible due to a widespread commitment to safety in the many organizations that provide ramp services at JCIA.
An Airport Safety Committee

The large number of companies and workers engaged in moving passengers and planes at JCIA meant that the airport needed an effective way to coordinate the safety actions of these varied organizations, which have different cultures, speak different languages and operate different equipment fleets.

An important tool in gaining the cooperation of all concerned parties to embrace the SMS goal of apron safety was the formation in 2005 of the Airport Safety Committee (ASC). The ASC at JCIA is a formal organization, which holds bimonthly meetings, reviews safety statistics, hosts joint training sessions, conducts joint inspections, and makes explicit recommendations for coordinated practices in ramp operations that enhance the safety of all operators. The ASC also hosts a half-day annual forum at which progress toward the annual work plan is assessed and goals for the following year are established. Subcommittees or working groups dedicated to specific issues may be formed. Special subcommittees developed so far deal with civil-military interfaces and ground-handling activities. In addition, the ASC has a close relationship with other airport committees, including the Emergency Committee, the Wildlife Hazard Committee, the Security Committee and the Facilitation Committee.

Safety Promotion

Beyond simply having an active safety committee, LAP worked to foster a “generative” safety culture at JCIA through active safety promotion. Since the SMS relies in large measure on the voluntary reporting of safety incidents and accidents, reporting is heavily emphasized and rewarded throughout the LAP organization and encouraged in all operators. This philosophy recognizes that if airside operations personnel do not have the training to recognize reportable occurrences and the opportunity to record and transmit safety observations — or if they encounter a non-receptive attitude on the part of their immediate supervisors — then the SMS becomes irrelevant.

Still, creating a generative culture takes time. LAP management approached this task first from a human resources perspective, reassessing the job descriptions, competencies and the training programs associated with each critical function. The objective was to ensure that staff members are competent and trained to recognize hazards in their workplace and clearly understand their reporting obligation. The emphasis on reporting is continually stressed at all levels.

After the human resources programs had been revamped, LAP management looked at the operational requirements needed to support active reporting and to ensure that key safety data was properly registered and safeguarded. Reporting formats were redesigned and implemented so that staff easily and automatically could report occurrences of safety importance. An SMS database was created, which
houses all required details on hazard, risk, accident/incidents and follow-up action.

At JCIA, the safety statistics and analysis for the entire airport are published on a bimonthly basis and placed on the airport network for all to review. The safety performance of individual companies is included, as is a detailed breakdown of the trends regarding safety infractions, incidents and accidents. This “open book” policy is designed to encourage improvement, and to a significant measure it has contributed to the steadily improving safety environment at JCIA.

A final element of the safety culture has to do with how safety violations are sanctioned. LAP management at all levels recognizes that human error occurs — but what happens when an unsafe act that puts the operator and those around him at risk results from willful disregard of safety regulations? In these cases, sanctions are appropriate and should be enacted immediately.

**Risk Management**

JCIA adopted the ICAO risk management framework, aimed at reducing risk to a level “as low as reasonably practical.” Under the ICAO framework, the operator looks at a specific risk factor, then weighs the probability and consequences of an accident resulting from that risk. Both dimensions of risk analysis are considered, to determine whether a risk can be mitigated to acceptable levels.

For example, the risk of a vehicle-aircraft collision on the apron, with its expensive consequences (damage to parked aircraft), may have a relatively high probability, given the congestion and time pressure common to regional hubs. Short of affecting hub operations, such a risk can be mitigated through a variety of operational and engineering measures — enforcement of strict traffic regulations, reduction of the number of vehicles circulating, construction of more aircraft stands and so forth. However, the risk of an aircraft leaving the runway due to hydroplaning as a result of standing water and/or rubber accumulation presents wholly unacceptable consequences. Such a risk must be eliminated through proper inspection and reporting procedures, an adequate rubber removal program, pavement grooving or other actions.

Risk management includes: 1) a framework for risk analysis and control, including establishing a level of acceptable risk; 2) review of all safety-relevant procedures, facilities and critical safety areas in order to identify hazards and determine risk; and 3) the development of mitigation measures to be implemented for risks that are higher than acceptable levels.

With the risk management framework in hand, the operations team at JCIA began the process of hazard identification at the aerodrome. LAP used three approaches: 1) an operational process approach with Fraport experts, which entailed a top-down review of all safety relevant procedures and process flows; 2) a “gap” analysis, comparing existing practices and airside layout with ICAO
standards and recommended practices; and 3) identification of critical safety/security areas, with a focus on “hot spots” that could endanger aircraft and equipment circulation.

The hazard identification process helped airport officials systematically organize airfield hazards so that their risk potential could be evaluated. Because the airside at JCIA has a shallow central apron with five taxiways converging on a central handoff point, aircraft congestion occurs on the central apron, especially during periods when numerous simultaneous requests are made for pushback. The south apron is challenged by vehicle congestion, due to nearby maintenance facilities and cargo operations. Much of the apron pavement is old and requires constant maintenance to avoid FOD incidents.

Throughout, the airside infields create dust and grit hazards because Lima is located in a coastal desert. Finally, military facilities are on either side of the commercial apron, which can complicate both access and wildlife controls.

The next airport expansion phase, due to be completed in December 2008, solves many of these issues. However, at present they present hazards and create risks that must be managed by effective safety programs in the context of an SMS — one that is awake 24 hours a day, as the peak activity at JCIA occurs between 11 p.m. and 1 a.m.

Sometimes, risks can be eliminated by removing the particular hazard involved. At JCIA prior to 2007, cargo vehicles loaded and unloaded their palletized cargo on the open ramp, in close proximity to aircraft taxiing on the commercial apron. When the JCIA Cargo and Mall Center opened in early 2007, that hazard was completely removed, as well as the concomitant risk of a vehicle-aircraft collision in that area. At other times, hazards cannot be removed, but their associated risks can be mitigated by implementing new procedures.

In a few locations at JCIA, for instance, the hazard identification team recommended new stop signs and traffic control points for blind intersections that posed a risk to pedestrians from ground support vehicles. In one case, JCIA found that an infrastructure fix to remove one hazard inadvertently created a new one. In 2006, LAP management paved over old infield areas that, as sources of dust and grit, presented an unacceptable FOD risk. The light pavement was painted green and marked as less than full strength pavement. Nevertheless, on two occasions, pilots mistakenly took the newly paved infields to be taxiways and had to be reoriented by ground control. Fortunately, no damage ensued to the aircraft. After a safety analysis, another pilot offered a solution seen at some airports in the U.S. and Europe — the installation of plastic delineators with reflective properties along the borders of the infields.

Safety Assurance

Safety assurance at JCIA is comprised of the set of activities that enforce safety requirements, monitor and inspect the airfield and process accidents, incidents, complaints, defects, faults, discrepancies and failures. Most airports — even those without an SMS — are familiar with these activities as they represent the traditional roles of apron supervisors and their chiefs. At JCIA, the apron regulations and related procedures simply needed to be updated and consistently enforced. However, a major effort was required on the part of LAP properly to document and protect information. This was undertaken as part of the ISO 9001 certification process that encompassed all aspects of the airport operation.

In addition to traditional enforcement, inspection and accident investigation, ICAO requires that the aerodrome operator conduct two very different audits of the SMS each year. The first — called the internal audit — is an audit of the airport operator’s SMS and should be conducted by a group outside of the airport operations team that is familiar with aerodrome safety requirements. In the case of LAP, a Fraport team annually conducts the internal audit.

The second — called the external audit — is an audit of the safety management practices of all operators and service providers with access to the airside. This is a mammoth task and one that is extremely difficult to conclude within a 12-month period, given that the audit usually also requires a follow-up inspection to determine if corrective action is being implemented. LAP officials have prioritized the operators and service providers on a risk basis and strive to maintain those companies on an annual audit cycle. Other companies, with less critical functions, are audited biannually. The results of the external audits are provided to the Peruvian Civil Aviation Authority.

Bill Fullerton is COO of Lima Airport Partners and a member of the IAAE Board of Directors. Contact him at bfullerton@lima-airport.com.
In order to achieve an acceptable level of safety in aviation operations, ICAO requires that its member states establish a civil aviation safety program — an integrated set of regulations and activities that promote safe operation of aircraft, air traffic services, aerodromes and aircraft maintenance. Through these mandated safety programs, member states conduct safety oversight of all civil aviation activities under their control, through inspections and audits of the safety management systems (SMS) for each certified operator.

The effectiveness of the safety oversight of member states is in turn audited periodically by ICAO through the Universal Safety Oversight Audit Program (USOAP), which since November 2005 includes the aerodrome SMS. As part of the USOAP, ICAO conducts “visits to industry.” These are visits to important segments of the civil aviation industry to verify that the member state is ensuring that mandated safety programs are being carried out effectively. These “visits to industry” include airport visits — usually to one of the principal international airports of a member state.

JCIA underwent its “visit to industry” in May 2007 and was the first airport in South America to undergo this process. The format of the visit included a general interview with the airside operational team (aerodrome operator staff, inspectors from the civil aviation authority and government regulators), followed by inspections of the movement areas and the ARFF station.

At JCIA, the stakes were high for LAP. Since 2006, the Peruvian Civil Aviation Authority has required as part of certification that the Aerodrome Manual presents details of the airport SMS. Furthermore, ICAO states that, “Suspension of an aerodrome certificate may be considered if an aerodrome operator’s safety management system is found to be inadequate” (ICAO Doc 9774, section 5.2.5.6).

While the initial questions on the SMS were very general, the followup questions were intended to verify that a systematic approach with internal controls underlays the aerodrome operation. The sum total of the answers to these questions and results of on-site verification provided a clear picture of whether the airport was carrying out operations in a controlled, safe manner that could be verified systematically and independently.

At JCIA, the inspection visit observed no significant findings or deviations from ICAO standards and recommended practices — a testimony to the hard work and safety awareness of the entire airport community.

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TSC's services support numerous background screening programs, including checks on large general aviation aircraft and charter crews, airport screeners and airline workers.
When Hurricane Katrina struck New Orleans on Aug. 29, 2005, bringing 150-mile-per-hour winds and a storm surge from Lake Pontchartrain, a series of 10-foot-high waves swept over the airfield, smashing into buildings, tearing down doors and windows and even stripping drywall from the walls. The entire contents of some buildings were swept away. Steel hangar doors up to 28 feet high were knocked flat. The wind tore roofing materials away, exposing the contents of buildings to the weather.

Inside the terminal, airport Director Randy Taylor and 15 of his airfield and emergency staff waited out the storm. Wave after wave struck the building, ripping through doors and windows, smashing shops and offices on the ground floor and gutting the airport’s main restaurant, The Walnut Room. The wind stripped most of the waterproofing material from the roof, allowing rain to soak the offices on the upper floors. On the airfield, those planes that could fly had left. The few planes that remained were tossed...
around like so many toys and demolished. The ILS approach to the main runway, including the middle marker, had been built on a 2,200-foot-long pier. Nothing remained of the pier but the piling.

When the storm ended, Taylor and his crew set to work clearing debris from the apron. The airport became a staging point for helicopter evacuations from the surrounding neighborhoods. Long lines of people stood in the hot sun, waiting to be air-lifted out. The situation in the area was now untenable, with no power or water in most of the city. When the last evacuees left, the airport staff went to Baton Rouge, where the Orleans Levee Board, which owns the airport, had set up temporary headquarters.

On Oct. 18, the airport re-opened, using portable generators for power and trucking in needed supplies, including drinking water. The two FBOs, Million Air and Aviaport, had both suffered massive damages. Only the steel frame of Aviaport’s hangar and offices remained, and Million Air’s main hangar, a 320,000-square-foot steel structure, had collapsed. Total damage to the airport was estimated at $30 million.

The two FBOs set up temporary buildings on the ramp and began operations again. One of the three Jet A tanks had been moved off its foundation by the force of the flood and had to be emptied, but the other two survived and were put back into service. The airport staff set up an office in a trailer in the parking lot and resumed operations.

Two years after Katrina, massive damage still is evident on the airport, but there are signs of recovery. Million Air and Aviaport have demolished what was left of their hangars and plans have been drawn up for new buildings. Hangars 1 and 5, two
of the original airport buildings, have solid concrete structures and suffered only minor damage. Windows and doors have been replaced. The hangar doors, operated by electric motors mounted near the roof and a rack and pinion system, were operable as soon as power was restored.

During the 1970s, in an attempt to modernize the terminal, windows were bricked in and the entire building was covered with pre-cast concrete. A mezzanine level cut the atrium in half vertically and half of the murals were covered with drywall. The polished walnut panels, which give The Walnut Room its name, were covered with wallpaper. Now that much of this was destroyed by Katrina, there is a growing interest in restoring the building to its former glory, and some of this work has begun.

The air traffic control tower was relatively undamaged, suffering only minor flooding at ground level. However, due to the reduced traffic after the storm, and the lack of power and water, personnel were moved to Atlanta and the airport went to Unicom operations. Now that operations are back up to 50,000 movements per year, FAA has reopened the tower and returned the airport to controlled airspace.

Lakefront Airport is popular with corporate users, since it is only five miles from the center of the city. As a result, corporate traffic to the airport is increasing steadily. Taylor still manages the airport from a trailer in the parking lot but, as repairs continue to be made on the airfield and its buildings, he is optimistic about the future of this historic airport.

Robert Fluhr, a senior project manager with URS Corp., spent considerable time in New Orleans participating in the post-Katrina rebuilding effort. Contact him at bob_fluhr@urscorp.com.
FAA Evaluating Runway Debris Detection System

The University of Illinois Center of Excellence in Airport Technology (CEAT), on behalf of FAA, is currently evaluating the latest Tarsier foreign object debris (FOD) detection system at T.F. Green Airport (PVD), in Warwick, R.I. This represents the first installation and operation of the system at a U.S. airport.

FOD represents an ongoing issue for airports. Professor Edwin Herricks, director of CEAT, noted that some cost estimates for FOD damage ran as high as $4 billion globally. FAA’s William J. Hughes Technical Center, in conjunction with CEAT, is overseeing performance evaluations of FOD detection systems at commercial airports.

“The performance evaluation program at T.F. Green Airport began in June and will continue until next spring. Upon completion it is expected that the FAA will publish an Advisory Circular that will assist airports in safety management activities related to FOD,” noted Herricks. The performance assessment will test the FOD system in a variety of weather and lighting conditions, including wind, rain, snow and darkness.

The system’s goal is to cut down on the need for manual runway inspections without sacrificing safety. The Tarsier FOD system is fully automated and provides continuous scanning of the runway area. It alerts airport operations personnel if foreign objects are detected. Operations specialists then recover and record all debris.

Two Tarsier radar units have been installed at T.F. Green’s north-south runway. The units are housed in small towers. A computer in the airport’s operations center provides a visual image of the runway and radar imagery. Upon detection of FOD, an alarm sounds and the airport operations team performs a visual inspection and recovery.

While this is the first U.S. installation of the system, Tarsier is in use at Vancouver International Airport and is being installed at Dubai International Airport.

Phil McLachlan, managing director of QinetiQ Airport Technologies, said, “FAA evaluation at T.F. Green is hugely important to us as not only is it our first installation in the U.S., but also a chance to demonstrate to the FAA that fully automated runway FOD inspections are now possible.”

Singapore Orders Carmanah Solar Lights

Carmanah Technologies Corp., a Canadian manufacturer of light emitting diode (LED) and solar-powered aviation lighting systems, recently announced that it had secured an order, valued at approximately $600,000, to provide solar-powered portable LED airfield lights for use throughout Singapore.

The purchase of these lighting systems will support Singapore’s efforts to improve its emergency preparedness. The portable lights can help support relief efforts or humanitarian aid missions related to floods, earthquakes or other local or national emergencies. Because Carmanah’s lighting systems do not need to be connected to the power grid, they can be installed quickly—a two-person crew can install a 5,000-foot runway in an hour, the company said.

Survey: Security, Growth Driving Airport IT

Airports are looking to make technological improvements to meet the challenges posed by booming passenger growth and increased security concerns. That’s the bottom line derived from SITA’s fourth annual IT Survey, done in conjunction with Airline Business and Airports Council International.

The results, collected from 79 respondents representing over half of the world’s 200 busiest airports, indicate that airports increasingly are turning to self-service and shared-use technologies to combat congestion associated with long ticketing, baggage and check-in lines. For example, more than half of the survey respondents have implemented dedicated self-service check-in kiosks for specific airlines, while another 20 percent intend to do so in the next two to five years. Additionally, 27 percent of respondents have installed common-use kiosks where passengers can check in on any airline, while 54 percent will do so within five years.

Remote passenger check-in, which allows passengers to check in before reaching the airport, is another popular approach – 28 percent of respondents already have begun offering this service, and another 42 percent plan on doing so within five years.

Other passenger processing services, such as registered traveler programs and automated boarding gate systems, have been implemented at relatively few airports (14 percent and 3 percent, respectively), but more than 30 percent of respondents planned on implementing these services in the near term.

Another airport congestion issue facing airports is baggage management. The survey results showed that the majority of respondents already employed inline security baggage screening systems. While only 30 percent of respondents used baggage tracking services, more than a third of respondents indicated that they would do so within five years. Further, while common bag drop locations are still relatively rare (only 18 percent of respondents...
currently offer them), half of the respondents plan on offering them in the next few years.

“When many people think about ‘congestion’ at airports, they often refer to passengers standing in queues at the check-in counters or security checkpoints,” explained John Jarrell, SITA senior vice president for airport and desktop services. “These are problems that self-service technologies such as Web check-in, kiosks, mobile solutions and other off-airport processing will continue to address. We expect to see vast improvements in passenger processing in the coming years as travelers continue to become more comfortable with this transformation.”

Jarrell also discussed the ways in which airports are trying to beef up security while cutting down on delays, saying that, “Security challenges at airports need to be tackled on two fronts; physical and data security. Airport executives are planning to invest in passenger security such as biometrics at border control, next generation of CCTVs, perimeter and parking surveillance systems, access control systems as additional layers of physical security. Airports also are planning to improve data security by investing in disaster recovery plans, PCI compliance and other information security management concerns.”

Finally, the survey results found that airports plan on investing in IT projects to minimize traffic and aircraft movement congestion. Respondents pointed to geographic information systems, ground and vehicle tracking systems, and collaborative decision making as areas for investment in the next two years.

**Moss Airport Rygge Chooses ARINC**

Moss Airport Rygge, a newly-opened regional airport located near Oslo, Norway, announced its decision to use ARINC products starting in 2008. The airport will use ARINC’s / MUSE common-use check-in and boarding system to provide electronic check-ins for passengers of all participating airlines. Airlines may also use the AviNet MQ service to connect to their host computers anywhere in the world. AviNet MQ provides access to airline host computers regardless of the modernity of the airline’s system.
EIPaso, Texas, is known as the gateway to Mexico, a fast-growing city meeting the industrial, manufacturing and transportation needs of worldwide commerce. El Paso International Airport (EPIA) is growing as well, keeping up with the pace of the gateway city.

In anticipation of continued expansion of commerce with Mexico, EPIA has invested in excess of $60 million in its air cargo facilities to meet demand forecasts for the next 10 years and beyond. According to the airport, the Butterfield Trail Air Cargo Center is the largest, most modern air cargo facility on the U.S./Mexico border. It features nearly 300,000 square feet of under-roof cargo space, 36 acres of aircraft parking, and a 12,000-foot air carrier ILS-equipped runway with dual taxiways supported by a 9,000-foot air carrier runway. The roadway infrastructure allows for easy truck access to the international bridges into Mexico via both a north-south interstate (I-25) and an east-west interstate (I-10), as well as a major north-south highway (Patriot Freeway Highway-54). “The roadways to the cargo center are the catalyst that [will] allow the associated industrial and commercial development,” states Director of Aviation Patrick Abeln, A.A.E.

EPIA also has two fixed-base operators (FBO) that provide fuel, maintenance and en-route support for pilots and their aircraft, including on-demand passenger charters, transient aircraft and U.S. government aircraft. The $5.59 million new state-of-the-art service facilities were paid for by Airport Enterprise Funds.

The airport has seen many other recent improvements and innovations, including the opening of the Butterfield Trail golf course in 2007. A creative generator of non-aviation revenue, the 18-hole course sits on airport-owned land and cost $16 million to build. It offers stunning views of the desert landscape and surrounding mountains, and is just a “long iron shot away” from the airport — an impressive diversion for business travelers, vacationers and locals. Within Butterfield Trail’s 8,800-square-foot clubhouse are a restaurant, bar and pro shop. The city’s department of aviation also has announced the opportunity for the development of a resort-style hotel (the city’s first) to accommodate guests looking for a relaxing spa vacation or golf getaway.

In progress are a long-term public parking expansion and terminal expansion, and the construction of a 150-acre commercial industrial park, situated near a rapidly expanding U.S. Army installation at Biggs Army Airfield. Also slated within the next several years are a runway extension, pavement rehabilitation and a master plan update.

Terminal improvements will include the addition of approximately 21,000 square feet for restrooms, food and beverage, and news and gift services. The golf theme will carry over to the terminal with the Mesa Street Bar and Grill, designed in partnership with Dewar’s and Golf Digest brands and the Mesa Street Grill, a popular El Paso restaurant.

Another major addition to EPIA is The Equestrian statue, a 16-ton, 42-foot-tall bronze sculpture of a horseman mounted on a rearing stallion, depicting the Spanish colonization of the Southwest. The Equestrian was installed at the airport...
It’s tee time at El Paso International Airport.

QuICK FACTS

• Eight major airlines currently fly in and out of El Paso International Airport
• The airport offers nonstop service to 18 cities
• The airport has a total of 15 gates on two concourses and covers 6,800 acres
• More than 3,473 public parking spaces are available on-airport

  • The pavement rehabilitation of Runway 4-22 and Taxiways G and H was completed in January 2007. The project cost $6.5 million, of which 90 percent was funded with federally derived revenue and 10 percent by Airport Enterprise Funds.
  • The reopening of the reconstructed Runway 8R-26L was held on July 19, 2007. The project cost $18.4 million, of which 100 percent was funded with federally derived funds.

2006 STATISTICS

• Total passengers served......3,402,330
• Aircraft operations.............101,486
• Cargo tonnage (U.S. tons)......83,467

Part of the original Butterfield Overland Mail Company’s trail (operated from 1858-1861) still runs through the Butterfield Trail golf course property today.

in 2006 and is said to be the largest bronze equestrian statue in the world.

While mindful of El Paso’s 400-year history, EPIA has made the city’s economic future a priority and brought a world-class golf course to the region, as well. If the accomplishments of the past several years are any indication, El Paso International Airport won’t be slowing down any time soon.

photos by epia
FAKE GRASS
Real Safety Improvement

NEW GLUE-DOWN APPLICATIONS OF ARTIFICIAL TURF COULD HELP AIRPORTS CREATE SAFER AIRFIELDS.

By Sean Broderick
Engineers at Boston Logan International recently completed a taxiway reconfiguration project that included a new application for artificial turf — one that planners may find useful as they examine how to make airfields safer.

Included in the 175,000 square feet of turf installed at Logan is 140,000 square feet of material that was glued down over existing hard surface. This, said vendor AvTurf, is the first time a glue-down turf application has been used at an airport.

Normally, artificial turf is laid over a prepared base of materials that drain well and are frost resistant — most often replacing existing natural grass. Glue-down applications allow airports to consider replacing painted areas of taxiway or other hard surfaces — such as green “islands” and taxiway shoulders with turf. This can save on maintenance costs by eliminating the need to repaint such areas. Artificial turf also can make difficult-to-reach areas, like small islands between busy taxiways, easier and safer to maintain. Perhaps more importantly, turf can create a greater visual contrast between places where aircraft should be and places where they shouldn’t, and its color doesn’t fade like painted concrete.

Logan’s taxiway reconfiguration created three islands at the airfield’s south end that “are really hard to get to as far as maintenance goes,” explained Peter Austin, Massport project manager, capital programs department. Two of the islands are surrounded by taxiway area, while the third has taxiways on three sides and runway on the fourth. Massport, which has artificial turf on Logan’s airfield from a previous project, again turned to the fake stuff. “Having an installation from several years before, the decision was made to try putting the turf on the island locations,” Austin explained.

In addition to making the areas safer with the glue-down turf application, Massport did not have to endure the expense and safety risks of physically removing the taxiway and creating new natural-grass areas, Austin noted. “Operationally, the areas are very hard to get to, so the best thing to do was to put the artificial turf down,” he said.

To date, airside turf applications have often targeted environmental problems, such as eliminating soil erosion, wildlife habitat, or the need to care for large areas of natural grass. But the arrival of glue-down combined with FAA’s vigilance on airfield safety could expand turf’s appeal. “Our product greatly enhances safety by providing a clear visual delineation between paved and non-paved areas for both pilots on approach, as well as taxing aircraft and ground crew,” said AvTurf CEO Joe Dobson. “Our recent glue-down at Boston Logan was specifically oriented for delineation as well as critical areas in high-traffic areas.”

One area where turf could prove useful is helping pilots differentiate between runways and adjacent taxiways. A recent FAA Technical Note, “Identification Techniques to Reduce Confusion Between Taxiways and Adjacent Runways,” identified 267 instances of pilots landing on taxiways at 110 airports between 1990 and August 2007. FAA visited two airports that have experienced multiple incidents, Palm Beach ( Fla.) International and Seattle-Tacoma International (Sea-Tac), and studied several methods for helping pilots, including elevated, lighted Xs near taxiway thresholds, in-pavement lighted Xs, runway end identifier lights (REILs), non-standard markings such as “TAXI ONLY” marked on taxiways, and artificial turf installed near thresholds and/or along taxiway shoulders.

Massport also covered parts of two decommissioned taxiways with turf. The areas, each located near a runway intersection, had painted yellow Xs and diagonal stripes on them. “We always envisioned painting them green,” Austin explained. “Here was an opportunity to put a more positive safety enhancement on the abandoned pavement.”
Reshaping Taxiways

FAA concluded that each method is beneficial for different reasons. Turf is ideal for reshaping taxiways without altering the weight-bearing capacity of the surface — a key factor for airports that have wide taxiways or ones with squared-off taxiway thresholds, which make them look like runways to approaching pilots. “If an airport has a squared-off taxiway threshold or wide taxiway shoulders, a viable solution to either visually rounding or limiting the size of a taxiway, is to apply green artificial turf to the surface pavement,” FAA said in its note. “This can be accomplished without the use of paint or the removal of concrete. The artificial turf will blend in with the surrounding grass area.” The agency noted, however, that covering a large area “can be a very expensive solution.” AvTurf’s Dobson explained, “When AvTurf is installed on a taxiway shoulder, it allows the runway to remain as the dominant feature to approaching aircraft. In addition, artificial turf may change the appearance of squared-off ends of taxiways that could be mistaken for runway thresholds.”

Seattle’s challenge is a large taxiway, Tango, which opened in October 1999. Tango sits 600 feet west of Runway 16R-34L, one of the airport’s two runways, and has 40-foot-wide gray asphalt shoulders. “The light-gray color of the shoulders blends with the concrete center, which is 100 feet wide, to produce a relatively uniform surface when viewed at a distance from the north,” FAA noted in its technical brief. Sun glare from the airport surface makes it a challenge for pilots to differentiate Tango from 16R-34L. Since the taxiway opened, the airport has had seven instances of pilots landing on it instead of on their intended runway, FAA reported.

FAA and a team from Mitre tested several different methods for helping
Looking for more information on artificial turf applications for airports? Start with Advisory Circular 150/3750-15, “Airside Applications for Artificial Turf.” Released on Sept. 29, 2007, the AC lays out standards that must be followed for any artificial turf project using AIP or PFC funds. More detailed information can be found in an FAA report with the same title as the AC. Link to the AC online from www.faa.gov/airports_airtraffic/airports/resources/recent_advisory_circulars/. Find the technical report online at www.tc.faa.gov/its/worldpac/techrpt/ar06-23.pdf. Or, check out AM’s blog at www.airportmagazine.net for direct links to both documents.
FAA’s work indicates that artificial turf can help make airfields safer by adding contrast to key intersections or taxiway edges.

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pilots at Seattle, including the lighted Xs, REILs, advanced surface coatings thicker than paint and turf. The turf was laid out in strips, held down by sandbags. The lights performed well, with an in-pavement lighted X being picked up visually some 4.5 miles from the runway during approaches flown during the tests. Strips of colored artificial turf placed on the taxiway shoulder were even more visible, with pilots picking them up some five miles from the airfield. Perhaps more importantly, FAA concluded that surface coatings — such as a painted taxiway shoulder — was no substitute for the contrast that turf would provide in a similar application. “The team learned that any surface treatment, such as paint or seal coating, did not overcome the excessive sun glare” on the taxiway tested at Seattle, the technical note said.

Sea-Tac has been very aggressive in trying to mitigate the challenges posed by Taxiway Tango, FAA also noted. “Sea-Tac personnel have been very proactive in trying to reduce the problem, including the installation of an unlit, non-reflective elevated lighted X at the threshold of Taxiway Tango; broadcasting a notice on the Automatic Terminal Information Service (ATIS) not to mistake the parallel taxiway for the adjacent runway; posting warnings on aeronautical charts not to mistake the taxiway for Runway 16R; and the development of numerous training aids and brochures that explain the problem to transient pilots traveling through Sea-Tac,” FAA underscored in its technical note.

FAA’s work indicates that artificial turf can help make airfields safer by adding contrast to key intersections or taxiway edges. Boston’s recent installation, especially the glue-down applications, could be the real-world test that airports need to help validate the concept. Even if other airports don’t take notice, Austin said the installation will serve as a lesson for Massport. “We think it’s going to enhance the safety for pilots,” Austin said of the turf on the decommissioned taxiways. “It’s a test. If it works and if [similar challenges] come up, we’ll know.”
For the last 20 years, FAA has recommended that airports maintain standard runway safety areas (RSAs). But since most modern airports were built before that time, many are still struggling to find ways to meet the specifications in Advisory Circular 150/5300-13, “Airport Design.” It is especially challenging for urban airports with significant land constraints to achieve standard RSAs for runways requiring up to 1,000 feet beyond the runway end. (Specific runway safety area standards vary based on the size aircraft serving the airport.) What are the options? One is simply to shorten the runways to accommodate the larger RSA. Shorter runways, however, could mean fewer types of aircraft can use them. So, for most airports, shortening the runways is not a viable solution.

Another option is to purchase more land to extend the RSA. For rural airports, this solution could work, provided no highways, bodies of water or other limitations border the airfield. But, of course, this option also relies on the cooperation of abutters, who may or may not want to sell their land.

A last option — and one that is becoming increasingly popular for large, urban airports and even some smaller facilities — is to install an engineered material arresting system, or EMAS. The EMAS manufactured by Engineered Arresting Systems Corp. (ESCO) is currently the only system of its kind supported by FAA. Yet, installing an EMAS isn’t for every airport.

Pros and Cons

At airports where additional land is simply not available, an EMAS may be the best solution. But the decision to install the system can be a difficult one, given the time, money and continued attention these systems require. The specialized materials of the EMAS itself can be quite expensive, plus the costs of site preparation and construction. The installation also requires careful planning and coordination with the manufacturer and the other airport users, since the runway must be closed or shortened during construction, which can affect an airport’s operational capabilities. For busy airports, such a compromise is both costly and a massive logistical headache.

In addition to these immediate challenges, the ongoing maintenance demands of an EMAS are considerable. The surface of the EMAS arrestor bed itself needs regular upkeep to ensure its seals, adhesives and surface coatings are in good condition. (ESCO said its latest-generation product, EMAS Max, is more maintenance-free and resistant to integrity-degrading moisture than previous generations. See AM, April/May 2007, p. 52.)

For airports in winter climates, special equipment is needed for snow removal since standard snow removal vehicles cannot travel on the arrestor bed surface without damaging it. If an aircraft actually uses the system.
EVALUATING EMAS

the damaged blocks must be repaired, which involves removing the damaged 4-by-4-foot blocks and replacing them with new, precast blocks. Partial or full replacement of the arrestor bed, with or without an overrun incident, may be required in as little as 10 years, making an EMAS a significant investment, both immediately and in the future.

Despite these circumstances, however, an EMAS does provide a means for an airport to maintain its runway length and still meet FAA’s RSA requirements, as well as avoid environmental challenges that could result from extending a runway into a body of water or other ecologically significant area. What’s more, some of the system’s installation and maintenance costs are eligible for federal funding, which can help ease the financial burden that an EMAS presents.

Ultimately, the biggest challenge an airport may face in deciding on an EMAS is gaining the approval of the airport’s many stakeholders — from air carriers and airport operators to the local community and government regulators. Still, once an airport has weighed its options, installing an EMAS often is determined to be the only practical and workable solution.

Installation Process

Installing an EMAS involves a number of steps and considerations. These include:

1. Project team. The planning and construction of an EMAS is best handled by a team of engineers, contractors, airport staff and representatives from the manufacturer. An engineering consultant can help to design the EMAS site, as well as manage the necessary environmental and regulatory processes. Engineering firms also can provide construction administration staff to oversee the installation and ensure it meets the design specifications.

2. Land assessment. Know your site well. Rather than relying on plans based on drawings and estimates, be sure to physically walk around the space, noting what constraints and other issues will affect its design and construction. The manufacturer, ESCO, will visit the site with the engineering team to help evaluate the available land.

3. Aircraft. The size of aircraft that use the runway and their approach speeds are key factors in determining the size and depth of the EMAS. Each runway has what is known as a “design aircraft.” ESCO and the engineering consultants use the data about the design aircraft, combined with the dimensions of the site, to calculate what size arrestor bed is needed to stop or slow down the types of aircraft using the runway. A standard-length EMAS is meant to bring the design aircraft to a safe stop at an entry speed of 70 knots. Sometimes achieving this is not possible. Boston Logan International, for example, services large aircraft such as 747s but has very limited space for RSA extensions due to its location at the edge of Boston Harbor. Since the airport could not accommodate a standard EMAS, the design team calculated the theoretical maximum arrestment speed for an aircraft based on the available land. Maximum speeds are calculated for various braking conditions.
4. Site preparation. Preparation involves creating a space deep and wide enough for the required EMAS size, as well as grading and drainage work. While this area doesn’t necessarily need to be as structurally sound as a runway, the EMAS space must be re-graded and prepared for the paving required for the precast blocks. At Logan, the vehicle perimeter road had to be relocated between the end of the EMAS bed and the edge of the harbor.

5. Installation. Once the bed site is ready, the blocks are placed onto the paved area, using a form of liquid asphalt to seal them. The joints between the blocks are then sealed and the required runway-end marking chevrons, if necessary, need to be applied. This process typically takes four to six weeks to complete, depending on the size of the EMAS bed.

6. Communication. Throughout the site preparation and installation process and beyond, it is imperative that all users of an airport, including the airlines, operations staff and emergency personnel, constantly are informed of the EMAS process and its impact on the airport. This communication should involve regular status updates to those users and educational information about the EMAS and how it works. Providing this type of information informs everyone using the airfield and protects the EMAS from future damage by drivers of service vehicles who may be unaware of its delicate nature.

7. Maintenance. The project is not complete once the EMAS is installed. An airport must work with the engineer, manufacturer and FAA to establish a regular maintenance schedule and investigate the options for additional federal funding.

As airports increasingly become pressured to meet FAA’s runway safety area standards, more are selecting EMAS as the solution. Some 20 U.S. airports already have installed such systems to date, and nine are under contract, ranging from large international hubs such as New York’s Kennedy International and Boston Logan to smaller facilities, such as the municipal airports in Hyannis, Mass., and Greenville, S.C. However, due to the significant investments in time and money, installing an EMAS should be reserved as the remaining option for airports with immovable borders and limited space. As technology improves and FAA examines other alternatives for meeting its standards, more solutions may become available for airports faced with such constraints.

David Dargie, PE, principal, and Steven Langlais, senior project manager, are aviation engineers at Stantec Consulting (www.stantec.com).
**Assessors by airport**

Traffic for Month of September 2007

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**Buildout**

Jacobs Engineering Group Inc. announced that a subsidiary company received a contract from the Orange County, Calif., to provide construction management services for construction of a new passenger terminal at John Wayne Airport. The project has an estimated construction value of $249 million. Jacobs’ responsibilities will include construction management for a new 274,000-square-foot terminal, including six new aircraft gates, additional boarding facilities for up to seven regional commuter jets, facilities to house Federal Inspection Services, common use terminal equipment and program systems, and deconstruction of an existing parking structure. The improvement program allows the airport to meet its commercial passenger needs through 2015. …National Automation Services Inc. and its wholly owned subsidiary Intuitive System Solutions Inc. have signed an agreement at Las Vegas McCarran International Airport to upgrade all controls that manage the baggage handling system at the main terminal for Southwest Airlines. …The Port of Oakland, Calif., and SunEdison in early November celebrated the activation of a new 756 kilowatt ground-mounted solar power system. Port officials said that the zero-emission clean solar power system is a major step in meeting the Oakland Board of Port Commissioners’ environmental directives and is the port’s first utility generation plant. The photovoltaic system, which will deliver approximately 1 million kilowatt hours of clean renewable energy annually, was deployed under a solar energy supply agreement with SunEdison, North America’s largest solar energy services provider. Port of Oakland’s Assistant Director of Aviation Deborah Ale-Flint said, “We are very pleased that the clean solar energy generated by the system will provide electricity, not only for the Port of Oakland, but also for our Port tenants at Oakland International Airport’s South and North fields.
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