



**Agenda Item 3:**

**Air Navigation Matters**  
**3.3 Specific developments in Air Navigation**  
• **AGA**

**Aerodrome Safety Programs Update**

(Presented by United States)

| SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                 |
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| Airports throughout the world are facing a number of safety challenges. Improvements in procedures, programs and the introduction of new technology can help to improve safety. This paper discusses how the United States Federal Aviation Administration (FAA) places a high priority on improving airfield safety. These initiatives have helped addressed runway incursions and excursions, mitigation of wildlife hazards, and progress on implementation of Safety Management Systems. |                                                 |
| References:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                 |
| <ul style="list-style-type: none"><li>• U.S. FAA Advisory Circular AC150/5200-37, <i>Introduction to Safety Management Systems for Airport Operators</i></li><li>• U.S. FAA Advisory Circular 150/5220-22, <i>Engineered Materials Arresting Systems for Aircraft Overruns.</i></li></ul>                                                                                                                                                                                                    |                                                 |
| Strategic Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | This paper is related to Strategic Objective A. |

**1. Introduction**

1.1 The FAA regards safety as its number one priority. The agency recognizes that there are the many safety challenges faced by airport operators. To assist in addressing these challenges, the FAA is pursuing a number of initiatives to improve airport safety. This paper provides an update of a number of airport safety programs and initiatives currently in process.

**2. Discussion**

2.1 Runway Safety Initiatives: An aggressive and effective runway safety program reduced the number of serious runway incursions in the United States from a total of 67 in fiscal year (FY) 2000 to 6 in FY 2010, a 90% decrease over that time period. Between FY 2008 and FY 2010 the number of serious runway incursions fell year over year at a rate of nearly 50%. For many years the United States has actively invested in programs and technology to address airfield safety. We continue to deploy various technologies, such as Airport Surface Detection Equipment, Model X (ASDE-X) while pursuing newer technologies such as Runway Status Lights (RSL), Final Approach Runway Occupancy Signal

(FAROS), low-cost ground surveillance systems, and airport moving maps. Changes to airport infrastructure and procedures have also been implemented throughout the United States, such as enhanced taxiway markings, improvements to runway safety areas (RSA) and increased driver training for all those using the airport environment. In the human factors arena, changes have been made to policies for issuing taxi instructions and take-off clearances. In addition, a voluntary reporting system for air traffic controllers has been developed and implemented to aid in safety data collection and to incorporate safety management principles. A similar program designed for aerodrome inspectors is also in place. Finally, as a result of the 2011 ICAO Global Runway Safety Seminar, the FAA hosted the first of a series of Regional Runway Safety Seminars in Miami. A primary goal of the regional seminars is to help states to establish Runway Safety Teams. It was a huge success and was attended by states and industry representatives from throughout region.

2.2           Addressing Wildlife Hazards: The worldwide threat from wildlife is increasing. Many populations of birds commonly involved in strikes are growing at the same time that the rates of worldwide air traffic and passenger enplanements are increasing. This is a dangerous combination of events that must be considered and addressed.

2.3           The FAA requires that airports certificated in the United States that have a record of bird-strikes, or that experience one of several specific triggers, to conduct a wildlife hazard assessment (WHA). The FAA assists airport authorities by providing grant funding to help pay for WHAs and Wildlife Hazard Management Plan (WHMP). The FAA also provides guidance in the form of Advisory Circulars that describe the methodology for conducting a WHA and developing a WHMP.

2.4           Conducting a WHA is essential for an airport authority to know the wildlife situation on and around the airport. It is consistent with the tenets of Safety Management Systems (SMS), which require airport authorities to be proactive, to identify risks to airport safety, and to mitigate those risks to acceptable levels. The WHA is done over a one year period so that it adequately considers the wildlife threats in all seasons. The WHA is then submitted to the FAA for evaluation and approval. The assessment, which is required to be conducted by a professional and qualified wildlife damage biologist, may show that the airport authority needs to develop a WHMP. The WHMP documents the procedures the airport authority will implement to control wildlife, at or near the airport. It also describes the actions the airport authority will take to mitigate the wildlife hazards, the resources required, and the responsible personnel. Actions recommended in the WHMP may take many forms. In the WHMP airports will address: necessary management procedures related to wildlife hazards including, acquiring permits, developing and executing training, establishing communications with airport users, and defining and delegating responsibility for WHMP execution; establishing procedures for strike reporting and data collection; establishing procedures for wildlife control in and around the airport to include harassment, lethal control, and/or removal; establishing procedures for management of habitat and food sources around the airport including, controlling agriculture, waste management, managing water sources and minimizing attractants; working with authorities to secure adequate land-use controls for off-airport areas; and establishing the requirement to periodically reevaluate the WHMP and take the actions necessary to ensure its continued effectiveness. Recently, much research has been conducted to determine the most effective actions to take in a WHMP. Much of that research, wildlife management techniques and guidance, and specific recommendations, can be obtained at the FAA wildlife mitigation website ([http://www.faa.gov/airports/airport\\_safety/wildlife/guidance/](http://www.faa.gov/airports/airport_safety/wildlife/guidance/)) and in the *Wildlife Hazard Management at Airports* document available at that website.

2.5 Industry-Government Wildlife Collaboration Initiative: Civil aviation authorities (CAAs) and industry must work together to address hazardous wildlife issues in a regional, cooperative, and prioritized manner. The Industry-Government Wildlife Collaboration Initiative is such an effort between the FAA, the United States Department of Agriculture (USDA), the International Air Transport Association (IATA), the Latin American and Caribbean Air Transport Association (ALTA), their partner air carriers, and the Airports Council International (ACI). These organizations have teamed up to work collaboratively with airports authorities, CAAs and ICAO to address hazardous wildlife issues in the Caribbean and Pan-American regions. The concept of this initiative is that each partner possesses unique resources and abilities that, when shared through this partnership, will benefit the member organizations and the region as a whole. Each partner brings its unique resources to assist CAAs and airports authorities that desire assistance in mitigating wildlife hazards.

2.6 To date, the partners developed a steering committee made up of members from each of the team's organizations, which worked with regional air carriers and regional airports authorities to identify priority locations for initial deployment of assets and resources in specific pilot projects. The committee selected Panama and Ecuador as locations for the pilot projects. Following the selection of these pilot projects and identification of in-country project champion teams (made up of air carrier, CAA and airport authority staff from the local area) the USDA selected two highly qualified biologists who will assist with the assessments and the development of mitigation plans in both countries. In addition, an FAA Wildlife Biologist will accompany the USDA team to provide additional technical and program guidance. The first assessment (initial pilot project) will begin the week of June 25<sup>th</sup>, 2012, in Panama. As the two pilot projects move along, the steering committee will work with the ICAO Regional Aviation Safety Group-Pan-America (RASG-PA) Executive Steering Committee, and the regional wildlife group (CARSAMPAF) to gather data so that improvements and adjustments can be made. The end goal is for the program to be expanded into the region.

2.7 Engineered Materials Arresting System: The development and use of Engineered Materials Arresting Systems (EMAS) to arrest aircraft in the event of an aircraft overrun has been a huge success in the United States. To date, EMAS has been deployed at 63 runway ends at 42 airfield locations throughout the United States, and has successfully stopped 8 overrun aircraft. It has been deployed at several international locations as well. The latest successful aircraft overrun arrest in the United States happened in Key West, Florida in November of 2011, when a Cessna Citation was successfully arrested after having overrun the runway. As evidence of its continued commitment to the value of this system, the FAA has recently supported installation of EMAS systems in Ohio, Connecticut and Maine, and currently has plans to install additional systems in New York, Massachusetts and New Jersey. Originally, ESCO crushable concrete (a division of Zodiac Aerospace Corporation) was the only system approved to meet the FAA standard. The FAA conducted research to find alternatives to the existing standard that can introduce competition and potentially reduce the costs of arresting systems. This research resulted in the FAA issuing a letter to a Norwegian company stating that their system meets the specifications and requirements of the FAA Advisory Circular, AC150/5220-22A, *Engineered Materials Arresting Systems for Aircraft Overruns*.

2.8 Runway Safety Area Improvements: The FAA has continued to make progress in improving Runway Safety Areas (RSAs). These areas enhance safety in the event an aircraft undershoots, overshoots, or veers off of the side of a runway. Several FAA internal orders are used to determine the best practicable and financially feasible alternative for RSA improvement (which may include the deployment of EMAS). The FAA started a program in fiscal year 2000 to accelerate RSA improvements for commercial service runways in the United States. Through this program the FAA has completed 78 % of the identified needed improvements, and thirty airports have installed EMAS. FAA analysis shows that a standard EMAS installation can provide the equivalent protection as a standard 1,000 foot RSA. The FAA remains committed to full RSA compliance and expects to make all practicable RSA improvements at commercial service airports by 2015.

2.9           Aerodrome Certification Training: The FAA is also fully committed to maintaining an effective aerodrome certification program. We encourage states that have not yet certified their international airports to complete this important ICAO requirement. To help with this effort, the FAA has supported many training initiatives for aerodrome inspectors throughout the world, to include the offer of resident training for airport inspectors at the FAA Academy in Oklahoma City, Oklahoma. Most recently, the FAA is supporting the ICAO Mexico City regional office and the Sint Maarten CAA in conducting an aerodrome certification inspector training seminar to be held in Sint Maarten, in June of 2012. Two highly qualified FAA inspectors, will assist the Sint Maarten CAA and ICAO in week-long training of certification procedures, wildlife control, rescue fire-fighting, emergency management, compliance and enforcement, and other program elements and aspects of successful aerodrome certification programs. The seminar will be open to all of the CAAs of the Caribbean and Pan-American regions.

2.10           Safety Management Systems: Much work has been accomplished in the development and deployment of Safety Management Systems (SMS) at aerodromes in the United States. To provide initial SMS guidance to airport authorities, the FAA published Advisory Circular 5200-37, *Introduction to Safety Management Systems at Airports*. That Advisory Circular is available at the FAA website. Following the publication of AC150/5200-37 several SMS pilot studies were undertaken to identify the feasibility and requirements associated with SMS, to determine implementation processes, and to help airport authorities develop appropriate SMS manuals and documentation. The FAA also has started a rulemaking project to amend our airport certification regulation (Part 139) to require certain airports to implement SMS. We issued a Notice of proposed rulemaking for airport SMS and are currently reviewing the large number of comments received. Rulemaking in the United States is a lengthy process. We anticipate issuing a final airport SMS rule in spring 2013. Finally, in order to introduce SMS principles, including the provision of Safety Risk Management (SRM), at certain commercial service airports, the FAA conducted several studies and efforts which resulted in promulgation of an internal order that requires the provision of SRM during planning and construction projects at our 29 major airport hubs. The FAA is fully committed to implementing airport SMS.

### **3.           Conclusion**

3.1           There are many safety challenges faced by airports throughout the world. There are also many creative solutions to address those challenges. This paper offers a glimpse at several such safety initiatives and alternatives.

### **4.           Suggested Action**

4.1           This Meeting is invited to note the contents and conclusions of this information paper and consider adoption or implementation of the technologies and/or processes discussed to address the ongoing safety challenges faced by airports.