TESTIMONY OF HANK KRAKOWSKI, CHIEF OPERATING OFFICER, AIR TRAFFIC ORGANIZATION, FEDERAL AVIATION ADMINISTRATION, BEFORE THE HOUSE SUBCOMMITTEE ON AVIATION ON IMPROVING RUNWAY SAFETY

February 13, 2008

Good Afternoon, Chairman Costello, Congressman Petri, and Members of the Subcommittee, my name is Hank Krakowski, and I am the Chief Operating Officer of the Air Traffic Organization of the Federal Aviation Administration. I appreciate the opportunity to come before you today to discuss a topic of vital importance to every American who travels by aircraft: the issue of improving runway safety.

At the Federal Aviation Administration, safety is our first priority. I am pleased to report that 2007 was the safest year yet for aviation in our Nation's history. We work around the clock to continually improve safety. We look at all areas to improve safety, including airports and markings, operational procedures, and equipment. In recent years, the FAA has formally incorporated this culture of safety into our strategic plan, called the Flight Plan, and we have devoted millions of dollars in research and procuring technology to aid our controllers and pilots in moving America safely. We place such a high priority on runway safety that this is part of the performance plan for the Air Traffic Organization, and we hold our employees accountable for improvement. We have also reached out to the National Airspace System stakeholders, from controllers to pilots to airport managers to airlines to partner with us to improve runway safety.

Recently, the National Transportation Safety Board (NTSB) and the Government Accountability Office (GAO) have issued recommendations on areas where the FAA could make improvements in runway safety. In November, the NTSB announced that improving runway safety will remain on the Board's "Most Wanted" list of improvements for 2008. FAA believes that the technologies we are now testing and deploying will be responsive to address the problem of runway incursions. Also, the GAO reported on how the FAA has taken steps to address runway and ramp safety. We appreciate the work that the GAO and NTSB have done, and we welcome their analysis and feedback. While runway safety has received more public attention in recent months, it is important to remember that for many years, the FAA has actively invested in programs and technology development to address this serious aviation safety issue.

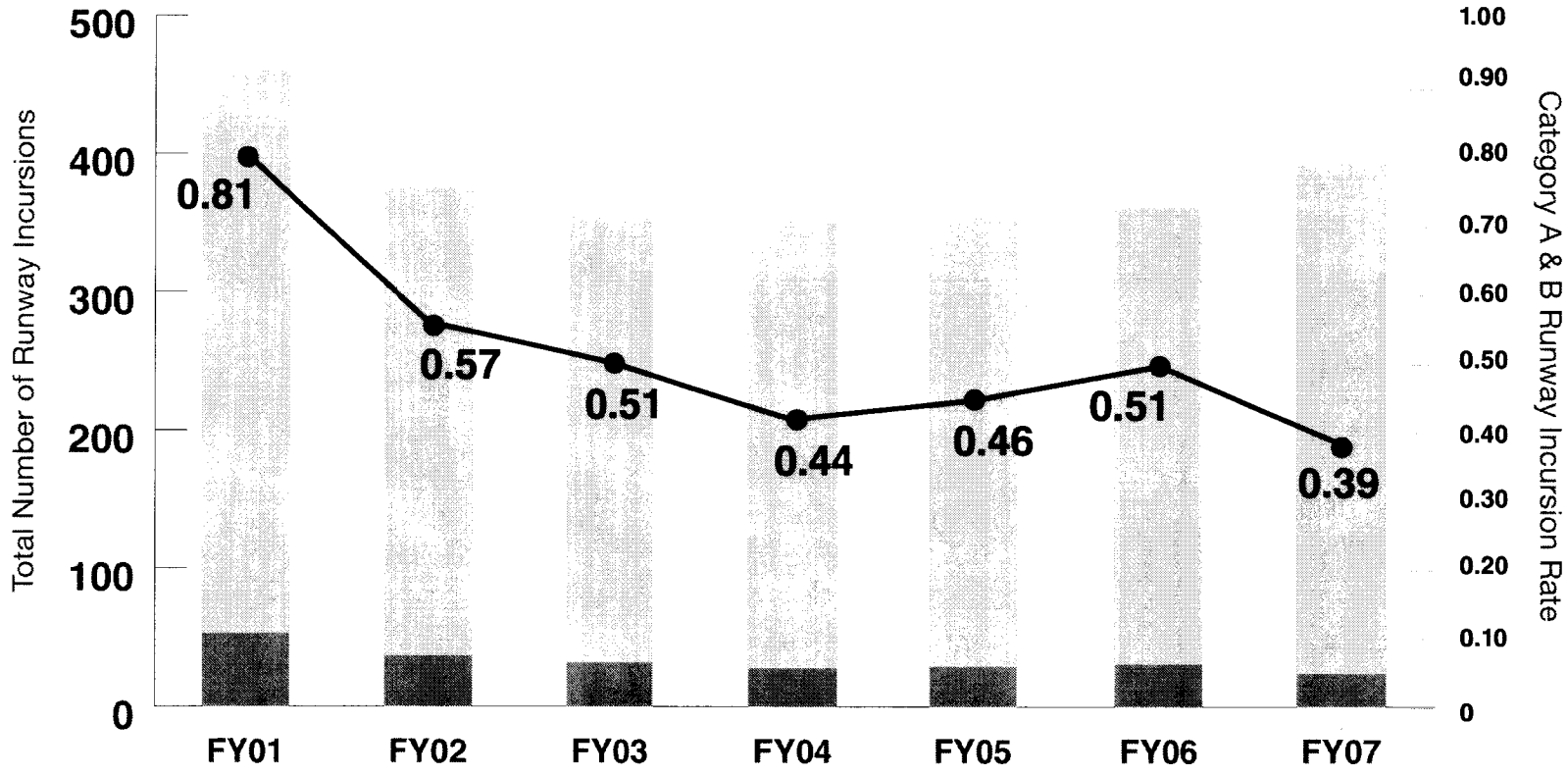
To help understand the following discussion, let me explain the categories of runway incursions. Category A incursions are the most serious incidents, in which a collision was narrowly avoided. Category B incursions are incidents in which separation decreases, and there is a significant potential for a collision, which may result in a time critical corrective or evasive response to avoid a collision. Category C incidents are characterized by ample time and/or distance to avoid a collision, and Category D is an incident which meets the definition of runway incursion, such as the incorrect presence of single vehicle/person/aircraft on the protected area of a surface designated for the take-off or landing of an aircraft, but with no immediate safety consequences.

An aggressive and effective FAA runway safety program has reduced the number of serious runway incursions by 55 percent since 2001(see slide 1). In Fiscal Year 2007, we saw a 25 percent reduction in serious runway incursions from 2006. There were 24 serious runway incursions--that's Category A and B incursions--during 61 million aircraft operations, a significant reduction from the 31 incursions in FY 2006, and the 53 incursions in FY 2001. But while we have made improvements with the most serious of the runway incursions, overall runway incursions increased in FY 2007 to 370, up from 330 in FY 2006. Only 8 of the 24 serious incursions involved a commercial airline flight, and none of these 370 incursions resulted in a collision. While most of these incursions are Category C and D incidents, which pose little or no risk to the public, the increase in incursions and the fact that serious incursions are still occurring, prompted the Administrator to issue a "Call to Action" on runway safety.

This chart (see slide 2) breaks down the runway incursions since October 1, 2006 by category. Beginning with Fiscal Year 2008, which began on October 1, 2007, the FAA adopted the definition of runway incursion as used by the International Civil Aviation Organization (ICAO), a United Nations organization charged with promoting safety and security in international aviation. This new definition, which FAA helped develop for ICAO, is much more inclusive and counts every single mistake made on the airport operational surface, even if another vehicle, pedestrian or aircraft is not involved. As a result, we will have more data to analyze trends and improve safety.

Runway Incursions

Rate Per Million Operations - Category A & B



Key

- Number of Runway Incursions
- Number of Category A & B Runway Incursions
- Rate Per Million Operations - Category A & B

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Runway Incursions

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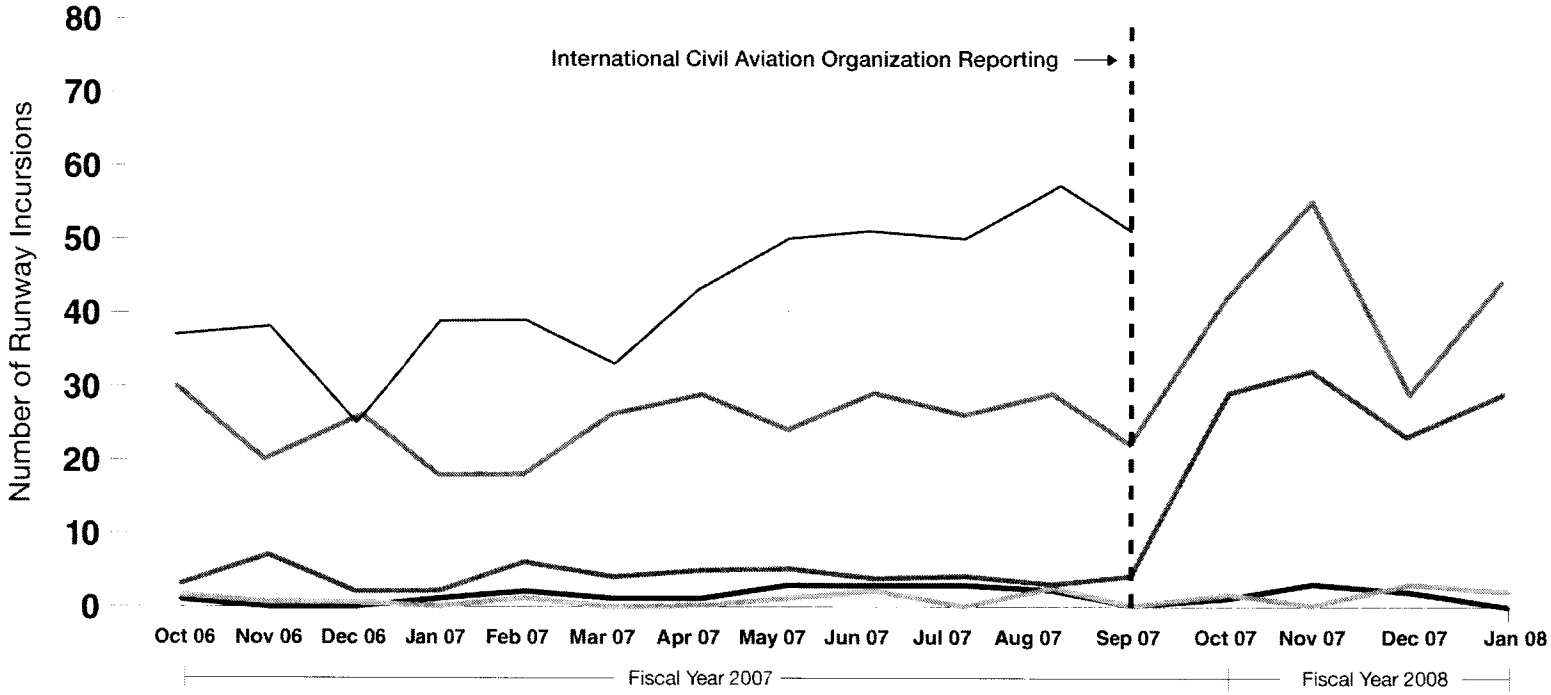


Key

- Surface Incidents - No Conflict
- Category D - Very Minor
- Category C - Minor
- Category B - Serious
- Category A - Very Serious

Key Effective 1 October

- Category D - No Conflict
- Category C - Very Minor/ Minor
- Category B - Serious
- Category A - Very Serious

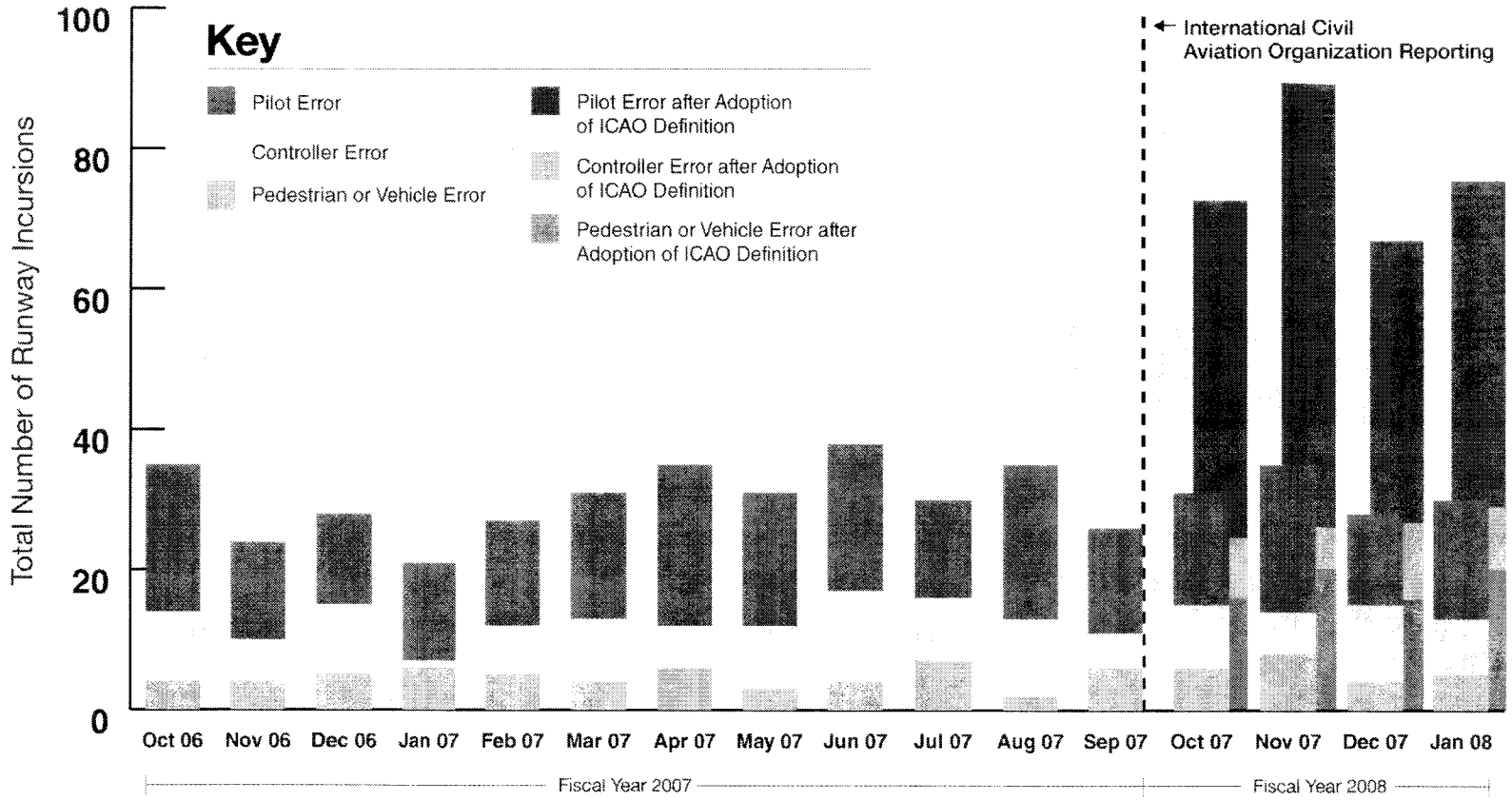
By redefining what a runway incursion is, the total number of what we now report as a runway incursion is expected to triple. This explains the spike in Category C incidents beginning in October 2007—Category C now includes data that we used to classify as Category C and D incursions. The new Category D accounts for incursions which we previously tracked as surface incidents. However, Category A and B incidents, the most serious incursions, continue to be defined and tracked as before.

The FAA investigates every reported runway incursion and assigns a reason for the incursion. We send a team to the facility to review the airport information; radar data and voice tapes, if they are available; and interview the individuals involved, often controllers, pilots and/or vehicle operators. This next chart (see slide 3) shows the three broad categories to which we attributed runway incursions that happened since October 1, 2006. The line represents when the FAA adopted the broader international definition for runway incursions. As you can see, most of the runway incursions, about 55 percent, are as a result of pilot error. Operational errors and deviations by air traffic controllers represent about 30 percent of causes of runway incursions. The rest are attributed to pedestrian or vehicle errors.

The FAA continues to work with aviation industry leaders to research and implement new technologies, and mine and interpret safety data with the focus on improving airport safety. I'd like to highlight some of our recent efforts in this area. On August 15, 2007, more than 40 representatives from a cross-section of the aviation industry agreed to an ambitious plan focused on solutions in improving cockpit procedures, airport signage and

What's Driving Runway Incursions?

Fiscal Year 2007 - Present



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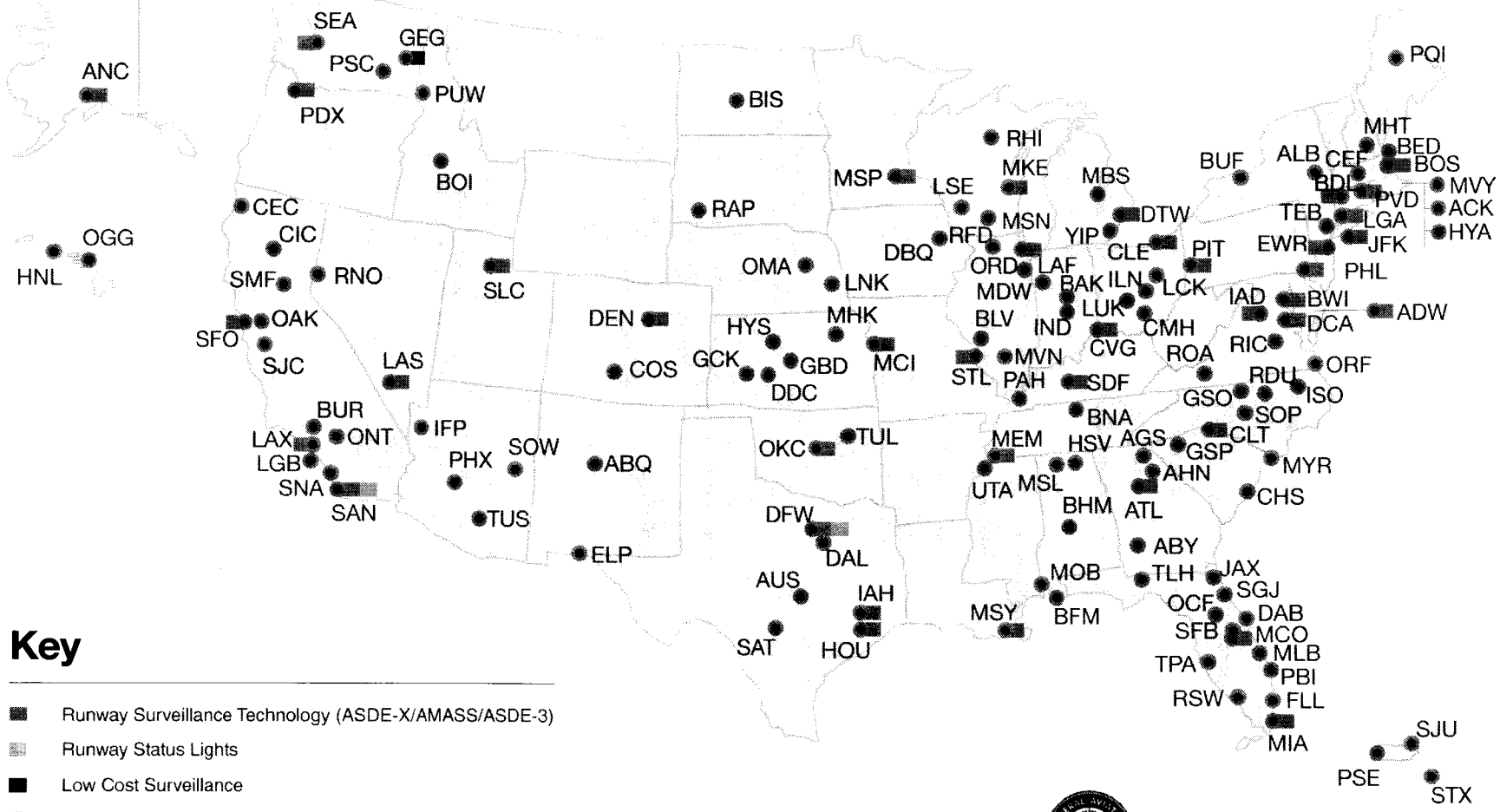
markings, air traffic procedures, and technology. Within 60 days of the "Call to Action" on runway safety, Acting FAA Administrator Bobby Sturgell announced that the aviation community had completed significant short-term actions and were making strides in the mid- and long-term goals.

The next chart (see slide 4) shows some of the improvements we have made. Our nation's busiest airports have runway surveillance technology installed that improves controller situational awareness on the airport movement area. The FAA has spent over $404 million to date to acquire and deploy the next generation of ground surveillance technology, known as Airport Surface Detection Equipment – Model X or ASDE-X for short. Eleven towers in the system have ASDE-X installed, and we have accelerated our installation schedule by one year—the target completion date for the last system is now September 2010. The FAA will commit more than $806 million over a 30-year period on equipment, installation, operations and maintenance of the 35 ASDE-X systems.

Runway Status Lights (see slide 5), which were developed as a result of the NTSB's "Most Wanted" list of safety improvements, are a full-automated system that integrates airport lighting equipment with surveillance systems to provide a visual signal to pilots and vehicle operators when it is unsafe to enter/cross/or begin takeoff roll on a runway. Airport surveillance sensor inputs are processed through light control logic that command in-pavement lights to illuminate red when there is traffic on or approaching the runway. The FAA has spent nearly $25.8 million on this initiative.

Runway Safety Initiatives

(Including Call to Action Results)



Key

- Runway Surveillance Technology (ASDE-X/AMASS/ASDE-3)
- Runway Status Lights
- Low Cost Surveillance
- Improved Runway Markings
- Airport Surface Movement Training

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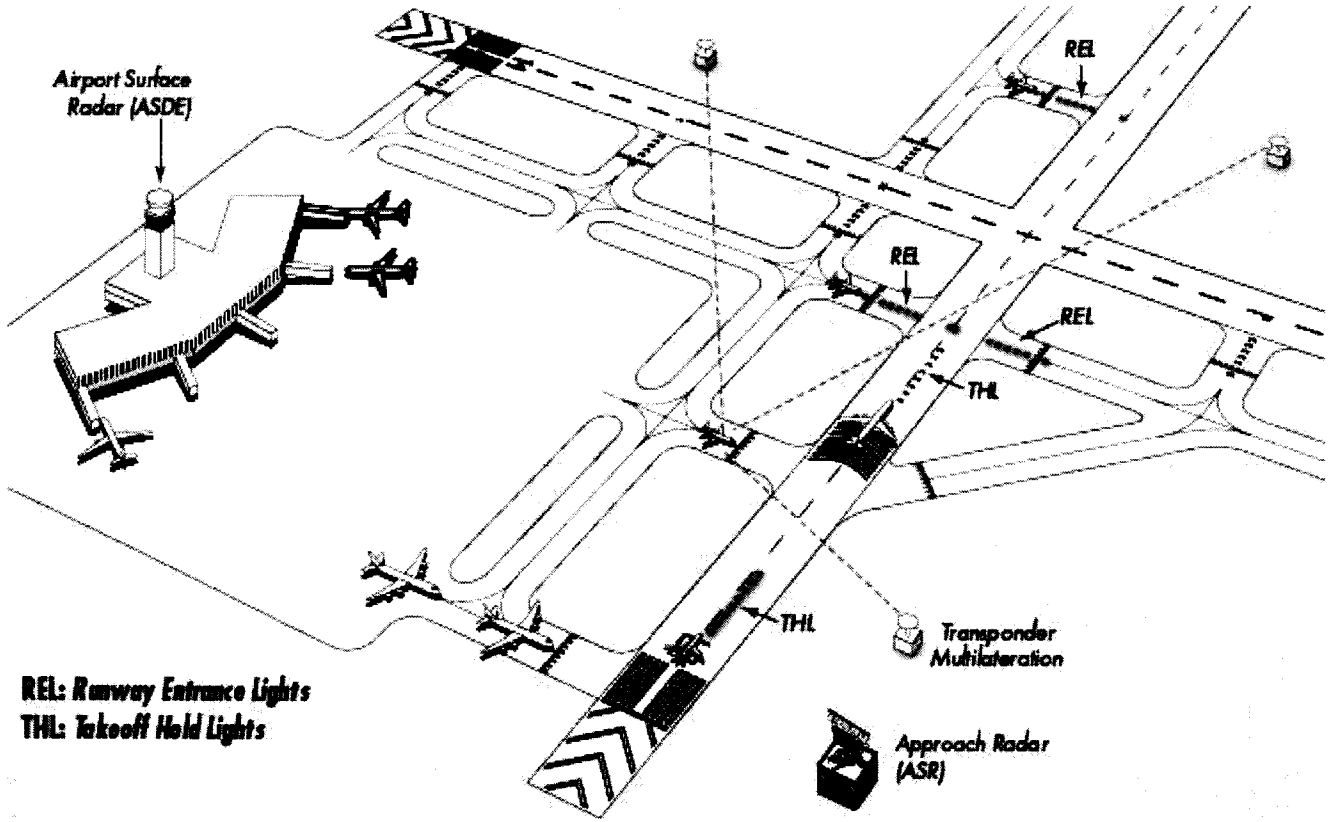
Runway Status Lights System



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There are two types of Runway Status Lights currently being tested; Runway Entrance Lights and Takeoff Hold Lights. Runway Entrance Lights provide signals to aircraft crossing or entering a runway from an intersecting taxiway. Takeoff Hold Lights provide a signal to aircraft in position for takeoff that another aircraft is crossing or entering the runway.

The system is being tested at Dallas/Fort Worth and San Diego airports, and we are working to select other large airports to begin to test this equipment. The system is preventing potential accidents today. Just last week, at Dallas-Ft. Worth, a plane was cleared for take-off, while at the same time air traffic control cleared another aircraft to cross that same runway on a taxiway. The first plane did not initiate its takeoff roll, because the pilot, "saw the red lights" of the Runway Status Light System.

We are also testing a system at the Long Beach Airport, known as the Final Approach Runway Occupancy Signal (FAROS), which will further enhance runway safety. This system is similar to Runway Status Lights in that it provides immediate information to pilots on approach to land that the runway is occupied or otherwise unsafe for landing. The FAROS system determines the occupancy of the runway by detecting aircraft or vehicles on the runway surface. If a monitored area on the runway is occupied, FAROS activates a signal to alert the pilot that it is potentially unsafe to land. We are developing a plan for implementing FAROS at larger airports, and expect to begin operational trials at Dallas-Fort Worth by the end of FY 2008.

The FAA is testing two low-cost ground surveillance systems at Spokane, Washington, that would provide ground situational awareness to controllers at airports other than the 35 slated to get ASDE-X systems. One system, the Nova 9000 Surface Management System, involves using X-band radar to detect movement on the airport surface, and the other system, the Critical Area Management System, would place millimeter wave sensors along runways and taxiways to detect movement on the airport surface. We plan on expanding this test to more sites this year. To date, we have spent $4.5 million on this project and we are assessing if it is an alternative safety measure for less busy airports not scheduled to receive the ASDE-X system.

Twenty of the busiest airports in America were identified for targeted Runway Safety Action Team visits based on a combination of a history of runway incursions, wrong runway events and wrong runway risk factors. The Runway Safety Action Team visits involved service analysis meetings with air traffic control, both management and controllers, safety inspectors from FAA and the airports, and airport managers and operators. Just through the interaction and discussion among these groups, action plans to mitigate identified risks were finalized. These meetings identified over 100 short term fixes that could be accomplished within 60 days, including new or improved signage, improved marking, driver training, and other actions. This proves that a "common sense" approach to curbing runway incursions exists. Not all measures to improve runway safety will involve fielding expensive equipment and new systems. Quick and relatively inexpensive solutions include improving airfield markings, adding targeted training for controllers and aircrews, and fine-tuning air traffic procedures. Incorporating the lessons

learned through the meetings with the initial 20 airports, FAA has identified a second tier of 22 airports we will be expanding this program to cover next.

FAA has also continued to make progress in improving Runway Safety Areas (RSAs). RSAs enhance safety in the even of an undershoot, overrun, or excursion from the side of the runway. In FY 2000, FAA started an ambitious program to accelerate RSA improvements for commercial service runways that do not meet standards. The FAA developed a long-term completion plan that will ensure that all practicable improvements are completed by 2015.

When the RSA improvement initiative began in FY 2000 there were a total of 453 RSAs requiring improvement. Since then, significant progress has been made and 63 percent of the RSA improvements have been completed. By the end of 2010, 88 percent of RSA improvements will be completed, leaving only 54 to meet the 2015 goal. Twenty-one of these improvements included the use of Engineered Materials Arresting Systems (EMAS), a relatively recent technology of crushable material placed at the end of a runway, and designed to absorb the forward momentum of an aircraft. EMAS offers a significant RSA improvement where the land off the ends of the runway is constrained and a conventional RSA is not practicable. To date, 4 aircraft overruns have been caught by EMAS applications, a 100 percent success rate.

As part of the Administrator's "Call to Action" the FAA required all airports with enplanements of 1.5 million or more (75 airports) to enhance airport markings by June

30, 2008, and urged airports to provide recurrent training to contractors and service providers that drive on aircraft movement areas. Airports have been responsive; 71 of the 75 airports required to upgrade their markings are already complete, and the remaining 4 will be completed well ahead of schedule. More than half of the commercial service airports not currently required to upgrade their markings have voluntarily agreed to do so. In addition, roughly 85 percent of all commercial service airports currently have or plan to provide recurrent training for all who have access to the aircraft movement area.

Finally, the FAA is seeking input from NATCA on revamping policies for issuing taxi clearances. We are also working with NATCA to implement a voluntary reporting system for air traffic controllers similar to the Aviation Safety Action Program (ASAP) with airlines, pilots, airport operators and the FAA. In my role at United, I was responsible for 4 ASAP programs for pilots, dispatchers, mechanics and flight attendants. Because of this work, I am convinced that information from a voluntary reporting system will help us to spot trends and prevent future runway incursions.

The FAA is committed to designing an end-to-end system that seeks to eliminate runway incursions while accommodating human error. The FAA plans on creating a standing Runway Council Working Group to look at the data and address root causes, and continue to involve all who play a part in runway safety. We all have a role in the solution. Every reported runway incursion will be taken seriously, investigated thoroughly, and analyzed to determine the causal factors. The FAA continues to seek ways to improve awareness, training, and technologies and we look forward to our

collaboration with airlines, airports, air traffic control and pilot unions, and aerospace manufacturers to curb runway incursions. We appreciate the Committee's interest in safety, and welcome your counsel and assistance in our efforts to reduce runway incursions and improve safety in our nation's aviation system.

This concludes my remarks, and I would be happy to answer any questions the Committee may have.