



Technology Can Reduce Runway Mishaps

BY JOHN W. DOUGLASS

Even a quick scan of aviation-related news over the last few months reveals several high-profile reports of near-collisions on runways. Data show that serious incidents are more frequent as U.S. airports and skies become more crowded and passenger numbers climb toward unprecedented levels.

The news underscores the importance of aggressively pursuing the transformation and modernization of the U.S. air transportation system that is under way by the Joint Planning and Development Office, authorized by the U.S. Congress to coordinate a major air traffic control system upgrade involving

several government agencies. (See InfoScan, p. 54.)

The Next Generation Air Transportation System, or NextGen, includes advanced technology that, along with enhanced training and awareness, can go a long way toward dramatically increasing runway safety.

It is clear the no-end-in-sight increase in demand for air travel is a major factor in runway incidents. A 2000 study by Transport Canada, which included U.S. Federal Aviation Administration (FAA) data, found that a 20 percent increase in traffic volume represents a 140 percent jump in runway incursion potential.

Building on the excellent work of the Commercial Aviation Safety Team (CAST), the FAA and aviation community responded to the recent events with swift and strong measures, instituting a number of immediate changes to make runways safer. They include thorough reviews at the 20 airports with the

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greatest history of problems or risk factors, improved procedures for pilots, and expedited lighting and signage upgrades at dozens of airports. These actions are excellent steps that directly improve situational awareness and should lead seamlessly into long-term fixes.

It is critical that we remain diligent in pursuing those long-term fixes within NextGen. This sweeping transformation of the air traffic control system holds extremely promising technologies for both flight crews and controllers that could make runway incidents a thing of the past.

This is not something in the distant future — it is already in the works. The FAA recently awarded a contract for one of the building blocks of NextGen, the automatic dependent surveillance-broadcast (ADS-B) system. The US\$1.8 billion contract, which went to a team led by ITT Corp., calls for development and deployment of ADS-B over the next three years, with full implementation by 2013.

ADS-B has proven itself effective in early implementation in Alaska under the Capstone program, where its use has cut the accident rate in half. So clearly, ADS-B proves capacity enhancements and safety enhancements can go hand-in-hand.

ADS-B will be a huge leap forward because it incorporates global positioning system (GPS) technology into the air transportation system for the first time.

ADS-B uses GPS to provide quick and accurate aircraft position information, a major upgrade from the decades-old radar-based system in use today. The information is much more precise, and can provide additional data on weather and traffic to both pilots and air traffic controllers. The system can vastly increase situational awareness both in the air and on the ground, which can make it the first line of defense against runway accidents.

When implemented, ADS-B will enable full-capability moving map displays to help

guide pilots around the often confusing airport environment. The displays will cut through bad visibility and provide pilots not only with their position on the airport grounds, but also with information about all other ground traffic and the positions of other aircraft flying near the runways. Full implementation of this capability may take years.

In the interim, we must maximize the use of other existing technologies, such as own-ship moving map displays, to provide crews with enhanced situational awareness, improved alerting and reduced distractions. These steps will go a long way toward making airport operations safer.

It is very important that we do not see initial incremental advancements like the ADS-B contract and conclude that we've solved all our problems.

Right now, NextGen represents tremendous potential. NextGen will be a remarkable accomplishment for the United States, adding desperately needed capacity to the system while making air travel safer in the skies as well as on the ground. But we must move forward aggressively to ensure its implementation.

This will require strong and consistent advocacy from the aviation community to ensure that leaders make the investment and commitment to fully implement NextGen, both in the near-term and long-term. We must take advantage of all the safety capabilities provided by ADS-B and other capacity-increasing building blocks. As NextGen planning and implementation continue, we must ensure that the safety improvements remain a priority central to the plan. ●

John W. Douglass will retire next month after nine years as president and CEO of the Aerospace Industries Association.

