

# NTSB Most Wanted List

Critical changes needed to reduce transportation accidents and save lives.

## *Improve Safety of Airport Surface Operations*



The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating every civil aviation accident the United States and significant accidents in other modes of transportation – railroad, highway, marine and pipeline. The NTSB determines the probable cause of the accidents and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the Federal Government and other organizations to provide assistance to victims and their family members impacted by major transportation disasters.



**National  
Transportation  
Safety Board**

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# Improve Safety of Airport Surface Operations

## What is the issue?

Some of the deadliest accidents involving airplanes have occurred not in the air, but on the runway. In 1977, 583 people were killed when two jumbo jets collided on a runway in the Canary Islands. The deadliest U.S. runway incursion accident involving two aircraft was a collision between a USAir 737 and a Skywest Metroliner commuter airplane at Los Angeles International Airport in February 1991, which killed 34 people. In December 2005, a pilot unfamiliar with the braking system ran off the runway during landing at Chicago's Midway airport and collided with a car. In August 2006, 49 people were killed in Lexington, Kentucky, when a pilot used the wrong runway for takeoff. In December 2008, an airplane departed the side of the runway at Denver International Airport during takeoff when the captain failed to compensate for a strong and gusty crosswind. A postcrash fire ensued, resulting in serious injuries to 6 and minor injuries to 41 crew and passengers. The risk of similar catastrophes remains today.

## What can be done . . .

This problem, though simple on the surface, requires all parties involved in airport operations to work together to create a safer, more vigilant environment. To make better decisions during takeoff and landing, pilots require better resources to improve their situational awareness. Ground movement safety systems, such as cockpit moving map displays that provide a timely warning to flight crews to prevent runway incursions, are just one potential solution. Another is a system of cross-checking the airplane's location at the assigned runway before preparing for takeoff. New technology—such as runway status lights and enhanced final approach runway occupancy signals—can provide a direct warning capability to the cockpit, thereby eliminating the delay in warning the pilots by relaying it through an air traffic controller. Pilot training is also critical to a pilot's success on the airport surface. Flight simulator training programs should include realistic conditions, such as gusty crosswinds, to prepare pilots for actual conditions before they experience them. These resources would not only assist the pilot in ensuring takeoff at the correct runway, but also in addressing the confusion factor that is often associated with undesirable airport surface events, such as the Lexington accident where the pilots took off from the wrong runway.

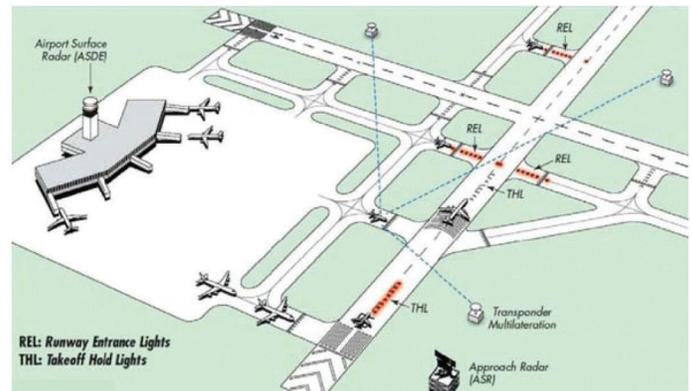
Although pilots are statistically at fault in over 62 percent of runway incursions according to most recent statistics, air traffic controllers and ground operations staff also play a critical role in ensuring safe airport surface area operations. Air traffic controllers could provide pilots with additional information, such as the maximum winds that might be encountered during takeoff or landing, allowing them to make better informed decisions on runway use. Air traffic control could also develop and apply a robust program to select a runway

that accounts for current and projected weather and wind conditions. A runway utilization plan, using current and projected weather and wind as the primary factors for runway selection, would contribute to safer airport surface operations.

## Statistics

Airport surface operations include runway incursions, runway excursions, runway confusion, and collision with other aircraft and/or airport vehicles. The number of serious runway incursions has decreased dramatically over the past 10 years from 67 in fiscal year 2000 to 7 in the first 11 months of fiscal year 2011. However, the overall numbers are trending at a constant rate of approximately 975 runway incursions per year throughout the National Airspace System.

Although airport surface safety tends to focus on Part 121 Air Carriers, commercial passenger carrying air operations, it is important to note that general aviation pilots are the single most prevalent contributor to the total number of runway incursions. In spite of progress, there is still room for improvement in airport surface operations.



<http://www.ll.mit.edu/mission/aviation/surveillanceandnav/runwaystatuslights.html>

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