

# TSB 2014 Watchlist

One of the Transportation Safety Board of Canada's (TSB) responsibilities is to shine a spotlight on the areas where we believe strong action must be taken to address safety deficiencies uncovered in the course of our investigation work. That is why we developed the Watchlist which identifies the issues posing the greatest risk to Canada's transportation system.

First launched in 2010, then updated in 2012, Watchlist 2014 is comprised of eight key safety issues which are supported by hundreds of accident investigations, thousands of hours of research, and dozens of TSB recommendations.

There has been some progress over the years, but some serious safety issues remain. Watchlist 2014 includes two aviation issues:

## **Landing accidents continue to occur at Canadian airports**

Every year, millions of successful landings occur on Canadian runways. However, there is a risk that accidents resulting in loss of life, injury, and aircraft damage can occur during the landing phase of flight.

These accidents include runway overruns, runway excursions, landings short of the runway, and tail strikes<sup>(1)</sup>. Operators, regulators, and air navigation service providers need to take more action to prevent approach-and-landing accidents, and to minimize the risks of adverse consequences if a runway overrun occurs.

Stable approaches significantly increase the chances of a safe landing. Research<sup>(2)</sup> indicates that 3.5% to 4% of approaches are unstable. Of these, 97% are continued to a landing, with only 3% resulting in a go-around. Without improvements in stable-approach policy compliance, most unstable approaches will continue to a landing, increasing the risk of approach-and-landing accidents.

Additionally, pilots must calculate the landing distance required, so they need timely and accurate runway surface condition information to make correct calculations, as snow, rain, or ice can affect landing distance.

When a runway overrun occurs, it is important that an aircraft have an adequate safety area beyond the runway's end. At some airports, these have not yet been implemented, and the terrain beyond the end of the runway could contribute to aircraft damage and injuries to passengers and crew. This area, therefore, must be sufficiently clear of obstacles and properly graded. There is currently no requirement in Canada requiring runways to meet international standards and recommended practices for safety areas.

The TSB has investigated a number of landing accidents that have highlighted the need for runway end safety areas, and improved runway surface condition reporting. In Canada, from 2009 to 2013, Canadian-registered aircraft were involved in an average of 150 approach-and-landing accidents every year, of which 6% were runway overrun accidents.

There has been some progress since this issue was included on the Watchlist in 2010. Some airports have improved runway surfaces and safety areas. Nav Canada has taken measures to improve runway surface condition reporting for pilots, and now provides guidance for stabilized descents in its approach procedures. Transport Canada (TC) is conducting a risk-based analysis to revise its runway safety area standards. However, the number of landing accidents and runway overruns has not decreased so until TC completes its risk analysis and revises its standards, the risk to the public remains.

## **Solution**

Transport Canada and operators must do more to reduce the number of unstable approaches that are continued to a landing.

Transport Canada also must complete its risk-based analysis and move forward with regulatory changes.

Airports must develop tailored solutions to lengthen runway end safety areas or install other engineered systems and structures to safely stop planes that overrun runways.

### *Footnotes*

1 Recent TSB aviation investigation reports include: A10H0004, A11A0035, A11H0002, A11H0003, A11O0098, A12A0082, A12W0004, A12O0005, A12P0034, A12Q0161, and A12W0004

2 Flight Safety Foundation, "Failure to Mitigate," AeroSafety World (February 2013)

## **Risk of collisions on runways**

There is an ongoing risk of aircraft colliding with vehicles or other aircraft on the ground at Canadian airports. Airport operations require aircraft and vehicles to move between ramps, taxiways, and runways. Sometimes this movement creates conflicts between aircraft, or between aircraft and vehicles. These conflicts can also happen when aircraft or vehicles mistakenly occupy an active take-off or landing area.

In a 10-year period from 2004 through 2013, there were 4,153 of these conflicts, known as runway incursions, in Canada. Given the millions of take-offs and landings each year(1), incursions are rare, but their consequences could be catastrophic.

Since the TSB first placed this issue on its Watchlist in 2010, the number of these occurrences has remained too high: in 2010 there were 346, followed by 454 in 2011, 429 in 2012, and 381 in 2013. They continue to occur more than once a day.

There are ongoing efforts by both the industry and the regulator to share data and other information, and to improve local airport procedures; however, more leadership is required from Transport Canada. In particular, few new technological defences have been seriously considered or implemented in Canada.

The TSB has reached findings and reported publicly on the risk of collisions on runways(2). The Board remains concerned that incursions and the risk of collisions will continue until better defences are put in place.

## **Solution**

Improved procedures and enhanced collision warning systems must be implemented at Canada's airports.

### *Footnotes*

1 TSB aviation investigation reports A99W0036, A00W0062, A00Q0114, A00P0206, A01O0299, A03C0099, A04P0047, A04P0397, A04Q0089, A07O0305, A08H0002, A08O0215, A09W0026, A09W0037, A10W0040, A11Q0170 and A13O0045.

2 Source: Transport Canada Civil Aviation Daily Occurrence Reporting System