

# Runway condition reporting *faces changes in both word and deed*

↻ Weather terms lack common meaning

---

↻ 2005 Midway overrun triggers study

---

BY NICOLE NELSON

**P**atchy, thin, widely scattered: What do these terms convey to a pilot preparing to land on a slick runway?

Not nearly enough to avoid potential runway overruns, according to a consensus of industry experts handpicked by the Federal Aviation Administration to review Takeoff and Landing Performance Assessment.

Following the December 2005 overrun incident of Southwest Airlines Flight 1248 during a snowstorm at Chicago Midway, runway conditions were brought into focus with the formation of an Aviation Rulemaking Committee. A handful of ACI-NA member airport representatives were among the group of 50 industry experts participating in an 18-month commitment to devise a better process for pilots landing in inclement conditions. It was immediately decided that many terms utilized throughout the takeoff and landing process needed honing for better definition and consistency.

---

*“We want everyone to use the same terminology that can be interpreted by everyone in the same way.”*

— Clark

“When we were first looking at this, we realized you can have the best pilot procedures and the best engineering data in the world, but if you don’t know what is on the runway, it is all for naught,” said John Cowan, Standards Captain with United Airlines and a member of the working group.

Cowan said the industry and FAA working group united with a basic goal to define good, medium, and poor braking action.

Consistency is key

Among the lessons learned was that not everyone was reading off the same sheet of music. The non-standardized language used by airport ground personnel is not the same terminology used by meteorologists, and may not be the same as what is found in aircraft operations manuals.

Such semantics are among inconsistency issues the FAA is attempting to address.

“We want everyone to use the same terminology, accurate information, and timely information that can be interpreted by everyone in the same way,” said Rick Clark, FAA’s Branch Manager of Part 121 Air Carrier Operations. “It is a fairly daunting task we are taking on, but we think we can do this as it is simply a matter of coordination and timing.”



Perimeter Fence

Blast Fence

Antenna Parts

A Southwest jetliner ran off the runway at Chicago Midway airport on Dec. 8, 2005, during a snow storm. Runway braking action reports, [according to the NTSB report](#), were mixed, reporting good or fair braking action for the first half of the runway and poor braking action for the second half.

measuring equipment is deficient with a snow or ice contaminant.”

Grand Rapids used a Bowmonk electronic decelerometer as its staple for measuring and reporting Mu for a number of years, Applebach said, but following the Chicago Midway overrun with the Southwest Airlines Boeing 737, there was a lot of instant focus on the merits and the weaknesses of using Mu.

Based on conversations shared with the Chicago Aviation Department and issues being addressed by the National Transportation Safety Board, Grand Rapids elected to begin transitioning away from using Mu in favor of using vehicle braking reports. Beginning in winter 2011, the airport ceased publishing Mu values to exclusively report vehicle braking action.

The tools airports had used to convey expected braking action to pilots were effectively broken, Applebach said, and the committee was tasked to come up with a substitute means of predicting braking action from the ground before aircraft utilized the runway.

“Collectively industry-wide, we really had to base that on as much knowledge as we could gather from all of the various levels of expertise in the community, and ultimately, over the course of the period, we came up with what resulted in the matrix,” Applebach said.

A new approach  
The Paved Runway Condition Assessment Table, better known as the matrix, is considered to be the keystone of the committee’s body of work. The tool has

In addition to aligning verbiage, the committee has recommended translation of oft ambiguous words into a language all stakeholders can understand and recognize.

“From an airport perspective, we are in total agreement that the subjectivity of previous reporting needs to be addressed,” said Paul Sichko, assistant airport director at Minneapolis-St. Paul International Airport and an original member of the working group. “So now we are coming up with percentages and measurable depths we are translating that into a numerical code. I believe the members of the working group are pleased

that the effort is moving to a more objective reporting system.”

Bruce Applebach, operations manager at Gerald R. Ford International Airport, served as part of the airports subgroup alongside Sichko. Beyond a language breakdown, it was also learned that traditional winter operations equipment was producing inconsistent reports.

“We were appointed with the task of dealing with airport condition reporting,” Applebach said, “and what it boiled down to was the fact that the industry recognizes that the use of decelerometers and continuous friction

*deicing seminars to share best practices and the latest technology.*

- ACI-NA is in the process of conducting an airport snow equipment survey.

## What is ACI-NA Doing?

- ACI-NA staff members and member airports have participated in FAA efforts to devise more effective tools and practices to deal with snow and ice on runways.
- ACI-NA in conjunction with other industry groups holds periodic



Putting it in words: A [matrix of terms](#) is being developed to standardize verbiage for runway conditions in inclement weather.

undergone pilot testing at a handful of Alaskan and Northern tier airports over the course of the past two winter seasons, and is available for voluntarily use nationwide.

"We have gone through a couple of years of testing with the matrix, and that tool is really the culmination of what we know industry-wide about aircraft performance on contaminated surfaces and how airports might correlate contaminants to a number and convey that information to cockpit crews," Applebach said, noting that Grand Rapids tested the matrix over the course of a couple of winters, where it by and large appeared to work pretty well.

Applebach said Grand Rapids still has some concerns the matrix may not address, describe or predict contaminants in all circumstances.

"There is still a little bit more we may be learning from using the matrix that might require some additional modifications down the road. What I am anxious for is for the addition of other airports into using this matrix and really

testing out and finding adjustments to make it more workable."

The FAA's Clark said coordination of the matrix effort will take some time.

"If you throw the switch, every light bulb in this chain has to come on at the same time," Clark said, noting that the FAA is starting course development and devising timelines to have one system in place. "The matrix system is voluntary and it is a good move on the industry's part. We support it and applaud it. We want everyone to use the same terminology, accurate information, timely information that can be interpreted by everyone in the same way."

ACI-NA's Dick Marchi said the airports on the committee that have used the matrix are in harmony on the recommendations, while those that are yet to be involved at that level may have different opinions.

"There have been very few airports that have participated with the validation of the system," Marchi said. "When you consider how big the system is, by and large the participating

airports have been supportive, but there are a whole lot of additional participants that should really weigh in on this and try it out and further vet out any weaknesses or concerns the system might have."

The project participants are planning on more widespread evaluation of the classifications by airports next winter, with changes to the winter safety and operations advisory circular (150/5200-30) calling for universal application of the technique in the winter of 2013/2014, if warranted.

While the working group was deemed to be an aviation rulemaking committee, the title provides a bit of a misnomer. When the committee ended as was scheduled, it produced a report with a series of recommendations for the FAA to follow, one of which was rulemaking. Other recommendations included guidance and operational practices.

"There is a set of actions we are bringing together and coordinating, but we are lacking the ability to start the rulemaking now, which



This Braking Availability Prototype Test Vehicle, developed by the University of Waterloo and Team Eagle, will be tested this winter by the Region of Waterloo International Airport and WestJet. It mimics the wheel braking characteristics of a braking aircraft and provides realistic values that can be used by pilots to predict the wheel-braking performance of their aircraft.

is a complex process," Clark said. "In the meantime, why don't we do everything else? That is the road we are on."

While some airports have voluntarily changed their data collection practices, Minneapolis-St. Paul has not made any significant equipment changes since the Midway accident. The Metropolitan Airports

Commission has modified winter procedures in accordance with FAA Advisory Circular revisions.

"The highest profile change is that staff 'continuously monitor' pilot braking action reports immediately upon receipt of two consecutive 'poor' reports," said Minneapolis-St. Paul's Sichko. "Under certain conditions

at Minneapolis-St. Paul, it is difficult to maintain 'medium' braking for any length of time. Therefore, staff is monitoring conditions and positioning equipment for efficient and effective response."

Marchi said the airport response to the FAA proposal that runway treatment be conducted immediately after two consecutive 'poor' braking reports is that, "We prefer to have the airport performing continuous monitoring after two consecutive 'poor' reports, and make a judgment about the need for further treatment based on that monitoring and their judgment. To automatically mandate treatment would interfere with operations when the continuous monitoring might indicate that there is either no need or no practical treatment available." ■

**THE BOTTOM LINE:** *An FAA-industry committee has designed a matrix of commonly accepted terms to more accurately describe runway conditions in foul winter weather.*

**ALPINE**<sup>TM</sup>  
RF-11

CONTACT US AT:  
(800) 622-4877 ext. 305

[www.nasindustrial.com](http://www.nasindustrial.com)

- Meets FAA approved specification SAE AMS 1435B
- Nontoxic and nonhazardous to plant and animal life
- Long term storability
- Versatile for most spray systems



## 5 MANUFACTURING LOCATIONS



MARION, OHIO USA



RED OAK, IOWA USA



CORYDON, INDIANA USA



NEW HAMBURG, ONTARIO CANADA



BELLE PLAINE, SASKATCHEWAN CANADA