

# AIR TAP Briefings

A publication of the Airport Technical Assistance Program of the Center for Transportation Studies at the University of Minnesota

Winter 2008

**Editor's note:** This issue of *Briefings* features coverage of two sessions at the 2008 Minnesota Fall Maintenance Expo, held in October in St. Cloud, Minn. The annual two-day event, which addresses fall and winter

transportation maintenance issues, is put on by the Minnesota Fall Maintenance Expo Committee and sponsored by the Minnesota Public Works Association, Minnesota Street Superintendents Association, Minnesota

Department of Transportation, Minnesota Local Road Research Board, and Minnesota Local Technical Assistance Program. For more information about the expo visit [www.mnfallexpo.com](http://www.mnfallexpo.com).

## Ready? Set? Plow!

Winter weather strategies for Minnesota's local airports

For any Minnesota airport, winter is a hard time of year. Snow storms, freezing rain, and sub-zero temperatures pose problems for even the most advanced snow-fighting operation. For Minnesota's many local airports, the challenges winter brings are even tougher. Many get by with just two or three dedicated maintenance staff, while others have none. Instead, local transportation agencies must keep these airports safely plowed in addition to their countless other winter weather responsibilities.

At this year's Minnesota Fall Maintenance Expo, Joe Harris with the Metropolitan Airports Commission (MAC), John Olson with the City of Hutchinson, and Rick Braunig with the Minnesota Department of Transportation's Office of Aeronautics shared strategies for effective local airport snow removal.

### Develop a plan

Pre-season planning is the key to successful winter operations. Planning

should be completed as early as possible; July is a good time to start. Begin by updating your documented snow removal plan—a step-by-step document detailing how winter operations will proceed. It should include timelines, plowing guidelines and techniques, contact information, the procedures for closing runways, and staff assignments. Having a documented process in place becomes especially important if your airport snowplow driver leaves in the off-season—a fairly common occurrence. After your updated snow removal plan is complete, review it with your airport traffic control tower.

### Communication is key

Communication is another important piece of winter preparations. Schedule meetings with the key players involved in your airport's winter operations including local



pilots, hangar tenants, and your fixed-base operators (FBOs). Don't forget to include any emergency aircraft operators, such as medical helicopters.

During the planning meeting, discuss your strategy for winter operations, address any lingering concerns from the previous winter season, and let everyone know your limitations. In addition, make sure the attendees know where to find

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## A finely tuned machine: behind the scenes of MSP's winter operations

When you work in airside operations at Minneapolis–St. Paul International Airport (MSP), the whole world depends on you—literally. The airport is the 17th largest in the country; more than 35 million passengers arrive and depart each year. Its world-class status means a winter operations mistake can set off a domino effect of flight delays and cancellations around the globe.

At the Minnesota Fall Maintenance Expo, MSP airside operations manager John Ostrom shared a behind-the-scenes look at the airport's finely tuned winter operations strategy.

### The operation

Managing MSP is a big job on any day, let alone during a winter storm. More than anything, the airport resembles a small city. It has 4 runways, 17 taxiways, 63 taxiway feeders, 112 gates, and 5 deicing pads, and it serves 19 airlines. With its own fire department, police department, and maintenance departments, a lot goes into keeping the place running.

The job of the airside operations department isn't limited to winter operations. The department oversees the regulatory aspects of airport management including wildlife control, training,

communication, and emergency management. And the department does it all with less. "Of the top 30 airports in the country, we are the least staffed," says Ostrom. "So we rely very heavily on technology."

### The preparation

Preparation is the most important part of MSP's winter operations. Planning is a year-round process, with an emphasis on internal and external communication. Internally, the focus is on revising procedures, defining responsibilities, whittling down runway closure times, perfecting friction testing, working on crew assignments, and improving communications. Externally, pre-season planning requires the Federal Aviation Administration (FAA), airlines, airport tenants, the military, the National Weather Service (NWS), and the Metropolitan Airports Commission (MAC) to all be on the same page.

The primary goal during pre-season planning is making sure everyone involved is aware of the procedures and their responsibilities. "If anything will sink your operation, it is a lack of communication," Ostrom says.

### The procedures

When winter weather is in the forecast, it's "all hands on deck" at airside operations. Work begins with weather monitoring. The decision makers look at single-site radar, composite radar, and all the local meteorologists' forecasts. They also use Weather Support to Deicing Decision Making (WSDDM) software. Originally, the technology was designed for airlines to determine hold times for deicing. The airside operations team uses it to monitor what precipitation is actually hitting the ground.

Pre-storm planning also involves staging staff and resources. Ostrom and his team look at staffing availability, equipment availability, runway configurations, and airline schedules. Because it takes 50 percent of the airside operations staff to run a 12-hour shift, every member of the team must be available for a winter weather event lasting a day or longer.

Once winter weather hits, storm management mode begins. The team monitors runway friction using pilot braking action reports and the airport's friction testing vehicles. Team members also keep a close eye on the weather, track

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information, updates, and answers to their questions during winter events. After the meeting, send a letter to all tenants and key players explaining the winter operations plan and providing important contact numbers.

Remember to communicate with your maintenance staff during pre-season planning. Schedule a formal training for drivers who will be maintaining the airport during the winter season. Use the training to review the snow removal plan, outline safety and NOTAM (Notice to Airmen) requirements, familiarize the drivers with any specialized equipment, and conduct a dry-run of airport plowing operations.

### Get ready to go

The off-season is also the time to make logistical preparations for winter. Begin by considering last year's winter operations and identifying where there is room for improvement. If you had a problem with drifting snow, ask a farmer to leave some corn standing near the runway or draw up a plan to create a snow fence. If drainage was an issue, give your culverts a good cleaning. Make sure you have an adequate supply of sand and a warm place to store it. Clearly mark any obstructions that could interfere with plowing. Finally, test all your equipment, and consider adding to or upgrading it if possible.

### Plowing strategies

Keep these important airport snow removal strategies in mind when creating your snow removal plan and dealing with a winter weather event.

**Communicate.** Just as communication is important in pre-season planning, it is crucial during an actual snow event. When closing a runway for plowing, be sure to issue a NOTAM in advance of the closure, and don't open the runway before it is fully plowed. Always check to make sure the NOTAM is posted and removed: an aircraft attempting to land while plows are working creates a dangerous situation.

**Skip the salt.** A good street plowing is not the same as a good runway plowing. Never use salt on a runway. Instead, use sand or a chemical specifically designed for airport use. Salt is not allowed on runways, taxiways, or ramps.

**Think like a pilot.** When plowing, remember the sides and ends of the runway must be cleared. Pilots need to see the runway lights from the air, and snow banks should be far enough back to provide plenty of wingtip clearance. Early in the season, push snow drifts as far back as possible. Once snow banks are established, it can be difficult to push them farther from the runway.

**Pay attention to details.** Don't forget to plow around lights and navigational aids, and clear the sensors on the automated

weather observing station. When plowing around lights and signs use caution, because the force of a plow can easily break them.

**Give pilots somewhere to go.** Finally, remember to clear more than just the main runway, or you leave pilots with nowhere to go. A good guideline is to plow your main runway first, followed by the taxiways, aircraft loading areas, public roadways, secondary runways and taxiways, hangar taxi lanes, and vehicle parking areas.

— Megan Tsai is a Twin Cities-based transportation writer.

## Fall Forum coverage coming in 2009

Thank you to all who attended the 2008 Fall Forum—you made for another great event! More than 80 attendees from airports across Minnesota gathered in October at Breezy Point Conference Center near Brainerd to hear discussions on mediation and conflict resolution, customer service, airport governance, and many other topics. Thanks, also, to those who contributed to the planning and delivery of the event.

Presentation materials for many of the sessions are now available on the AirTAP Web site at [www.airtap.umn.edu](http://www.airtap.umn.edu), while coverage of the event will be featured in a special issue of *Briefings* in early 2009.

aircraft activity, and perform visual inspections of the conditions. "There is nothing better than having someone out there in the field sticking their finger in the snow," says Ostrom. "You must have boots on the ground to tell you what's going on."

Most of the airport's winter operations occur automatically according to the pre-determined plan. This includes plowing the taxiways, gates, ramps, and deicing pads. The operations team is also in constant communication with the FAA, airfield personnel, and Northwest Airlines. The only non-automatic winter operation is closing the runway for plowing.

When friction on the runway begins to drop, runway plowing begins. By looking at departure

and arrival schedules, the team picks the least disruptive time for the runway closure and issues a Notice to Airmen (NOTAM). The runway plowing operation is called the "conga line," made up of 12 vehicles running on a diagonal. These include the lead plow, brooms, high-speed plows, batwing plows, blowers, and deicers. The airport no longer uses sanders because brooms and deicing chemicals can get down to bare pavement.

Plowing the runway is an exact science. The conga line plows the runway in two passes—one on each half of the runway. Each time, the line is led and followed by the friction testing vehicle, which measures before-and-after runway friction. There is only a one-minute window

from the time the conga line clears the runway to the time a plane is scheduled to land or take off on it, so any delay is unacceptable.

### The aftermath

After the storm, it's time for rest and clean-up—the airside operations team has been working almost non-stop with few chances to sleep or eat. Blowers and plows also spend time clearing any remaining snow after the storm passes. A few days later, the team reviews its performance, seeking input from the FAA and the airlines. Then it begins watching the skies and preparing to do it all over again.

— Megan Tsai

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