

Airport Snow and Ice Operations

Winters in Minnesota pose many challenges for airports, but quick and efficient operations for handling snow and ice can prevent accidents, delays, cancellations, and headaches.

Preseason preparation

Preseason planning is the key to successful winter operations. July is a good time to start planning, as you'll want to be prepared well before the snow flies.

One of the first tasks is to create a “snow plan”—a step-by-step document detailing how winter operations will proceed. Not all airports are required to have a snow plan, but doing so may help ensure snow is removed in an organized, logical way. The snow plan should include timelines, plowing guidelines and techniques, contact information, procedures for closing runways, and staff assignments. The plan should also be concise, accurate, practical, and specific to the Federal Aviation Administration (FAA)/Federal Aviation Regulation (FAR) circular under which the airport operates.*

Communication is another important part of winter preparations. Schedule meetings with the key players involved in your airport's winter operations, including local pilots, hangar tenants, emergency aircraft operators, and fixed-base operators. 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 all parties know where to find information, updates, and answers to their questions during winter events. After the planning meeting, send a letter to all tenants and key players explaining the winter operations plan and providing relevant contact numbers. Remember to communicate with your maintenance staff during planning, and schedule formal training for drivers who will be maintaining the airport during the winter season.

Other preseason planning tasks include determining staffing and equipment availability, planning airline schedules, performing friction testing, and reviewing safety procedures.

* A snow plan is required for all FAA Part 139 certificated airports. An airport owner's legal staff should review a snow plan before it is sent to the FAA regional office for approval.



Plowing procedures

When the snow arrives, be sure to issue a Notice to Airmen (NOTAM) to alert pilots to plowing operations, closed pavement surfaces, and the conditions of lighting, airfield signage, hazards, and navigational aids (NAVAIDs). You should also issue an Airfield Condition Report to give pilots information on pavement conditions.

Before plowing, always ensure the NOTAM is posted. Aircraft attempting to land while plows are working creates a dangerous situation. Remove the NOTAM once plowing is complete.

Clear the sides and ends of the runway, pushing snow banks far enough back to provide plenty of wingtip clearance. Remember that pilots need to see the runway lights from the air. Don't forget to plow around lights and navigational aids, and clear the sensors on the automated weather observing station. Use caution when plowing around lights and signs because they can break easily. In addition, snow should be cleared in front of PAPIs and VASIs so they are visible from the end of the runway. Check NAVAIDs and light couplings after plowing to ensure they were not moved out of alignment or damaged and that they are operating correctly.

Finally, remember to clear more than just the main runway or you leave pilots with nowhere to go after landing. 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.

Snow and ice control

One technique for controlling drifting snow is a Canadian snow fence. This is created by snowblowing a trench parallel to the runway, taxiway, or road pavement once the ground is frozen. Because this trench is an area of low pressure, it attracts blowing snow and thus prevents the snow from drifting onto the pavement.

To improve pavement surface friction, you may need to apply chemicals and sand. FAA-approved chemicals are sodium formate (NAC) and potassium acetate. Sand should always be used sparingly and with a chemical to decrease slipperiness. The type of sand used must be approved by the FAA, which certifies that the additives in it do not cause corrosion to airplane parts. Sand must be loose when applied to surfaces in order to eliminate any chunks that could cause foreign object damage. Urea can also be a good tool for controlling ice because of its ease of use and low cost, but first confirm that the product is acceptable according to FAA standards. Also keep records of the products used, noting FAA approvals.



A decelerometer, which measures the friction between a test vehicle's tire and the pavement, is recommended for all part 139 certificated airports. Although one is not required for friction testing, it offers more credibility than do subjective pavement condition reports such as "poor, fair, and good." If issuing braking reports based on using a wheeled vehicle only, follow the FAA's recommendation to disable the antilock brake system.

For more information, including guidance on creating a snow plan, see FAA Advisory Circular 150/5200, *Airport Winter Safety and Operations*, available online at www.faa.gov/regulations_policies/advisory_circulars.