



---

## Airport Snow & Ice Event Preparedness

---



Maintaining a safe airfield for aircraft and passengers is the focus of everything we do at Muskegon County Airport during the winter months. Due to the amount of “lake effect” snow the airport receives, the removal of snow and ice is a critical part of the airport’s operational planning activities.

It takes tremendous effort to keep the airfield pavements in optimal conditions during inclement winter conditions. For instance, MKG has approximately 4.5 million square feet of runways, taxiways, and aprons in addition to airport roads, parking areas, and sidewalks to keep clear of snow and ice. This is equivalent to approximately 72 lane miles (12-foot wide). To that end:

- ❖ Airport staff begins preparation for each winter season in late summer by reviewing and revising plans, preparing specialized equipment, ordering supplies, and training.
- ❖ The Airport’s airfield snow removal vehicle and equipment fleet includes the following specialized equipment:
  - Two (2) Oshkosh H-Series snow blowers with a combined capacity to move 10,000 tons of snow every hour (5,000 tons/hour each) up to 200 feet from the runways & taxiways.
  - One (1) Oshkosh H-Series broom with a 22-foot wide high-speed broom.
  - Two (2) Oshkosh P-Series trucks with 22-foot high-speed snowplows.
  - Two (2) International Workstar trucks with 12-foot snowplows.
  - One (1) de-ice trailer with 50-foot spray boom to spread environmentally friendly liquid de-icing solutions to ensure the pavements do not freeze over in cold weather.
- ❖ The Airport’s terminal/landside snow removal equipment fleet includes the following vehicles and equipment:
  - Two Chevy 2500 pick-ups with a 6-foot snowplows.
  - One Trackless MT Utility Tractor with snow blower and broom attachments.
  - Three snow blowers
- ❖ Muskegon County Airport has purchased more than \$2.3 million in snow removal equipment in the past decade. The majority of purchases was eligible for, and received, federal grant funding through the FAA’s Airport Improvement Program.

- ❖ Aircraft de-icing services are performed directly by each individual airline or contracted with the fixed base operator.
- ❖ Travelers should always check the status of their flight via real-time updates from their airlines main website.

**What we do.** It is the Airport's responsibility to keep runways, taxiways, roadways, and parking lots safe and free from excessive snow and ice. It is rare that the airport closes for very long due to field conditions, but if deemed necessary, the airport will close until conditions return to those allowing for safe operation. More often, there are times when the airport is open but the airline(s) or pilot-in-command choose not to takeoff or land due to weather conditions. This is often a matter of company policy or a judgment call on the part of the pilot in command and not the Airport.

**Planning and labor are key.** Prior to the start of the winter season, Airport staff begin repair and modification work on snow and ice control equipment to ensure its readiness, purchase of de-ice materials, and conduct refresher training. Special attention is given to operator comfort, as operators often work long hours (10-12 hour shifts) with the equipment. Training is comprehensive and continuous. With a relatively small staff available (9 employees), work efforts are carefully planned and coordinated according to various forecasting services, runway braking action reports, and field condition reports.

**Sending in the troops.** When Airport staff observe a measurable amount of snow or ice on a runway (typically 2 inches of dry powder or 1 inch of wet snow), it is temporarily shut down for removal procedures. One way the airport determines the condition of the runways is with a runway friction tester, which utilizes an on-board computer to analyze the weight, distance, speed, and torque obtained from sensors attached to a test fifth wheel driven by the rear differential. The test wheel is of a specific type and size, carries a specific load, and is driven 13 percent less than vehicle speed to determine the coefficient of friction of the pavement surface for "braking action reports" for pilots.

During the snow removal process, maintenance crews work to bring the runways and taxiways back to normal conditions. Formations of multiple vehicles called "conga lines" make passes up and down the runway, plowing and/or blowing the snow and ice toward the runway sides. Trucks with rubber-edged plows and rotary front brooms remove snow and ice from the pavement. Then large snow blowers remove the windrows and piles of snow from the pavement and blow it beyond the airfield lights and signs.

The entire process of clearing the main runway is typically accomplished within 60 to 90 minutes. Liquid anti-ice chemical may be used on airfield pavement surfaces to improve traction on packed snow and ice. A similar process removes snow from taxiways, which aircraft use to enter and exit the runway, and the terminal apron. Due to its corrosive effects on metal, salt is not used on airfield surfaces.

**Roadways, parking and sidewalks.** Not only should the operation of aircraft be safe at MKG, but travel by land and parking should be a walk in the park for airport visitors. Staff keeps airport roads and parking lots free of snow and ice with plows and rock salt. When temperatures dip below 20 degrees, pelletized sodium acetate can be added to the salt to enhance its effectiveness. Assistance

is provided by the City of Norton Shores through plowing and salting of roadways.

So that travelers will not have any mishaps, small riding tractors equipped with front-end brooms and snow blowers remove snow from sidewalks. In order to protect surfaces, shrubbery and grass, non-corrosive compounds such as potassium acetate are used to control ice in these areas. Snow is removed with hand shovels and snow blowers in critical areas.

**De-icing the planes.** When temperatures reach the freezing level aircraft exteriors can receive a build-up of ice, even when no measurable precipitation exists. Freeing critical aircraft surfaces of all snow and ice prior to flying is important, especially on wings and control surfaces. Although it is the ultimate responsibility of the pilot in command (PIC) to ensure "clean wings" before takeoff, a team approach gets the aircraft up in the air safely.

Airline and/or Fixed Base Operations (FBO) employees use a boom truck to reach aircraft and apply heated, pressurized deicing fluid on airliners and other aircraft. The length of time it takes to apply deicing fluid is usually integrated in the aircraft's departure schedule to allow it to take off safely and ice-free, but there can be slight delays during de-icing.

**Dedication and perseverance.** During Western Michigan winters, MKG cannot stay operational without the hard work, effort, and skill that go into the removal of snow and frozen precipitation, and the coordination of these efforts by Airport staff, the airline, the FBO, and the Muskegon Air Traffic Control Tower. The airport's excellent record proves the effectiveness of the snow and ice control program.

The Northeast Chapter American Association of Airport Executives (NEC/AAAE) International Aviation Snow Symposium's [Balchen/Post Award](#) has recognized the Airport for its snow removal efforts. This nationally recognized award is presented to airport "Snow Crews" for dedicated efforts in maintaining airports in safe and operational status during each winter season.

The 2015-16 season marked the 40th consecutive year that such awards have been presented. All categories of airports – Commercial, General Aviation and Military - compete for these awards. Muskegon Airport staff was recognized for their efforts winning the Small Commercial Airport category (less than 100,000 annual passengers) for the 2007-2008 and 2008-2009 seasons.

###

**About Muskegon County Airport:** The Muskegon County Airport (MKG) is the aviation gateway to the West Michigan Lakeshore. Owned and operated by the County of Muskegon, the airport offers a full range of general and commercial aviation services. MKG is served by United Airlines with two daily direct flights to Chicago and frequently scheduled charter flights to Laughlin, NV. The Airport Business Park has land available for ready development. The Airport accounts for \$56 million annually in economic activity. For more information, please visit us online at [www.muskegonairport.com](http://www.muskegonairport.com).

**Muskegon Airport Media Contact:** Jeffrey Tripp, Airport Manager | 231.206.3977 | [trippje@co.muskegon.mi.us](mailto:trippje@co.muskegon.mi.us)