

INSTRUCTIONAL MEMORANDUM

IOWA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
OFFICE OF MAINTENANCE

CHAPTER: SNOW AND ICE CONTROL	NO: 8.010
TITLE: GENERAL GUIDELINES	
APPROVED:	ORIGINATION DATE: October 15, 1984
	REVISION DATE: September 28, 2004

I. Purpose:

To provide guidelines for carrying out the snow and ice control program.

II. Definitions:

- A. Early Morning Frost - frost that is generally expected to develop about the time of sunrise.
- B. Roadway Weather Information System (RWIS) – A combination of technologies that collects, transmits, models, or disseminates weather and road condition information.
- C. Winter Abrasive – abrasive that has been treated with salt for use in winter operations.
- D. Metropolitan Areas – The areas of Ames, Cedar Rapids, Council Bluffs, Davenport, Des Moines, Dubuque, Iowa City, Sioux City and Waterloo shall be defined as metro areas.
- E. HMS – Highway Maintenance Supervisor or their designee.

III. References:

- A. Iowa DOT Policies and Procedures Manual (PPM) 010.14, 010.08, 120.07, 610.13, 610.17, 800.02, and 800.04
- B. Office of Maintenance Instructional Memorandum (IM) 8.030, 8.100, and 8.400
- C. Iowa DOT Standards for Maintenance Activities (Functions 675, 676, 677, 678 and 682)

IV. General Guidelines:

- A. Snow and ice control operations should be performed in accordance with appropriate policies and instructions contained and referenced herein.

V. Procedures:

- A. Assistance to the Public

1. During severe snow storms maintenance employees should assist occupants of stalled vehicles to reach the nearest shelter. Stalled vehicles observed before snow removal equipment is taken off the road should be checked for occupants.
2. Maintenance employees should provide assistance to victims and flag traffic at accident scenes.
3. Emergency trips with snow removal equipment should be made when requested by law enforcement authorities, fire departments, or doctors. After completion of the emergency trip, Highway Maintenance Supervisors (HMS) must be notified as soon as practicable.
4. State owned equipment shall not be used to pull or tow a privately owned vehicle that has run off the roadway.
5. Field personnel should move temporarily abandoned vehicles off the pavement surface only if they interfere with maintenance operations and law enforcement is not available to assist. License plate numbers of moved vehicles should be recorded for future reference.

B. Equipment Operation

1. Snow removal equipment shall only be used on primary highways and state park and institutional roads except:
 - a. As noted in V.A.3. above.
 - b. When authorized by an emergency declaration of the governor.
 - c. When authorized by the District Maintenance Manager (DMM), District Operations Managers (DOM) or HMS pursuant to an agreement with a county or city.
2. Utilize regular snow equipment whenever possible. Switch to "V" plows to open blocked roads and use wings to lay snow back. If a rotary plow is necessary, open the drift and move to the next blocked area, return to widen out later if necessary.
3. Spreaders should be equipped with shields or chutes to properly place abrasives and chemicals.
4. Trucks should carry sufficient ballast to provide traction for the job being performed. Chains should be available for use when needed.
5. Prewetters should be used to aid snow and ice removal.
6. Ice blades or motor graders should not be used on unit 30 or 40 inverted penetration surfaces. Use on unit 80 or 90 surfaces should be carefully monitored to assure that the surfaces are not damaged.
7. Liquid applicators can be used in anti-icing and deicing operations to aid snow and ice removal.
8. Shoes, casters or wing-stops should be used on plows and/or wings to avoid scalping of shoulders.
- 9.

C. Traffic Control

1. Special signing or flagging is not required for snow and ice control operations except flag persons should be used to assist traffic during cleanup operations when:
 - a. Snow is being moved across the highway.
 - b. Rotary snowplows are working in a traffic lane.
 - c. Rotary snowplows are blowing snow across a traffic lane.
 - d. The operation of rotary snow plows causes visibility to be obscured.

D. Weather Advisory Service

1. The Office of Maintenance arranges for daily weather advisory reports during the winter months by contracting with an approved meteorological firm. These reports will provide daily forecasts for general weather conditions, pavement temperatures, storm development and progress, and frost formation potential.
 - a. The daily forecasts shall be considered in planning maintenance operations, responses to storm development and progress, and frost runs.
 - b. When the weather advisory service forecasts early morning frost for bridges, the following are options available for treatment of frost:
 - 1) If the 12:00 p.m. frost forecast predicts frost the following morning in accordance with V.D.1.e, crews shall begin applying liquid deicers anytime after the issuance of the forecast and prior to the end of the shift on the day the forecast is issued, except garages in Metropolitan areas. Garages in metropolitan areas shall apply material before 7:00 a.m. the morning of the predicted frost event.
 - 2) On the morning of a predicted frost event, when it is necessary to treat frost that morning, crew shifts to treat those bridges should begin between 5:30 a.m. and 7:00 a.m. and bridges may be treated with liquid deicers, dry deicers or mixtures.
 - 3) After the first predicted or actual frost event of the season, the HMS may choose to treat for anticipated weekend (Saturday, Sunday, and Monday morning) frost on Fridays after 7:00 a.m. with liquid deicers. If precipitation (including frost) occurs after the Friday treatment, the bridges should be retreated before the next predicted frost as prescribed in V.D.1.b. 1 or 2 above.
 - c. A temporary assignment schedule will be posted prior to October 15th each year to assign employees for bridge frost treatments on weekends and holidays. The scheduled employee(s) shall call the frost forecast recording daily on weekends and holidays via a toll-free telephone number to determine if there is frost predicted for the following morning.
 - d. If conditions indicate that frost is not likely to occur, the decision not to treat the bridge rests with the HMS.

- e. Liquid deicers should only be applied to treat predicted frost when the pavement temperatures are above 15 degrees Fahrenheit at the time of application and wind speeds are not forecast to exceed 15 miles per hour when loose snow is present.
 - f. The methods, materials and quantities to use for frost treatments rests with the HMS.
 - g. When notice of frost or other adverse operating conditions is received from other sources, they are to be treated as prescribed in IM 8.100.
 - h. Each HMS has the option to call the forecast services vendor via a toll free telephone number to discuss the forecast with a meteorologist.
- E. Roadway Weather Information System (RWIS)
- 1. The RWIS should be utilized in planning maintenance operations.
- F. Chemical and Abrasive Materials
- 1. Usage
 - a. Chemicals and abrasives should be used in accordance with IM 8.100 and 8.400 to achieve surface conditions specified for the service level assigned.
 - 2. Ordering and Delivery
 - a. Salt should be reordered to maintain a supply consistent with the size of the salt storage facility, anticipated needs and the statewide material storage plan.
 - b. Place order via purchasing requisition system to re-supply quantities of salt used. Re-supply orders should be processed as soon as practical after use or in accordance with the statewide materials storage plan.
 - c. Promptly generate a purchasing receipt to report actual delivery date and quantity of salt received.
 - d. Rock salt should be inspected immediately upon delivery. If it does not meet specifications, proceed as provided in the specifications. Contact the District Materials Engineer if there are any questions regarding procedures and keep the Office of Procurement and Distribution informed.
 - 3. Storage
 - a. Sufficient quantities of abrasives shall be on hand at each location to last through the first storms; arrangements for replenishment should provide adequate quantities for the remainder of the winter.
 - b. Salt facilities shall be filled prior to October 15; arrangements for replenishment should provide adequate quantities for the remainder of the winter.

- 1) Calcium chloride in bags shall be stored under cover.
- 2) Winter abrasives should be stockpiled and treated with approximately 10% salt by volume.
- 3) Liquid calcium chloride should have a concentration of less than 32% calcium. Greater concentrations will solidify when stored at temperatures below 50F.
- 4) Sodium chloride brine should have a concentration of 23 to 24%.
- 5) Rock salt should be stored inside buildings. If outdoor storage must be used, the rock salt should be on an impermeable pad and covered with waterproof fabric.
- 6) Outdoor storage of rock salt and abrasives should be on well-graded areas which confine run-off.
- 7) Only limited quantities of mixture should be mixed and stockpiled because of the potential for contaminated run-off unless stored inside.

G. Use of Additional Highway Division Personnel

Additional Highway Division personnel should be used to supplement maintenance personnel for Snow and Ice removal. Additional Highway Division personnel may perform tasks including plowing snow and applying deicing chemicals, loading trucks, making salt brine, answering phone, assisting mechanic, checking weather information, tracking resources, gathering data and photos to measure performance to support research efforts, and other duties as needed.

H. Relief Crews and Rotary Plow Crews

1. Each maintenance area should be prepared to provide snowplow relief crews and equipment if needed.
2. Rotary snowplow assistance may be requested through the Office of Maintenance. Rotary snowplow crews consist of two operators who will normally be required to work alternate 12-hour shifts. The local area shall furnish a person to assist the operator whenever the blower is in operation and provide proper traffic control.
3. Local area will make lodging accommodations.
4. Relief crews and rotary snowplows may be moved across District lines by the Office of Maintenance.
5. Temporarily reassigned personnel report to and receive direction from the supervisor of the area in which they are working.
6. Emergency expenses are to be in accordance with Iowa DOT PPM 120.07.

I. Supervisor's Daily Report (Winter Supplement)

1. The Winter Supplement to the Supervisor's Daily Report shall be completed daily from October 15 – April 15. The report is to be completed using the Department's computer network.
2. The Supervisor's Daily Report Form No. 810001 shall also be completed daily and retained for five years.

J. Interstate Traffic Control During Severe Winter Storms

1. Iowa DOT PPM 610.17 provides guidance for interstate highway traffic control during severe winter storms and other emergencies.

K. Law Enforcement

1. Field maintenance personnel should cooperate with law enforcement agencies as provided in Iowa DOT PPM 800.02.
2. Department of Public Safety, Division of Communications should be kept advised of maintenance operations conducted outside normal work hours.
3. Notify law enforcement agencies when an abandoned vehicle needs to be removed from highway right-of-way.

L. Communications

1. Maintenance field forces shall use the two way radio system, computer system, scanners and telephone systems to report operational activities, communicate storm development and progress, and assist in planning responses to storms.
 - a. The Office of Maintenance shall coordinate statewide transmission of weather information.
 - b. The District Maintenance Manager shall coordinate communications across maintenance areas and District boundaries and provide reports to the Office of Maintenance when requested.
 - c. The HMS or designee shall coordinate communications between garage areas and report to the District Office when requested.
 - d. The HMS shall communicate with adjacent HMS's and report to the District Office when requested.