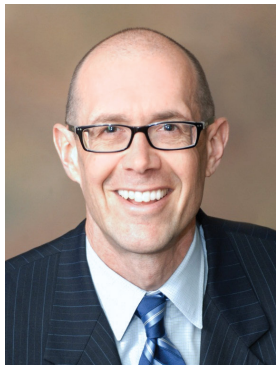
HOW THE IOWA DOT DOES WINTER

IOWA DOT
GETTING YOU THERE



While the official winter season for the Iowa DOT runs from mid-October to mid-April, we prepare for winter all year long. Using data collected from previous and current winter events, the Iowa DOT is working to help keep you moving safely all year long, especially during the challenges that come with Iowa winters.

By using the information in this guide, you can join us in the effort to get each traveler to the desired destination safely this winter.

Mark Lowe
Iowa DOT Director

IOWA DOT
GETTING YOU THERE

CONTENTS

how the iowa DOT Does winter _____1

How the Iowa DOT prepares for the winter travel season _____4

How the Iowa DOT prepares for a storm _____6

What you can do to prepare for winter _____8

Before you travel _____10

Time to kick your winter driving skills into gear _____12

Fiscal year 2019 winter facts _____14

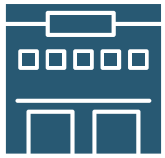
Iowa DOT winter terms _____18

HOW THE IOWA DOT PREPARES FOR THE WINTER TRAVEL SEASON

Salt storage facility

Our staff and equipment

During the fall months, the Iowa DOT strategically makes the switch from construction and maintenance activities to preparing our equipment, materials, and staffing for the needs of the winter travel season. Here's a brief look at our staffing and equipment resources.



101
maintenance garages throughout Iowa

1,000+
full-time equipment operators, mechanics, and supervisors

600+
temporary employees

902
trucks

43
motor graders

27
tow plows

11
heavy-duty snowblowers

Let's get salty

The Iowa DOT has spent the warmer months stocking salt in our storage facilities for use during the winter. Buying during the spring and summer allows us to obtain better pricing because demand is low. On average, the Iowa DOT uses more than 140,121 tons of salt and 28 million gallons of brine each year to help maintain safe travel on the more than 9,500 lane-miles of the primary highway system, consisting of interstate, U.S., and Iowa routes.

140,121
tons of rock salt

28million
gallons of brine

HOW THE IOWA DOT PREPARES FOR A STORM

All about brine

The Iowa DOT uses salt brine, a simple solution of standard rock salt and water, to help with winter roadway maintenance.

It can be used to pretreat roadways before a storm, thus preventing snow and ice from sticking to the pavement. Brine is also used to prewet salt before it leaves the truck, increasing its ability to melt snow and ice and helps keep it on the roadway surface.

Why do Iowa DOT trucks sometimes spray brine on sunny days?

Frost is a major safety factor this time of year. The Iowa DOT's proactive approach of spraying brine on areas prone to frost prevents the formation of an icy layer, which typically occurs on cold, clear nights. Frost is hard to see on the road's surface and most people don't expect it. These unexpected encounters with a frost-covered bridge or roadway can be particularly treacherous when traveling at higher rates of speed, making it more difficult to maintain control of your vehicle.

Snowplow applying brine

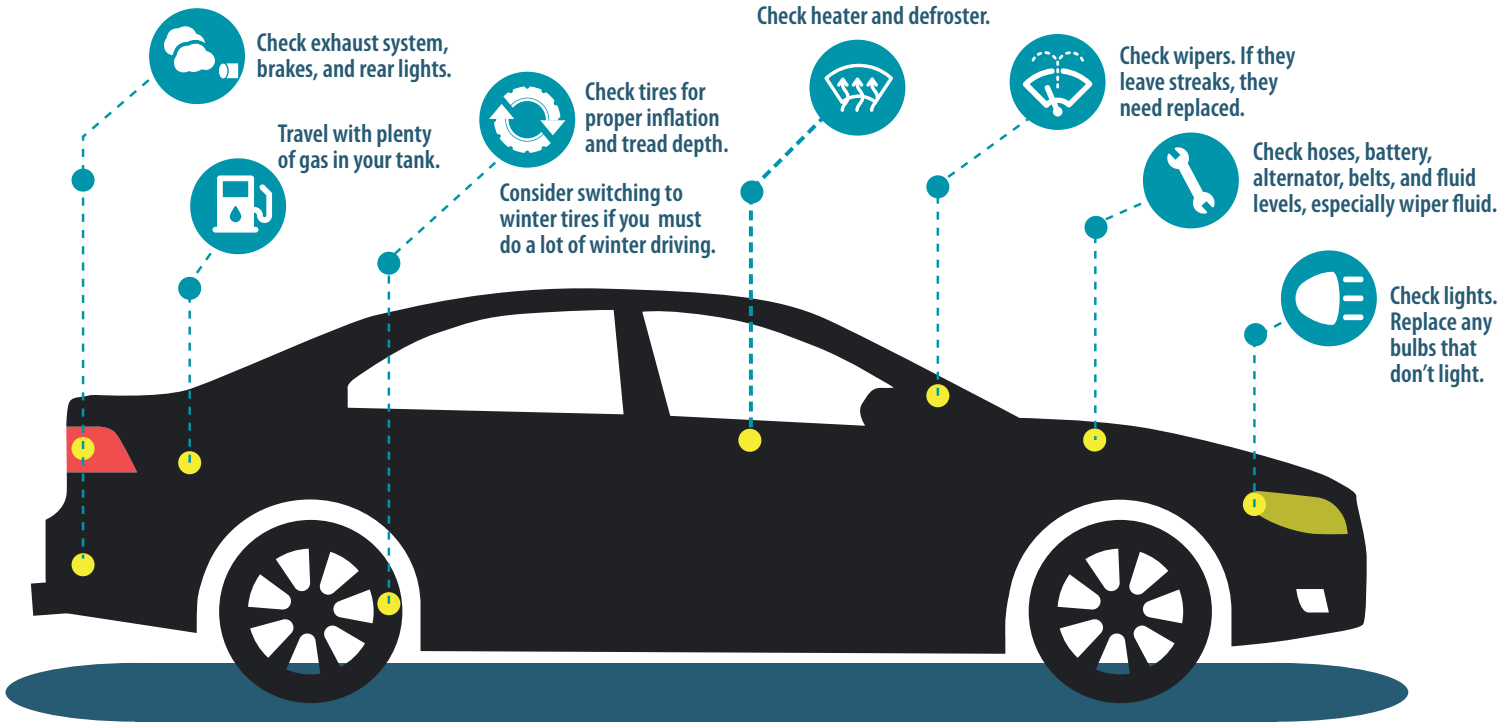
Mixing brine in truck bed

WHAT YOU CAN DO TO PREPARE FOR WINTER

Winterize your vehicle

To minimize the possibility of a breakdown, get your vehicle tuned up. Check your vehicle's wipers, hoses, battery, alternator, belts, tires, brakes, exhaust system, lights, and fluid levels.

Make sure your vehicle's heater and defroster are in good working order and you travel with plenty of gas in your tank. A breakdown is frustrating on a good day but can be dangerous during wintery weather.



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Place a winter survival kit in your vehicle

This kit should contain items to help sustain your life and the lives of your passengers should your vehicle become stranded during inclement weather. These items can include booster cables, candles and matches, a flashlight with fresh batteries, extra blankets and warm clothes, nonperishable food items, a can for melting snow for drinking water, and a snow shovel. Sufficient supplies should be in the kit for all persons traveling in the vehicle. Carrying a mobile phone and charger in your vehicle is also advised for use during an emergency.

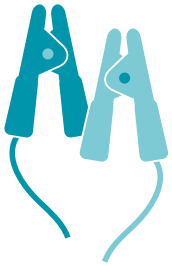
full tank of gas

cellphone charger

first aid kit

boots/gloves/ warm clothes

flashlight



jumper cables

ice scraper/ snow brush

music/games

WHAT TO CARRY IN YOUR CAR

Because you never know when you will encounter winter weather or emergency road closure

water/snacks

BEFORE YOU TRAVEL

Motorists are urged to monitor weather and road conditions using www.511ia.org before traveling – stay informed and plan ahead.

511 Traveler Information
www.511ia.org or dial 511

There are a variety of ways to connect with 511 and stay informed.

Web: Visit the Iowa 511 website at **www.511ia.org**. Towing restriction information can be found on the full-featured version of the website.

511 app: Download the Iowa 511 mobile app for Apple and Android devices. Search for "**Iowa 511**" in your device's app store. Mobile devices should only be used when parked and off the traveled portion of the roadway or by your passengers.

E-mail: Receive winter road closure and other travel advisories directly in your inbox. Visit **www.511ia.org** to subscribe to "My Reports," customizable to the route(s) you plan to travel or highway you use for your daily commute.

Phone: When in Iowa call 511, or 800-288-1047 from outside of Iowa.

Twitter: See Tweets for metro area (Cedar Falls/Waterloo, Cedar Rapids/ Iowa City, Council Bluffs, Des Moines, Quad Cities or Sioux City) or region (northwest, northeast, central, southwest, or southeast) when you follow 511 Twitter feeds listed on **https://iowadot.gov/511/511-social-media-sites**

Facebook: To see information we post to Facebook, "like" and "follow" the statewide 511 page or one of five regional pages. **https://iowadot.gov/511/511-social-media-sites**

Dynamic Message Boards also relay vital information.

Dynamic message boards: National Weather Service warnings are posted on the dynamic message boards displayed above or along highways at key locations throughout the state. When necessary, interstate closure information is also made available on these signs.

If you've decided you must travel, focus on these five behaviors to reduce the risk of a crash. This should be done anytime of year, but is especially important during winter.

Chill out – Slow down and leave plenty of space between vehicles.

Drive sober – Even one or two drinks can impair your judgement and reaction time.

Focus on the road – Stow your cell phone and use hands free technology if you need to call someone while you're driving.

Stay alert – Get enough rest before you leave.

Buckle up - Make sure everyone in your vehicle is using a seat belt or child/booster seat appropriate for their height and weight.

zero®
Fatalities
A Goal We Can All Live With

TIME TO KICK YOUR WINTER DRIVING SKILLS INTO GEAR

The first snowfall and slick roads are a quick reminder that it's time to adjust your driving behaviors.

Some very simple changes can help you make the adjustment.

1. **Turn off the cruise control.** Cruise control does not allow you to let off the accelerator if you hit a slick spot, making it more difficult to maintain control of your vehicle.
2. **Adjust your speed for conditions.** Speed limits are set for ideal driving conditions. Winter weather can create hazards that require slower speeds.

   Remember these simple slogans, "Ice and Snow … Take It Slow" and "Don't Crowd the Plow."
3. **Keep a safe distance from vehicles in adjacent lanes** as strong wind gusts could push a vehicle outside its lane of travel.
4. **Put a safe distance between your vehicle and the vehicle ahead** in case sudden maneuvers are necessary.
5. **Take extra care if driving a high-profile vehicle such as a truck, van, or sports utility vehicle, or when towing a trailer,** as these vehicles are more prone to be pushed or even flipped by wind gusts.
6. **Your vehicle's headlights are a valuable asset when driving in winter weather.** Turn them on to see and be seen.
7. **If conditions are severe enough to prevent safe driving, postpone your trip; or if en route, identify the nearest safe place to pull off the roadway,** such as a rest area, truck stop, motel, or other location until the wind subsides and road conditions improve.
8. **Keep your windshield clear of frost, snow, and ice.**
9. **Allow extra travel time.**

If the roads are icy

- If your vehicle begins to slide, take your foot off the gas pedal and shift into neutral. If you have a manual transmission, depress the clutch. While it may be a natural instinct to slam on your brakes, don't. This may cause your vehicle to slide further and result in loss of vehicle control. Tap the brake pedal lightly.
- If you have an idea that there may be black ice ahead (for example, you see vehicles ahead of you sliding), downshift to a lower gear before you come onto the black ice. The lower gear will force you to drive more slowly and give you better control of the vehicle
- If your vehicle does begin to skid on the ice, turn the wheel in the direction of the skid. This should help to steer your vehicle back on the right track.
- Stay well behind the vehicle in front of you – this is not the time to tailgate. Even if you feel confident that you know how to drive safely on ice, that does not mean the driver in front of you does. Be prepared in case other vehicles start to slide.
- Four-wheel drive vehicles have no advantage over other vehicles when it comes to driving on ice.
- Make sure you and your passengers are wearing their seat belts or other safety restraints.

FISCAL YEAR 2019 WINTER FACTS

FOR FISCAL YEAR 2019 (JULY 1, 2018 TO JUNE 30, 2019), THE IOWA DOT USED

178,796
tons of rock salt

39,280,226
gallons of brine

AVERAGE NUMBER OF HOURS OF EACH TYPE OF PRECIPITATION IN 2018-2019 WINTER SEASON

167 hours
blowing snow

141 hours
medium snow

79 hours
freezing rain

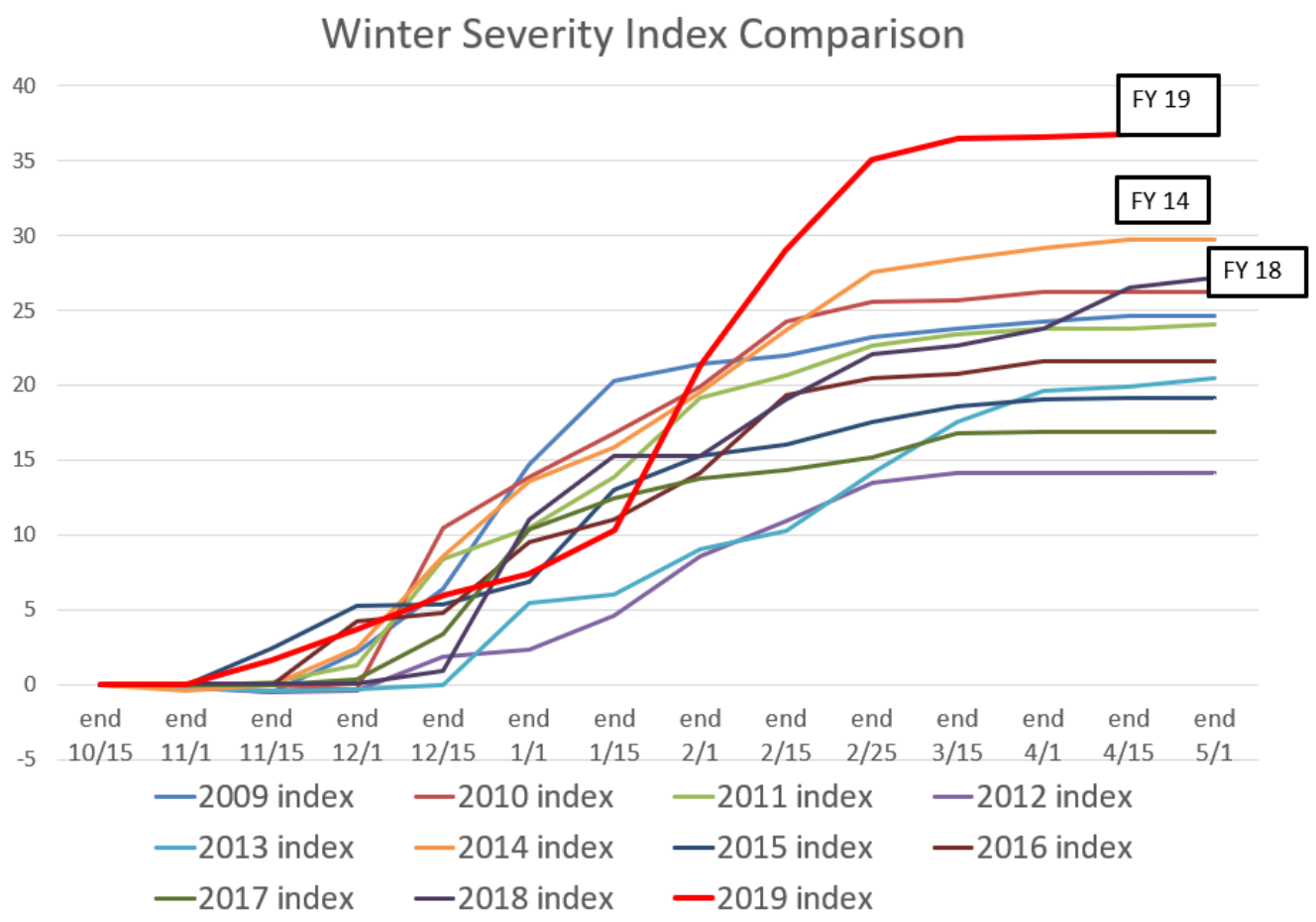
64 hours
light snow

62 hours
heavy snow

60 hours
frost, refreeze, sleet

The winter severity index is a calculation of the harshness of a winter season using:

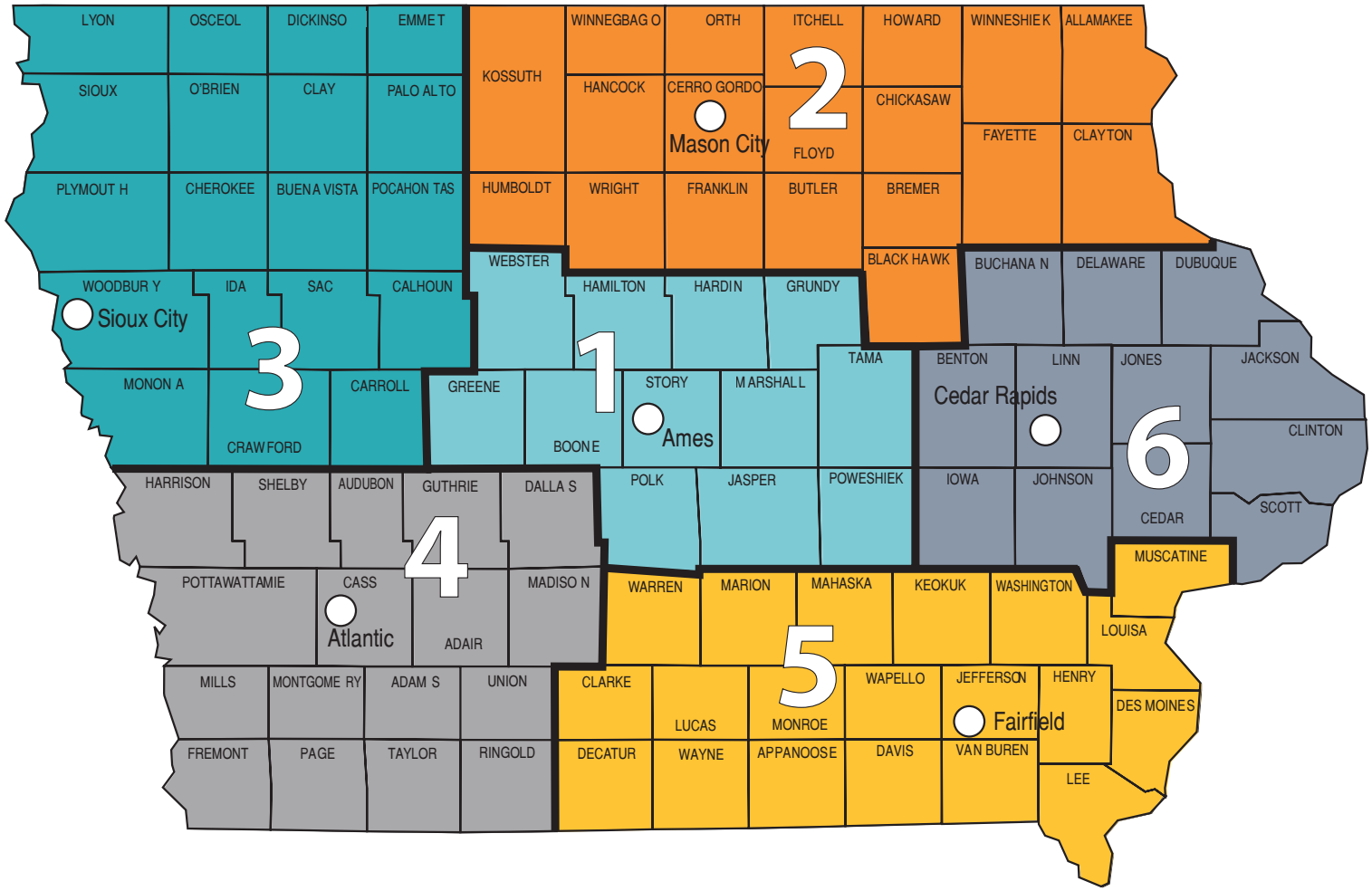
- **The number of**
  - Snow events
  - Freezing rain events
  - Snowfall in inches
- **The number of hours of:**
  - Snow
  - Mixed precipitation
  - Freezing rain
  - Blowing snow
  - Sleet
- **The lowest pavement temperature observed during these precipitation events**



FISCAL YEAR 2019 WINTER FACTS

	Statewide	District (Reference map on page 17.) 1	2	3	4	5	6
Primary Roadway Responsibilities							
Centerline miles of roadway (ramps included)	9,594	1,649	1,642	1,674	1,508	1,587	1,534
Lane miles of roadway Miles of roadway times the number of lanes (ramps included)	24,525	4,579	3,962	4,003	3,701	4,034	4,246
Lane miles of Interstate (ramps included)	3,850	984	321	267	1,094	306	878
Number of bridges (includes state park bridges)	4,161	804	638	616	656	606	841
Equipment							
Snow removal trucks Each snow removal vehicle is equipped with a plow, deicing material spreader, liquid deicer prewetting system, and most vehicles are also equipped with a wing or underbody plow.	902	163	150	146	130	142	171
Motor graders	43	7	8	7	7	7	7
Endloaders	133	20	21	27	23	22	20
Heavy-duty, self-propelled snow blowers Heavy-duty snow blowers are dispatched throughout the state as needed and not used exclusively by a single location.	11	1	5	3	1	0	1
Snow blower attachments for loaders	30	4	7	11	4	0	4
Snow blower attachments for tractors	66	16	12	14	3	8	13
Tow plows	27	4	3	4	4	6	6
Workforce and Facilities							
Winter operations staff							
Permanent Employees	1,032	224	157	149	162	150	190
Seasonal Employees	543	88	55	74	79	125	122
Supervisors	50	11	8	6	8	7	10
Garages	101	16	17	20	17	16	15
Salt permanent storage capacity (tons)	219,050	35,400	32,700	32,760	37,300	35,440	45,450
Materials Use - 5 Year Average							
Rock salt (tons)	140,012	25,413	22,074	17,370	22,639	20,320	32,196
Liquid salt brine (gallons)	28,691,121	5,228,720	3,680,495	3,031,260	4,284,004	5,708,706	6,757,936
Liquid calcium chloride (gallons)	35,070	10,198	281	1,897	8,894	12,410	1,390
Sand (tons)	20,207	946	12,529	1,403	813	2,162	2,354
Financial							
Average annual winter operations budget	$40 million						
Roadway Weather Information Systems							
Road Weather Information Systems (RWIS) RWIS sites are full service weather stations along the roadside that provide atmospheric and pavement specific weather information, such as the temperature of the pavement surface.	72	17	10	10	12	8	15
Climate Data							
Average snowfall (inches) (5 year average - FY2015-2019)	31	31	42	40	22	22	29
Average winter season precipitation days (5 year average - FY2015-2019) A precipitation day is any day in which .01" of liquid precipitation is received.	49	54	56	46	45	41	51
Average number of snow events (5 year average - FY2015-2019)	30	34	37	32	27	20	29

IOWA DOT DISTRICTS



IOWA DOT WINTER TERMS

Iowa DOT truck with a wing plow during a 2007 blizzard.

Antiicing – The application of salt brine to the road surface prior to winter storms. The solution lowers the freezing point of water and slows or prevents ice from forming a bond with the pavement during the early stages of a storm.

Deicing – The application of salt or salt brine to the roadway after snow or ice accumulation.

Salt spreader – Each Iowa DOT snowplow truck is equipped with an electronic material application system that automatically dispenses the desired amount of material based on weather condition data.

Prewetted salt – Road salt is sprayed with salt brine to enhance the salt's melting capability in cold weather. Prewetting lowers the melting point of salt to make it more effective in lower temperatures.

Brine – Brine is simply a mix of salt and water. Each Iowa DOT facility mixes it's own brine to a specific recipe. This material is used in anti-icing operations and to prewet salt. Salt Salt remains the department's primary weapon for fighting winter storms.

Wing plow – When mounted on both sides of a truck, can allow a truck to clear almost an extra 8 to 9 feet of lane width in addition to the 11 feet or so already cleared by the main plow.

Tow plow –Towed by a plow truck and when combined with a front plow, the combination will clear a width of 25 feet or two full lanes.

Towing services prohibited – "Towing services prohibited" means it is extremely dangerous to tow vehicles due to road and weather conditions.
If you need a tow, it's likely you will not get service during this time. However, you may see some towing services in operation for emergency situations.

Iowa DOT truck carrying a tow plow.

www.iowadot.gov

Federal and state laws prohibit employment and/or public accommodation discrimination on the basis of age, color, creed, disability, gender identity, national origin, pregnancy, race, religion, sex, sexual orientation, or veteran's status. If you believe you have been discriminated against, please contact the Iowa Civil Rights Commission at 800-457-4416 or Iowa Department of Transportation's affirmative action officer. If you need accommodations because of a disability to access the Iowa Department of Transportation's services, contact the agency's affirmative action officer at 800-262-0003.

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