



Managing Snow and Ice

Kansas Department of Transportation



A guide to KDOT's winter maintenance operations

Updated December 2023

▶ You Can Count on Us

During the winter months, trained highway crews with the Kansas Department of Transportation (KDOT) are ready to treat or plow snow, slush and ice. Their knowledge and experience in handling these serious situations are essential for the safety of travelers and the efficient movement of commerce on Kansas highways.

Communication between supervisors and crews is key to keeping roads treated and open during severe weather.

With about 10,000 miles of Kansas highways that include about 25,000 lane miles, teamwork is critical to KDOT's managing snow and ice.



Getting Ready

For the season

KDOT employees make sure preparations for snow and ice control are done by mid-October every year including:

- ◆Readying equipment /mounting attachments to trucks used year-round
- ◆Stocking materials
- ◆Training employees
- ◆Reviewing assigned routes
- ◆Placing snow fences



For a storm

Each winter storm is unique. It could be a light, moderate or heavy snowstorm and have frost or black ice, freezing rain or sleet. Many times it's a mixture of these with varying amounts across the state.

Widespread combinations of sub-freezing temperatures, rain, sleet, snow, ice and wind can complicate efforts to keep roads passable.

Supervisors consult with meteorologists and monitor weather forecasts to help KDOT personnel plan the equipment, materials and



people needed for a coming storm. They also monitor pavement conditions using permanent sensing stations in KDOT's Road Weather Information System and vehicles equipped with infrared pavement temperature sensors. Efforts are focused on staying ahead of a storm.



Teamwork - Getting the Job Done

Staffing shortages could impact 2023-2024 winter operations

KDOT is committed to keeping the highways cleared throughout the winter whenever inclement weather impacts the state.

Staffing shortages of KDOT equipment operators, who are the primary snowplow operators, are a concern during this 2023-2024 winter season in a number of areas across Kansas. These shortages could impact winter operations, and highways may not be cleared of snow and ice as quickly as in the past.

While some KDOT offices have adequate employees, many locations have equipment operator positions open. The agency is about 25% short of snowplow operators needed to be fully staffed in offices across the state.

“KDOT field crews always do their best, but with less staff, it could cause delays to clear snow and ice from the highways,” said KDOT Director of Field Operations Clay Adams. “We are able to pull in crews from across the state to affected areas, but that’s not always possible depending on the scope and severity of winter storms.”



The agency will be utilizing all employees who have a Commercial Driver’s License (CDL) to plow snow. The agency also is working to hire new employees. For people interested in working at KDOT, go to the state’s employment website at <http://jobs.ks.gov/>. KDOT will assist selected applicants in obtaining a CDL upon hiring.

“Motorists can do their part to be prepared by checking on road conditions and weather forecasts before heading out and possibly altering or delaying travel plans,” said Secretary Calvin Reed. “Plan ahead and stay informed – these are key to helping you stay safe.”

Before traveling, motorists can check www.KanDrive.gov. KDOT’s road/weather condition website. It is updated 24/7 for highway conditions, overall weather information, short-term closures and general alerts.

Clearing the Roads

Which Roads are Cleared First/Most Often?

To use resources effectively and efficiently, KDOT must decide which roads are treated and plowed most frequently. KDOT divides the highways into three categories based on how much they're used.

Each category has a level of service for snow and ice control that KDOT crews attempt to achieve. KDOT aids emergency vehicles responding to calls if requested on all categories of roads below:

- ♦ **Category I** roads are treated and plowed most frequently. They are multi-lane roads with more than 3,000 vehicles daily.
- ♦ **Category II** roads are treated and plowed frequently. They are two-lane roads with 1,000 to 3,000 vehicle daily.
- ♦ **Category III** roads are treated and plowed less frequently. These are two-lane roads with less than 1,000 vehicles daily.



Closing a Road

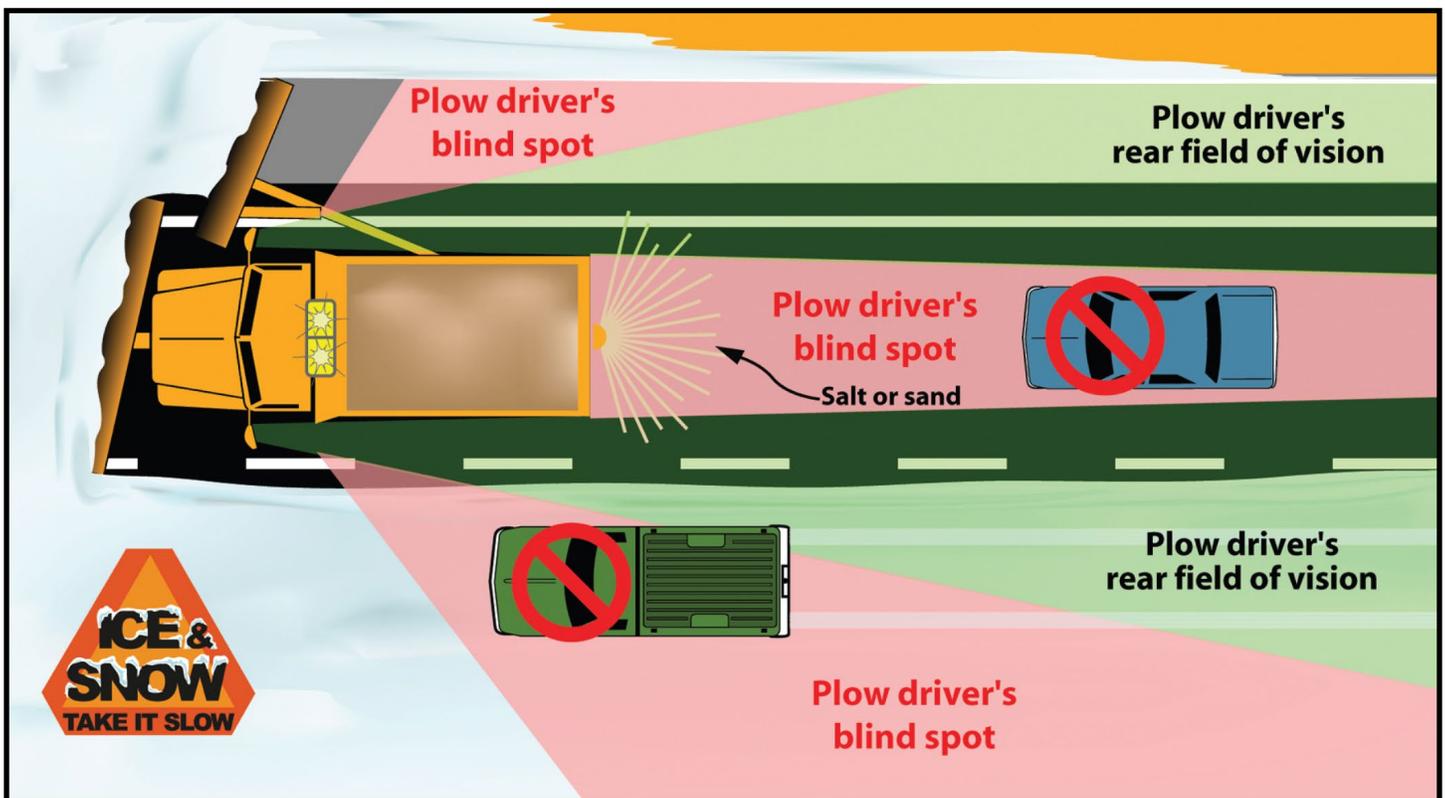
There are times when the weather makes it impossible to maintain a passable highway. When that happens, the only alternative is to close the road. KDOT does not want motorists to be stranded on a highway that is impassable or has no safe lodging. The agency collaborates with state and local law enforcement when a road needs to be closed. KDOT may close a highway for one or more reasons, including:

- ♦ Lodging and truck parking spaces are becoming scarce as travelers seek shelter.

- ♦ Road crews can't maintain a passable roadway due to overwhelming snow/ice conditions or vehicle crashes that block the roadway.
- ♦ Conditions in a neighboring state force officials to close the road in that state. In that case, KDOT may have to progressively close sections of the highway as local lodging and truck parking spaces fill to capacity. This may occur even though roads in Kansas are passable. This is common for highways that link Kansas and Colorado, such as I-70.

Don't Crowd the Plow

Things to remember when driving near a truck plowing snow and ice.



Tips for Safe Travels Around Snowplows

- ♦ **Don't crowd the plow** - Maintenance vehicles plow wide stretches of roadways, sometimes up to 24 feet. On most trucks, the front plow extends several feet in front of the truck and may cross the centerline and shoulders during plowing operations.
- ♦ **Don't tailgate or stop too close behind snowplows** - Snowplows are usually spreading deicing materials from the back of the truck. They may need to stop or take evasive action to avoid stranded vehicles. If you find yourself behind a snowplow, stay behind it or use caution when passing.
- ♦ **A snowplow operator's field of vision is restricted** - You may see them, but they may not see you.
- ♦ **Plows turn and exit the road frequently** - Give them plenty of room.
- ♦ **Snowplows travel much slower than the posted speeds while removing snow and ice from the roads** - When you see a snow plow, allow plenty of room to slow down.
- ♦ **Snowplows can create a cloud of snow that can reduce visibility** - Drive smart. Never drive into a snow cloud - it could conceal a snowplow.

KDOT Keeps You Informed

KDOT offers free Kansas travel information services:



Website - www.KanDrive.gov - provides current Kansas highway conditions. Impacts to traffic are updated 24/7, including maintenance and construction activities, winter highway conditions, flooded roadways and incidents affecting traffic and closed highways. A commercial vehicle mode is also available.

511 Phone - Call 5-1-1 from any phone in Kansas or 1-866-511-KDOT (5368) from anywhere in the U.S.

KDOT maintenance crews assist in supplying travel information to the public

Field employees provide key roadway information to the 511/ KanDrive systems to keep them up to date with the most current conditions. They also input important travel updates, like the message shown at right, on roadside message boards.



If you become stranded...

- ◆ Do not panic.
- ◆ Stay in your vehicle.
- ◆ Circulate fresh air - run motor sparingly and open downwind window for ventilation.
- ◆ Call for help -
 - On Kansas highways, call *47.
 - On the Turnpike, call *582.
 - If you have difficulty reaching these, call 911.

By the Numbers - Winter 2022-2023

60,000

Tons of salt
KDOT used



\$14.6 million

Amount KDOT
spent on winter
maintenance



15,500

Tons of salt and
sand mixture
KDOT used



591

Number of
tandem axle
trucks used
year-round



10,000

Miles of highway
that includes
about 25,000
total lane miles



5.5 million

Gallons of salt
brine used



115

Number of
salt brine
machines



34,000

Gallons of beet
juice used to
remove snow/ice
from roadways



84

Municipalities paid
to clear snow from
state highways in
their city limits



7

Number of
tow plows



◀ KDOT Winter Tools

♦ **Anti-Icing:** The application of liquid chemicals, or in some cases solid chemicals, to prevent the formation of frost or the bonding of snow or ice to pavement.

♦ **De-icing -** Applying salt or salt brine to the roadway after snow or ice accumulation.

♦ **Salt Brine -** Salt brine is a liquid chemical applied to roadways that sticks to the pavement and cannot be blown off by passing vehicles.

♦ **Ground-speed activated salt spreader -** KDOT trucks are equipped with an electronic salt application system that automatically dispenses the desired amount of salt. These systems vary the amount of salt being spread so it is right for the truck speed.

♦ **Tandem Axle Plow Trucks -** Through the years, KDOT has gradually replaced its single axle trucks, which hauled 5 tons of material, with larger and more powerful tandem-axle trucks that haul 10 to 12 tons.

♦ **Infrared temperature sensors -** Sensors are mounted on vehicles to provide the operator with pavement and outside air temperatures. This helps the operator determine if there is potential for the roadway to freeze and when to start their treatment cycle.

♦ **Pre-wetted salt -** Road salt is sprayed with salt brine to enhance the salt's melting capability in cold weather. Pre-wetting jump starts the melting process so the salt will act more quickly.



♦ **Salt -** Salt can be applied in solid, pre-wetted or liquid brine forms.

♦ **Chemical abrasives -** Chemical abrasives are different mixtures of salt and sand. These help prevent ice and snow pack conditions.

♦ **Wing Plow -** A plow attachment that allows operators to clear a full lane. KDOT has equipped one-third of its plow trucks with wing plows in the last decade.

♦ **Beet Juice -** Beet juice is a name given to an agricultural product from the manufacturer of sugars from various agricultural products. When blended with salt brine in a 10-20 percent ratio, it does two things. It makes the brine “stickier” and helps keep it on the road. It also prevents ice crystals from forming, making it easier to remove snow and ice from the roadway.

♦ **Tow Plow -** A tow plow is a trailer-mounted plow that is pulled behind a dump truck. It may be shifted into the lane to the left or right of the dump truck. This allows one truck to remove snow and treat up to 24 feet of roadway in one pass.

Other KDOT Maintenance Activities



KDOT maintenance crews maintain the highways year-round. A few of their many other duties include:

- ◆ Providing **temporary traffic control** and **assisting law enforcement** with localized emergencies, accidents, etc.
- ◆ Repairing **pavement cracks and joints**, filling **potholes and wheel ruts**, **mudjacking pavement**, filling **edge drop offs**.
- ◆ Repairing/replacing highway **traffic signs**.
- ◆ Mowing/maintaining more than **145,000 acres of right-of-way** along highways and **weed control**.
- ◆ Placing **striping** on pavements.
- ◆ Repairing/maintaining **guard rails, drainage structures, bridges, shoulders, slide areas, concrete barriers, rumble strips, lighting, culverts, curb/gutters, rest areas, etc.**
- ◆ Removing **litter/brush**, brooming roadways and bridges.



NOTE: This information is available in alternative accessible formats. To obtain an alternative format, contact KDOT's Division of Communications, Eisenhower State Office Building, 700 SW Harrison, 2nd Floor West, Topeka, KS 66603-3745, or (785) 296-3585 (Voice)/Hearing Impaired - 711.