







WINTER HIGHWAY MAINTENANCE PLAN

2026-2027

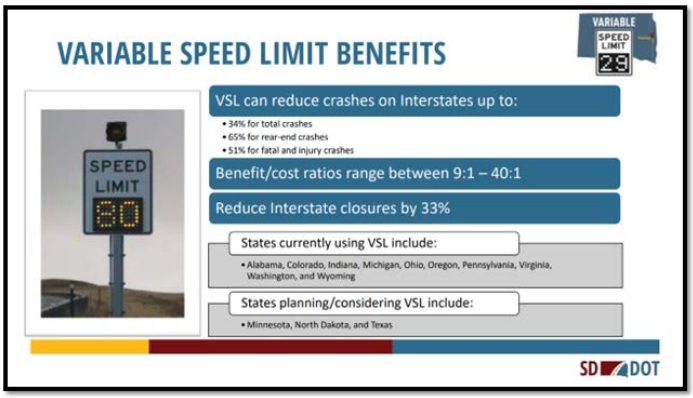
SD DOT





Secretary's Message

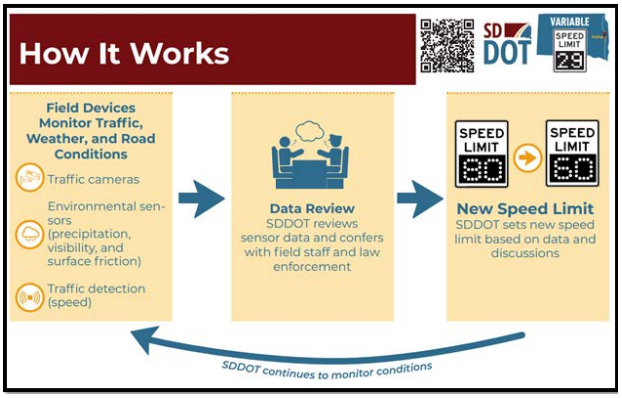
Two SDDOT projects were recently honored as 2026 America's Transportation Awards (ATA) competition winners within the Western Association of State Transportation Officials (WASHTO) Region. These awards are a testament to the work our 1,000 member staff members do every day to improve safety, enhance mobility, and deliver high-quality transportation solutions for the people of South Dakota. AASHTO's award program highlights the meaningful accomplishments of state DOTs and the vital role that transportation plays in our daily lives.



The Variable Speed Limit (VSL) project won in the "Best Use of Technology and Innovation, Small Project" category. The South Dakota Department of Transportation (SDDOT) deployed a Variable Speed Limit (VSL) system on a 19-mile segment of Interstate 29 from S.D. Highway 32 (Flandreau) to U.S. Highway 14B at Brookings. This segment, which lies along the Coteau des Prairies, a plateau that sees more wind, snow, and ice, has historically experienced a higher winter crash rate. The VSL system allows SDDOT to adjust posted speed limits in response to changing weather, roadway, and traffic conditions. By providing speed limits that better reflect real-time conditions, the system enhances safety, promotes consistent driver behavior, and improves overall traffic operations during adverse winter weather events.

This VSL deployment is the first of its kind in South Dakota. The system uses cameras and electronic sensors to detect temperature, visibility, wind speed and direction, pavement surface conditions, traffic speeds, and other relevant information SDDOT staff use to establish an appropriate speed limit. The speed limit is displayed in real-time on electronic speed limit signs. Speed limits are reduced as conditions deteriorate and are restored as conditions improve. This system will be replicated on other segments of Interstate highway in South Dakota.

By providing speed limits that better reflect real-time conditions, the system enhances safety, promotes consistent driver behavior, and improves overall traffic operation during adverse weather events. I-29 is a main corridor for regional commuter traffic and for national and international freight traffic. By improving this segment of the Interstate, the regional economy and local communities benefit from safer, more reliable travel to and from their destinations.



Thank you for your continued trust and partnership as we introduce new tools like the VSL system to enhance safety and reliability on our highways. By combining innovation with our team's dedication, we are committed to providing motorists with safer, more consistent travel during winter weather events. We appreciate your support as we work together to ensure everyone arrives safely at their destinations this winter.



Sincerely,

Joel Jundt, Secretary
South Dakota Department of Transportation

SD DEPARTMENT OF TRANSPORTATION



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APPENDIX A: Staffing and Equipment Summary

HMS | Highway Maintenance Supervisor
HMW | Highway Maintenance Worker
LHMW | Lead Highway Maintenance Worker






SECTION 1

INTRODUCTION AND OVERVIEW



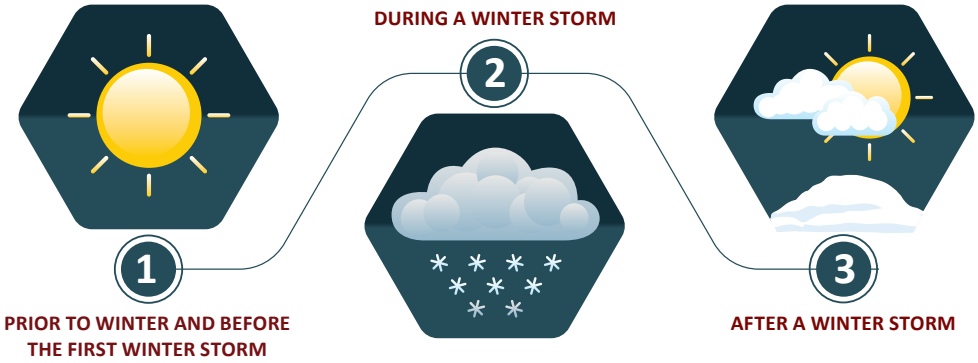
SECTION 1 | INTRODUCTION AND OVERVIEW

Through open plains and rolling hills, from big cities to family farms, the roadways in South Dakota connect us all. When winter arrives each year, the South Dakota Department of Transportation (SDDOT) is responsible for performing maintenance activities on nearly 7,800 miles of roadways. To manage these activities so roads can be as safe as possible for all travelers in South Dakota, the SDDOT and others created this plan which is updated annually. This is the SDDOT Winter Highway Maintenance Plan (WHMP) for 2026-2027.



This plan is divided into three primary phases of time: Prior to Winter and Before the First Winter Storm, During a Winter Storm, and After a Winter Storm. The remainder of this section provides an overview of the plan and definitions for common terms used in all sections.

THREE PRIMARY PHASES



1.1 GOALS AND OBJECTIVES OF THE WHMP

INCREASE SAFETY AND REDUCE RISK

Safety starts with prevention: advisements, closures, and other announcements that are published widely and frequently so travelers can stay off the roads when needed.

When winter events produce hazardous conditions such as blowing snow, drifts, freezing rain, sleet, and ice; trained and skilled personnel use various equipment and materials to mitigate these conditions.

MAINTAIN TRANSPARENCY WITH THE PUBLIC

This WHMP provides a reference for the public on terminology, processes, and other information related to winter highway maintenance activities. Annual costs are tracked and published (for the previous year) in this plan as well.

PROVIDE GENERAL INFORMATION FOR WINTER MAINTENANCE ACTIVITIES

Winter maintenance activities have many moving parts. Data systems, equipment, materials, and people all play major roles; later sections detail each component and its part in the plan.

1.2 DIVISION OF WORK ACROSS THE STATE

At the highest level, SDDOT works in partnership with neighboring states to track weather patterns and events that affect the area. This information-sharing system can give advanced warnings of upcoming events, which helps decision-makers prepare and deploy resources.

Winter conditions, both in general and resulting from events like storms, vary greatly throughout the State. Rather than adopt a "one-size-fits-all" approach, South Dakota is divided into Regions and Areas with dedicated individuals and teams responsible for the local decisions and activities.

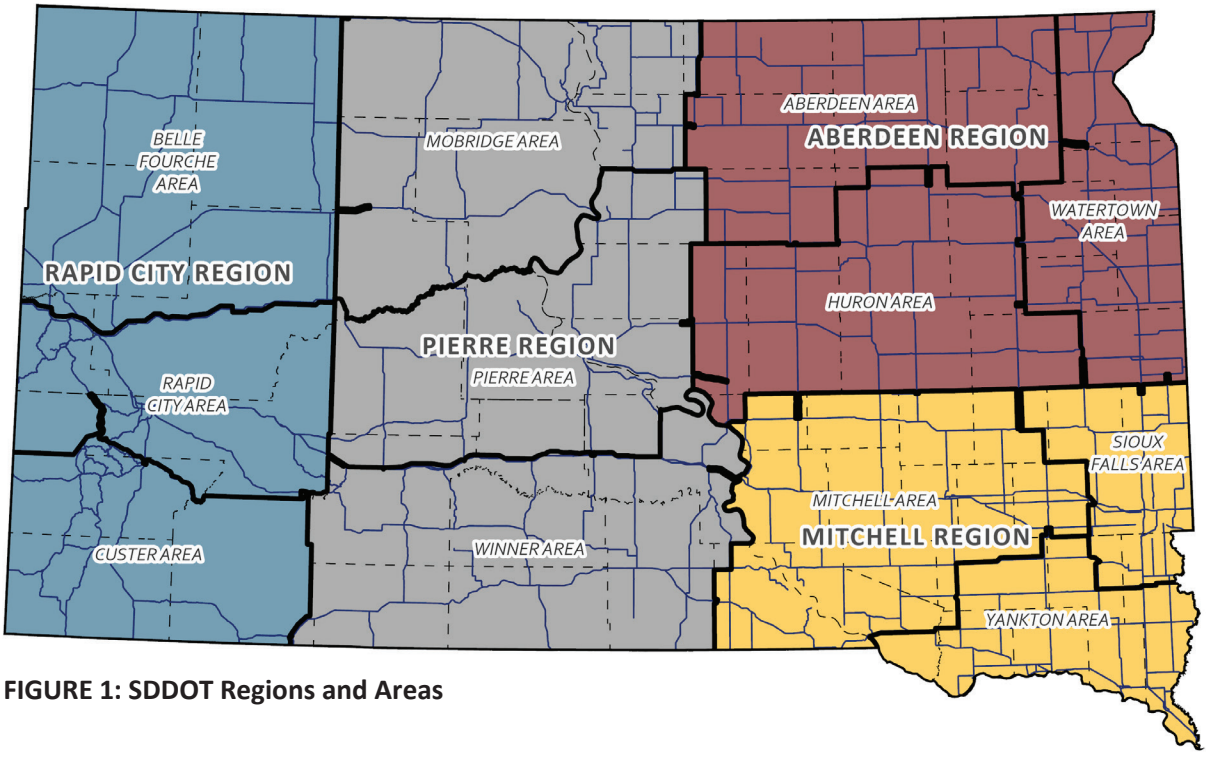


FIGURE 1: SDDOT Regions and Areas

The largest sections are the four primary Regions, each of which has an appointed Region Engineer: Rapid City, Pierre, Aberdeen, and Mitchell. Each Region is subdivided into three Areas (twelve Areas statewide), each with an assigned Area Engineer. Each Area has a variety of routes to address based on priority. Refer to *Figure 1 on page 5,* above, for SDDOT Regions and their respective Areas.



1.3 Winter Operations Coordination, Communication, and Collaboration

ENSURE SEAMLESS COORDINATION AMONG SDDOT TEAMS AND PARTNER AGENCIES BEFORE AND DURING WINTER EVENTS

Preparing for winter maintenance operations across South Dakota requires consistent and intentional coordination among SDDOT staff, other state agencies, local governments, emergency responders, and neighboring states. Throughout the fall and early winter, SDDOT conducts or participates in regional internal and external coordination meetings designed to align expectations, share operational plans, establish clear lines of communication, and ensure the department and its partners are prepared before winter weather arrives.

Coordination begins internally with discussions among SDDOT leadership, region and area engineers, maintenance supervisors, and staff responsible for materials, equipment, staffing, traffic operations, communications, and winter weather monitoring. These discussions ensure maintenance areas across the state are prepared with appropriate staffing, equipment, materials, operational expectations, and knowledge of applicable policies and procedures. Communication between the central office, regions, and area offices also provides an opportunity to identify potential gaps, resource constraints, and operational concerns early so they can be addressed before conditions deteriorate.

SDDOT also conducts structured coordination with key external stakeholders. These engagements promote statewide awareness of winter operations and help ensure that partner agencies understand SDDOT's winter maintenance strategies, capabilities, limitations, and communication protocols. Regular coordination includes:

- Tribal and Local Governments
- Law Enforcement Agencies
- Emergency Management Agencies
- Neighboring States

Typical meeting agendas include updates on the Winter Highway Maintenance Plan, winter outlook from the National Weather Service, emergency response, exchange of contact information, areas of responsibility for all key stakeholders, towing company discussions, updates from Highway Patrol and local law enforcement, opportunities for improvement from past years, and updates from the Office of Emergency Management.

As winter progresses, communication with these stakeholders continues through regular updates, situational briefings, storm-specific coordination calls, and direct communication as conditions warrant. SDDOT also uses available weather forecasting, road condition, traffic, and roadway monitoring information to support operational decisions and communicate changing conditions to both internal staff and external partners.

This statewide approach to coordination and collaboration supports safer travel for the public, improves the efficiency and effectiveness of winter maintenance operations, and ensures SDDOT and its partners are prepared to respond collectively when significant winter weather impacts South Dakota's transportation system.



1.4 DEFINITIONS

ROUTE CLASSIFICATION AND PRIORITIZATION

Interstates are a category of their own, and all other routes in SDDOT's care are sorted by traffic volumes. High traffic areas are referred to as Priority Routes, and lower traffic areas are Non-Priority Routes. These designations help prioritize services and maximize the effective area of service crews, but other factors may affect the order in which routes receive service. *Figure 2 on page 9* shows Priority and Non-Priority Routes.

INTERSTATE AND PRIORITY ROUTES

During a winter weather event, Interstate and Priority Routes are serviced approximately every two (2) hours for the duration of the event during established working hours. The goal during the event is to clear as much snow and ice as practical for the conditions to allow safer travel.

After the event, crews work to clear 80% of the surface of snow and ice within this performance goal's time frame of 18 hours. Note that post-storm issues such as thaw-stick-drift can cause roads to deteriorate again within this time-frame goal.

DEFINED

PRIORITY ROUTES: 1,000 or more vehicles per day. *Winter conditions are serviced approximately every two (2) hours.*

NON-PRIORITY ROUTES: Fewer than 1,000 vehicles per day and routes with sections that have dead ends at some point beyond a municipality. Sections parallel to, and nearby another section already designated a Priority Route, may also categorize as Non-Priority. *Surfaces are serviced approximately every four (4) hours, as equipment and staff are available.*

NON-PRIORITY ROUTES

During events, Non-Priority Routes are serviced approximately every two (2) to three (3) hours as resources permit. Although the level of service standard identifies a four (4) hour service interval, actual service times are often shorter but remain dependent on available equipment, staffing, and the specific conditions of the event. The goal during the event is to clear as much snow and ice as practical for the conditions to allow safer travel. When possible, service for Non-Priority Routes takes place during normal daytime work hours. After the event, crews work to clear 80% of the surface of snow and ice within 36 hours.



During severe storms or when trucks or drivers are not available to service all routes, service may concentrate on roads with higher traffic volumes. However, field supervisors may assign trucks to problem areas regardless of classification. For example, a non-priority road might be in danger of becoming impassable while a priority route is providing adequate service. The trucks assigned to the priority route can be temporarily assigned to the non-priority route to relieve the problem.

Clean-up includes plowing and spot use of materials to remove all snow and ice from the driving surface. This work also includes plowing back shoulders, crossovers and approaches, cleaning and opening frozen drains, and equipment clean-up.

LEVEL OF SERVICE

Level of Service (LOS) refers to operational guidelines that establish assigned maintenance activities associated with each highway. LOS generally establishes target conditions for service crews to attain during and after winter weather events. LOS results from an analysis of multiple factors such as:

- Agency snow and ice control policy
- Road classifications
- Traffic data
- Maintenance coverage time periods defined for various operations, including clean-up operations
- Equipment types and amounts
- Location of facilities
- Personnel rules and regulations
- Materials used
- Special circumstances and conditions



SDDOT's interest in practicality and economics has established intermediate objectives. The intermediate objectives are defined by road classification and describe target conditions for services. Refer to *Table 1 on page 8 and Figure 2 on page 9,* below, for the LOS of Priority and Non-Priority Routes.

TABLE 1: Level of Service for Priority and Non-Priority Routes

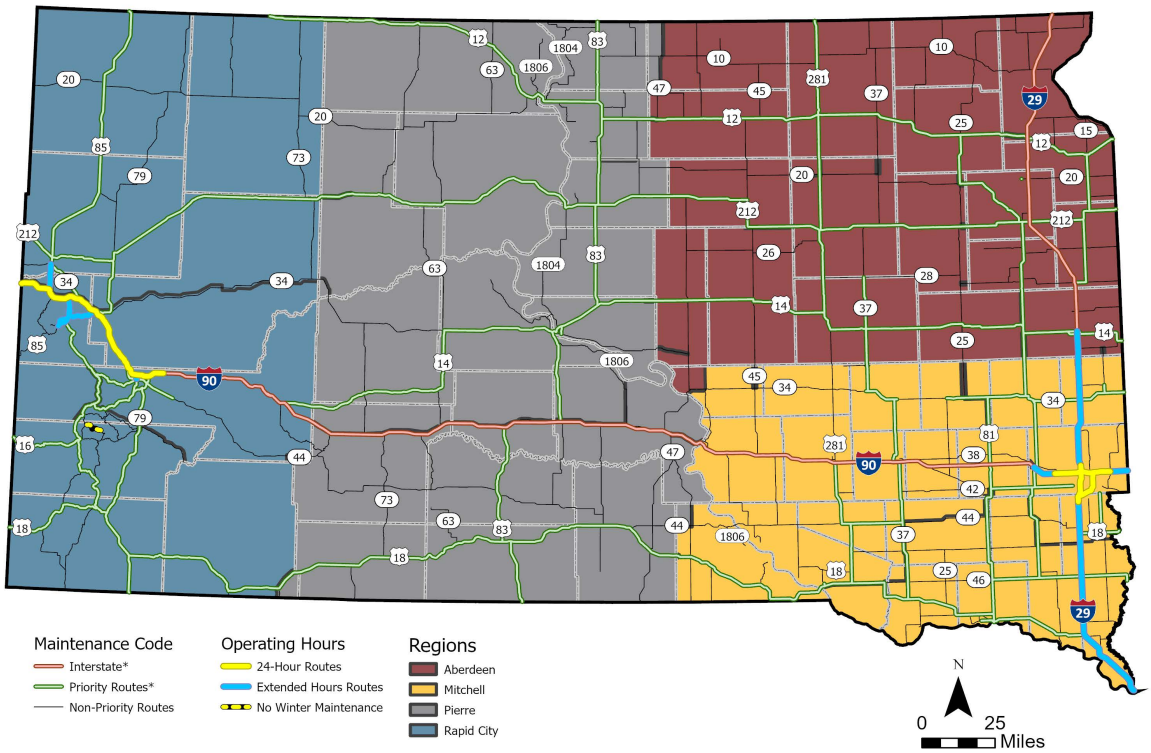
CLASSIFICATION	COVERAGE TIMES DURING HOURS OF OPERATION*	DESIRED PAVEMENT CONDITION DURING EVENT**	DESIRED PAVEMENT CONDITION AFTER EVENT**
Priority Routes Include Interstate	Once every 2 hours	Maintain safe passage when practical	Driving Surface is 80% clear of snow and ice within 18 hours
Non-Priority Routes	Once every 4 hours	Maintain safe passage when practical	Driving Surface is 80% clear of snow and ice within 36 hours
Shoulders, Low Volume Roads, Local Intersection, etc.	Minimal coverage as necessary to prevent drifting onto driving lanes, etc.	Minimal coverage as necessary to prevent drifting on to driving lanes, etc.	Begin clearing these areas as soon as practical for safe passage.

Note: Interstates and priority routes are given first attention when weather conditions become severe and/or equipment availability becomes limited.

* Coverage times are goals. Actual times may vary. When conditions allow, crews attempt to make one round of coverage on all routes near the beginning of a shift. Coverage times specified in the table are intended to be subsequent coverage times. Roads with lower traffic volumes may be plowed less frequently during a storm event if priority routes take precedent.

** Pavement conditions are goals. Actual pavement conditions may vary.

Figure 2: Winter Maintenance Routes



*Interstate and Priority Routes receive the same level of service.

NORMAL WINTER MAINTENANCE HOURS

During a storm and when conditions allow, plows operate from 5 a.m. to 7 p.m. To ensure safe travel during peak periods, routine extended-hours winter maintenance is provided on key high-traffic corridors in and around Sioux Falls and Rapid City. Extended coverage is based on staff availability and may be reduced at the discretion of the Highway Maintenance Supervisor.



Operations between 7 p.m. and 5 a.m. are at the discretion of the Highway Maintenance Supervisor or their designee. When highway and traffic conditions warrant, operations may continue after 7 p.m. if progress can be made and staffing is available. SDDOT snowplows make rounds provided conditions are safe. At the discretion of the Highway Maintenance Supervisor, operations may be suspended if conditions become (or may become) too hazardous for continued operation. State radio is notified, and SD511 reports Winter Maintenance Suspended for affected roadways.

ROAD CONDITION REPORTING

Road conditions are updated a minimum of three times a day Monday through Friday: before 7 a.m., between 11 a.m. and 1 p.m., and between 4 p.m. and 7 p.m. Road conditions on Saturday, Sunday, and holidays are updated twice a day: before 9 a.m. and between 4 p.m. and 7 p.m. These times were selected to be ahead of peak traffic periods.

During a winter weather event, road conditions are reported as conditions change in addition to the standard reporting times. All times are Central Daylight or Standard, as applicable.

Road conditions are updated after the initial morning round of maintenance. Weather conditions and events may require more frequent updates. As road and weather conditions change, the Road Management System (RMS) is updated with the current conditions. At least one person in each unit is assigned to report weekend road conditions. The RMS is a database where road condition information is stored. Information from this system is used to update SD511. Additional personnel may be assigned if necessary due to the geographic size of the unit, forecasted weather conditions, or other factors.

LEVELS OF TRAVEL ADVISEMENT

SDDOT uses different levels of travel advisories to communicate road conditions and help travelers make informed decisions. Interstates can be closed with physical barriers to prevent travel. Other road types cannot be closed. SD511 can show the following advisories:



ROAD IMPASSABLE

Travel on the road segment is physically impossible, typically due to widespread deep snow and drifts. No Travel Advised will not be used in combination with this designation.

NO TRAVEL ADVISED

Road and weather conditions are unavoidably hazardous and/or impassable. Poor visibility, drifts, blowing snow, ice, and other hazards overwhelm the route. Maintenance activities resume when practical. The No Travel Advised is lifted when conditions are restored to an acceptable Level of Service.

ROAD BLOCKED

Travel is impossible due to the roadway being physically blocked. This advisement is used mainly to warn thru-traffic that the road is not passable. Local traffic, however, may still be able to use the roadway on either side of the blockage. No Travel Advised can be used in conjunction with this advisory.

MAINTENANCE SUSPENDED

Plows have temporarily halted operations for the route. Road and weather conditions are likely as hazardous (or worse) than No Travel Advised conditions, however No Travel Advised can be used in conjunction with this advisory. Maintenance may be suspended when the route is unreachable (due to connecting route closures or dangerous conditions). Maintenance may also be suspended if equipment and/or plow crew availability is limited.

INCLEMENT WEATHER CLOSURE

Winter weather events produce imminently hazardous conditions at a faster rate than plow crews can remove. Per SDCL 31-4-14.3, travelers driving on a closed stretch of Interstate or Highway could face a $1,000 civil penalty. Motorists requiring rescue could also face fees of up to $10,000 for their recovery and are also subject to criminal penalties of up to 30 days in jail and a $500 fine. When an Enforced Road Closure is in place, all weather and road conditions on the RMS and SD511 should be deleted except Winter Maintenance Suspended. Law enforcement may establish small, more localized road closures on any route due to crashes or any other reason which may be a potential hazard to motorists.



WEATHER CONDITIONS IN SOUTH DAKOTA

South Dakota's diverse climate and topography create different scenarios for highway maintenance: the Black Hills area typically receives the most snow, whereas the open plains of Eastern South Dakota tend to experience more high winds and blowing snow. The following section provides details on each Region and the winter weather conditions they experience. *Figure 3 on page 11* shows the average snowfall in South Dakota.

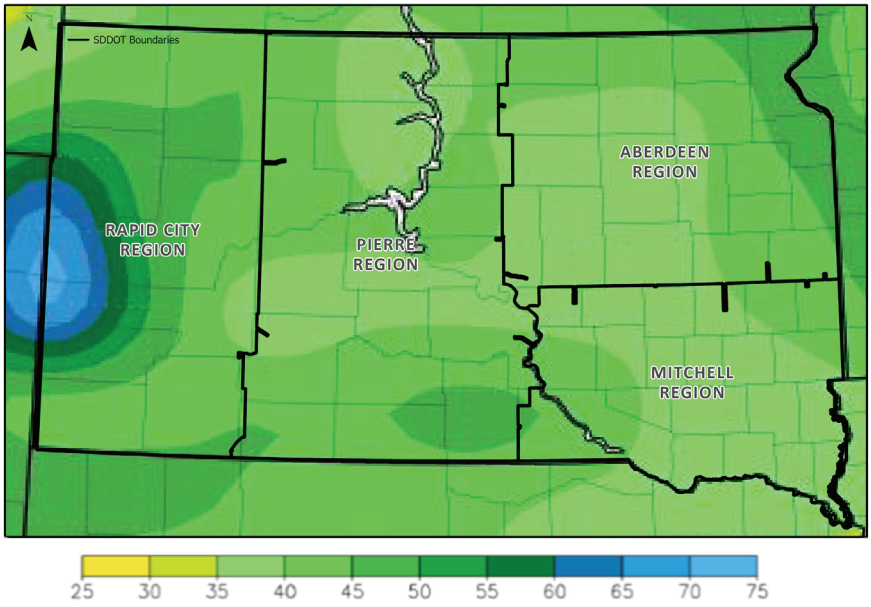


Figure 3 Annual Average Snowfall (in): January 1 to December 31
Averaged over 40 Years: 1980 - 2020

RAPID CITY REGION

The Rapid City Region contains the Black Hills and High Plains. High elevations can contribute to drastic variations in winter conditions across the area. In some cases, severe winter weather events can remain localized to the Black Hills with little to no effect on surrounding areas. For example, it may snow in the central Black Hills while, at the same time, there is rain in Rapid City and further out onto the plains. Winter conditions typically start earlier and stay later in this Region compared to the rest of the State. The northern Black Hills area (e.g. Lead, Deadwood, Spearfish) typically receives the most regular and frequent snowfall and the most snowfall by volume for this Region. The roads are usually warmer than their surroundings which results in wet/freezing roads that accumulate drifts on the side. Heavy snowfall, wet and freezing roads, and regular wind produce conditions that often require crews perform daily maintenance for weeks at a time. Deicing chemicals may be used in higher volumes for this area.

PIERRE REGION

The Pierre Region is home to open, rolling grasslands with few windbreaks. Blowing wind and snow are common throughout the region, and they create visibility issues for travelers and road maintenance crews alike. The southern part of the Pierre Region is generally warmer than the rest, so it receives heavier, wetter snow.

ABERDEEN REGION

The Aberdeen Region is the coldest of the four Regions. During winter, these typically low temperatures reduce the amount of melting snow. Though it melts less, high winds and few windbreaks allow snow in this region to accumulate and blow around most of the winter. Plowing and sanding are the primary methods of winter road maintenance, as the consistently low temperatures make deicing chemical treatments less effective.

MITCHELL REGION

Storms in South Dakota typically advance from west to east, which allows the Mitchell Region an opportunity to monitor the storm's impact on other regions and plan accordingly. The southern part of the Region usually has less snow than the north. This region is primarily rolling plains, though the steep hills in Chamberlain and the I-90 bridge crossing the Missouri River can produce thick layers of ice.



1.5 BUDGET

FISCAL YEAR 2027

DESCRIPTION	BUDGETED AMOUNT DOT FORCES
Snow and Ice Control	$24,537,339.00
Contract Snow Removal	$39,000.00
TOTAL	$24,576,339.00

FISCAL YEAR 2026

DESCRIPTION	BUDGETED AMOUNT DOT FORCES	ACTUAL USED AMOUNT
Snow and Ice Control	$27,818,232.00	$14,283,994.50
Contract Snow Removal	$39,000.00	$35,030.00
TOTAL	$27,857,232.00	$14,319,024.50








SECTION 2

PERSONNEL, EQUIPMENT, TECHNOLOGY, AND POLICY



SECTION 2 | PERSONNEL, EQUIPMENT, TECHNOLOGY, AND POLICY

SDDOT uses a complex system of specialized equipment, technology, and personnel specifically trained for winter maintenance. Additionally, some facets of winter highway maintenance are dictated in State codified law. All components work together to create an efficient winter maintenance workflow. Each day of the winter season brings the potential for a radical shift in weather and road conditions. To address changes effectively and efficiently as they come, SDDOT uses a variety of technologies to gather data, inform travelers, and manage equipment. This technology allows SDDOT to deploy staff and resources with precision to service affected routes, update the public on conditions so they can make safe travel decisions, and keep all equipment in top condition with routine inspections and maintenance. SDDOT also provides all personnel with appropriate training to safely handle winter working conditions.

2.1 PERSONNEL AND STAKEHOLDERS

SDDOT personnel includes Region and Area Engineers, Operations, Communications Team, Maintenance Workers, Intelligent Transportation Systems (ITS) Office, and Research Office. Additionally, the stakeholders include the Transportation Commission, Highway Patrol, and Office of Emergency Management (OEM). The Transportation Commission is responsible for review and approval of the Winter Highway Maintenance Plan (WHMP).

HIGHWAY MAINTENANCE WORKER REQUIREMENTS AND STANDARDS

The following sections outline requirements and standards for training and employment for an SDDOT maintenance worker. For current job postings for highway maintenance workers, please visit the South Dakota Bureau of Human Resources and Administration (BHRA) website: https://bhr.sd.gov/job-seekers/



COMMERCIAL DRIVER'S LICENSE (CDL)

SDDOT requires specified classifications possess a Class A Commercial Driver's License (CDL) valid in the State of South Dakota. A CDL is a prerequisite for operating SDDOT commercial-grade equipment. Maintenance workers must have a valid CDL at the start of employment or obtain a valid CDL. Inability to obtain or maintain a valid CDL will result in termination.

Federal law mandates all employees required to maintain a CDL to perform their job duties must be subject to drug and alcohol testing. Refer to the State Policy on CDL Drug and Alcohol Testing Handbook for specific information on the program. This handbook is available through the SDDOT Human Resource Office.

TRAINING MATERIALS

The SDDOT provides various training and reference materials for onboarding and ongoing training. The videos range from how to drive the snowplows to running the electronic equipment in the trucks (MDCs, plows, wings, tow plows, etc.) to provide the most effective and efficient ways to clear roads. These training videos are available on SDLearn. A copy of the most recent WHMP is included within the training materials.



DRUG-FREE WORKPLACE POLICY

The State of South Dakota has a drug-free workplace policy for all State employees. As a condition of employment with the State, employees must agree to the terms of this policy. Drug use poses several hazards for the user and for the user's friends, family, and coworkers. Those under the influence of drugs in the workplace are more likely to cause accidents and injuries, have reduced attendance and productivity, contribute to increased health care costs, and harm public confidence in the State.

The policy prohibits the unlawful manufacture, dispensation, possession, or use of a controlled substance by an employee in the workplace. If an employee is convicted of a violation of a criminal drug law or admits in court to a criminal drug law violation, the employee will be subject to appropriate disciplinary action, which includes termination. Employees must comply with the State of South Dakota's Arrest Policy, which requires employees to immediately inform their supervisor if they are arrested, charged, or believe they may be charged with any crime involving illegal drugs.



CRASHES

Crashes are caused by unsafe acts and unsafe conditions or a combination of both. Investigation, analysis, and interpretation of the facts surrounding crashes are used to help prevent similar crashes from happening again. Crashes in which damage is caused to or by an SDDOT-owned vehicle is reported by using the State Vehicle Accident Report Form or a Report of Accident, Incident, or Unsafe Condition Report Form, if used for unlicensed equipment that is not covered under State Vehicle Accidents. The employee and the employee's supervisor will sign and date the form.



Reports are to be filled out accurately, completely, and with as much information as possible within the shift that the accident occurred. Forms must be signed by the involved employee and the supervisor.

State employees using rental vehicles on official State business are covered by Public Entity Pool for Liability (PEPL); however, this coverage is not in effect should the use of the rental car be extended for personal reasons. Form DOT-307 is used for accidents where SDDOT equipment or tools (not vehicles) are involved.

Employer's First Report of Injury Form is used for personal injury accidents in which any bodily injury is inflicted on an SDDOT employee in the course of their employment. Report of Accident, Incident, or Unsafe Condition (Non-Automobile) Form is used to report an accident, injury, or loss to any person, in which there is a possibility that an employee of SDDOT may be connected in any way. Forms can be obtained from SDDOT supervisors or the Human Resource Office. Need to report an injury or incident? Please call: 888-585-5075.

Employees in safety-sensitive positions or who are operating equipment that requires a CDL will refer to the Post-Accident Testing protocol as outlined in the SDDOT Alcohol and Drug Use Policy and notify their supervisor about the accident. A post-accident test is required if:

- The accident involves a fatality.
- The SDDOT driver receives a citation, or is likely to receive a citation for a moving violation arising from the accident. In addition to the citation, the accident must also involve one of the following to require testing:



DID YOU KNOW?

Federal drug testing laws require tests to be conducted after certain accidents where an employee is operating a commercial motor vehicle.

- Bodily injury resulted where someone receives medical treatment away from the scene of the accident; or
- Any vehicle involved in the accident is damaged to the point of requiring towing.

Refer to the State Policy on CDL Drug and Alcohol Testing Handbook for specific information on the program. This handbook is available through the SDDOT Human Resource Office.

CIRCUMSTANCES THAT CAUSE STAFFING UNCERTAINTY

At times staffing becomes a challenge due to ill employees, employees on planned vacations, or vacant positions. The Department has identified strategies to address these concerns. Before any of the following solutions are deployed, approval from the Secretary of Transportation and Director of Operations is needed. Each SDDOT Region coordinates Highway Maintenance Worker assignments. Area Engineers or their designees evaluate their staffing needs. SDDOT Areas occasionally augment maintenance staff for specific winter events. Highway Maintenance Workers from other Areas may be assigned to plow snow and perform other related duties. SDDOT also hires seasonal and reserve operators to supplement the work force when necessary.

The following notes the actions that were taken and could potentially be taken in the event of a similar situation:

- Continuity of Operation Incentive Payment: A one-time payment to encourage volunteers to relocate to fill roles in another shop or location.
- Advanced Travel Expenses: A process is in place to provide timely reimbursement for travel expenses.
- CDL Driver List: Each Region maintains a list of employees with CDLs that are not snowplow operators but could be used if the situation would arise.
- Temporary Positions: Continue to incentivize filling seasonal and reserve winter plow operators, to include adding additional staff when available.
- Advanced approval for lodging near home station to ensure operator availability the following day.

2.2 EQUIPMENT AND MATERIALS

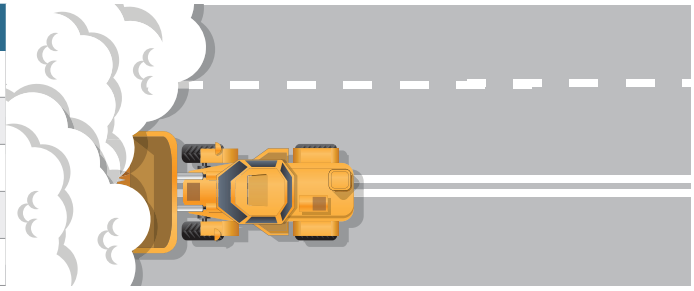
A variety of mobile snow and ice control equipment is used on a routine basis. The most common types are trucks, plows (front mount, wing, under-body, and tow), sanders, front-end loaders, and anti-icing systems.

Equipment is selected for scenarios based on the conditions and range of work needed. Specific to winter highway maintenance, the equipment is modular and designed for snow and ice control operations as the primary function. The modularity allows attachments to be swapped and added as needed and can also allow the equipment to be repurposed for other needs. By choosing multipurpose equipment appropriately, SDDOT can optimize its equipment budget.

The use of attachments increases equipment versatility. Front plows, “V” plows, wing plows, under-body plows, and tow plows can be attached to trucks. Sanders and deicing tanks can be attached to truck beds. Effective use of attachments can be achieved through uniformity and ease of the attachment system from vehicle to vehicle. Refer to *Table 2 on page 17,* for an inventory of the types and amount of equipment.

TABLE 2: Equipment Types and Number of Units

EQUIPMENT	NO. OF UNITS
Full-time Snowplows	397
Road Graders with V-Plows	21
Snow Blowers	110
Tow Plows	26
Spare Snowplows	49



The tow plows are a 36-foot trailer, equipped with either a 250-gallon liquid deicer tank and an 8-cubic yard hopper sander, or two (2) 1,000-gallon liquid deicer tanks. The setup is decided during equipment ordering. The tow plow can deploy either to the left or the right to do a wider sweep (centerline to shoulder) of the road than a typical plow truck can make alone. The tow plows are stationed on the Interstate highways and four-lane expressway roads where they can be the most efficient. Please refer to *Figure 4 on page 17,* for locations of shops with tow plows and tow plow routes.

Occasionally, SDDOT equipment resources are not sufficient to adequately perform snow and ice removal activities. To supplement SDDOT resources, equipment may be rented (*refer to the DOT 128 Equipment Lease Form and DOT 128 Instructions documents)*.

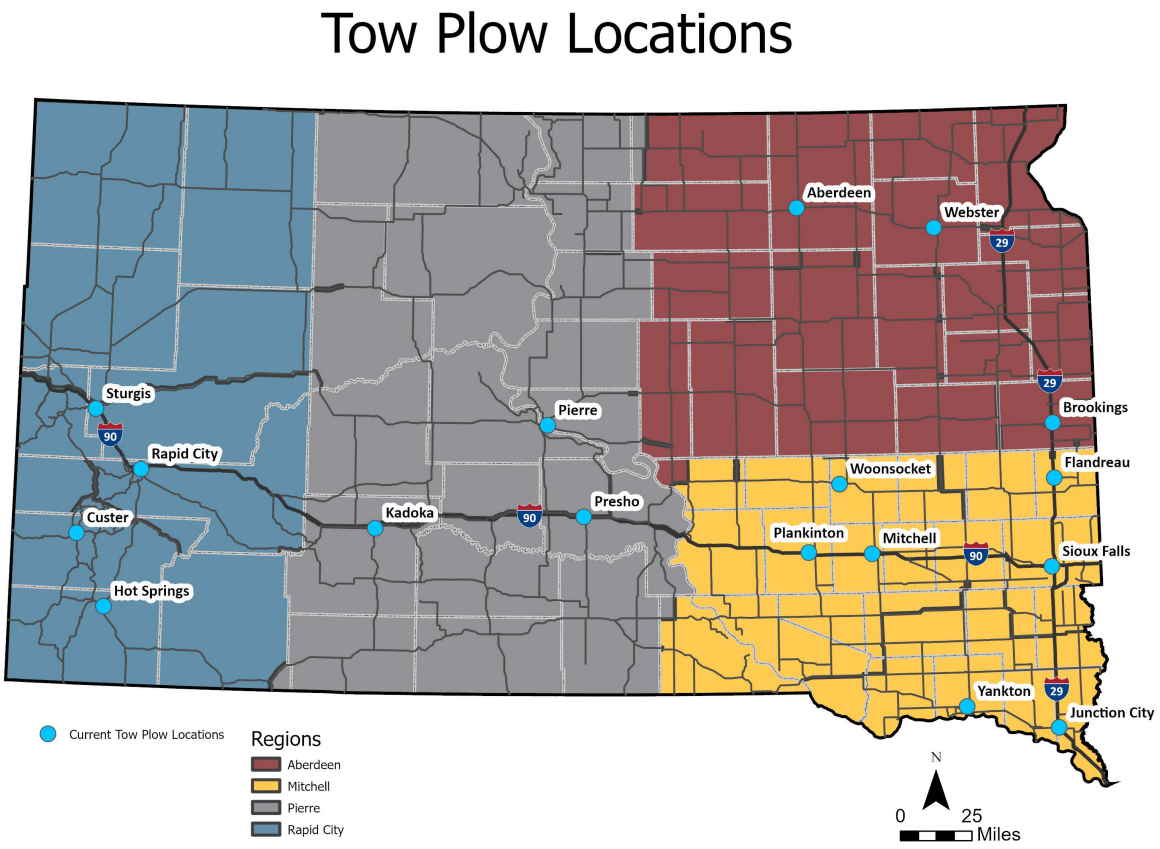


FIGURE 4: Tow Plow Locations and Routes



Tow Plow

MAINTENANCE OF SNOW AND ICE EQUIPMENT

During the winter season, maintaining snow and ice removal equipment is given the highest priority. This section provides an overview of the maintenance activities that the SDDOT Highway Maintenance Workers complete.

EQUIPMENT MANAGEMENT SYSTEM

Preventive maintenance is essential to the reliable performance of snow and ice removal equipment. As a support system for equipment maintenance, the SDDOT uses the Maintenance and Equipment Management System (MEMS). This system contains detailed records on all SDDOT fleet equipment and tracks all usage and maintenance costs associated with the equipment. One of its most important components is automated preventive maintenance scheduling. Operations Support uses this tool to track age, condition, cost of maintenance, and maintenance needs of SDDOT's equipment fleet.

PREVENTIVE MAINTENANCE

Preventive maintenance (PM) is essential to the reliable performance of snow and ice removal equipment. As a support system for equipment maintenance, the SDDOT uses MEMS which contains detailed records on all SDDOT fleet equipment and tracks all usage and maintenance costs associated with the equipment. One of its most important components is automated preventive maintenance scheduling.

MEMS contains PM schedules for all vehicles and many other types of equipment. When a previously determined interval is reached, MEMS can be used to generate a report for the PM to be performed. The scheduled PM activities are most often based on usage intervals such as miles or hours of use. The hour and mileage readings are entered into MEMS from the operator's time-sheet. This is automatically done twice a month. In addition, the scheduled PM activities may be based on the number of days since the last PM, or on the amount of fuel used.

The PM on a piece of equipment is the responsibility of the Maintenance Supervisor, Lead Worker, or their designee that the equipment is assigned to. The assigned driver/location will be aware of an approaching PM and schedule it accordingly. The PM will be performed at the shop that is responsible for the equipment's maintenance. If PM is not performed, a notice is given to the appropriate personnel to schedule it. The PM must be scheduled within five (5) working days of the notice.

MAINTENANCE OF EQUIPMENT

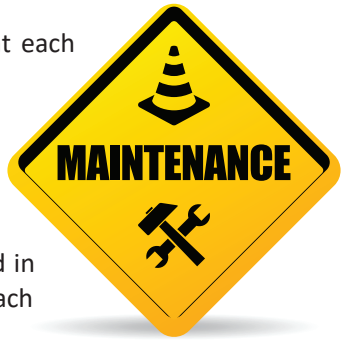
The Maintenance Supervisor, Lead Worker, or Operator is responsible for equipment repairs. The Maintenance Supervisor, Lead Worker, or Operator is responsible for working with the Shop Foreman to get the needed repairs. The Shop Foreman, Maintenance Supervisor, Lead Worker, or Operator is responsible for deeming a piece of equipment as "temporarily out of service."

ASSIGNMENT OF EQUIPMENT

If possible, each person is assigned to one vehicle. This person is responsible for reporting all maintenance needs and for keeping the equipment clean. Any person operating that piece of equipment will complete an inspection before use. The Maintenance Supervisor and Lead Worker are responsible for verifying reported maintenance needs are performed and equipment is in good working order.

EQUIPMENT INSPECTION

Prior to winter, Region/Area personnel will inspect the equipment to ensure it is properly repaired and ready for use. Repairs will be scheduled for defects found during an inspection. The inspection covers cosmetic items, engine and hydraulic operation, safety equipment in the vehicles, and completion of DOT Form 825 Pre/Post Season Equipment checklist.



To ensure consistency, each Region has a team to travel and inspect the same items at each Area. The inspection includes but is not limited to, dump trucks, snowplows, sanders, loaders, and conveyors, liquid distribution systems, liquid storage systems, temperature sensors, and Maintenance Data Collector (MDC). Equipment not ready for snow and ice operations will be removed from service until it has been repaired. Unsafe equipment will not be used.

Prior to any SDDOT snowplow leaving the shop, a pre-trip inspection must be performed in accordance with the SDDOT Safety Manual. The SDDOT Safety Manual is provided to each SDDOT Highway Maintenance Worker. Equipment preventive maintenance can help ensure vehicles perform optimally and contribute to the equipment's sustained durability. Employees are to report any problems to the Maintenance Supervisor.

Maintenance Supervisors inform the Lead Workers or their designee of impending weather. The work crews perform an initial equipment check prior to precipitation. Checking fuel levels and reserve stores for refueling during the storm event are vital precautions. After a storm, employees will unload as much material as possible back on the material stockpile, crews will track amount of materials put back into inventory to ensure accurate inventories at year-end. The first available lull in snow activity is the time for more thorough cleaning. If the vehicles cannot be cleaned on-site, it is advisable to schedule cleaning and repairs at the same time. This allows the mechanics to work on clean equipment and produce a faster turnaround time for reuse of the vehicle during a storm event. This reduces the need for a piece of equipment to travel to and from the assigned location several times. The Maintenance Supervisor and Lead Worker are to be notified by the truck driver of any equipment needing service so that it can be scheduled for repair.

POST-SEASON ISSUES

Per the DOT 825 Pre/Post inspection form it is important after the winter season to inspect and repair the snow and ice removal equipment and then store the equipment properly. This inspection identifies required cleaning and maintenance; required work will be completed prior to storage. All equipment will be thoroughly cleaned to remove all deposits of salt and sand. Special care will be taken to clean salt from lights and other electrical parts, brakes, and all hydraulic couplings. Storage beds and plows will be removed and properly stored. Chains and sprockets will be lubricated. Make sure all ends of hydraulic hoses are covered. Sanders will be greased as needed. All material handling equipment, including liquid pumps, storage tanks, sander chains and boxes, conveyors, beds, and plows will be periodically maintained during the off-season as needed.

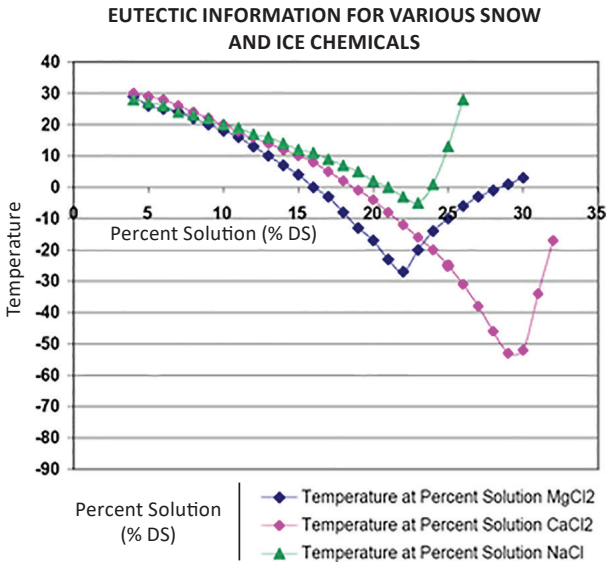
☐ SNOW AND ICE CONTROL MATERIALS

A variety of materials are used by SDDOT for winter operations. Salt, chemicals, and abrasives may be used individually or in combination given specific weather and road conditions. This section provides an overview of storage, handling, budget, and inventory of materials.

There are two methods used to treat winter roadways: anti-icing and deicing. Anti-icing consists of applying chemical material to pavement prior to a storm or at the beginning of a storm with the goal of reducing the bonding of ice to pavement. Deicing is treating the roadway with plowing and abrasive/chemical application during and after a storm. The total material cost includes labor, material cost, water cost, and other expenses. Materials used with each method along with their quantity and cost are detailed in *Table 3 on page 21*.

PERFORMANCE OF SNOW AND ICE TREATMENT CHEMICALS

Performance of snow and ice treatment chemicals depends primarily on two factors: concentration of treatment chemical and temperature. Chemicals have a eutectic temperature. This is the lowest temperature a chemical can be effective. The concentration of the chemical at this eutectic temperature is called the eutectic composition. After this eutectic composition is reached, adding additional chemicals may cause the freezing point to increase thereby decreasing the performance of the chemical. This is why chemicals no longer work when winter temperatures are very low. See *Graph 1 on page 20*, for details on this data for different types of ice treatment chemicals.



GRAPH 1

ANTI-ICING

Anti-icing is the proactive effort to prevent the bonding of snow and ice to the pavement by timely placing chemicals prior to a storm or before frost conditions. Less chemical is needed to prevent ice from forming than to melt it, and less plowing is required to remove ice and snow that has not bonded to the pavement. Anti-icing requires about one-fifth the amount of chemicals in comparison to deicing operations. The potential benefits of anti-icing are based on economics (efficient use of materials and operators) and quality of service (motorist convenience and safety). However, conditions in South Dakota are not always conducive to an anti-icing strategy.

The application of a chemical freezing-point depressant on a highway or bridge prior to, or quickly after, the start of frozen precipitation minimizes the formation of a strong ice-pavement bond. Salt brine and magnesium chloride can only be used when the dew point is greater than two (2) degrees or more above the pavement temperature. These salt-based liquids can pull moisture out of the air creating slippery conditions that may otherwise not have existed. Anti-icing materials can also prematurely degrade pavement and bridges. Salt brine and magnesium chloride brine are the two most used substances for anti-icing, but other agriculturally based products have also been applied and are being tested with the SDDOT. Byproducts from corn and sugar beet production work well in anti-icing applications. Ten to 20 percent of the raw product is blended with sodium chloride lowering their freeze points. The latest generation of agricultural products is chloride-free. To date, there is little knowledge of these. They appear to have promise if they are competitively priced and readily available. South Dakota has tested agriculturally based products as an additive to salt brine for their benefits to snow removal efforts. These additives have helped with lower road temperatures where typical salt brine freeze point is higher.



Anti-icing is not always useful in South Dakota. Weather conditions change sporadically; putting down anti-icing material for forecasted ice and snow that never comes can waste material and increase costs. Anti-icing liquids can also pull moisture from the air if the dew point is too close to the pavement temperature creating slippery conditions.



TABLE 3: Anti-Icing and Deicing Materials

MATERIAL	USAGE 2025-2026	ANNUAL COST
Sodium Chloride (salt) Brine	1,533,391 gallons	$334,327.44
Magnesium Chloride (MgCl2)	121,849 gallons	$191,223.70
Sodium Chloride (salt)	40,964 tons	$3,331,408.18
Modified Sodium Chloride Brine	12,268 gallons	$38,590.96
Abrasives (Sand)	1,555 tons	$65,652.49

The SDDOT financial system takes into account man hours, material cost, water cost, and other expenses to provide total material cost.

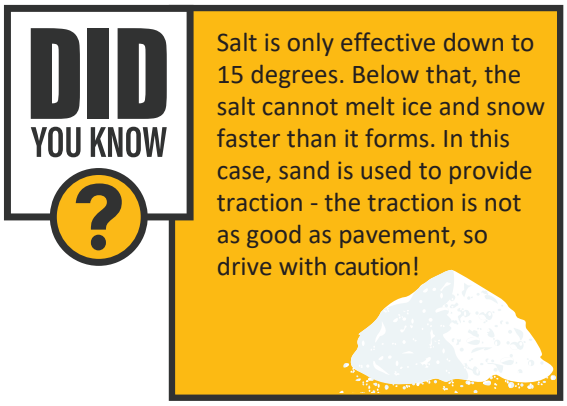
DEICING

The application of a freezing point depressant on a highway to break an existing snow/ice bond to the pavement is called deicing. Operations typically consist of plowing and treating the highway with chemicals, abrasives, or both. Deicing is a reactive strategy, and therefore, can be costlier than an anti-icing strategy. Winter in South Dakota often dictates a deicing strategy over an anti-icing strategy.

A variety of products are available to be used for deicing. SDDOT generally uses sodium chloride, enhanced sodium chloride, or abrasive/sodium chloride mixes for deicing. Material selection is based on the goal of the intended application, current road conditions, temperature, and forecast.

Sodium Chloride

South Dakota most frequently uses sodium chloride (NaCl) or salt. Rock salt works well down to about 15°F. To break the snow/ice bond with the pavement, the material must first dissolve into solution and then penetrate the snow and ice pack. Given this information, the application rate varies dramatically depending on how much snowpack is on the pavement; as the pack melts, the solution is diluted (commonly called "DOS" or "Dilution of Solution"). Additional material must be applied to maintain optimum concentration at the given temperature and prevent re-freezing. Once a bond has formed and the temperature falls, the amount of chemicals required to break the bond increases.



Magnesium Chloride

Liquid magnesium chloride ($MgCL_2$) deicer is used to pre-wet dry products, like rock salt and sand, to improve performance. The added moisture when sprayed on dry material has several benefits including less material used with similar performance. Moist salt sits on the surface rather than being scattered by traffic saving material cost and benefiting the surrounding environment with less material on the shoulder of the road. The liquid magnesium activates the brining process of the salt, providing a spike in temperature, which improves the performance. Magnesium chloride provides very low negative impact on landscape features, yet it still provides the strength in performance to keep areas clear for safe travel.

Enhanced Sodium Chloride

Enhanced sodium chloride refers to salt that has been pre-wet with a liquid. The purpose of pre-wetting is to increase the effective temperature range of sodium chloride and to provide moisture, thereby increasing salt's ability to remain on the pavement and reduce the roll and bounce that typically occurs with the use of dry material. Pre-wetting liquids

include magnesium chloride, agricultural products, and salt brine. Liquid enhancement can be done in several ways. The most common is to spray a liquid onto the sand/salt stream as it enters the spinner. This requires the truck to be equipped with a pre-wetting spray system and controls. This provides the most consistent method of wetting the salt. A variety of products may be used to wet the salt; however, care must be taken to select a liquid that flows through the spray nozzles. A truckload can also be pre-wet, but this method is not as efficient or evenly applied.

Abrasive / Sodium Chloride Mixes

The sole function of abrasives (typically sand) is to improve traction. Used alone, the effects of sand are usually temporary as traffic rapidly disperses abrasives and additional frozen precipitation covers the application. Multiple studies have proven abrasives do not melt snow or ice, but it is often the only option to improve traffic safety when temperatures are too low for chemical application to be effective. Abrasive/salt mixtures can be pre-wet with a brine to improve effectiveness at lower temperatures.

HANDLING AND INVENTORY OF MATERIALS

It is a good practice to handle all materials as little as possible. Excessive handling increases the chances of spillage, material degradation, unwanted moisture, and increased risk of injury.

There are many potential hazards involved in loading materials. Only qualified, trained personnel may work with any of these materials. All material handling activities will follow these guidelines:

- Load vehicles on a level surface
- Do not overload trucks
- Load and distribute loads evenly
- Avoid striking the truck, sander box, warning lights, or flags
- Never leave a running vehicle unattended
- Keep the loader bucket as low as possible at all times
- Never allow people on the truck or hopper while loading
- Avoid spillage on vehicles
- Clean up after loading
- Do not leave material hanging on the sander



RECORDING AND REPORTING

The accuracy of material recording directly affects historical data used to plan for future years' material purchasing. If balances are not correctly recorded, inventories will be affected during the storm fighting season and could potentially hamper snow-fighting efforts. It is critical for tonnages to be accurate, so SDDOT personnel continually strive to maintain their records.

SDDOT tracks and maintains data on winter materials used for clearing snow from the roadway. Maintaining a record of materials used is essential for a variety of reasons including accounting for material expenditures and estimating quantities needed in future years.

The materials to be reported include:

- Salt
- Magnesium Chloride
- Agricultural deicer
- Salt brine
- Cutting Edges
- Sand

CUTTING EDGE CONSIDERATIONS

Due to rising costs associated with carbide cutting edges, SDDOT will place additional emphasis on maximizing the service life of existing cutting edges and ensuring current inventories are used efficiently. Crews should take proactive steps to reduce premature wear by adjusting plowing techniques, verifying proper blade settings, and monitoring equipment to prevent unnecessary abrasion. Operational reviews may identify opportunities to supplement mechanical cutting with chemical treatments—when conditions allow—to reduce the frequency and intensity of blade contact with pavement. Incorporating these strategies into routine operations will help manage material expenses, extend equipment life cycles, and maintain safe roadway conditions while balancing budgetary impacts.

APPLICATION OF MATERIALS

Deicer materials are typically applied by means of a hopper spreader. These devices spread liquid and granular material over a width ranging from three (3) feet to forty (40) feet. Initial applications may need to be heavier for the material to reach the pavement, while subsequent applications are typically lighter to maintain a level of service. The first activity for most storms is to plow snow and/or ice that has accumulated and spread an ice control chemical to prevent the bonding of snow and ice to the pavement. It is important that subsequent snowplow passes not occur before this chemical has an opportunity to work; this can be difficult since some snow routes may have overlap with other snow routes.

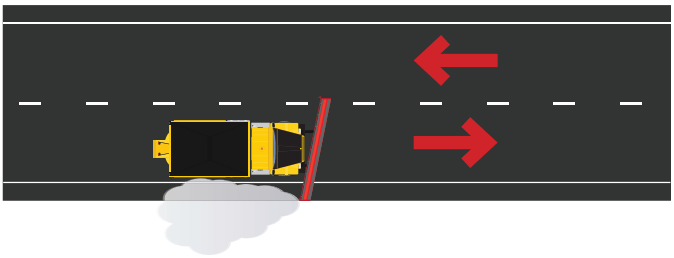
SDDOT has a Performance Standard Function 2524 that provides guidance for each material including effective temperature ranges and application rate.

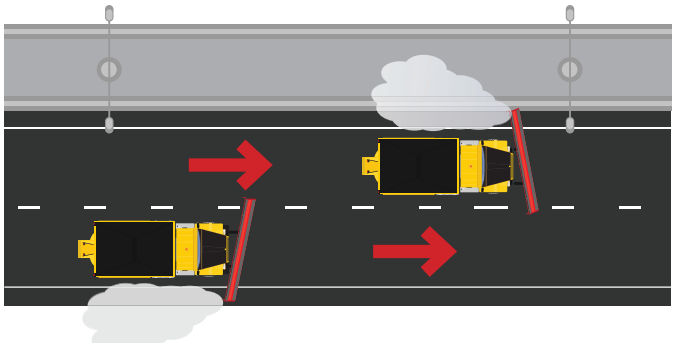


Snow and Ice Control

The role of snowplowing in deicing operations is to remove as much snow and loose ice as possible before applying chemicals. There are many types of snowplows. SDDOT typically uses bi-directional front plows with carbide cutting blades. While the snow is falling and conditions allow, plow operators are out maintaining roads by plowing, salting, and/or sanding. This is especially true if a large public event is occurring such as a sports tournament or large concert where many people are expected to be on the roads leaving the event. The Maintenance Supervisor can choose to extend plowing hours to accommodate such events, but note that this does not happen for every public event. Winter weather conditions, resource allocation, and other factors contribute to the decision to extend plowing hours during a storm. Typical plowing patterns are shown in *Graphics 1a, 1b, 1c and 1d on page 24*.

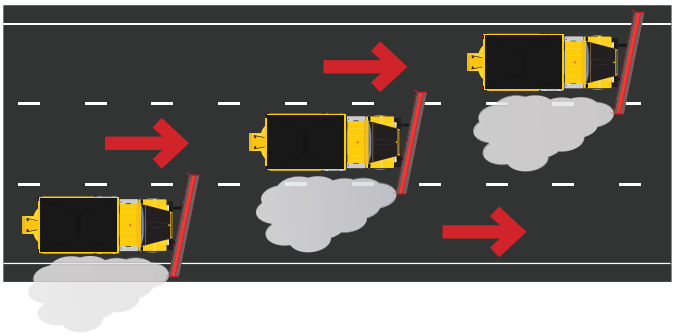
GRAPHIC 1a:
Two Lane, Two-Way Traffic

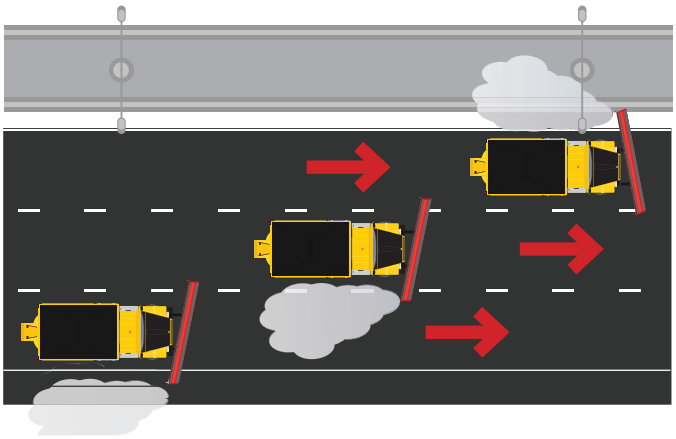




GRAPHIC 1b:
Typical Divided Highway with Median Storage

GRAPHIC 1c:
Multi-Lane, No Median Storage





GRAPHIC 1d:
Multi-Lane with Median Storage

Hills, Curves, and Intersections

For added friction, higher application rates are often used on hills, curves, and intersections, including the areas leading to and following these specialized route sections. Abrasive materials may also be used to help with friction. Abrasives and sodium chloride mix applications will be kept to the high side of super-elevated curves. As the material works, brine migrates over the remainder of the pavement.

Some areas require additional measures to increase friction during winter seasons: areas with high crash rates and/or premature polishing of the pavement are likely candidates. In these cases, the area is treated with High Friction Surface Treatment (HFST): a high-quality aggregate using a polymer binder to restore and/or maintain pavement friction. This added friction can provide better control in wet and dry conditions for motorists in these areas. This process is completed during the summer construction season.



Bridges and Other Structures

Bridges and other structures allow air to flow above and below, resulting in colder temperatures than the adjacent pavement. These structures require increased application rates to avoid freezing on the bridge/structure prior to the surrounding pavement. Exercise care when plowing overhead bridges and be mindful on what is below.



Strong Crosswinds

Abrasive materials may not be appropriate if the wind is too strong, particularly if the precipitation is blowing across the pavement. Abrasive materials in this condition could cause precipitation to begin to adhere to the road surface.

Disabled or Abandoned Vehicles

Vehicles are occasionally disabled or abandoned in storm events. Typically, snowplow drivers notify State radio and the Area Engineer of the vehicle's location and the status of occupants, if any. Occupants may be transported to the nearest phone to call for assistance or to a facility with food. Please refer to Guidance Memorandum, "DOT Assistance During Winter Storm Events" for additional details on assisting motorists during the winter months.

At-grade Railroad Crossings

At railroad crossings, snow and slush from the plow will be emptied along the berm in advance of the crossings to avoid carrying snow and slush onto the tracks where it may become packed in the flange-ways, creating a hazard that could derail a train. Approaches to crossings will be treated to prevent any slippery conditions but avoid using chemicals in the track area at railroad grade crossings.

Deicing Chemicals Not Required

In some cases, deicing chemicals may not be needed. At a minimum, the following conditions must be true:

- The initial or previous treatments were effective
- No new precipitation has fallen, and no new precipitation is forecast
- Pavement temperatures are at or above 28°F

This is especially the case when the pavement temperature is above 32°F and steady or rising, during or after the precipitation. Current and forecast conditions must be monitored and considered in this decision to prevent unexpected freezing from sudden temperature drops, especially if the warmer temperatures caused melting.

Another scenario that may not require deicing chemicals is possible when the following conditions, at a minimum, are true:

- Pavement temperature is below 20°F
- Snow is light and wind speeds are 15 mph or more
- Traffic is light

Cold pavement temperatures and steady winds typically reduce accumulation, and low traffic reduces compaction in wheel paths. In these cases, deicing chemicals may need to be avoided: they may cause the blowing snow to melt, refreeze, and create buildup. Instead, a plow alone may be the best to clear accumulations. If residual chemical or pavement temperature is high enough to form a liquid, wetting the snow or causing slush, plowing is recommended.

Application of salt and chemicals during higher wind speeds may cause blowing snow to adhere to the highway and create slippery areas that may not have happened if no salt/chemicals were applied. As such care needs to be exercised during stronger wind events as to whether or not application of salt and chemicals is the best treatment option.

Recognition of such conditions and communication of these conditions to snowplow operators can result in safer routes and significant material savings.

2.3 INNOVATION

SDDOT's winter operations are centered around innovation through the creation of the Maintenance Decision Support System (MDSS) and continued research of better practices.

HIGH FRICTION SURFACE TREATMENT (HFST)

High Friction Surface Treatment (HFST) is a thin layer of high-quality polish-resistant aggregate bonded to the pavement with a polymer resin binder. The treatment has a long-lasting skid resistance and makes the pavement more resistant to wear and polishing. HFST is placed at locations that have a history of injury crashes with vehicles leaving the roadway due to winter road conditions. Due to the cost, HFST is only applied at isolated locations such as horizontal curves, bridge decks, and intersections. South Dakota currently has over 67 HFST locations which have shown an 80% reduction of road departure crashes with winter road conditions as a contributing factor. HFST has a service life of approximately 10 years or the life of the pavement it is placed on. South Dakota has not seen an accelerated deterioration of HFST due to snow removal operations.

MAINTENANCE DECISION SUPPORT SYSTEM (MDSS)

The Maintenance Decision Support System (MDSS) collects and analyzes weather and road condition data and provides recommendations for effective winter maintenance treatments. The MDSS allows SDDOT to select treatments most effective for current and future conditions. The MDSS was developed and refined by DTN, LLC through a multi-State pooled fund study led by SDDOT's Office of Research. DTN is available 24 hours a day, seven days a week for technical assistance and weather-related questions. See *Graphic 2 on page 27* for an overview of MDSS.

The web-based MDSS user interface (*Figure 5 on page 27)* www.webmdss.com includes:

WEATHER CONDITION AND FORECASTS	ROAD SURFACE CONDITION AND FORECASTS
• Recent and current weather observations • Forecast weather conditions, including temperature, relative humidity, wind direction and speed, and cloud cover • Road conditions reported by SDDOT staff and snowplow-mounted pavement temperature sensors • Satellite imagery • Regional radar • National Weather Service watches and warnings	• Forecast road conditions derived from computer modeling of the weather, pavement, and feasible maintenance treatments • Maintenance treatment recommendations to most efficiently achieve SDDOT's defined levels of service



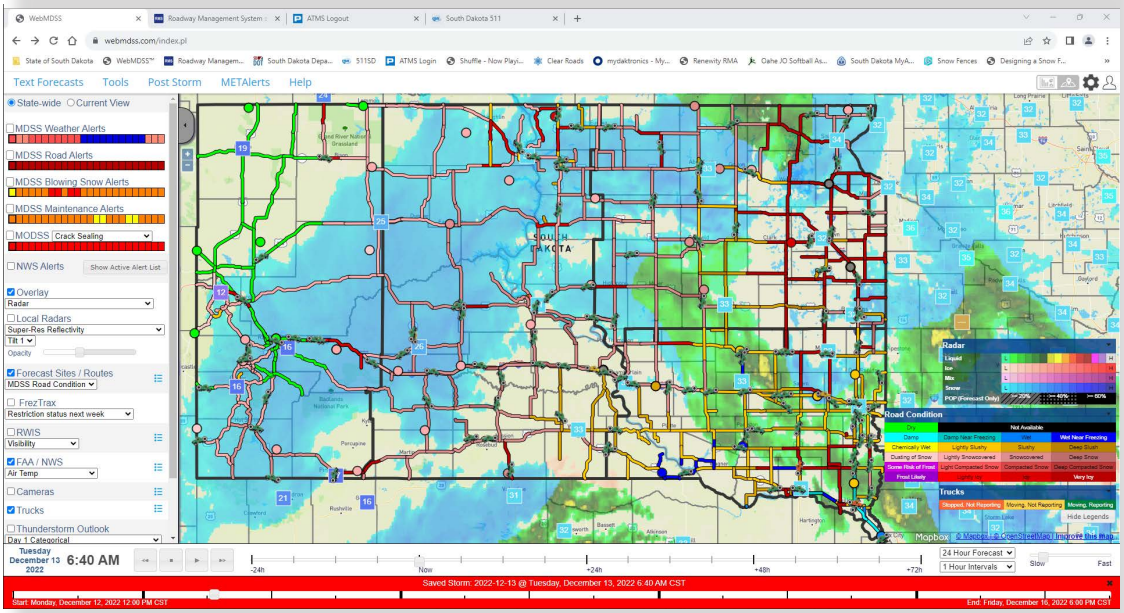
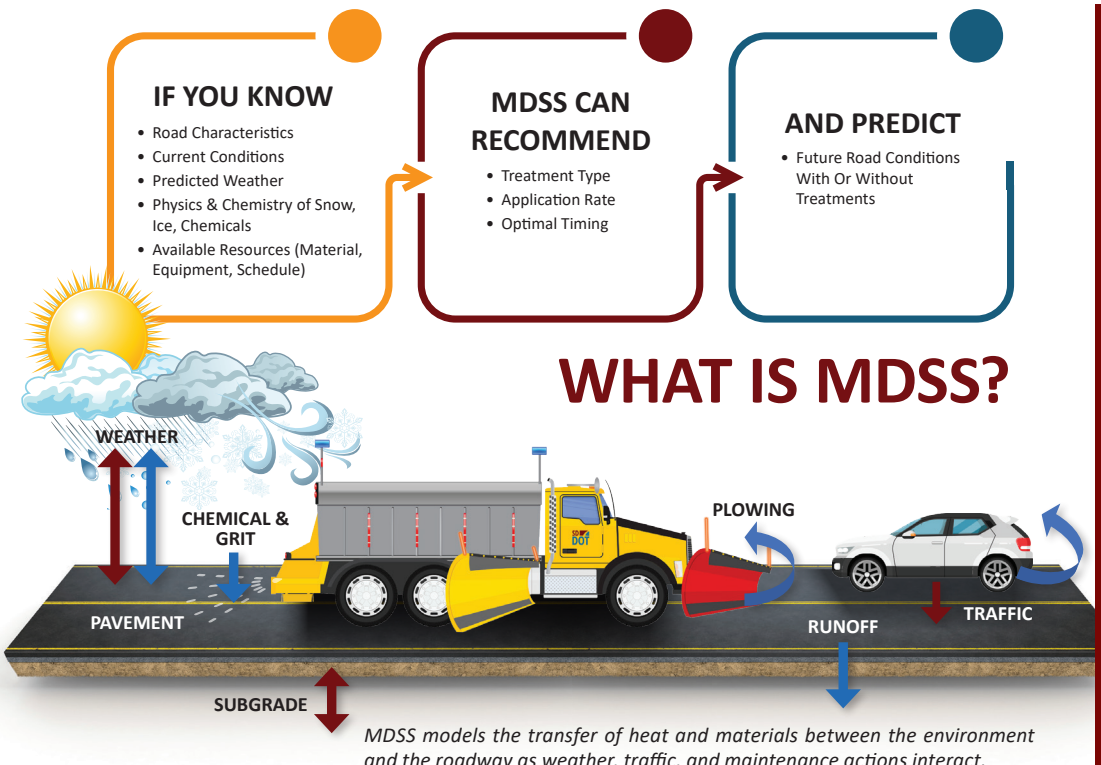


FIGURE 5: MDSS Interface - Main Screen



MDSS models the transfer of heat and materials between the environment and the roadway as weather, traffic, and maintenance actions interact.

GRAPHIC 2: MDSS Summary

The MDSS system uses weather and road condition observations, location-specific weather predictions, and sophisticated computer modeling to develop maintenance treatment recommendations for snowplow operators. Recommendations include the material to use, the application rate, and when application should occur. The system also tracks maintenance activities throughout the winter storm. This interactive system enables an accurate understanding of the conditions and cost-effective maintenance responses to maximize public safety.

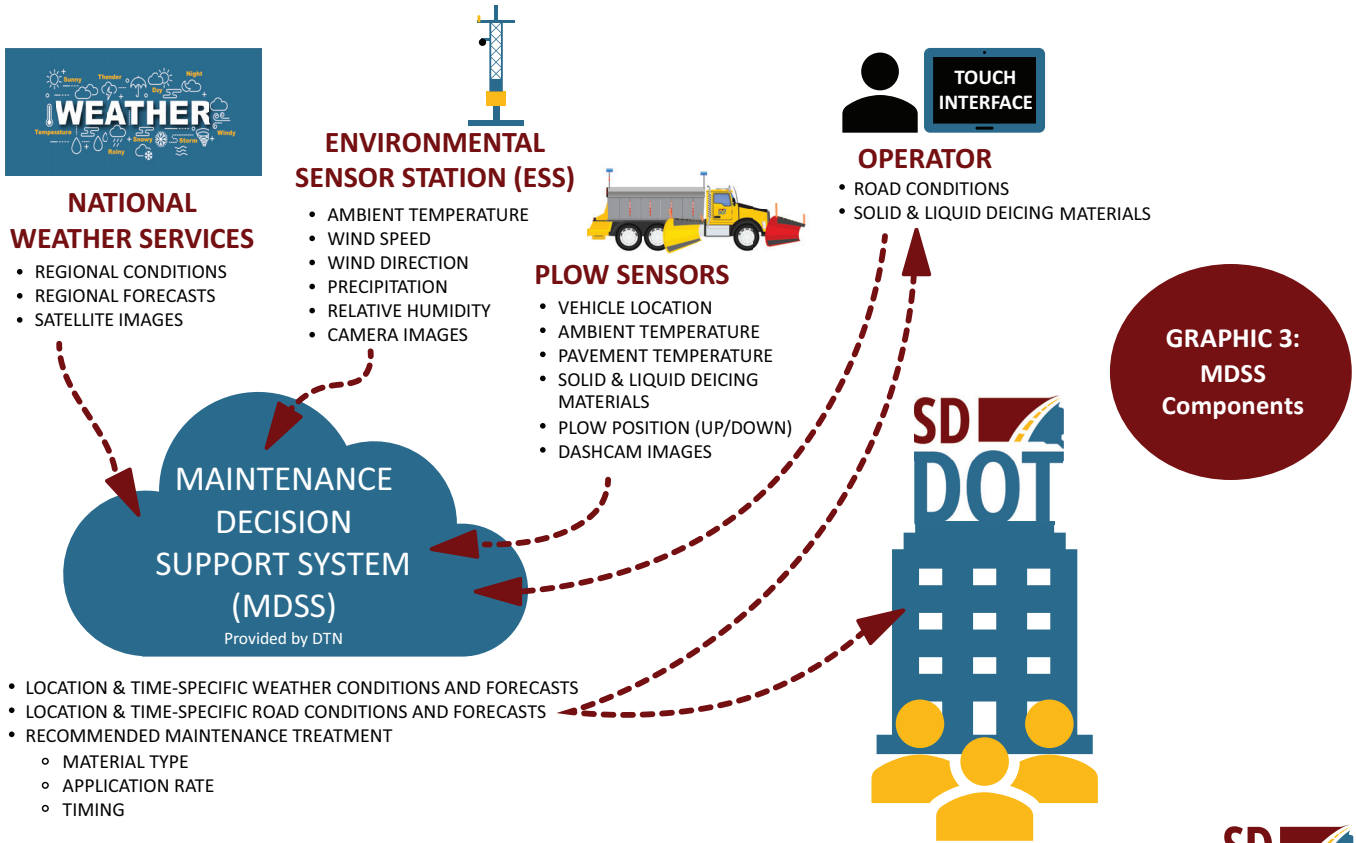
The MDSS covers our Interstate, Priority, and Non-Priority Routes. Using MDSS on the entire State highway system has and will continue to improved our maintenance effectiveness and reduced our deicing materials and application costs.

MDSS uses the National Weather Service (NWS), mobile data collectors, onboard snowplows, roadside Environmental Sensor Stations (ESS) (*Figure 6 on page 34*), and input from snowplow operators. Refer to *Graphic 3 on page 28 and Graphic 4 on page 29.*



ENVIRONMENTAL SENSOR STATIONS (ESS): (pictured left) provide SDDOT Highway Maintenance Supervisors and Workers current weather observations and camera images from 150+ ESS highway locations throughout South Dakota. Each ESS includes atmospheric sensors for air temperature, wind direction and speed, precipitation, and relative humidity.

MAINTENANCE DECISION SUPPORT SYSTEM (MDSS)



GRAPHIC 3: MDSS Components

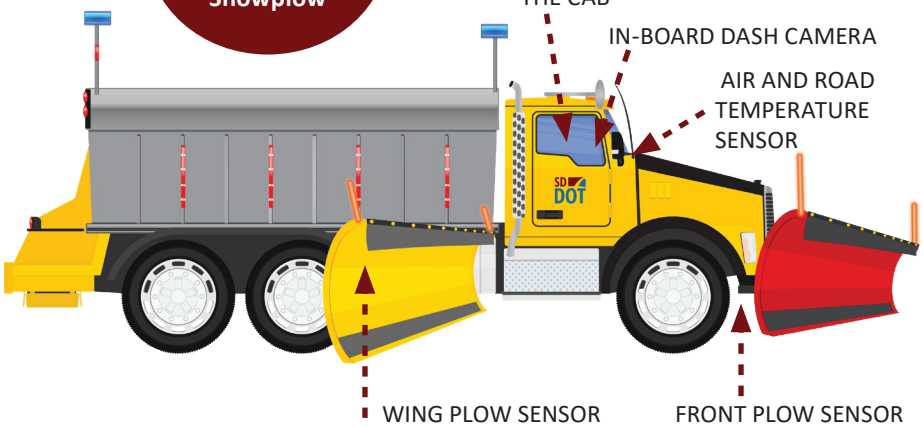
SD DEPARTMENT OF TRANSPORTATION



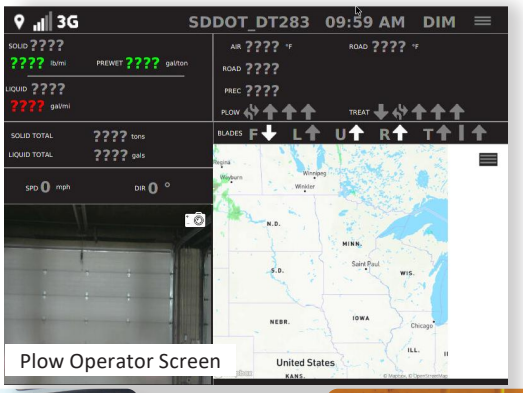
MOBILE DATA COLLECTOR (MDC): collects data from the operator, the snowplow spreader controller, on-board global positioning system, ambient and pavement temperature sensors, and sensors that detect whether plow blades are up or down. The MDC communicates this information via cellular modem to the MDSS to ensure its analysis considers the effect of maintenance already performed. The MDSS returns weather and road condition forecasts and recommendations for plowing and chemical application. Frequently updated information for operators fosters higher efficiency and more effective use of deicing materials. For the 2026-2027 winter season, SDDOT has 328 plows with the MDC system installed.

MOBILE DATA COLLECTOR (MDC) COMPONENTS

GRAPHIC 4: MDC Component Locations on a Snowplow




Air/Road Temperature Sensor



Plow Operator Screen


Underbody Sensor


Front Plow Sensor


Wing Sensor

SD DEPARTMENT OF TRANSPORTATION



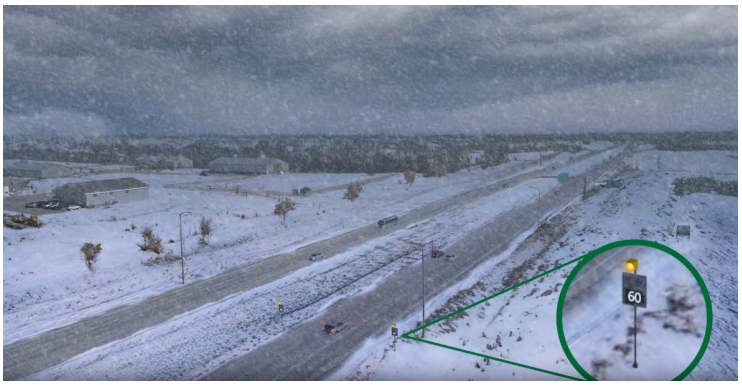
RESEARCH FOR BETTER PRACTICES

SDDOT is exploring several new innovations to improve the safety of travelers and maintenance workers and to increase SDDOT operational efficiency.

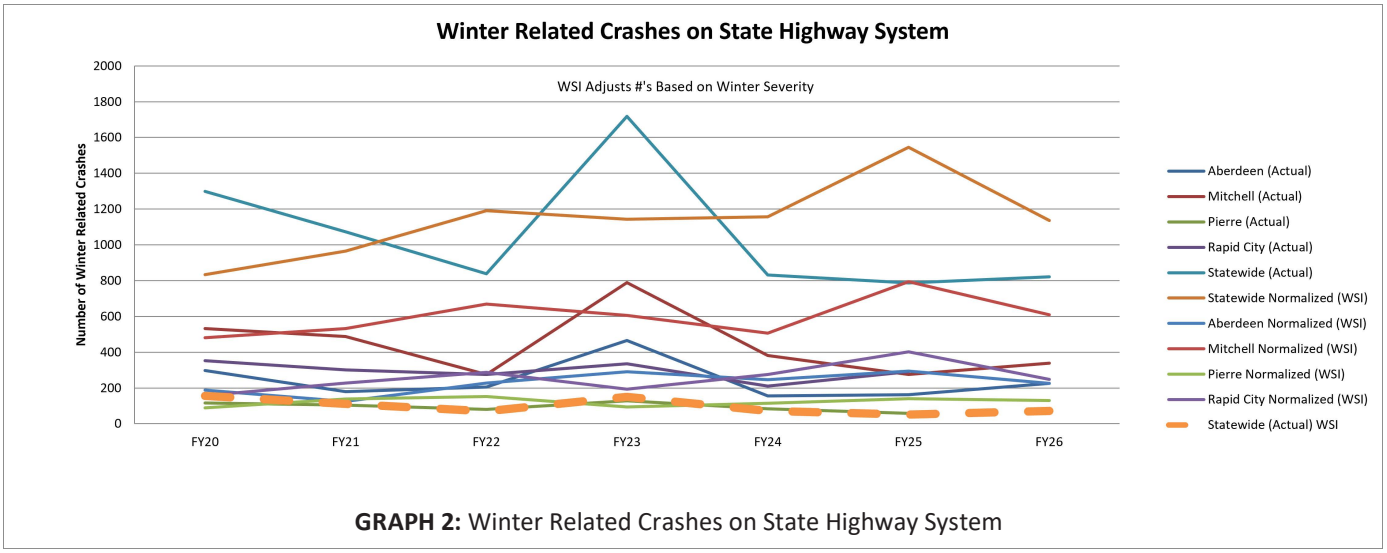
- SDDOT's winter chemical research project continues to support more efficient and cost effective winter operations by evaluating chemical performance across temperature ranges, improving MDSS flexibility, and expanding training resources. Recent efforts also introduced a statewide process for documenting chemical capabilities and costs, helping regions make informed, practical material decisions aligned with research findings

- SDDOT continues advancing its snow plow route optimization initiative, led by efforts from the Office of Research and Operations. Current work focuses on evaluating opportunities to improve route efficiency and enhance service consistency across regions. Additional analysis and field input will guide the next phase of implementation.

- The South Dakota Department of Transportation (SDDOT) implemented its first Variable Speed Limit (VSL) system last winter along Interstate 29 between SD Highway 32 and Brookings. This system enables SDDOT to adjust posted speed limits in real time based on changing weather, roadway, and traffic conditions. By aligning speed limits with actual conditions, the VSL system is designed to enhance safety, encourage more consistent driver behavior, and improve traffic flow during adverse weather events. The next VSL installation in South Dakota is planned for Interstate 90 from Sturgis to Tilford.



- Winter operations is a key customer service for the SDDOT. Reduction of traffic crashes is a strategic goal. SDDOT analyzes crashes on the State highway system in relation to the Winter Severity Index (WSI). The WSI is a way to quantify the severity in which winter conditions affect the maneuverability of roadways. Refer to *Graph 2 on page 30* for a comparison of actual winter crash numbers and winter crash numbers normalized to the WSI.



GRAPH 2: Winter Related Crashes on State Highway System






SECTION 3
COMMUNICATIONS



SECTION 3 | COMMUNICATIONS

SDDOT has created a Communications Team to handle internal and external communication. As part of the creation of this team, SDDOT developed a Strategic External Communication (SEC) Plan. This plan is reviewed and updated annually to provide SDDOT a thorough, manageable, traceable path to communicate effectively with all SDDOT external stakeholders. The Communications Team assists in promoting news of SDDOT's programs and accomplishments. The Communications Team prepares news releases regarding winter operations that are issued statewide or regionally as needed. These releases typically deal with annual winter storm advisories, sharing the road with snowplows, and other releases as conditions warrant.

Region Engineers, Operations Engineers, Area Engineers, and Traffic Engineers work with the Communications Team to coordinate, participate, and speak to news media to provide timely information specific to their areas of responsibility. These managers may delegate a subordinate to respond on their behalf.

DID YOU KNOW?

One way the SDDOT is meeting the needs of the traveling public is by providing a text notification system for winter weather related closures on Interstate 90 and Interstate 29. Users can subscribe to the service by texting "SDInterstates" to 605-566-4041 and have Interstate closure information sent directly to their mobile phone.

3.1 COMMUNICATION METHODS

Diverse communication is critical in reaching the widest audience. SDDOT communicates road condition information internally and externally through several methods. The following sections provide details on these methods.

INTERNAL RADIO COMMUNICATION

Radio communication allows for:

- Instructions and reassignments to be communicated to snowplow drivers.
- SDDOT managers to stay in contact with snowplow drivers.
- Real-time road and weather conditions to be communicated between management units.
- Crash reporting so South Dakota Highway Patrol, towing services, and emergency services can be notified.

SDDOT's radio network comprises base units located at the Region and Area Offices, local shops, mobile units in management vehicles and snowplows and handheld units, all connected to the State Radio System. State Radio operates 24 hours a day year-round. Snowplow drivers routinely check basic radio features—including the antenna, mic cord, channel, and power—at the beginning of each shift. If problems are noted, a repair appointment is promptly scheduled. Back-up or handheld radios are used until repairs are complete. Radio communications only occur internally. SDDOT does not publicly broadcast road condition information over the radio.

SOCIAL MEDIA

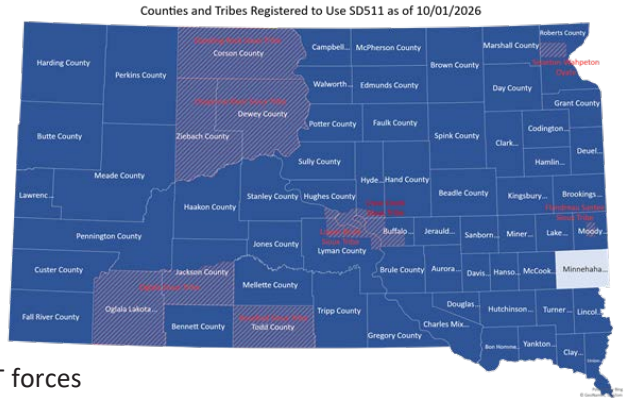
SDDOT's Communications Team maintains four (4) social media platforms: Facebook, Instagram, LinkedIn, and X (*Twitter*). Facebook and X have the largest followings, making them critical information tools. SDDOT posts its own content and shares content from county, state, and law enforcement agencies to provide the most comprehensive information possible. Social media viewers are directed to SD511 and https://dot.sd.gov/travelers/travelers/winter-storm-information to learn more about current conditions and closures.

DID YOU KNOW?

SDDOT has over 71,000 Facebook followers and over 17,900 X *(Twitter)* followers!

TRAVELER INFORMATION SYSTEM

SDDOT's SD511 Traveler Information System informs travelers, law enforcement, emergency responders, and highway maintenance personnel of conditions that affect travel. Its main purpose is to help the public make well-informed travel decisions. SD511 information includes:

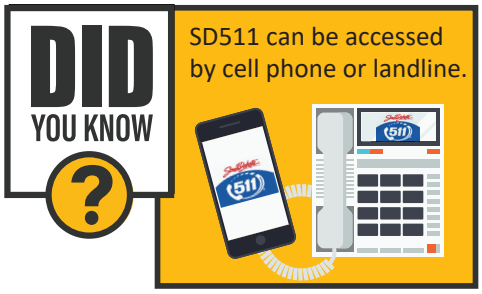


- Weather conditions and forecasts
- Observed winter road conditions and closures, reported by SDDOT maintenance forces
- Potentially worsening road conditions, predicted from weather forecasts
- Roadway images from 150+ roadside cameras
- National Weather Service alerts
- Emergencies and incidents affecting traffic flow
- Special events affecting traffic flow
- Commercial vehicle restrictions
- Construction and maintenance work zones reported by SDDOT forces
- Floodgate messages to convey specific or unique situations. This allows a longer message with more detail to be pushed to individual routes or statewide.
- Travel advisories and closures for participating Counties and Tribes in development.
- Enable construction activities and movement restrictions on ramps to be specifically identified
- Enable vehicle dimension and weight limits and other restrictions to be entered specifically on divided highways, so our commercial vehicle permitting system can capture them directly from SD511.

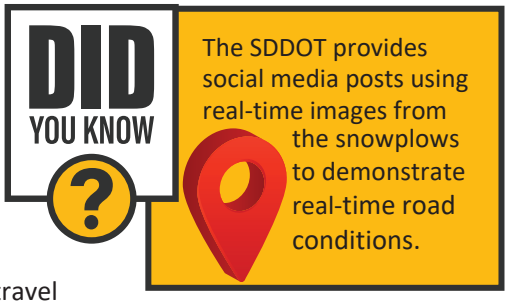
SDDOT maintenance and construction forces feed winter road reports and road work information into the traveler information system through the Roadway Management System (RMS). Refer to *Graphic 5 on page 34*. Both SD511 and the RMS are provided by Iteris, Inc.

SD511 disseminates information via several media to make information as accessible as possible:

- **511 Telephony:** Users can reach the phone-based 511 system by dialing 5-1-1 on mobile and landline phones throughout South Dakota. From outside the State, the system can be reached at 1-866-MYSD511 (1-866-697-3511). The automated telephony and voice recognition system allows users to hear information with hands-free operation.



- **511 Website:** The full-featured SD511 website at https://www.sd511.org provides the same information in graphical and textual form on any modern web browser.
- **511 Mobile Apps:** Android and iOS (Apple) mobile applications are available free from their respective app stores. They provide the same information as sd511.org in mobile-friendly format.
- **My511SD Travel Alerts:** Users can subscribe at the sd511.org website to receive free text and email alerts for road closures, no travel advisories, flooding, and other significant events at specific locations and times of interest to them.



- **Rest Area and Port of Entry Kiosks:** The SDDOT has installed kiosks that display travel information at all commercial vehicle ports of entry and all but one Interstate highway rest area.
- **County and Tribal Travel Advisories:** Counties and tribes are able to post travel advisories and closures on the State SD511 system. SDDOT maintains a contact list for counties and tribes and provides training prior to each winter season.



DYNAMIC MESSAGE SIGNS

SDDOT uses 31 fixed DMS located along I-90 and I-29 (*Figure 6 on page 34*) to provide critical information—such as road conditions, closures, accidents obstructing traffic, and detours—directly to motorists. Portable message boards are also deployed at other key locations during winter months. Area Engineers are responsible for posting messages and the Communications Team may help develop messages.

DID YOU KNOW ?

As road and weather conditions change, SDDOT Highway Maintenance Workers update the RMS which updates SD511 to reflect the current conditions.



Road condition information published on these outlets comes from road condition information and camera images obtained through MDSS, ESS, and Road Management System (RMS). Refer to *Graphic 5 on page 35* and the following:

- **Roadway Management System (RMS)**: A computerized system used to collect data and describe road conditions. Designated highway maintenance workers enter data into the RMS, which automatically updates SD511.
- **Road Condition Reports:** Information collected on current conditions for weather and roads is published through various outlets at regular intervals. For more information, refer to Section 1.3 Road Condition Reporting.
- **Dynamic Message Signs (DMS):** South Dakota uses 31 fixed DMS to inform motorists of road conditions, road closures, and upcoming exits to a population center with food and lodging. Cameras are fixed to a majority of the DMSs and this information is used by SD511. SDDOT also has 61 portable DMS that can be deployed where needed to provide information at other Interstate and non-Interstate locations.



Camera Locations

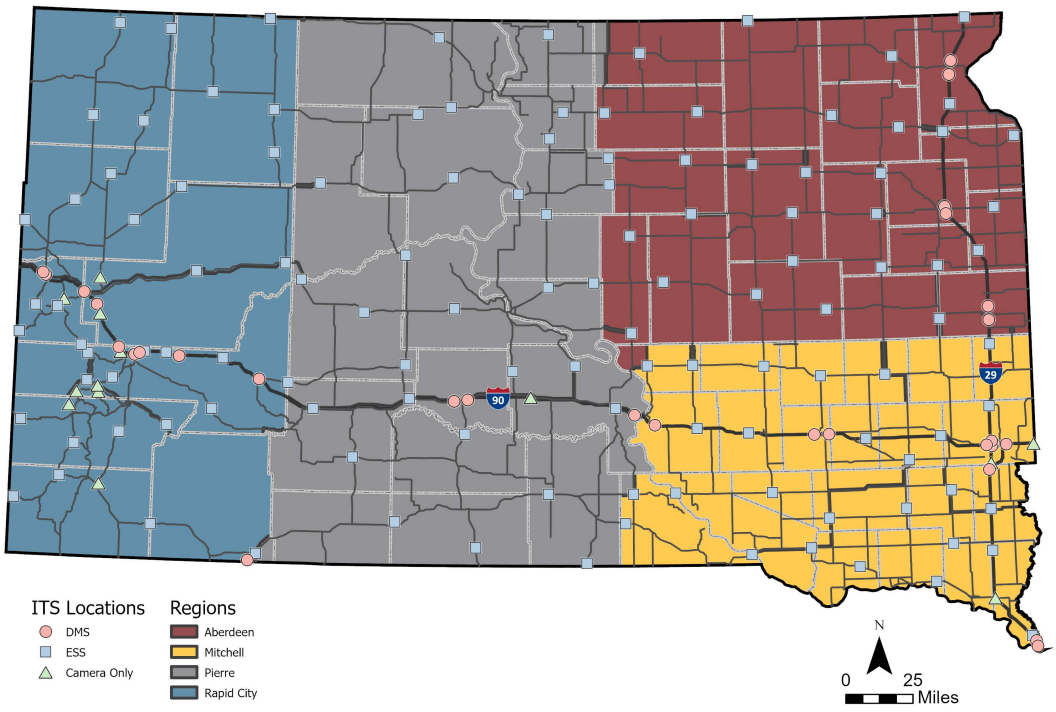


FIGURE 6: Locations of ESS, DMS, and Stand-Alone Cameras

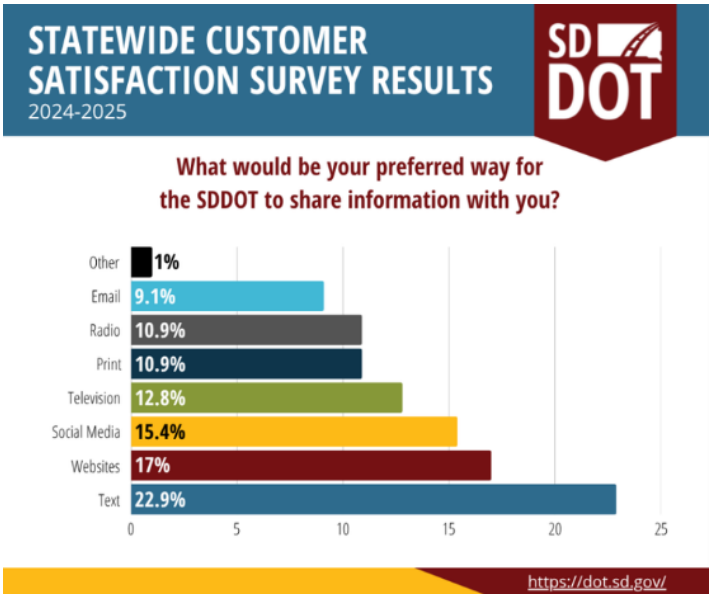
GRAPHIC 5: Traveler Information System



Interstate Closure Text Notification System

SDDOT has introduced a text notification service that provides direct updates on winter Interstate closures and reopenings. We are excited to have this service available for the upcoming winter season. This tool builds upon our existing SD511 system, making it even easier for travelers to access the most current information quickly and safely. Whether someone is planning a long trip or simply commuting, having timely, accurate updates helps travelers make informed decisions and arrive safely at their destinations.

The development of this service was influenced directly by feedback gathered through the 2024 Statewide Customer Satisfaction Survey. Survey results showed that many South Dakotans prefer receiving information through text or web-based platforms. In fact, 39.9% of respondents indicated that text messaging or website alerts are their preferred method for receiving updates from SDDOT. With this clear preference identified, SDDOT made it a priority to expand communication tools that deliver quick, accessible, user-friendly information.





The Interstate Closure Text Notification System allows residents, commercial drivers, and visitors to subscribe to free text alerts specifically dedicated to weather-related closures on Interstate 90 and Interstate 29. This service helps ensure travelers remain

informed during rapidly changing winter weather conditions that can impact roadway safety. By offering these direct notifications, SDDOT provides an additional layer of support to keep roadway users safe and aware of real-time conditions.

Subscribers simply text SDInterstates to 605-836-8836 to begin receiving automated alerts. Messages are sent only during winter-related interstate closures and reopenings, and each alert directs users to SD511.org for comprehensive road condition information.

As South Dakota prepares for its winter season, the text alert system stands as one more way SDDOT is responding to public feedback, enhancing communication tools, and keeping travelers informed—no matter where they are or what conditions arise.

SD DEPARTMENT OF TRANSPORTATION



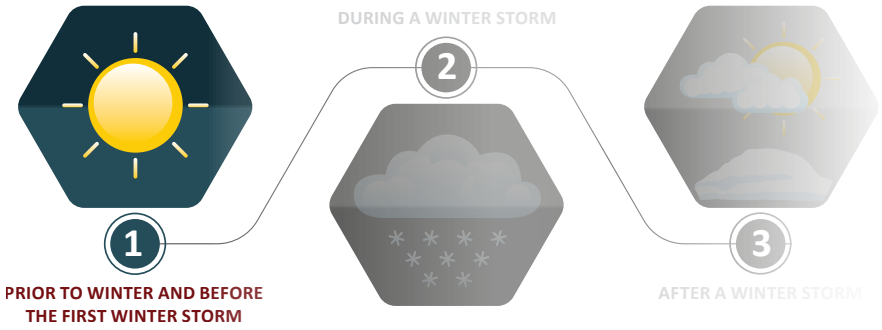



SECTION 4

PRIOR TO WINTER AND BEFORE THE FIRST WINTER STORM



SECTION 4 | PRIOR TO WINTER AND BEFORE THE FIRST WINTER STORM



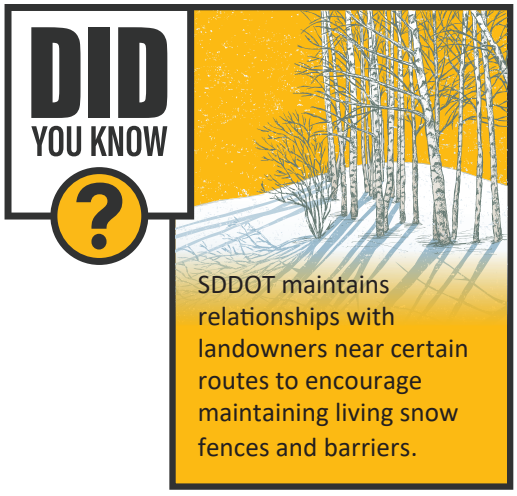
This section discusses activities and procedures carried out prior to winter and before the first winter storm event.

PROACTIVE PRACTICES

The prevention of snowdrifts requires close and continuous study. Minor windbreaks such as stubble, uncut weeds, brush, or fences along the roadway may cause drifts. Any obstruction that decreases the velocity of an air current may cause drifting snow, and the removal or control of the obstruction is essential to the control of drifting. Temporary snow fence should be erected during October and November and then be taken down and properly stored during March and April.

Living snow fences, which are rows of trees and shrubs planted along the right-of-way fence line or standing rows of corn, can reduce blowing and drifting snow from accumulating on the roadway. Both options are supported by SDDOT. By having established living snow fences running parallel to roadways and perpendicular to prevailing winds, highway departments can achieve several objectives during and after blowing snow events such as:

- Maintain a relatively snowdrift free highway surface during blowing snow events thus maintaining a steady flow of traffic
- Minimize the occurrence of “blow ice,” ice forming on the roadway when snow blows across the surface, thus decreasing the potential for accidents when drivers cross the ice
- Lower the cost of maintaining snow and ice-free roadways during and following blowing snow events
- Lower the number of serious crashes attributed to snow and ice on roadways



EQUIPMENT PREPARATION

Prior to the winter season, SDDOT’s fleet is inspected, and all maintenance issues are identified using Checklist 825. Inspection occurs after plows are dressed with all equipment. MDSS is checked to make sure it functions accurately. Refer to *Section 2.2 on page 16* of this plan for more details.



MATERIAL ORDERING, DELIVERY, AND STORAGE

Salt and chemical supplies are critical. Prior to the winter season, each Region evaluates inventories to determine early-fill requirements. Orders are then placed with the appropriate material vendors, specifying the material type, quantity, and point of delivery. Reordering of salt during the winter season is handled similarly with new orders based on material usage obtained from each Area's salt inventory reports and visual inspections. Lead-time should be considered when placing orders. It is likely that other locations are also trying to replenish materials which could cause delays.

Material vendors communicate delivery schedules for salt and chemicals to the appropriate Area. The Area arranges for their employees to receive materials. Specified employees are responsible to visually inspect material and delivery trucks, collect delivery tickets, obtain Safety Data Sheets (SDS), and take appropriate storage action.

Treated winter sand is stored inside abrasive sheds at most facilities. Leftover winter sand should be relocated in the pile to ensure it is used first during the next snow event.

The SDDOT uses an outdoor storage process that uses grain storage bags to keep salt from being exposed to rain and snow. These bags can be placed on any relatively flat surface and provides an inexpensive alternative to constructing additional storage facilities. The SDDOT also uses salt sheds to store and keep the salt from being exposed to rain and snow.

Liquid chemicals are typically stored in outdoor bulk tanks, although some storage facilities have indoor tanks. If more than one liquid is maintained at a site, care should be taken not to mix incompatible liquids. Many liquids require periodic circulation during the off-season to prevent the settlement of solids.

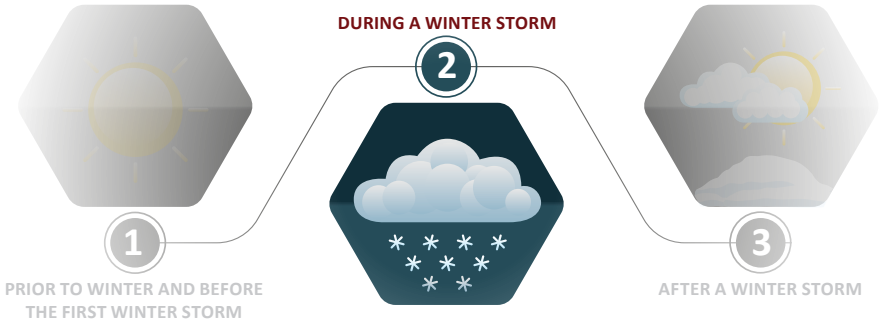





SECTION 5

DURING A WINTER STORM

SECTION 5 | DURING A WINTER STORM





While SDDOT cannot control the weather, SDDOT can manage the operational activities in response to a storm with respect to what is predicted, what is occurring, and after-storm conditions. Many options are available to aid in storm management; they include but are not limited to:

- Accurate weather forecasts
- Current road conditions and traffic information
- MDSS maintenance recommendations
- Patrol observations
- Experience and expertise
- SDDOT's Winter Highway Maintenance Plan
- Other references (from FHWA or other States)

The key to successful storm management is to use the tools listed above in conjunction with experience to mitigate winter events.

This section discusses activities and procedures carried out during a storm event. This phase includes a separate discussion for interstate closure during a storm event.

5.1 STAFFING AND GENERAL OPERATIONS

EMERGENCY ASSIGNMENTS

At the direction or request of the Secretary and/or Director of Operations via the Region Engineer, persons may be temporarily assigned to other locations anywhere within the State to address the emergency needs of that location. The following is an overview to address common questions and concerns of emergency assignments and does not supersede any policy. Refer to Department Policy or State Policy for specific details. These procedures and guidelines shall apply to emergency situations, including but not limited to a winter storm, flood, or other natural disasters.

Temporary assignments will be accomplished (1) via a call for volunteers, and (2) via mandatory overtime procedures. Such assignments will be determined by the Region or Area Engineer.

Temporary employees will work at the direction of the Highway Maintenance Supervisor or other supervisory/management staff at the temporary location. The duration and work schedules during the temporary assignment shall be at the direction of the temporary location's Region or Area Engineer.

Employees on emergency assignments will use State vehicles for any travel associated with the assignment. When employees on emergency assignments are not able to bring a State vehicle for incidental transportation during off-duty periods, the Region or Area that is the temporary location of work should furnish a vehicle to that employee. If vehicles are not available, transportation to and from lodging and eating establishments should be arranged.

Region and Area personnel will arrange lodging and payment from Department funds for the emergency assigned personnel. Whenever possible, costs for lodging are direct billed to the State. Such costs will be paid from the temporary location's (Area or Region) budget as a cost of operations for that Region.

Where practical and possible, employees will be allowed reasonable opportunity to take meals of their choice at their expense with reimbursement in compliance with the State Travel Policy.

Upon return from an emergency assignment, each employee may submit a claim for travel reimbursement (i.e., lodging and per diem). Such claim must exclude any amounts for lodging and/or food that were provided without cost to the employee. The home Region or Area processes the reimbursement request, and the costs will be paid from the temporary location's budget as a cost of operations for that Region.

COUNTY OR LOCAL REQUESTS FOR ASSISTANCE

State plows provide snow removal for the State trunk highway system, and upon preauthorization in certain circumstances can provide assistance to counties, towns, and cities. Requests from county or local entities for snow removal assistance should be made to the Office of Emergency Management (OEM). Coordination must go through the OEM to be eligible for potential reimbursement if funding becomes available. OEM coordinates with the appropriate SDDOT personnel to approve the requested assistance. Counties and local governments will be billed for use of SDDOT services when approved. SDDOT may not be able to provide aid if staffing and equipment is unavailable. SDDOT may deny requests if road is not built to withstand the tonnage of requested SDDOT equipment.

5.2 ROADWAY CLOSURES AND OPENINGS

SDCL 31-4-14.1 allows the Secretary of DOT and the Secretary of DPS to restrict the use of any State Highway if they agree the restriction or closing is necessary for the protection and safety of the public due to inclement weather. Recommendations on the need for travel restrictions are provided to the Highway Patrol Superintendent and the SDDOT Director of Operations based on current and forecasted weather and driving conditions, and input from SDDOT field personnel, Highway Patrol District Captains, and Region Engineers. If agreeable, recommendations are then made to the Secretary of DOT and the Secretary of DPS for a final determination for implementing travel restrictions. The procedure to carry out the closure is detailed in DOT Policy OS-OM-6.3. Notices to the public are made through installation of barriers, warning signs, media press releases, text, traveler information (SD511), social media, or placing flaggers to detour traffic. Additionally, all closures are promptly posted on the 511 Traveler Information sites.



SDCL 31-4-14.3 provides for civil penalties for rescue of persons in violation of this statue in amounts of $1,000–$10,000.

In the past, typically only Interstate closures were implemented during inclement weather due to the Interstate having controlled access points. There has been an increase of travelers using non-Interstate highways to attempt to avoid Interstate closures. This has resulted in dangerous situations such as stranded motorists and increased traffic for SDDOT snow plows to work around. When conditions exist, SDDOT and DPS will consider closure of both Interstate and non-Interstate routes for the protection and safety of the public. SDDOT will send notices to the public for the restrictions on State highways and Interstates and will be posted on 511 Traveler Information sites along with media press releases. Refer to Section 1.3 for more information about travel advisories.



KEY PERSONNEL AND STAKEHOLDERS INVOLVED

Closing a roadway usually involves more stakeholders than opening a roadway. The following roles are involved in closures and openings:

- SDDOT Region and Area Engineers
- SDDOT Director of Operations
- SDDOT Operations Support
- SDDOT Communications Team
- Highway Patrol
- Winter maintenance personnel
- Office of Emergency Management
- Secretary of SD Department of Transportation
- Secretary of SD Department of Public Safety
- Office of the Governor

HIGHWAY PATROL CONTACTS		
Location	**Office**	**Fax**
Pierre (Headquarters)	(605) 773-3105	(605) 773-6046
Aberdeen	(605) 626-2286	(605) 626-2662
Sioux Falls	(605) 367-5700	(605) 367-5705
Rapid City	(605) 394-2286	(605) 394-5483

MOTOR CARRIER CONTACTS
All Port of Entry numbers can be reached by (605) 224-SEMI (7364)

EMERGENCY MANAGEMENT
(605) 773-3231



COMMUNICATION

Communication between individuals involved in the decision-making process to open or close a road happens most often via conference calls.

EMERGENCY OPERATION CENTER

The Emergency Operation Center (EOC) is activated during some, but not all, winter storms. The EOC is made up of several representatives from 16 State agencies, including SDDOT and Department of Public Safety, that gather and work together during severe weather. There is not a defined threshold for EOC activation, but typically activation happens when escalating public safety needs are at risk due to the weather.



5.3 SAFETY FOR ROAD USERS AND ROAD CREWS

All employees have a responsibility for their own safety. By observing that responsibility, they fulfill their responsibility to their family, fellow workers, the community, and the State of South Dakota. SDDOT personnel must observe safety practices and follow instructions relating to the efficient performance of their job. Work shall be done safely with sound judgment; safety will not be compromised for expedience.

SDDOT Operators will:

- Always use seatbelts
- Practice defensive driving
- Work in a safe, productive manner and maintain safety awareness at all times
- Properly inspect, maintain, and operate assigned vehicles/equipment and report defects
- Follow the manufacturer's guidelines to safely handle all chemicals, available in the Safety Data Sheet (SDS) book (available at unit buildings)
- Clean salt residue and snow/ice accumulations from lights for increased visibility
- Stop at intersections such that the plow does not extend into the intersection
- Allow sufficient distance between the plow and other vehicles to slow and stop
- Possess/maintain CDL
- Be properly trained before operating snow plow

ASSISTING TRAVELING PUBLIC

SDDOT snowplow operators are mainly responsible for providing the traveling public with the best possible winter driving conditions through snow and ice control efforts. However, if a motorist is stranded and their safety is threatened, SDDOT snowplow operators are able to assist by following the Guidance Memorandum, "DOT Assistance During Winter Storm Events"



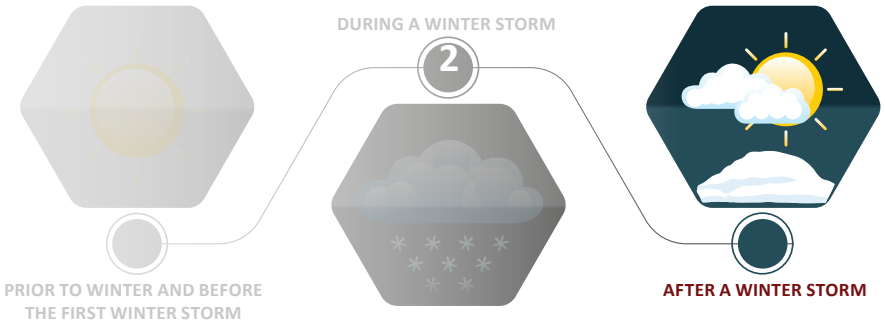



SECTION 6

AFTER A WINTER STORM



SECTION 6 | AFTER A WINTER STORM



Post-storm activities minimize hazards and identify needs for subsequent storms. Post-storm activities include meltwater control, cleanup of special roadway features, handling and disposal of snow/ice/abrasives, material management, personnel management, equipment repair and cleaning, and facility clean-up.

Following a storm, SDDOT begins (or continues) ice and snow removal efforts. If the roadway was closed or given a No Travel Advisory, the opening process coordination is much more abbreviated than the closure process. SDDOT, Highway Patrol and department secretaries communicate an opening time. Ideally the road is opened just prior to the public announcement of the opening. This is to prevent motorists from gathering at the opening point waiting in their vehicles which can increase the risk of crashes or pile-ups. In metropolitan areas, such as Sioux Falls, clean-up only occurs during non-peak hours as to avoid having plows in congested traffic. As mentioned previously, SDDOT may choose to extend maintenance hours to ensure the roads are safe for crowds leaving large public events such as concerts or tournaments. These events typically occur in the evening or at night when roads may freeze again.

6.1 CLEAN-UP AND MAINTENANCE

Preventing snow and ice meltwater from getting back into the traveled roadway is important since refreeze could create a hazard. If plowing procedures cannot deposit snow to avoid this condition, the snow should be moved to a location where it can melt into an off-pavement drainage system. Loading and hauling or pushing snow back with loaders and plows is an effective control method.

Shoulders should be cleared to their full width to accommodate disabled vehicles and provide snow storage for the next snowfall. Areas beyond the shoulders can also be pushed back to accommodate future snow accumulation and minimize the potential for drifting. Shoulder condition relative to softness or its ability to support the weight of the snowplow, especially in the springtime, should be considered prior to these activities.

Intersections and crossovers should be cleared to their full width to accommodate the traveling public. Care should be taken to eliminate site distance restrictions caused by snow accumulations.

Safety features, such as impact attenuators, guardrail, median barrier, breakaway sign supports, and light poles, are designed to minimize damage to errant vehicles. However, these safety features may become hazards when snow and ice build-up adversely impact their effectiveness. Snow and ice must not be allowed to build up on the traffic side of attenuators, median barriers, guardrails, or breakaway features since it may prevent proper function. Signs that become buried or illegible should be given priority attention in cleaning and restoring.



Loading, hauling, and disposing of snow, ice, and abrasives is routinely required in locations with no snow storage areas, urban areas, and some drainage sensitive areas. Generally, these activities are required only after heavy snowfall or abrasive use. Drainage-sensitive areas may require attention in normal winter storms. Inlets must be open to facilitate drainage and must remain open during clean-up operations. Loaders, graders, and trucks are typically used to relocate the snow build-up well away from the road. However, specialty equipment such as snow blowers may also be used.

Attention should also be given to special areas during post-storm activities. Areas that may need additional clearing include State weigh scales, rest area facilities, and curb/gutter sections. SDDOT must use caution when clearing adjacent to non-State facilities such as rail crossings, walkways, and fire hydrants.

Material inventories should be evaluated immediately after a storm to assess the need for re-supply. SDDOT staff need to remember that businesses, cities, counties, adjacent states, and other SDDOT locations are likely trying to get stockpiles replenished as well. A prompt inventory and order placement could help get materials more quickly.

6.2 EQUIPMENT REPAIR AND MAINTENANCE ACTIVITIES

After storm and clean-up activities are complete, equipment should be prepared for the next storm. Thorough washing and inspection keep equipment functioning properly. All precautions taken between storms may prevent a breakdown during the next storm.

All facilities should be cleaned up to eliminate the possibility of chloride contamination. Spilled materials should be returned to properly contained storage areas. More details can be found in *Section 2.2 on page 15.*





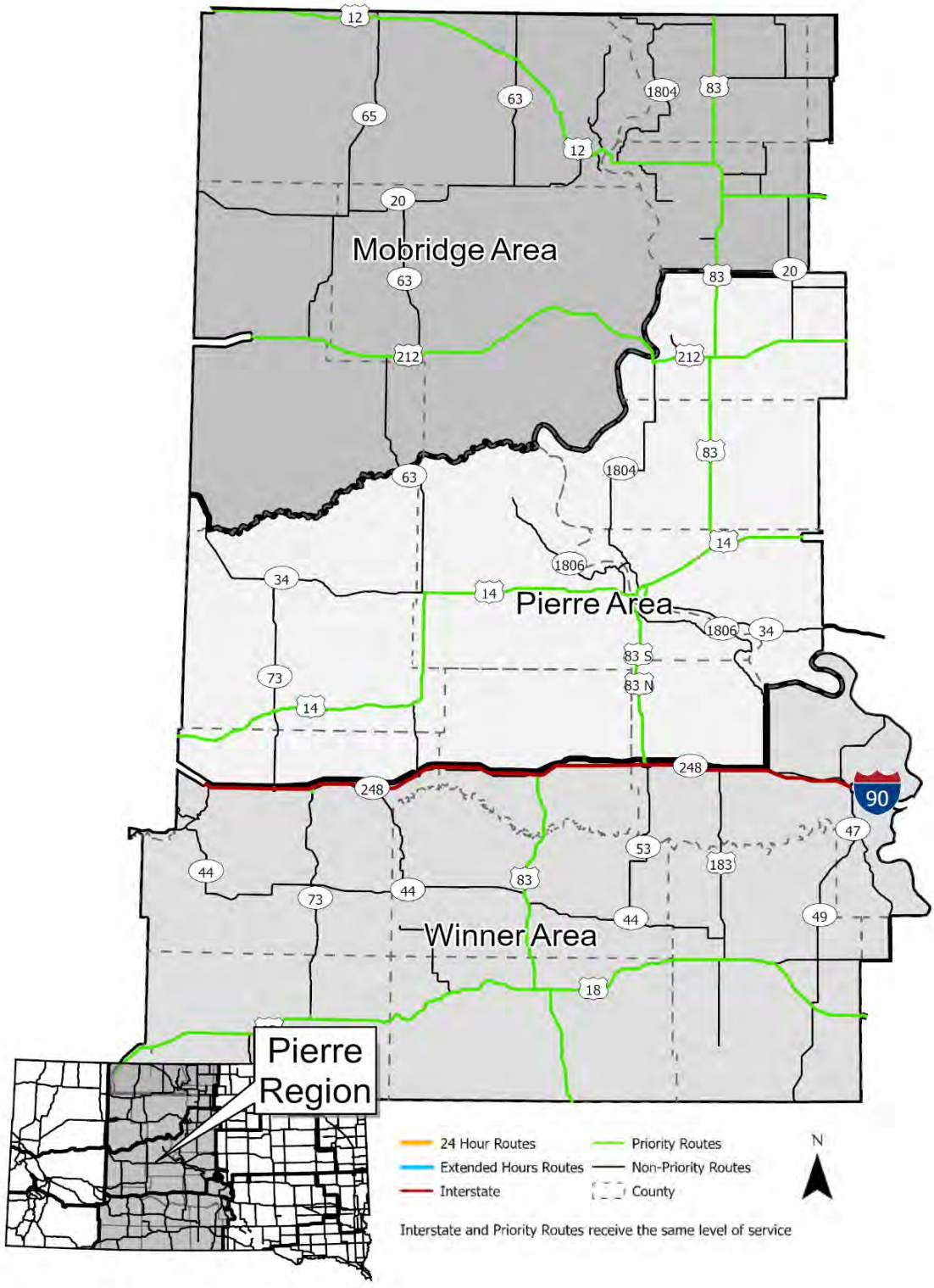

APPENDIX A

STAFFING AND EQUIPMENT SUMMARY

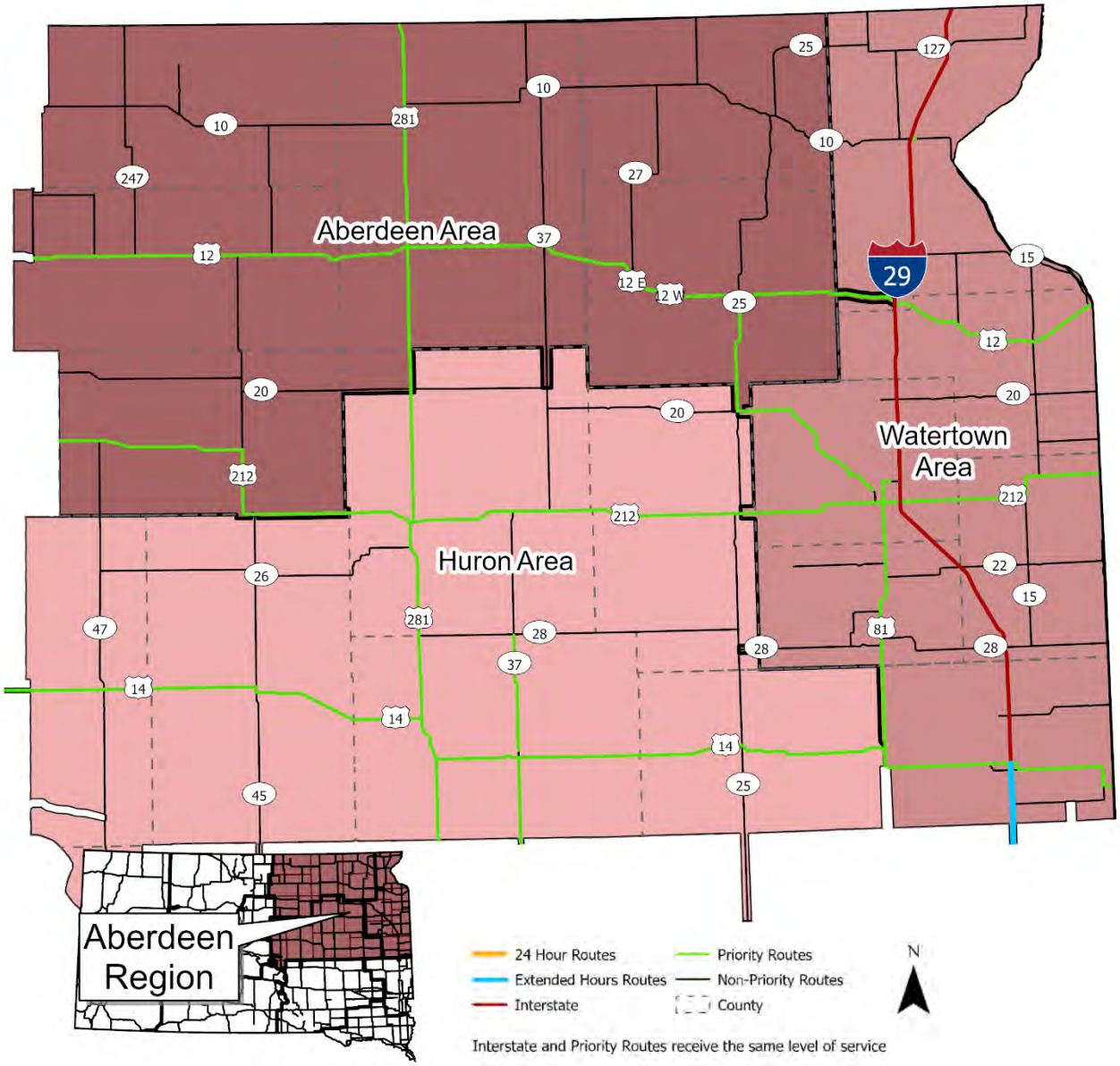
Rapid City Region Staffing Report for 2026-2027						
		Plows/Sanders		**Employees Operators**		
Region	**Area**	*Routine and Daily*	*Spares*	*Permanent*	*Seasonal*	*Reserve*
Rapid City	Belle Fourche	29	5	22	3	11
	Rapid City	50	10	34	3	7
	Custer	22	6	22	0	5
REGION TOTAL		101	21	78	6	23



Pierre Region Staffing Report for 2026-2027						
		Plows/Sanders		**Employees Operators**		
Region	**Area**	*Routine and Daily*	*Spares*	*Permanent*	*Seasonal*	*Reserve*
Pierre	Mobridge	24	5	21	1	5
	Pierre	24	4	21	0	4
	Winner	38	0	36	0	2
REGION TOTAL		86	9	78	1	11



Aberdeen Region Staffing Report for 2026-2027						
		Plows/Sanders		**Employees Operators**		
Region	**Area**	*Routine and Daily*	*Spares*	*Permanent*	*Seasonal*	*Reserve*
Aberdeen	Aberdeen	34	3	26	2	0
	Watertown	36	1	28	5	12
	Huron	24	7	23	2	5
REGION TOTAL		94	11	77	9	17



Mitchell Region Staffing Report for 2026-2027						
		Plows/Sanders		**Employees Operators**		
Region	**Area**	*Routine and Daily*	*Spares*	*Permanent*	*Seasonal*	*Reserve*
Mitchell	Mitchell	40	8	37	1	9
	Sioux Falls	41	0	29	12	9
	Yankton	33	2	22	1	11
REGION TOTAL		114	10	88	14	29

