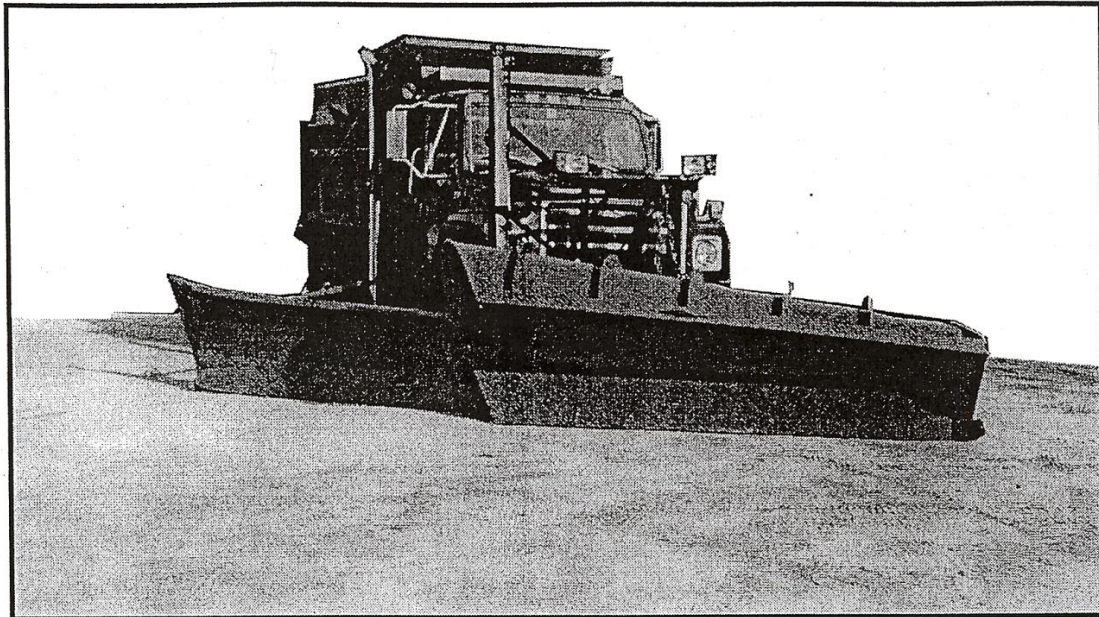


TOWN OF FREEDOM, New Hampshire



Winter Road Maintenance Policy

Adopted by the Board of Selectmen

March 23, 1998

Amended August 10, 2007

Amended April 23, 2012

Freedom, NH's Approach to its "Low Salt" usage policy

	Top Ten Priorities for Salt Applicators for Salt Reduction*	Freedom's Approach
1	calibrate spreaders	Calibrate spreaders each year before winter season
2	purchasing groundspeed controller for spreaders	Use crew education and proper equipment calibration to ensure appropriate and minimum application of salt. <i>At this time</i> Freedom's judgment is that ground speed controllers are too expensive to purchase and particularly maintain for the road miles we have. Education and calibration are felt to be effective for road miles serviced.
3	anti-icing & pre-wetting	Road salt is applied typically at the beginning of a storm to encourage anti-icing. Freedom's Road Agent lets the first 1/2" of snow wet the salt to minimize bounce and scatter, rather than pre-wetting. Salt is also typically applied at the end of a storm to help speed clear roads.
4	training	Training of road crews is an important priority in Freedom to minimize salt use and minimize negative impacts on the roads, equipment and the Town's budget.
5	following a snow and ice policy & keep records	Follow the Town's written snow and ice policy
6	plowing	Plow regularly and with good judgment to keep roads safe and to minimize salt use.
7	understand the effect of temperature on chemicals	Road Agent and crew training is used to stay on top of proper chemical use.
8	using new technology	The Road Agent reviews and evaluates (at least annually) new technologies as they become available to determine cost/benefit to the Town.
9	good storage and housekeeping practices (cover salt piles)	The Road Agent keeps up with and follows current road maintenance Best Management Practices (BMP's), including salt and sand use, storage and housekeeping.
10	following a salt management plan	Follow the Town's written snow and ice policy.

*From UNH T2 Center

Objective and Equipment

The Town of Freedom winter maintenance objective is to provide safe travel for the public under all weather road conditions, with the minimum chemical treatment and labor.

The Town of Freedom Highway Department is providing a high level of educational training to its seasonal and full time employees. This is the key to providing quality road maintenance using the latest technology all in an effort to balance road safety and the environment.

The Highway Department owns eight (8) pieces of equipment to deal with winter road conditions. Each piece of snow fighting equipment is assigned duties for snow storms. Of the eight snow fighting pieces, five are equipped to spread sand or salt. When conditions warrant all five are activated.

There are seven (7) plow routes and five (5) sanding routes. These routes are designed to take approximately the same amount of time to complete. The routes cover all areas of the town and priorities are given to main roads and school bus routes. The loader is assigned san/salt loading duties and parking lot plowing.

The time needed to sand all the roads in town is approximately 3-4 hours. Salting takes less time (2 ½ -3 hours) because fewer loads are spread (dirt roads are not salted). Plowing requires from 4-5 ½ hours to complete a trip around town, this is because of the need to travel on all roads in both directions.

Understanding Winter Maintenance

Winter maintenance is not a science but an art. The Highway Department's maintenance strategy is based on the best information provided by weather forecasters, which is not always accurate.

Freedom's Highway Department spreads a combination of sand and salt at the onset of a storm. The material spread creates a brine between the snow and the road surface, as well as producing an abrasive action for traction. The amount of salt added to the sand is determined by the temperature, moisture content of the snow, intensity of the storm, time of the storm, and predicted accumulation of snow. The brine produced by the salt prevents hard packed snow from sticking to the road and allows the plowing operation to be effective in clearing the road. The close proximity of pre-sanding and plowing does not significantly reduce the effectiveness of this operation.

Plowing commences immediately following or sometimes during the pre-sanding. We continue plowing throughout the storm. There are times during the storm when additional sand or salt or a combination of both is spread to facilitate travel. The end of the storm does not mean the end of the plowing operation. Every road must be plowed once the snow stops, which may take as long as five (5) hours. The result of delay between the end of the snow and the end of the plowing operation is that driveways that have been plowed have a mound of snow at their entrance and some roads are clear and others are still snow covered. Driveway entrances may be filled in, and cannot be cleaned out by the town.

During the final trip around town the plows, intersections are pushed back, turn-a-rounds are cleared and material (sand-salt or a combination) is spread.

After we have completed maintaining the roads we assign equipment to the various parking lots we maintain. The equipment used is determined by availability such that the first available equipment is assigned to parking lot clearing. We do try to maintain an open lane around municipal buildings during the storm for fire protection and emergency use. These lanes are not sanded or salted during the storm.

The following day, trucks and other heavy equipment are assigned duties of shelving (cutting down) the snow banks, as well as pushing back cul-de-sacs and turn-a-rounds. These operations may result in additional snow being deposited in driveways, again which will not be cleared by the Town.

Snow Plowing

Snow plowing will commence as soon as there is a plowable accumulation, approximately one to two inches (1"-2"). Plowing will continue for the duration of the storm. Main roads and school bus routes receive attention first. All roads will be plowed in order, to be determined by priority and efficiency.

Roadways will be cleared from the outside edge of shoulder to the outside edge of shoulder. Every effort will be made to do as little damage to shoulders and abutting landscaped areas as possible. The responsibility for the repair of private property placed in the town's right-of-way rests with the abutting land owner, or person placing obstructions within the right-of-way.

RSA 236.39 provides

Civil Liability. If any person shall place any obstruction in a highway, or cause any defect, insufficiency or want of repair of a highway which renders it unsuitable for public travel, without authority, he shall be liable to the state, and to the town for all damages to other highways, and for all damages and costs which the town shall be compelled to pay to any person injured by such obstruction, defect, insufficiency or want to repair. In addition a person may be criminally liable for willfully insuring a highway.

RSA 236.38

Plowing before there is sufficient frost in the ground or after the frost has left the ground causes damage to everything the plow comes in contact with. This includes roads, shoulders, lawns, and landscaped road sides. Plowing at these times may be unavoidable; every effort will be made to minimize damage.

Plowing after the snow has stopped will continue until as much snow as possible has been removed from the roadways. This may seem at times excessive, but is done to minimize the effects of melting and re-freezing of residual snow cover.

Parking areas for emergency vehicles will be plowed and treated as soon as practical after the roads have been plowed and treated. Parking and infrastructure for municipal and school buildings that are in constant use will be done next, followed by the church and the occasionally used municipal building and transfer facility.

The day after the storm, road widening, turn-a-round areas, cul-de-sacs and shelving will take place. Full effort plowing will take place during commuter hours and daylight hours. If the storm is of extended duration the crew may be divided into shifts during the overnight hours if the storm will not allow the employees an opportunity to go home for a four (4) hour respite.

Mailboxes located within highway rights-of way constitute private property on public land and subject to damage. Mailboxes damaged in snow removal or summer maintenance will be repaired by the owner. Mailboxes shall be a minimum of 5 feet off the edge of the asphalt or road surface, this will allow for snow removal in winter and shoulder work performed in summer. Other obstacles placed in the town's right-of-ways will be at the discretion of the owner and their sole responsibility to repair or remove if requested by the Town and not repaired by the Town.

All town ordinances and state laws dealing with snow removal, placement of snow, or interfering with snow removal will be enforced.

Treating of Roads Sanding and Salting

The treatment of roads with sand or salt is what produces bare or snow packed pavement. The use of chemicals to remove snow and ice from roadways has been a common practice in New England and New Hampshire for many years. Many large cities make an effort to remove snow with just chemicals when possible. This is because of the configuration of their streets and inability to store snow. Towns like ours use a combination of chemicals and plowing.

The Town of Freedom, in an effort to reduce the effects of salt contaminating privately owned wells, is adopting a low salt policy. Salt will be used as sparingly as possible under varying winter conditions.

Treatment of all roads will start as soon as practical, at the onset of snow. All roads will be treated by applying sand and/or chlorides to each lane or the center of the roads. Some roads with a severe incline or dangerous curves may be treated in the center of the lane going in both directions. Once treatment is complete, roads will probably not be treated again until the end of the storm. The exception to this would be snow/ice/road conditions during the storm at the discretion of the Road Agent if it would pose a greater than expected hazard.

At the termination of the storm, chloride will be spread at a rate of 250 pounds per lane mile to aid in the removal of snow or ice that cannot be removed by plowing.

Road surface conditions will vary according to traffic volume, temperature, shaded areas and the direction (N,S,E,W) the road faces. Roads facing south will melt easier than roads facing north. Roads with more traffic will clear before roads with fewer cars. The action of traffic activates the chemicals and spreads the melting effect over a wider area of the road.

Ice and freezing rain storms will be treated with a more concentrated mixture or a heavier application of material. Treatment will continue for the duration of the storm.

All parking areas will be treated with sand or salt. This includes municipal owned property, and school property.

Material used in treating snow and ice:

Sodium Chloride (Salt): The most common and cost effective material used to melt snow and ice when temperatures are above twenty (20) degrees F.

Magnesium Chloride Acetate: Magnesium *at this time* is considered environmentally friendly, but a costly substitute for salt.

Calcium Chloride: Calcium is a chemical which melts ice at a lower temperature than salt. Calcium is much more corrosive than salt.

Sand: Sand is an abrasive that is used alone or mixed with a chemical to speed melting. Sand by itself will not melt snow or ice. At low temperatures sand will not adhere to ice.

Questions, Suggestions, Figures, Facts and Policy

Questions:

Q. Why is snow pushed into my driveway by the plow?

A. It is unavoidable. The plowing of roads and streets is done with right hand discharge plows. After the storm, the cutting down of snow banks is done by right hand discharge wings.

Q. Can I, as a resident push, shovel or snow blow snow from property onto the street?

A. No! A town ordinance restricts this act.

Q. If I can't make it up my driveway may I park on the side of the road?

A. No! No vehicle may park on the road or right-of-way in a manner so as to hamper snow removal or sanding operations. The vehicle may be towed at the owner's expense.

Q. Do some roads get priority during storms?

A. Yes, main roads and school bus routes are given priority.

Q. Do Selectmen get their roads plowed first?

A. No.

Q. Will the Town push the snow back to my mailbox?

A. When possible, we try to stay far enough away to prevent damage during the plowing operation.

Q. Where should I place my containers for curbside pickup during snow and ice storms?

A. In your driveway, at least as far off the road as your mailbox is.

Figures: (Approximate 2012)

Salt cost \$61.83 a ton

Calcium Chloride cost \$330.00 a ton

Magnesium Chloride Acetate costs \$319.00 a ton

Sand \$7.66 a ton

Facts

88.3% of all injury accidents during winter storms can be avoided by de-icing roadways.

75% of all fender benders or sliding accidents can be prevented by de-icing roads.

Fuel consumption increases from 12% to 54% when driving on snow covered roads.

A one (1) foot snow fall over a square mile produces 17.4 million gallons of water.

Freedom's plow trucks average 2 miles per gallon when plowing.

¼ inch of ice on a mile of pavement weighs 70 tons.

Policy Statement

This policy is intended as a guide only. Weather conditions, road conditions and equipment serviceability may alter planned strategies. Availability of personnel, length and time of storms may also impact this policy. We intend to give the traveling public the service they insist on, with the understanding that outside circumstances are beyond our control.