TOWN OF RUTLAND
DEPARTMENT OF PUBLIC WORKS
WINTER OPERATIONS PLAN

This plan addresses the wintertime Department of Public Works operations for ice and snow control on Town roads and sidewalks. It also identifies essential community services provided by the Department of Public Works for winter water and sewer emergencies.

Gary Kellaher
Superintendent, D.P.W.
RESOLUTION

BE IT RESOLVED that the Board of Selectmen of the Town of Rutland adopt the following statements of policy regarding winter snow and ice clearing operations:

1. NOTWITHSTANDING the circumstances involved with changing climatic conditions, the Town will endeavor to keep Town roads and designated walkways in a reasonably safe condition for travelers; and

2. Town employees will endeavor to exercise reasonable care and diligence in the performance of their duties, consistent with the intent of the current Town of Rutland Department of Public Works Winter Operations Plan; and

3. Travelers who use Town roads and designated walkways are expected to demonstrate due care and reasonable caution, especially under adverse winter conditions.

Executed by the Town of Rutland Board of Selectmen, this _____ of __________________, 201_.

____________________________________
____________________________________
I. General

The Town of Rutland Department of Public Works has the responsibility for maintaining essential services on over 80 miles of accepted Town roadways, 15% of which are gravel and 85% paved, as well as 22.4 miles of waterline, over 15.3 miles of sewer, and the Town’s public buildings. There are also approximately 30 miles of unaccepted and private roadways of which the Town is responsible for 50% of winter operations. A significant portion of the Department’s overall efforts are directed towards maintaining the essential transportation and utility services during an extended period of high precipitation, low temperatures and heavy winds, which together characterize a New England winter.

The Department of Public Works Superintendent has direct responsibility for daily operation of the Department, acting under the authority of the Board of Selectmen. The Department of Public Works Superintendent supervises the day-to-day operations of seven functional divisions. Appendix A contains an organizational chart identifying Department positions and individuals.

II. Resources Available to the Department of Public Works to Assist in the Planning and Execution of Winter Operations

In order to provide timely winter street clearing services and to gauge the level of activity required prior to, during and following winter storms, the Town utilizes the following:

A. Precision Weather Service.

B. Weather forecasts are provided by the National Weather Service located at Taunton, Massachusetts. In addition the weather forecasts are broadcast continually and receivers monitor this forecast at the Public Works garage, Public Works office and Superintendent’s vehicle.

C. Weather forecasts are provided by local radio and television stations, including the dedicated weather channel on cable television.

D. Massachusetts Highway Department monitored on the scanner.

E. Assistance is available on local road conditions from the Rutland Police Department. During off duty Public Works hours (3:30 p.m. to 7:00 a.m.), the Department of Public Works utilizes information provided by police officers on duty/patrol. To provide the best possible response in the shortest time it is important that the following information be provided by the Police Department and conveyed to Public Works at the time contact is made.
1. Is the problem Town-wide, restricted to one area of Town or at a specific location? The problem location needs to be defined as accurately as possible.

2. What is the specific nature of the problem?

   Snow – how much is on the road(s) and how much is falling?

   Ice – how severe are the conditions and is it widespread or site specific?

   Debris – what is it (i.e., tree in road), what is its size, is it blocking all traffic or only one lane, is it in the wires, etc.?

   Washouts – how large an area is affected (size) and is the washout in progress or over?

   Emergency Access – police, fire or rescue cannot get to a location because of specific road conditions or problems.

   Miscellaneous – explain what the problem is in as much detail as possible.

3. What is being done by the Police Department pending arrival of Public Works employees?

   a. officer/patrol will/will not remain on site
   b. barricades will/will not be put up
   c. roads will/will not be closed

4. A decision on what effort is needed to correct the problem will be made by the Department of Public Works. However, any input from the police officer on-site may assist Public Works in the timely arrival of help.

III. Operations on Town Highways and Sidewalks

A. General – During the winter period extending generally from the 15th of November through the 15th of April, the principal efforts of the Department of Public Works are directed towards control of snow and ice on Town Highways. To accomplish the objectives and policies of the Town of Rutland, operating procedures have been implemented. The operating procedures take place over four distinct time periods including (1) Pre-winter Preparation, Training and Orientation; (2) Winter Storm Operations; (3) Continuing Winter Operations during non-storm periods and (4) Post-winter Follow-up. Items (1) and (4) are contained in
Appendix B and C; the remaining operations are described in the following section.

B. Winter Storm Operations

1. Determination of Operations

Using the resources identified under item II and judgement based on experience, the Superintendent or his designee, will determine the appropriate level and timing of snow and ice control to be performed by the Department. The Superintendent or his designee will contact employees in the Department using the alert notification list.

Although significant improvements have been made in weather forecasting, accurate predictions of the specific effect of winter conditions on the roads in the Town of Rutland are not possible. An overall plan has been developed to provide for clearing of the roads and this plan is generally followed. However, each storm event is unique and deviations from the plan occur often. Decisions must be made using individual judgement based upon a current assessment of the situation.

2. Control Center

Upon notification, employees meet at the Highway Garage on Pommogussett Road, complete a pre-startup check of equipment and proceed to perform the necessary snow and/or ice clearing operations.

3. Equipment

To support the operation, the Department has the following equipment available, providing all equipment is operational:

One – heavy duty dump truck, 8 cubic yard capacity with one way snow plow and wing normally equipped for sand/salt operations (with additional liquid calcium chloride dispensing capability).

Two – heavy duty dump trucks equipped with an 8 cubic yard capacity, sanders with one way snow plows and wings (with additional liquid calcium chloride dispensing capability).

Two – heavy dump trucks, 8 cubic yard capacity with one way snow plows normally equipped for sand/salt operations (with additional liquid calcium chloride dispensing capability).

Two – one ton four wheel drive dump trucks with plows equipped with
3 cubic yard sanders for sand/salt operations.

One – one ton four wheel drive pickup with plow.

One – one ton four wheel drive with plow (Sewer Division).

Two – 2 cubic yard loaders equipped with plows.

One – Trackless sidewalk plow with blower or broom.

One – loader/backhoe equipped with a plow.

One – Champion 730A motor grader for emergency snow removal and/or special ice situations.

In an emergency situation where the Town equipment is out of service for repair or the situation is beyond the ability of the Town to handle, supplemental equipment and operators may be rented from area contractors. Assistance may be secured from neighboring communities, although help in this area is unlikely if the storm event affects neighboring communities as well as Rutland. Major winter disasters may require the assistance of the Massachusetts National Guard.

4. Materials

At the highway garage yard located on Pommogussett Road, ice and snow clearing materials are stockpiled for use during the winter season.

a. 2,000 to 2,500 tons of a sand/salt mixture. The salt is utilized to allow safe thawing action to take place coincident with application of the sand.

b. During the course of a complete winter, the Town utilizes approximately 2,600 tons of salt. As the stockpile is depleted additional material is ordered. The Town sources currently being used are:

1. Salt: Granite State Salt
   1-603-436-8505
2. Sand: W. J. Graves Construction Co., Inc.
   1-978-939-5568
c. 2,800 gallons of liquid calcium chloride is stored in a fiberglass storage tank at the highway garage. This material is utilized in connection with the sand/salt mixture to speed the thawing process and depress the thaw point.

5. Snow Plowing and Sanding/Salting Operations

a. The Department of Public Works has organized the equipment into routes. Each complete route for a single vehicle takes in excess of 3 to 4 hours to complete. The routes have been established to:

1. Provide highest priority coverage to the roads with heaviest usage (the major arterials) and history of severest conditions and/or accident. Examples are Route 68, Route 56, Pleasantdale Road, Wachusett Street, and Maple Ave.

2. Maximize the cycle capability of each vehicle so that unnecessary reload trips are not made for resupply of materials at the highway garage.

3. Plow routes are designed for mostly right-hand turns to avoid leaving windrows in intersections.

4. Provide an intermediate priority to collector streets with lesser traffic loads and reduced history of accidents. (A collector street is one that is being used or will be used to carry a substantial volume of traffic from a minor street(s) to a major street or community facility, and normally includes the principle entrance street to a large subdivision or group of subdivisions, and the principle circulation streets within such subdivisions). Examples of this type of street are Prescott Street, Campbell Street, Turkey Hill Road, Charnock Hill Road, etc.

5. Because of their location adjacent to collector streets, many minor streets (not including dead end streets and cul-de-sacs) will be cleared concurrent with collector streets or immediately following the collector streets.

6. Dead end streets follow in priority although many may be cleared earlier in the process to meet the objectives of cycling.

7. Due to the inability of the large 8 cubic yard trucks to effectively clear many dead-end streets and cul-de-sacs, the effort has to be augmented by the 1-ton dump trucks and 1-ton pickup. Clearing of cul-de-sacs and dead end streets is
extremely time consuming. Very often these areas will not be cleared until well after all other clearing operations are completed. This also occurs when manpower is not available to man all Town equipment (extended storms, illness, etc.).

8. Sidewalk clearing in designated areas will generally begin in priority areas at the end of a storm. Due to manpower and equipment shortages, general sidewalk clearing may not take place for some time following a storm. The areas of sidewalk which are planned for priority clearing include:

   a. Maple Avenue
   b. Main Street
   c. Glenwood Road

Other sidewalks and paths will be cleared as time allows following a storm.

b. It is important to note that the plan which has been presented is subject to change with each storm. Also the time frame for clearing can vary markedly depending upon condition and continuing effects of a storm. Other factors affecting the plan are:

   1. night time plowing
   2. commuter traffic
   3. parked cars
   4. equipment breakdown
   5. time length since the start of the storm.

c. In order to guide the Department in utilizing the best available techniques in snow and ice clearing operations a set of guidelines is provided in Appendix D.

d. Operator and citizen safety is an important consideration during all snow clearing operations and suggested safety practices are provided in Appendix E.

6. Applicable Ordinance/Laws

During snow clearing operations it is important that motor vehicles are not parked in … “such a manner as to create or constitute an impairment to traffic or to interfere with the removal of snow or ice, or the sanding or salting of public streets and highways or to delay or preclude the delivery of emergency services, police, fire and ambulance constitute a hazard contrary to the public health, safety and welfare”…
All residents are reminded that in accordance with the Town of Rutland’s Traffic Rules and Regulations, Article IV, Section 2E, that all night parking on public streets in the Town of Rutland is prohibited during the winter months of November 1 through April 1.

Town of Rutland By-Laws under Highways:

SECTION 1. The Superintendent of Streets or other officer having charge of ways, for the purpose of removing or plowing snow, or removing ice from any way, may remove or cause to be moved to some convenient place, including in such term a public garage, any vehicle interfering with such work and for imposing liability for the cost of such removal, and of the storage charges, if any, resulting therefrom upon the owner of such vehicle.

SECTION 2. No person shall place, or cause to be placed, in or on any of the public streets or squares, any dirt, leaves, rubbish, wood, timber, snow, or other material, tending to obstruct the streets, without the written permission of the Superintendent of Public Works.

The practice of plowing across Town roads, blowing, or shoveling snow onto the highway is prohibited under Town By-Laws.

The Department of Public works will notify the Police Department for appropriate action against motorists and residents who violate either the parking ban or Section 2 under Highways of the Town By-Laws. Where snow castles are built in the road edge snow banks, the Department of Public Works will destroy the castles.

7. Snow Removal on State Highways in the Town of Rutland

Within the Town of Rutland there are 10.05 miles of State Highways including:

- Rt. 122A (Main Street)
- Rt. 122 (Barre-Paxton Road)
- Naquag Street
- Fisherman’s Road

Snow removal on these roads is the responsibility of the State of Massachusetts Highway Department administered by the District 3 Office, 403 Belmont Street, Worcester, Massachusetts.
C. Continuing Operations During Non-Storm Periods

After a storm event or during periods of lessened storm activity a number of operations need to take place to insure readiness for subsequent winter operations.

1. Equipment needs to be inspected using preventive maintenance techniques, and repairs made as necessary. Special attention needs to be given to tires, brakes, snow plows-including wings, shoes, bearings, spinners and chloride feed systems.

2. Materials, especially salt, need to be reordered to insure an adequate stockpile on-site.

3. Plow routes need to be driven and checked for identifications of problems, especially illegal plowing by driveway contractors, problem mailboxes, snow castles, etc. It is the responsibility of the route driver to identify these problems and report them to the supervisor.

4. It is important to wing-back snow on road shoulders following each major storm and to clear critical areas to make room for future storage. If the snow bank height becomes excessive, the top of banks will have to be cut down for proper visibility or future snow storage. If the snow is allowed to melt in place and refreeze, the result is a heavily compacted mass which cannot be moved without considerable effort by snow plows. Therefore, winging-back is an ongoing function which needs to be addressed as soon as storms subside and the amount of stockpiled snow dictates that winging back is needed.

5. The Town does not have a policy of hauling snow. However, at specific locations, intersections, cul-de-sacs without storage space, or sites of repeated accidents, the Town may selectively utilize the loader and dump trucks and haul snow from the site. The principle purpose of hauling is safety. The hauled snow shall be dumped at the landfill site or at some other suitable and acceptable place as determined by the Public Works Superintendent or his designee.

6. It is important that roadway drains and catch basins be kept open to allow melting ice and snow to run off. A salt or solid calcium chloride application may be needed to free them of ice and snow.

7. Following a storm, generally within 48 hours, an investigation will be made of all complaints received during the storm. The investigation will be completed by the Superintendent or his designated representative. Their findings shall be made known to the complainant as soon as practicable.
IV. Winter Sewer & Water Operations

A. Prior to the onset of winter, the water and sewer division will:

1. Check hydrants and valves to insure their operability.
2. Flag all hydrants for winter locations.
3. Inventory and order necessary emergency materials.
4. Insure that used fire hydrants are drained prior to winter.

B. Winter Operations

1. During storms, the water and sewer division will be called upon to assist in snow and ice clearing operations.

2. Following storms, their principal responsibility shall be to clear snow and ice from around hydrants and to clear access lanes to pump stations.

3. The water and sewer division also has responsibility for repair of broken and frozen water mains, within the overall limit of Town responsibility up to and including the curb stop.

4. When fire hydrants are used by the Fire Department during the winter, the Fire Department will notify the Department of Public Works immediately following the fire on the next business day.

V. Coordination/Communication/Public Information

A. All communication from the public concerning conditions and problems should be directed during normal working hours (7:00 a.m. to 3:30 p.m.) to the Public Works office, 17 Pommogussett Rd, Rutland, MA 01543 – Telephone No. (508) 886-4105. Emergency requests during non-working hours should be directed to the Police Department dispatcher, 886-2123 for relay to the Superintendent or his designee. The highway garage telephone system is intended for internal control only and not for direct communication between the public and the department.

B. Complaints or requests for service, when received, must be written on a request form service slip with the required information noted. The form to be used is provided in Appendix F.

The complaints will be reviewed and investigated by the department and corrective action taken as appropriate.

C. Because of the volume of complaints specific to objects in the Town Right of Way and damage to property, the following has been established.
1. Town of Rutland Traffic Rules and Regulations and By-Laws prohibits encroachment of the Town Right of Way without prior approval by the Board of Selectmen. Objects in the ROW are placed there at the owners’ risk and the Town assumes no responsibility for any damage to objects placed in violation of these. Common items damaged are fences placed within the Town ROW, flower pots, basketball hoops, etc.

   a. The Town will fix a damaged mailbox or replace a mailbox only when the Department determines that a plow physically hit the mailbox. This determination is made by observation of cut marks, paint off the plow blade, etc.

   b. Heavy snow coming off the plow blade will often knock over and damage mailboxes which have not been adequately mounted or braced or those mailboxes whose doors have been left open. Also, mailboxes are damaged by private contractors and homeowners during driveway clearing operations. The Town will not fix or replace mailboxes in these situations.

2. The Town will restore or replace objects located on private property damaged as a result of its snow or ice clearing operations.

3. Recovery of damages will be pursued by the Town if Town equipment is damaged due to objects placed in the Town ROW.

D. The following are recommendations and information relative to the safe operation of vehicles in snow storms. It is important that the following issues be communicated each year to the residents at or near the beginning of the winter storm season:

1. At the beginning of each storm the DPW employees must also drive icy conditions to reach the equipment needed. This cannot be done quickly. Priorities are set and some areas must wait longer for service than others. 95 miles of roadway over 36 square miles is a very sizeable workload.

2. Make certain your vehicle is READY for winter driving conditions long before the first storm hits. Being READY means good snow tires installed, good wiper blades, properly working defroster, added weight in the trunk, i.e. pails of sand, cement blocks, and a well made ice scraper.
3. Reduce your speed in snow and ice conditions. This is the #1 cause of most accidents. People have actually tried to pass a sander or plow on many occasions. Rutland, with its higher elevation, is subject to sudden freezeover conditions and catch many a motorist unaware.

4. Do not drive in winter storms unless absolutely necessary. If you do have an emergency that requires you to travel, do so carefully.

5. When a storm is forecast please remove vehicles from roadsides. Do not wait until the 12:00 a.m. curfew.

6. Shoveling or plowing snow from driveway into the street is not only illegal, it can be a serious traffic hazard. Shoveling snow to the side of the driveway opposite the direction of the plow will significantly reduce those buildups of snow at the end of the driveway. Before your final driveway cleanup check the street. If the street is plowed clean and full width, you are safe. If not, that dreaded plow will be back to fill you in.

7. Mailboxes installed in the right-of-way are placed at the OWNER’S RISK. Get them back as far as practical. If the post is rotted, replace it now so the weight of the snow rolling off the plow will not break it off.

8. Children cannot be allowed to create castles, forts, tunnels and other similar structures in roadside snow banks.

9. Snow plows must be respected, given their width, weight and speed. Drivers often will attempt to crowd snow plows or homeowners will attempt to protect their shoveled drive by standing at the entrance. Both practices invite disaster because of the lack of maneuverability of these vehicles, the generally icy conditions and often the inability to see perfectly under blowing snow condition.

10. Objects in the Town ROW need to be moved or relocated during the winter. Basketball backboards can be turned away from the street and this will prevent the hoops from damaging plow trucks or causing accidents.

E. General information regarding snow removal operations:

1. All main roads are treated immediately when they are covered with a thin layer of snow. Salt keeps the snow from bonding to the pavement and allows for cleaner plowing. Plowing begins when two to four inches have accumulated and sooner if traffic conditions are heavy.
2. We are not in competition with surrounding towns to achieve bare pavement. Each town has their own policy. We strive for the safest streets at reasonable costs in the shortest period of time.

3. DPW workers do not get a shift change. If a storm is of long duration the workers continue around the clock until the job is done.
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Appendix A2
D.P.W. Personnel Available for Snow Removal

Highway Foreman
Mechanic/Equip. Operator
Equipment Operator 1/Laborer
Equipment Operator/Laborer
Equipment Operator/Laborer
Equipment Operator/Laborer
Equipment Operator/Laborer
Equipment Operator/Laborer
Equipment Operator/Laborer
Chief Water Operator
Water Operator
Appendix B
Pre-Winter Preparation/Training/Coordination

1. The Importance of Coordination

   A. Update the operation plan yearly based on the previous year’s experience. Conduct coordination meetings.

   B. Know the plowing and spreading routes.

      1. All employees will make trial runs of their routes before winter to familiarize themselves with routes, road conditions, obstacles and problem areas. Remember that road conditions change from year to year and obstacles may be present now that were not there in the past. Plan fall meetings to familiarize road crews with their winter duties and all routes in case someone becomes ill and another crew member must take over the route.

      2. During trial runs, pinpoint drains and waterways that must be opened after every storm. Mark other structures that will be hidden from a plow, including fire hydrants, guard rails, drop inlets, catch basins and curbing ends.

      3. Plan plowing routes to bring trucks back to storage facilities when they are almost empty of deicing material. This saves time and fuel.

      4. Review the new development plowing plan with the full crew in late fall.

   C. Effective Radio Communication

      1. Review the alert notification roster and radio calls with all employees.

      2. Check all radio equipment and insure that working spares are stockpiled at the garage.

      3. Review the storm warning system with all affected employees.

2. Equipment – Its Operation and Maintenance

   A. Train operators thoroughly in the use of their equipment. This will ensure that operators are more effective and that equipment will last longer and cost less to maintain.
B. Check all equipment, including all wing and plow hydraulic systems, repairing, replacing and painting where necessary. Inspect the condition of moldboards and cutting edges on all snowplows. Order an adequate stock of parts for plows. Inspect snowplow hoists and underbody blades. Check air and hydraulic hoses and other critical parts of power units.

C. Mount, load and test all spreaders. Make necessary repairs to spreaders. Make sure all personnel are familiar with spreader controls, whether they are manual or automatic.

D. Inspect all vehicle lighting, including wiring and sockets on headlights, tail lights, stop lights and turn signals. (Warning lights must be visible from all sides, whether bodies are raised or lowered.)

E. Make sure you have sufficient stocks of tire chains, tires, spreader repair parts and other miscellaneous supplies.

F. To keep equipment in top condition, set up a regular maintenance routine to be following all winter. Equipment operators should inspect vehicles after each storm and report needed repairs.

G. The first step in vehicle maintenance is to make sure every operator knows what to expect of each piece of equipment. Operators should check these items carefully:

**Spreadsers:** Inspect pumps, hoses and fittings; check spinners and augers, auxiliary engines.

**Controls:** The two major components of any hydraulic system are the pump and the controls, whether they are manual or automatic. All operators should become thoroughly familiar with spreader controls. No two hydraulic systems are exactly the same. Therefore, controls will differ from truck to truck. Know your equipment and how the auger or conveyor and the spinner react at various settings.

**Plows:** Carefully inspect blades after each use. If blade wear begins eating into the moldboard, it will be very costly to replace. Remember that snow plow blades do not wear evenly. Replace blades when they are badly worn at any point! Have operators check blade wear during storms. Make sure plow blades are set at the proper angles for better fuel consumption.

**All Electrical Equipment:** Inspect and service all lighting and electrical equipment regularly, including wiring and sockets. Carry ample stocks of parts for rotating flasher units, including lenses and lamps.
Safety Equipment: Make sure there are flashlights, flares, flags and safety vest in truck cabs. A first aid kit is also a good idea. Replenish spare parts inventories immediately following storms.

H. Inventory and order all equipment parts in the fall so that the material will be on hand when needed. It’s difficult to obtain parts with a blizzard in progress.

3. Materials

A. Insure that adequate stockpiles of sand are on hand prior to the start of winter (2,500 to 3,000 tons).

B. Provide stockpiles of gravel, peastone, and rip rap at the Town garage for possible washouts or special winter emergencies.

C. Contract early in the fall for supply of salt and liquid calcium chloride.

4. Conduct training sessions on application procedures (Annex D) to include:

A. How salt and calcium chloride work

B. How and when to use salt

C. Application rates

D. Special storm situations

E. Special de-icing problems

5. Conduct continuing training sessions on safety (equipment and practices – Annex E).

6. Conduct training sessions on the Town’s parking ordinance, procedures for helping motorists, public relations and specifically how to handle complaints, etc.

7. Inspect new development roads for acceptance/correction/paving prior to winter.
Appendix C
Post-Winter Follow-Up

1. Review the winter snow clearing operations recently completed with all in-house personnel to obtain input for improvement in the coming season.

2. Give all equipment a thorough maintenance check after the last snowstorm of the winter.
   
   A. Sandblast and paint all plows, blades, and spreader assemblies as appropriate.
   
   B. Order new plow blades and other equipment as necessary.
   
   C. Oil and grease all moving parts.

3. Schedule summer construction for areas where road defects have resulted in problems all winter long, such as ice patches.

4. Identify new equipment needs for improving operations.

5. Provide the opportunity for employees to attend snow-conferences and other events to broaden their understanding of snow clearing operations and to become aware of changing equipment and technology.
Appendix D
Guidelines and Operating Instructions
For Ice and Snow Clearing Techniques

I. Techniques

A. Timing is critical in applying salt, calcium chloride and sand/salt combinations. Begin de-icing as soon as snow starts to accumulate to keep snow and ice from bonding to the pavement.

B. Take advantage of nature when de-icing. Let the wind help to spread salt and cinders over the road. On elevated curves, let gravity work by spreading on the high part of the curve.

C. To know when to reapply de-icer to the road, watch the tires of cars traveling along the road. If snow falls directly behind the tires, it is time to reapply salt or cinders. If snow fans out under the tires the de-icer is still working.

D. Consider continuous plowing of both roads and road shoulders during a snowstorm. That way, if another storm occurs within a few days, only fresh snow has to be plowed.

E. Once the snow has stopped and plowing is finished, return to areas where drifting has occurred to clear out the excess snow before it has time to harden. It is easier to push the drifts away from the road or cut down drifts when the snow is still fresh.

F. Plow and remove snow (if necessary) from intersections, sharp corners and bends.

G. Remove the windrows on the sides of bridges to prevent drifting. If windrows are allowed to remain, available roadway will be reduced and snow will later melt and form ice.

H. Give sand/salt mixture time to work. Generally sand/salt early to create a brine at the snow/road interface and if needed, apply late for extended clearing.

I. Increase sand/salt mixture application during the night and on sunless days and when the temperature drops sharply. Without the sun, you lose the effect of pavement radiation and warmth.

J. Leave no gaps in sanding/salting operations.

K. Wing-back snow banks at the first available opportunity following a storm.
L. Use liquid calcium chloride to augment the action of rock salt when temperatures drop below 25 degrees F.

II. Guidelines

A. General

1. Sand/Salt mixture weighs approximately 3,000 pounds per cubic yard and the capacity of Town dump trucks is 8 cubic yards. Therefore, a full truck will leave the garage with 24,000 pounds of sand/salt mixture.

2. SANDING SPEED SHALL NOT EXCEED 15 M.P.H.

B. Conditions

1. Condition I – Storms which are predicted to be of short duration or squalls and flurries.
   a. Application – sand/salt mixture application shall be 1 cubic yard per mile. If temperature is below 25 degrees, apply with liquid calcium chloride. Apply less on sunny days.
   b. Method – apply in lanes on all marked roads.
   c. Follow-Up – apply second strip in danger spots only. One cubic yard of sand/salt per mile may be applied.

2. Condition II – Snow storms of expected plowable depth.
   a. Application – one cubic yard of sand/salt mixture per mile early in storm. Stop as snow accumulates. If temperature is below 25 degrees apply with liquid calcium chloride.
   b. Method – same as above.
   c. Follow-Up – touch up with extra salt or sand in danger spots where traffic tie ups may occur. Thereafter, plowing should be begun and continued as is necessary. After all roads are plowed, a second application will be applied.

3. Condition III – Rain on cold pavement or sleet continuing and forming ice.
   a. Application – one cubic yard of sand/salt mixture per mile if air temperature is 25 to 34 degrees and rising. If air temperature is 25 to 35 degrees and falling use liquid calcium chloride in combination with sand/salt mixture. Apply sand/salt mixture to gravel roads continuously. Pea stone or gravel may be necessary for application under severe gravel road icing conditions.
b. **Method** – first application as determined by weather forecast concerning speed of ice build-up, temperatures and time of year. If rain, sleet or snow continues for a long period and a falling temperature is predicted, additional sand/salt mixture may be necessary to clear pavement quickly before dropping temperatures limit the effectiveness of the salt.

### III. Operating Instructions

From November 15 to April 15, all personnel in the DPW are to be considered essential personnel and on twenty-four (24) hour a day call basis. If you leave Town for a period of time when snow is impending, notify the Superintendent or his designee with a telephone number where you can be reached.

All drivers will be responsible for their routes. The following operating instructions shall be observed:

1. All vehicles equipped with radios will keep in constant communication at all times with the Superintendent.
2. All trucks will be checked and fueled every night or after every storm before the driver leaves.
3. Notify the Superintendent immediately in the event of a breakdown.
4. Check plow blades for wear during plowing operations and when through plowing. If worn notify the Superintendent.
5. Check all tires for flats before leaving garage.
6. Drivers will be responsible for chains on trucks if pavement is slippery.
7. All drivers when plowing snow will use a reasonable rate of speed in all areas. There shall be no excessive speeding in snow plowing operations. When you have a wet snow, extreme caution will be taken not to knock down mailboxes. MAXIMUM SPEED SHALL NOT EXCEED 20 M.P.H.
8. All drivers will take caution where there are sidewalks. Try not to plow snow into a sidewalk area. A slower speed will prevent this.

All personnel are requested to be courteous at all times to all persons. Remember that they are the taxpayers who actually pay the bills. The service of keeping our streets in good condition is one that is immediately recognized by all taxpayers. Maintain the good reputation of the Department as a group and yourself as an individual.
Appendix E
Winter Safety Practices

1. Personal Safety

New England road workers spend much time working in cold weather. Guarding against overexposure and knowing how to recognize frostbite can prevent serious injuries. Become familiar with the following guidelines.

Preventing Injuries from Extreme Cold

(NOTE: The extent of injury caused by exposure to abnormally cold temperatures depends on additional factors such as wind velocity, type and duration of exposure, temperature, and humidity. Freezing is accelerated by wind and humidity or a combination of the two factors.)

A. Wear proper clothing
B. Limit exposure as much as possible
C. Take frequent, short rest periods
D. Keep moving
   (NOTE: Exercise fingers and toes if necessary, but do not overexert.)
E. Do not drink alcohol before exposure to cold
F. Do not bathe before exposure
G. Do not smoke before exposure
H. Learn to recognize the symptoms of overexposure and frostbite
   (NOTE: Cold hands may be warmed by placing them under dry clothing against the body, such as in the armpits.)

Clothing for Extreme Cold

A. Thermal-type woolen underwear
B. Outer clothing which will repel wind and moisture
C. Face helmet and head and ear coverings
D. Two pairs of socks
   (NOTE: Carry extra dry socks when working in snow or wet conditions.)
E. Warm boots
   (NOTE: Make sure boots are not so tight that circulation becomes restricted.)
F. Wool-lined mittens or gloves covered with wind-and water-repellent material

Safety Equipment

A. Flashing lights
B. First-Aid kits
Symptoms of Cold Exposure

A. Shivering
B. Numbness
C. Low body temperature
D. Drowsiness
E. Marked muscular weakness

Order of Treatment for Cold Exposure

A. Get to a warm room as quickly as possible
B. Remove wet or frozen clothing and anything that is binding
   (EXAMPLES: Necklace, watch, ring, belt)
C. Rewarm by adding clothing, wrapping in a blanket, or by getting into a tub of
   water that is warm but not hot to the forearm
   (NOTE: Dry thoroughly after soaking in warm tub.)
D. Drink hot liquids
   (CAUTION: Do not drink alcohol.)
E. Carry out appropriate procedures as described for frostbite

Symptoms of Frostbite

(NOTE: Frostbite results when crystals form in the fluids and underlying soft
tissues of the skin. The effects are more severe if the injured area is thawed and
then refrozen. Frostbite is the most common injury resulting from exposure to cold
elements. Usually, the frozen area is small. The nose, cheeks, ears, fingers, and toes
are most commonly affected. Just before frostbite occurs, the affected skin may be
slightly flushed.)

A. Skin becomes white, gray, or waxy yellow
   (NOTE: Color indicates deep tissue damage. Victims are often not aware of
   frostbite until someone tells them or sees the pale, glossy skin.)
B. Skin tingles, then becomes numb
C. Pain may occur, then let up
D. Blisters may form
E. Area of frostbite swells and feels hard
   (NOTE: In advanced cases mental confusion and poor judgement occur, the
   victim staggers, eyesight fails, the victim falls and may pass out, shock is
   evident, and breathing may cease. Death, if it occurs, is usually due to heart
   failure.)
Treatments for Frostbite

A. Protect frozen area from further injury
B. Warm frostbitten part as soon as possible
C. Give artificial respiration if needed

2. Safe Procedures for Snow Removal

A. Do not exceed appropriate speeds for equipment and conditions
B. Use all available safety warning devices
   (EXAMPLES: flashing lights, hazard lights)
C. Be alert for obstructions
D. If truck skids, STEER INTO THE SKID until you regain some control, then steer back into the driving lane
E. Plow in the direction of traffic
F. Be wary of drivers coming from behind
   (NOTE: Rear-end collisions are common.)
G. Wear protective clothing, especially gloves
   (EXAMPLES: thermal-type woolen underwear, outer clothing which will repel wind and moisture, face helmet and head and ear coverings, two pairs of socks, warm boots, warm mittens or gloves)
H. Know symptoms of cold exposure and frostbite
I. Carry container of hot liquid (NOT ALCOHOL)
J. Carry emergency equipment
   (EXAMPLES: flares or reflectors, first-aid kit, fire extinguisher, flashlight)

Watch What You Eat on Snowplowing Nights

Road crews often battle snow and sleet throughout the night, but usually for only a night or two. That means they are also battling sleepiness since their bodies are adjusted to the usual daytime shift. Sleepiness can be dangerous. At least 10,000 accidental deaths a year are sleep-related and 200,000 traffic accidents annually are due to driver fatigue.

Recent research on sleep deprivation shows that what you eat before and during the nighttime work can affect sleepiness. Since the body slows down at night, it does not want to digest a donut, a “Big Mac”, or most other fast foods. Greasy, heavy, protein foods bring on sleep.

Drivers can still enjoy eating, though. Take light, well-balanced meals and eat snacks that are compatible with slower, nighttime digestion.

Main meal before night work (5:00-7:00 p.m.)
Eat light protein foods like chicken, turkey, fish, or cooked beans and peas.
Vegetables. Fruits, breads, pasta and potatoes are good, as are low-fat milk,
cheeses, and yogurt. If you’re planning to sleep before work, make this a lighter and smaller meal.

Meals during breaks
Eat soup and salad, soup and a light sandwich, or light protein foods and vegetables.

Snacks before and during work
Good snacks include low-fat dairy products, fresh and dried fruit, popcorn, cereal, plain cookies, pretzels, and baked crackers.

Avoid caffeine and nicotine
Coffee and tea contain caffeine; smoking and chewing tobacco contain nicotine. These are stimulants at first but soon become depressants. They make the heart beat slower.

DO NOT CONSUME ALCOHOL BEFORE OR DURING SNOWPLOWING OPERATIONS.

Hazards of Snowplowing

(NOTE: Some plows are equipped with automatic safety trips and will ride over some obstructions. However, other obstructions will dislocate and/or damage the truck and plow. Always use extreme caution when plowing. Pre-check all routes for hazards before the snow flies. Know your routes.

A. Bridge expansion joints  
B. Pavement expansion joints  
C. Headwalls of culverts  
D. Signposts  
E. Guardrails  
F. Hard-packed snow or ice  
G. Low shoulders  
  (NOTE: if wheel drops off, plow digs in.)  
H. High shoulders  
I. Raised pavement markers  
  (EXAMPLES: left or right turn bays, lane markers.)  
J. Curbs  
K. Islands  
L. Fire hydrants  
M. Raised manholes  
N. Deep side ditches  
O. Mailboxes  
P. Fences  
Q. Narrow roads and bridges
3. Crew Notes

A. Be extremely careful in situations that require backing.
B. Keep the plow blades and hoppers in working condition. Frostbite can be contracted rapidly as work is performed on the equipment.
C. Watch for pedestrians when plowing. Do not exceed 20 miles per hour. At speeds greater than this, a grown person can be knocked down by the force of the thrown snow. Watch for children in snow banks.
D. Stay with the truck if it is immobilized. It’s easier for the rescue team to find a truck than a body covered with snow.
E. Fatigue and carbon monoxide are twin hazards. Ventilate the cab. Stay alert.
F. Stay in the cab when material is being dumped into the bed. Also stay in the cab if the truck contacts a powerline.
G. If your feet get cold put your hat on.

4. Supervisors’ Notes

A. Check the cab of the truck for exhaust seepage. Carbon monoxide is colorless, odorless, and tasteless. If the driver feels drowsy check the cab.
B. Fatigue is dangerous. Shift lengths should not be more than 12 hours long except in emergency situations.
C. Prequalification of drivers to re-acquaint them with the equipment and to assure their capability to operate the equipment could save trouble during the plowing operation.
D. Falling snow, blowing snow, extended night driving, sun glare, and white-outs lead to eye fatigue. They reduce vision acuity and depth perception capability of the eye, thus increasing the possibility of an accident. Check the drivers often to determine if they have noticed any vision problems. If they have, a rest period may be in order.
E. Certain eye defects, which affect perception and color blindness, may disqualify a driver from plowing operations, even though the driver is qualified for normal work operations. Check with a doctor if doubt arises concerning a driver’s ability.
F. If private companies aid in the plowing operations, treat them as if they were your own crews. Expect, train, and require the same
APPENDIX F
WINTER COMPLAINT FORM

DATE: ____________________________________________

TIME OF CALL: ________________________________

NAME OF CALLER: ____________________________

LOCATION OF PROBLEM: ______________________

________________________________________________________________________

PROBLEM:

_____ Accident
_____ Culvert or Catch Basin Clogged
_____ Drifting Snow
_____ Driveway Plowed In
_____ High Snow Banks
_____ Icy
_____ Mailbox Hit
_____ Not Plowed
_____ Power Line or Telephone Line Down
_____ Sidewalk not Plowed
_____ Tree Down
_____ Other

Person Receiving Call:

________________________________________________________________________