

# Standard Operating Procedures

Town of Dracut

Department of Public Works

## Winter Road Maintenance

Approved by: The Stormwater Committee



Edward Patenaude

Public Works Director



Tina Douk

Stormwater Manager

## MA SMALL MS4 PERMIT REQUIREMENT SUMMARY:

### Part 2.3.7.a.iii.5.

The permittee shall establish and implement procedures for winter road maintenance including the use and storage of salt; minimize the use of sodium chloride and other salts, and evaluate opportunities for use of alternative materials; and ensure that snow disposal activities do not result in disposal of snow into waters of the United States. For purposes of this MS4 Permit, salt shall mean any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.

## Personnel

The following personnel are responsible for snow and ice removal. Employees performing the procedures in this SOP shall attend yearly stormwater pollution prevention training.

TABLE 1

Name	Responsibility
Ed Patenaude – DPW Director	Head of Snow & Ice Operations
Tina Douk – Stormwater Manager	Proper storage of Winter Road Maintenance materials
Michael Cahill – General Foreman	Supervisor of staff on Snow & Ice Operations
Donna Douglas – DPW Office Manager	Public Relations/Snow & Ice Dispatch
Department of Public Works Staff	Plowing/salting roadways and parking lots for safe passage and use

## Equipment

The municipality owns and maintains ice control and snow removal equipment listed in Table 2. Equipment maintenance shall be conducted consistent with the Vehicles and Equipment maintenance SOP found here:

**Department of Public Works (DPW) - 833 Hildreth St. Dracut, MA 01826.** The wash bay/ area is located at: **DPW – 833 Hildreth St. Dracut, MA 01826**

### Plowing

When conditions warrant, plows are installed on the 8 larger trucks to move snow from the traveled roadway. Average time to install a plow is approximately 30 minutes. 8 smaller trucks are available for plowing of residential streets and clearing public lots. 3 loaders are used to move snow from traveled roadway, residential streets, and clearing of public lots.

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#### **Salt Spreaders and Pre-Wetting Devices**

When conditions warrant, salt spreaders are installed on the 9 larger trucks to spread salt on the traveled roadway. Each salt spreader is calibrated prior to the deicing season and once every month thereafter. Salt application shall be calibrated to dispense rates of 235 pounds per lane mile. 9 trucks are equipped with pre-wetting brine tanks. Pre-wetting application shall be calibrated to dispense rates 3.1-8 gallons per minute of pre-wet liquid depending on output of pump pressure of each individual equipment and what the conditions call for.

#### **Anti-Icing Dispensers**

The municipality has 1 piece of equipment for this task. It is a 1,000 gallon truck-mounted dispenser for anti-icing chemical application. The tank can go on four different trucks because it is a swap-loader. It distributes anti-icing product onto city streets and bridges utilizing spray nozzles in accordance with this SOP. Anti-icing dispensers are calibrated prior to the deicing season and every once a month thereafter. Anti-icing dispensers shall be calibrated to apply 40 gallons per lane mile.

## **Materials**

The major materials are used in snow and ice control are coarse salt, liquid material, and anti-icing agent. These materials are stockpiled in advance of an event and are immediately available when needed and stocks are replenished between events.

#### **Salt**

Salt is used to expedite the melting of snow and ice from the street surface and also to keep the ice from forming a bond to the street surface. Approximately 4,954 tons of salt is anticipated to be used per year and are ordered from Eastern Salt Company prior to each deicing season. Salt is stored in the covered facility located at: The Department of Public Works – 833 Hildreth St. Dracut, MA 01826. Loading areas and yards are swept bi-weekly to prevent salt build-up and run-off.

#### **Anti-icing and Pre-Wetting Chemical**

Approximately 2,946 gallons of **Innovative Surface Solutions** is estimated to be needed for anti-icing and pre-wetting application. These chemicals are stored at The Department of Public Works – 833 Hildreth St. Dracut, MA 01826 in 3-1500 gallon storage tanks equipped.

## **Procedures**

#### **Anti-Icing**

1. Whenever possible, the anti-icing product is applied to the roadway prior to the beginning of a storm to prevent snow from bonding to the roadway surface, and also used when heavy frost or black ice is expected to be an issue for commuters. Public Works Director will instruct staff when anti icing is appropriate. Anti-icing will not be done prior to freezing rain or when pavement temperatures are below 17 degrees F.

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<p>2. Prior to anti-icing application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.</p> <p>3. Anti-icing chemical will be applied to all routes.</p> <p>4. Anti-icing vehicle optimal speed is 15 MPH.</p> <p>5. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the General Foreman of equipment maintenance or the General Foreman. The Public Works Director will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the wash bay or designated wash area.</p>		
<p><b>Salt Application</b></p>		
<p>1. Whenever conditions warrant, salt is applied to the roadway prior to accumulation of snow to prevent compacted snow from bonding to the roadway surface. The Public Works Director will instruct staff when salt application is appropriate. Salting will not be done when pavement temperatures are above 32 degrees F or below 17 degrees F.</p> <p>2. Prior to salt application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.</p> <p>3. The standard salt application speed is: 235 lbs. /lane mile.</p> <p>4. Follow the route mapping. This map is located at: Department of Public Works – 833 Hildreth St. Dracut, MA 01826.</p> <p>5. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the General Foreman. The Public Works Director will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the wash bay or designated wash area.</p>		
<p><b>Snow Plowing</b></p>		
<p>1. As the storm develops and approximately 3 inches of snow has accumulated, all of the drivers and available equipment will begin to plow their assigned routes.</p> <p>2. Prior to plowing operations, equipment will be checked to ensure proper working order. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.</p> <p>3. Avoid plowing, pushing, blowing or storing excess snow, deicer, or other debris in or near creeks, watercourses or storm drainage systems.</p> <p>4. Reduce plowing speed in sensitive areas (near creeks, wetlands or other water courses) to prevent snow and deicing materials from entering waterways.</p> <p>5. The standard plowing speed is: 15 mph.</p> <p>6. Follow the route mapping. This map is located at: DPW – 833 Hildreth St. Dracut, MA 01826.</p> <p>7. Before parking any truck or equipment after use, all fluid levels will be checked and filled. Blades or bolts, which need replacing, will be taken care of unless told to do otherwise. Chains that need repairs will be</p>		

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<p>repaired. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the General Foreman. The Public Works Director will determine importance and will assign the repairs according to schedule.</p>		
<p><b>Record Keeping and Documentation</b></p> <ol style="list-style-type: none"> <li>1. Maintain a master schedule of snow and salting routes and the miles or roads plowed or salted. These documents are located at The Department of Public Works – 833 Hildreth St. Dracut, MA 01826</li> <li>2. Keep copies of manufacturer's recommendations for equipment calibration, plowing speed and salt application rates. These documents are located at the Department of Public Works – 833 Hildreth St. Dracut, MA 01826.</li> <li>3. Keep records of the amounts of salt, liquid deicer, and chemicals applied per season. These records are located at the Department of Public Works – 833 Hildreth St. Dracut, MA 01826.</li> <li>4. Keep a list of all employees trained in the facility's computer file.</li> </ol>		

**Table 2 – Vehicles**

Equipment Number	Make	Description	Additional Equipment	Primary Use
TK-1	INTL 7300	10-YARD DUMP TRUCK	6.8-YARD SALT SPREADER and 11' ANGLE PLOW	GENERAL USE, SALTING, AND PLOWING
TK-2	INTL 4700	6-YARD DUMP TRUCK	6.8-YARD SALT SPREADER and 10' ANGLE PLOW	GENERAL USE, SALTING, AND PLOWING
TK-4	FRHT 10850	CABO CHASSI	6.8-YARD SALT SPREADER and 11' ANGLE PLOW	SALTING AND PLOWING
TK-5	FRHT 11450	10-YARD DUMP TRUCK	6.8-YARD SALT SPREADER and 11' ANGLE PLOW	GENERAL USE, SALTING, AND PLOWING
TK-6	CHEVY SILVERADO 3500	2-YARD DUMP TRUCK	1.7-YARD SALT SPREADER and 9' ANGLE PLOW	CEMETARY DEPARTMENT, SALTING, AND PLOWING
TK-7	INTL 7400	10-YARD DUMP TRUCK	10-YARD SALT SPREADER and 11' ANGLE PLOW	GENERAL USE, SALTING, AND PLOWING
TK-8	CHEVY K2500	9' UTIL BODY	8' ANGLE PLOW	GENERAL USE AND PLOWING
TK-9	INTL 400SER	8-YARD DUMP TRUCK	11' SIDECAST PLOW	GENERAL USE AND PLOWING
TK-10	CHEVY GMT400	9' FLAT BED	9' ANGLE PLOW	GENERAL USE AND PLOWING
TK-11	CHEVY SILVERADO 3500	8' PICK UP	8' ANGLE PLOW	GENERAL USE AND PLOWING
TK-12	FRHT 11450	10-YARD DUMP TRUCK	6.8-YARD SALT SPREADER and 11' ANGLE PLOW	GENERAL USE, SALTING, AND PLOWING
TK-14	CHEVY CHASSI 3500	FLAT BED	9' ANGLE PLOW	GENERAL USE AND PLOWING
TK-18	CHEVY SILVERADO 3500	2-YARD DUMP TRUCK	9' ANGLE PLOW	GENERAL USE AND PLOWING
TK-21	INTL 7400	14-YARD DUMP TRUCK	10-YARD SALT SPREADER	GENERAL USE AND SALTING
TK-24	INTL 400SER	11-YARD DUMP TRUCK	6.8-YARD SALT SPREADER and 11' ANGLE PLOW	GENERAL USE, SALTING, AND PLOWING
TK-27	CHEVY SILVERADO 2500 HD	PICK UP	8' ANGLE PLOW	GENERAL USE AND PLOWING
TK-28	FORD F350	2.5-YARD DUMP TRUCK	1.9-YARD SALT SPREADER and 9' ANGLE PLOW	GENERAL USE, SALTING, AND PLOWING

Equipment Number	Make	Description	Additional Equipment	Primary Use
TK-34	HOLDR UTIL	.75-YD DUMP TRUCK	.5-YARD SALT SPREADER, 5' PLOW AND SNOW BLOWER, and FLAIL BRUSH CUTTER	SALTING AND PLOWING SIDEWALKS AND CUTTING BRUSH IN THE ROADWAY
TK-35	HOLDR UTIL	.75-YD DUMP TRUCK	.5-YARD SALT SPREADER, 5' PLOW AND SNOW BLOWER, FLAIL BRUSH CUTTER, and 6' POWER BROOM	SALTING AND PLOWING SIDEWALKS, CUTTING BRUSH IN THE ROADWAY, AND SWEEPING SIDEWALKS
TK5-2	CHEVY SILVERADO 3500	9' UTIL BODY	8' ANGLE PLOW	SEWER DEPARTMENT AND PLOWING
TK-13	DEERE 624J	3-YARD BUCKET	12' SNOW PUSHER	GENERAL USE, SALTING, AND PLOWING
TK-15	DEERE TC44H	2-YARD BUCKET	12' ANGLE PLOW	GENERAL USE AND PLOWING
TK-17	JCB BACKHOE	1.25-YARD BUCKET	10' ANGLE PLOW	GENERAL USE AND PLOWING
TK-22	DEER 54415	3-YARD BUCKET	12' ANGLE PLOW	GENERAL USE AND PLOWING
TK-30	DEERE 312GR	6000 LB MACHINE	14.6 CUFT BUCKET	GENERAL USE AND SNOW REMOVAL
CAR 2	CHEVY TRAVERSE	UTIL		DPW DIRECTOR
CAR 3	FORD ESCAPE	UTIL		STORMWATER MANAGER
TK3	CHEVY SILVERADO	PICK UP		REPAIR SHOW TOOL TK
TK16	FORD F250	PICK UP		GENERAL FOREMAN
TK20	CHEVY 2500	PICK UP		DPW FOREMAN
TK23	CHEVY SILVERADO	PICK UP		REPAIR SHOW TOOL TK
S-1	FORD F350	PICK UP		SEWER DEPARTMENT DIRECTOR
26	JOHN DEERE 4600	TRACTOR	MOWER DECK and FR BUCKET BACKHOE	PARK MOWING AND MAINTENANCE
29	JOHN DEERE 4220	TRACTOR	MOWER DECK and FR BUCKET	PARK MOWING AND MAINTENANCE