

STANDARD OPERATING PROCEDURE DEPARTMENT OF PUBLIC WORKS, HIGHWAY PROGRAM: Snow Removal and De-Icing		ISSUE DATE: June 30, 2019
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APPROVED BY: JOHN SANCHEZ, PUBLIC WORKS DIRECTOR

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 and sand; 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
Kevin Keene	Snow Removal Operation

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 at 2 Great Meadow Road. The wash bay/area is at the same location.

Plowing

When conditions warrant, plows are installed on the 10 larger trucks to move snow from the traveled roadway. Average time to install a plow is approximately 30 minutes. 22 smaller town trucks are available for plowing of residential streets and clearing public lots. 32-34 contractors are available to work.

Sanding

Sand is not utilized in the Town of Burlington.

Salt Spreaders and Pre-Wetting Devices

When conditions warrant, salt spreaders are installed on 8 of the larger trucks to spread salt on the traveled roadway. Each salt spreader is calibrated prior to the deicing season and every season thereafter. Salt application shall be calibrated to dispense rates of 200-250 pounds per lane mile. One trucks is equipped to carry pre-wetting brine tanks, however pre-wetting is not conducted by Burlington as yet. This SOP will be amended to detail calibration and dispensing rates when pre-wetting goes into effect.

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Anti-Icing Dispensers

Burlington does not utilize anti-icing equipment.

TABLE 2

Equipment Number	Make	Description	Additional Equipment	Primary Use
H-3	Ford F350	Pickup truck	plow	Plowing
H-4	Ford F450	1-ton dump truck	½-yard sander	Plowing
H-5	Ford F450	1-ton dump truck	½-yard sander	Plowing
H-6	Ford F450	Utility body	plow	Plowing
H-8	John Deere JD-570-A	Grader	plow	Plowing
H-9	Inter 7400	Truck	12-yard plow	Plowing
H-12	Inter 7400	5-ton dump truck	6-yard sander, plow	Plowing
H-13	Inter 7400	5-ton dump truck	6-yard sander, plow	Plowing
H-14	Inter 7400	5-ton dump truck	6-yard sander, plow	Plowing
H-15	Chevrolet 8500	5-ton dump truck	6-yard sander, plow	Plowing
H-16	Inter 7400	5-ton dump truck	6-yard sander, plow	Plowing
H-17	Chevrolet 8500	5-ton dump truck	6-yard sander, plow	Plowing
H-18	Inter 7400	5-ton dump truck	6-yard sander, plow	Plowing
H-19	Mack CV713	10-wheeler	6-yard sander, plow	Plowing
H-37	Volvo L70	Loader		Plowing
H-39	Volvo L70	Loader		Plowing
H-21	Trackless MT	Trackless		Sidewalk plowing
H-22	Trackless MT	Trackless		Sidewalk plowing
H-23	Trackless MT	Trackless		Sidewalk plowing

Other Equipment available from other divisions:

17 pickups; one 1-ton dump truck; 1 backhoe

Materials

The major materials used in snow and ice control are coarse salt, anti-icing agent and calcium/magnesium chloride. 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 3000 tons of salt are anticipated to be used per year and are ordered from Eastern Salt prior to each deicing season. Salt is stored in the covered facility (shed) located at 10 Grant Avenue. Loading areas and yards are swept seasonally to prevent salt build-up and run-off.

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---	--	--

Anti-icing and Pre-Wetting Chemical

Approximately 10000 gallons of Magic O (magnesium chloride combined with an agricultural by-product of distilling) is estimated to be needed for anti-icing application. These chemicals are stored at 10 Grant Avenue in 3000-gallon storage tanks equipped with appropriate spill control.

Salt Alternatives

Approximately 10 tons of calcium/magnesium chloride is estimated to be needed for de-icing purposes in environmentally sensitive areas. These chemicals are stored in the salt shed at 10 Grant Avenue.

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. The Highway Supervisor will instruct staff when anti icing is appropriate.
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.
3. Anti-icing chemical will only be applied to priority routes. The priority routes include all main roads and hills throughout Burlington.
4. Anti-Icing vehicle optimal speed is 20 MPH.
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 Superintendent Central Maintenance who 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.

Salt Application

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 Highway Supervisor will instruct staff when salt application is appropriate.
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.
3. The standard salt application speed is 20 mph.
4. Follow the prioritized route or schedule. This schedule is located at the Highway Department, Meadow Road.
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

STANDARD OPERATING PROCEDURE DEPARTMENT OF PUBLIC WORKS, HIGHWAY PROGRAM: Snow Removal and De-Icing		ISSUE DATE: June 30, 2019
---	--	--

forms and turned in to Central Maintenance. The Superintendent Central Maintenance 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.

Snow Plowing

1. As the storm develops and 2 inches of snow has accumulated, all of the drivers and available equipment will begin to plow their assigned routes.
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.
3. Avoid plowing, pushing, blowing or storing excess snow, deicer, or other debris in or near creeks, watercourses or storm drainage systems.
4. Reduce plowing speed in sensitive areas (near creeks, wetlands or other water courses) to prevent snow and deicing materials from entering waterways.
5. The standard plowing speed is 15-20 mph.
6. Follow the prioritized route or schedule. This schedule is located at the Highway Department Facility at Meadow Road. For each sector, main streets and hills are plowed first, followed by cut through streets, then dead ends and finishing with parking lots.
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 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 Central Maintenance. The Superintendent Central Maintenance will determine importance and will assign the repairs according to schedule.

Salt Alternative Application

1. Salt alternatives are used in environmentally sensitive areas and applied to the roadway prior to accumulation of snow to prevent compacted snow from bonding to the roadway surface. The Highway Supervisor will instruct staff when salt alternative application is appropriate.
2. Prior to salt alternative 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.
3. Salt alternatives will only be applied to environmentally sensitive priority areas. These areas include the aquifer district and the vicinity of both water treatment plants, one in aquifer field and one at Mill Pond. Environmental priority routes list includes: the Mass Turnpike north from Burlington Mall Road, northwest on to Terrace Hall Avenue, southwest to Sandy Brook Road, west onto Hemlock Street, south on to James Street, west on to Lexington Street and west on to Burlington Mall Road.
4. Salt alternative delivery optimal speed is 20 MPH.
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 Central Maintenance. The Superintendent Central Maintenance 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.

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Record Keeping and Documentation <ol style="list-style-type: none"> 1. Maintain a master schedule of prioritized snow and sanding routes and the miles or roads plowed or sanded at the Highway Department, Meadow Road. 2. Keep copies of manufacturer’s recommendations for equipment calibration, plowing speed and salt/sand application rates at the Highway Department, Meadow Road. 3. Keep records of the amounts of salt, sand, liquid deicer, and salt alternatives applied per season at the Highway Department, Meadow Road 4. Keep a list of all employees trained in the facility’s Stormwater Pollution Prevention binder or computer file. 		