



CITY OF ORONO SNOW AND ICE MANAGEMENT POLICY

September 28th, 2020

1. Introduction. It is among the responsibilities of the City of Orono to manage snow and ice on City streets and public property under the City's jurisdiction. The purpose of this document is to set policies for how the City will fulfill this responsibility and to identify those City officials and employees who are authorized to set subordinate policies and make judgments in the course of carrying out snow and ice management activities. Setting policies for snow and ice management involves balancing the following priorities:

A. Public safety. The safety of those traveling by motor vehicle, on foot and by other modes of transportation is of high priority. The goal of the City is to provide for surface conditions that are safe for travel in consideration of surrounding conditions and circumstances. However it is not possible or practicable for snow and ice to be fully removed from all surfaces or prevented from accumulating on surfaces. The City encourages and expects that City residents and other members of the traveling public will at all times conduct their activities mindful of conditions, hazards, and what is necessary to remain safe.

B. Personnel safety. City personnel incur risk by their presence on public ways while managing snow and ice. The safety of City personnel as well is of the utmost importance.

C. Environment. Materials to maintain or improve surface traction contribute pollutants such as sand and chlorides to surface waters and to City stormwater basins and other facilities, which in turn can increase the cost of maintaining those facilities. It is important not to use an excess of these materials.

D. Cost. City funds are limited and taxpayers require that they be spent cost-effectively. It is not possible to address all snow and ice issues simultaneously and completely.

E. Adaptability. Particularly with respect to effectiveness, cost and environmental consequences, snow and ice management is a realm of innovation. It is important that City policy allow for personnel to maintain awareness of developments and allow for practices to be adjusted as appropriate. The public must practice due care given the continuously changing hazards presented by natural snow and ice concerns.

2. Responsibility for Private Roadways, Parking Areas, Sidewalks, and Trails. The City is not responsible for snow and ice management on any roadway or parking area not owned by or dedicated to the City except as may be provided in a legally binding, written acceptance of that responsibility in the context of a development approval or otherwise. It is the responsibility of the resident and/or property owner to remove all accumulated snow from all other sidewalks along public streets adjoining their property. This includes any snow plowed from public streets onto the sidewalk.

3. Staff Responsibilities. Authority with respect to snow and ice management decisions is delegated as follows:

A. Director of Public Works. The Director of Public Works (DPW) will exercise general oversight of snow and ice management activities.

- (1). Will make recommendations to the Council on staffing, purchases and funding as a part of annual budgeting.
- (2). Will exercise responsibility with respect to personnel training.
- (3). Will establish procedures for reports on snow and ice conditions from City personnel or the public to be documented and routed to appropriate City personnel so that such reports inform snow and ice management activities.
- (4). Will incorporate best practices innovations in to the policy and practices of the city with respect to snow and ice management.

B. Streets Supervisor. The Streets Supervisor is responsible for the execution of snow and ice removal operations within the parameters set by this policy and direction from the DPW. Further the Supervisor is responsible for:

- (1). Directing resources and providing operational direction to Staff during the execution of snow and ice management activities.
- (2). Adjusting priorities during an event in consultation with the Public Works Director.
- (3). Determining when to begin, suspend and end snow and ice management activities.
- (4). Determining which techniques and materials are to be used during storm response.

C. Operators. Within the policies set by the DPW and directions given by the Streets Supervisor. Operators are to use professional judgment and discretion to determine the best course of action to complete snow and ice management responsibilities under the circumstances, considering public and driver safety.

4. Maintenance Area Priorities. The City differentiates among maintenance areas based on a variety of factors, including traffic volume and location. The established City priority is as follows:

Classification	Target Regain Time	Description
Arterials/ Collectors	0-4 hours	These are high volume high speed routes, which connect major sections of the city. They provide access for emergency fire, police, and medical services though out the city.
Residential Streets	4-8 hours	These are low volume low speed residential streets including cul-de-sacs used by mainly by local residents only
Parking Lots and Alleys	8-10 hours	City owned parking lots including: City Hall, Police Department, Public Works, Navarre Municipal Lot, Crystal Bay Post Office and the parking lots of the city parks.
Sidewalks and Trails	10- <u>36</u> hours	Designated Trails and Sidewalks: Select City owned trails and any Regional trails maintained by the city through agreement with Three Rivers Park District Sidewalks adjacent to municipal property

5. Operational Framework. In preparation and response to winter weather events the City staff address the priorities by following the steps below. In addition staff will consider localized safety concerns, reported hazard conditions and other relevant information in adjusting priorities.

A. Prior to Forecast Storms. Prior to a snow or ice storm’s arrival collector road and key site (intersections, hill, sharp corners and historical problem areas) will be pretreated with a brine application.

B. During Storm/ Response to un-forecast storm. The City Streets supervisor in consultation with the Police and DPW will decide when to begin snow or ice control operations. The criteria for that decision are:

Criteria	Description
Snow accumulation	Snow removal operations will generally be conducted for snowfall of one (1) inch or greater on collector roads and two (2) inches or greater on residential roads. During long duration large accumulation events efforts will be focused on higher priority roads.
Time of snowfall	Snow plowing operations will be adjusted based on the timing of the storm / accumulation to ensure that priority roads are clear prior to the morning and afternoon rush hours as well as school start and release times.
Crew Safety	Crew availability and safety will dictate how fast roads area cleared. Snow and ice control operations will be conducted only when weather conditions do not endanger the safety of snowplow operators and equipment. Factors that may delay snow and ice control operations include: severe cold, significant winds, and limited visibility

C. Post Storm. The City Supervisor(s) will determine if and when snow will be removed from the area by truck. Such snow removal will occur in areas where there is no room on the boulevard for snow storage and in areas where accumulated piles of snow create a hazardous condition. Snow removal operations will not commence until other snowplowing operations have been completed.

D. Emergency Situations. The City will dispatch operators and equipment as soon as possible to the routes required by emergency vehicles—fire, medical, police—responding to an emergency situation within the jurisdiction of the City, Fire Department, or Police Department.

E. Other. To address isolated icy spots and drift areas the police or dispatch will notify the Public Works on call. The on-call person will assess the situation and apply the appropriate measure to remove the hazard or call in additional public works personnel to assist.

F. Documentation. The City and its operators will document control practices and decisions and keep written or printed records of application and other decisions in carrying out this Policy. A storm record will be completed within the Public Works work flow management system (Cartegraph) for each storm event and should include operating times, weather conditions, material used, and personnel and equipment resources committed.

7. Methods of Snow and ice removal. The city of Orono will follow the guidelines provided in the Minnesota Snow and Ice Control Handbook.

A. Plowing. Snow will be plowed in a manner so as to minimize traffic obstructions. The center of the roadway will be plowed first. The snow shall then be pushed from left to right on two-way streets. The goal will be to remove snow from roads as quickly as possible to reduce compaction remove snow and loose ice before deicing applications. Snow on cul-de-sacs will normally be plowed to the center in an attempt to provide the largest turning radius possible for emergency vehicle ingress and egress. In times of extreme snowfall, streets will not always immediately be able to be completely cleared of snow.

B. Material application. The city will use sand, salt, and other chemicals when there are hazardous ice or slippery conditions. Salt and other chemicals are applied for de-icing and anti-icing. Sand will be applied in situations when de-icing is not possible in order to provide some traction. The City is concerned about the effect of salt, materials for traction, or chemicals on the environment and will limit their use that reason. Therefore, it is the policy of the City to utilize salt, materials for traction, or a

chemical mixture in the ratio that provides for reasonably safe driving conditions. The application of these types of materials is not always intended to provide bare pavement immediately following winter weather events. In addition, the desired results of these materials can vary with different temperatures. Appendix A Contains the guidelines for which material will be used in which situation.

(1). **De-Icing-** Is the process of removing ice from a surface. When a deicing solution such as salt is applied to a surface a brine solution is created. Brine is water saturated or nearly saturated with salt and has a lower freezing point than water. The brine loosens the ice or snow from the pavement.

(2). **Anti-Icing (pre-treating)-** Works like a de-icing solution by using a brine solution to lower the temperature at which water freezes. Anti-icers are applied prior to snowfall to prevent snow and ice from bonding to the pavement.

8. Parking Lots. Snow plowing in municipal parking lots will begin when two (2") inches of snow has accumulated or when vehicular movement becomes difficult. Not all parking lots will be maintained. Priority parking lots include City Hall, Police Department, Public Works, Crystal Bay Post Office, and the Navarre Fire Station. Second Priority Parking lots include those serving city parks with active winter use.

9. Trails and Sidewalks. The City will provide snow and ice control measures on select trails throughout the winter. Trails to be plowed will be designated on the sidewalk and Trail Winter Maintenance Map. Plowing will be done on designated trails and sidewalks during regular workdays (Monday through Friday), beginning on the first work day after a snow event of two (2") inches or more or when drifting snow blocks pedestrian trail or sidewalk. It is the City's goal to get the trail plowing completed in three working days (36 hrs) after the snow event. Things such as equipment breakdowns, size of storm, or difficult conditions, may extend this time frame. Trails and sidewalks used by students to walk to school will be completed to allow pedestrian trail prior to school opening whenever possible. The plowing of trails and sidewalks will typically be done in the following priority, however, there may be changes in the priority due to type of snow, depth of snow, or timing of snow event:

- A. Trails used by students to walk to school.
- B. City owned trails and sidewalks adjacent to streets
- C. Regional and recreational trails

10. Training. It is important that personnel involved in snow and ice management receive appropriate training to inform their operational capacities and the judgment that they must exercise in performing their responsibilities. The city will document, or require documentation of, all training that it requires or conducts.

11. Damage to Personal Property. Occasionally, snow plowing will result in damage to private property. The City will consider for repair or replacement at City expense property that is properly installed, permitted by City ordinance to be located adjacent to the street, and damaged by contact with city equipment. Property damage complaints will be documented by the Streets Supervisor.

A. Mailboxes. The City will repair the damage or replace a mailbox, only if damage is the result of actual contact by the snow plow. The City will not assume responsibility for damages that are caused by mailboxes that protrude into the street or are damaged simply by snow pressure or snow rolling off the plow or wing. Replacements will be a standard metal mailbox and a 4" x 4", decay resistance wood support post which will be installed by the city.

B. Landscaping. The City will not be responsible for any damage to obstacles that are located in the right-of-way, such as sprinkler heads, fences, garden areas, etc. The City is also not responsible for repairing grass or sod that has been damaged in the right-of-way. The City will not repair or replace damaged trees, shrubs, or landscaping that is within the City Right of way. The city will restore damage to private lawns/ grass in the spring.

C. Complaints Procedure. Complaints shall be directed to and reviewed by the Streets Supervisor. If remedy or repair is approved by the Streets Supervisor, a schedule of the necessary corrective work with the appropriate City personnel or contractor will be directed.

7. Coordination with Other Jurisdictions. The City does coordinate with neighboring or regional jurisdictions as warranted to realize better management outcomes, cost savings or environmental benefits

8. Personnel Management (Safety). Snowplow operators will be expected to work their assigned shifts. In severe snow emergencies, operators sometimes have to work longer shifts, but will be paid overtime for hours in excess of 40 per week in accordance with the current collective bargaining agreement. However, because of safety concerns, no operator shall work more than a sixteen-hour shift in any twenty-four hour period. While work breaks are not guaranteed, generally operators will take breaks in accordance with city policy, provided the breaks do not interfere with city services or operations. In addition, operators will be allowed sufficient time to eat a meal during any shift which is eight or more hours. After a twelve-hour shift, the operators will be replaced if additional qualified personnel are available.

9. Equipment Management. Snow and Ice management equipment will be inspected and calibrated annually prior to the winter season. Calibration is an essential procedure to measure the amount of material applied to the roadway at various auger settings in relation to truck speed. Prior to and after each use operators will inspect their equipment for safety and mechanical readiness.

10. No Rights Created. This policy is for internal use only in order to specify the policies and distribution of authority for snow and ice management. The policy is for the benefit of serving the general public and not for the benefit of any individual or specific group of individuals. It is not intended to and does not create any right or expectation in any third party. The City Council may amend this policy or make exceptions to it as it deems appropriate.

11. Disclaimer. The City will begin snow and ice management as soon as reasonably possible. Cold, wind, visibility, equipment failure or disability, rapid snow and ice accumulation, and/or other unforeseen conditions or emergencies may prevent safe or effective management and cause delays in management operations.

12. References.

- A. Minnesota Snow and Ice Control Field Handbook for Snowplow Operators (Minnesota Local Road Research Board, 2012)
- B. Model Snow and Ice management Policy (Smith Partners PLLP, 2016)
- C. LMCIT Model Snowplowing and Ice Control Policy (LMC, 2011)
- D. Manual of Environmental Best Practices for Snow and Ice Control (MnDOT and Clear Roads, 2015)
- E. Winter Parking Lot and Sidewalk Maintenance Manual (MPCA, 2015)

13. Appendices.

- A. Materials Application Guidance.
- B. Service Area Map

- C.** Route Map
- D.** Relevant Ordinances
- E.** Call Out flow Chart
- F.** Website information
- G.** Operator Safety Sheet

Materials Application Guidance

Anti-icing Application Rate Guidelines

These guidelines are a starting point. Reduce or increase rates incrementally based on your experience.

Condition	Gallons/Lane Mile			Other Products
	CaCl ₂	MgCl ₂	Salt Brine	
1. Regularly scheduled applications	15 – 25	15 – 25	20 – 40	Follow manufacturers' recommendations.
2. Prior to frost or black ice event	15 – 25	15 – 25	20 – 40	
3. Prior to light or moderate snow	15 – 25	15 – 25	20 – 50	

Deicing Application Rate Guidelines

24' of pavement (typical two-lane road)

These rates are not fixed values, but rather the low end of a range to be selected and adjusted by an agency according to its local conditions and experience.

Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Lbs/ two-lane mile			
			Salt Prewetted/ Pretreated With Salt Brine	Salt Prewetted/ Pretreated With Other Blends	Dry Salt*	Winter Sand (abrasives)
>30° ↑	Snow	Plow, treat intersections only	80 (40/ lane mile)	70	100*	Not recommended
	Frz. rain	Apply chemical	80 – 160	70 – 140	100 – 200*	Not recommended
30° ↓	Snow	Plow & apply chemical	80 – 160	70 – 140	100 – 200*	Not recommended
	Frz. rain	Apply chemical	150 – 200	130 – 180	180 – 240*	Not recommended
25 - 30° ↑	Snow	Plow & apply chemical	120 – 160	100 – 140	150 – 200*	Not recommended
	Frz. rain	Apply chemical	150 – 200	130 – 180	180 – 240*	Not recommended
25 - 30° ↓	Snow	Plow & apply chemical	120 – 160	100 – 140	150 – 200*	Not recommended
	Frz. rain	Apply chemical	160 – 240	140 – 210	200 – 300*	400
20 - 25° ↑	Snow or frz. rain	Plow & apply chemical	160 – 240	140 – 210	200 – 300*	400
20 - 25° ↓	Snow	Plow & apply chemical	200 – 280	175 – 250	250 – 350*	Not recommended
	Frz. rain	Apply chemical	240 – 320	210 – 280	300 – 400*	400
15 - 20° ↑	Snow	Plow & apply chemical	200 – 280	175 – 250	250 – 350*	Not recommended
	Frz. rain	Apply chemical	240 – 320	210 – 280	300 – 400*	400
15 - 20° ↓	Snow or Frz. rain	Plow & apply chemical	240 – 320	210 – 280	300 – 400*	500 for frz. rain
0 to 15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	300 – 400	Not recommended	500 – 750 spot treat as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	400 – 600**	Not recommended	500 – 750 spot treat as needed

*Dry salt is not recommended. It is likely to blow off the road before it melts ice.

**A blend of 6 – 8 gal/ton MgCl₂ or CaCl₂ added to NaCl can melt ice as low as -10°.

Excerpt from the Minnesota Snow and Ice Control Field Handbook for Snowplow Operators (Minnesota Local Road Research Board, 2012)

Appendix B. Service Area Map

The following Code section directly relate to snow and ice operations within the City.

Sec. 18-5. – Placing snow or ice in a roadway.

It is a misdemeanor for any person, not acting under a specific contract with the city or without special permission from the city, to remove snow or ice from private property and place it in the roadway of any street or private road.

Sec. 18-7. - Public sidewalk maintenance and repair.

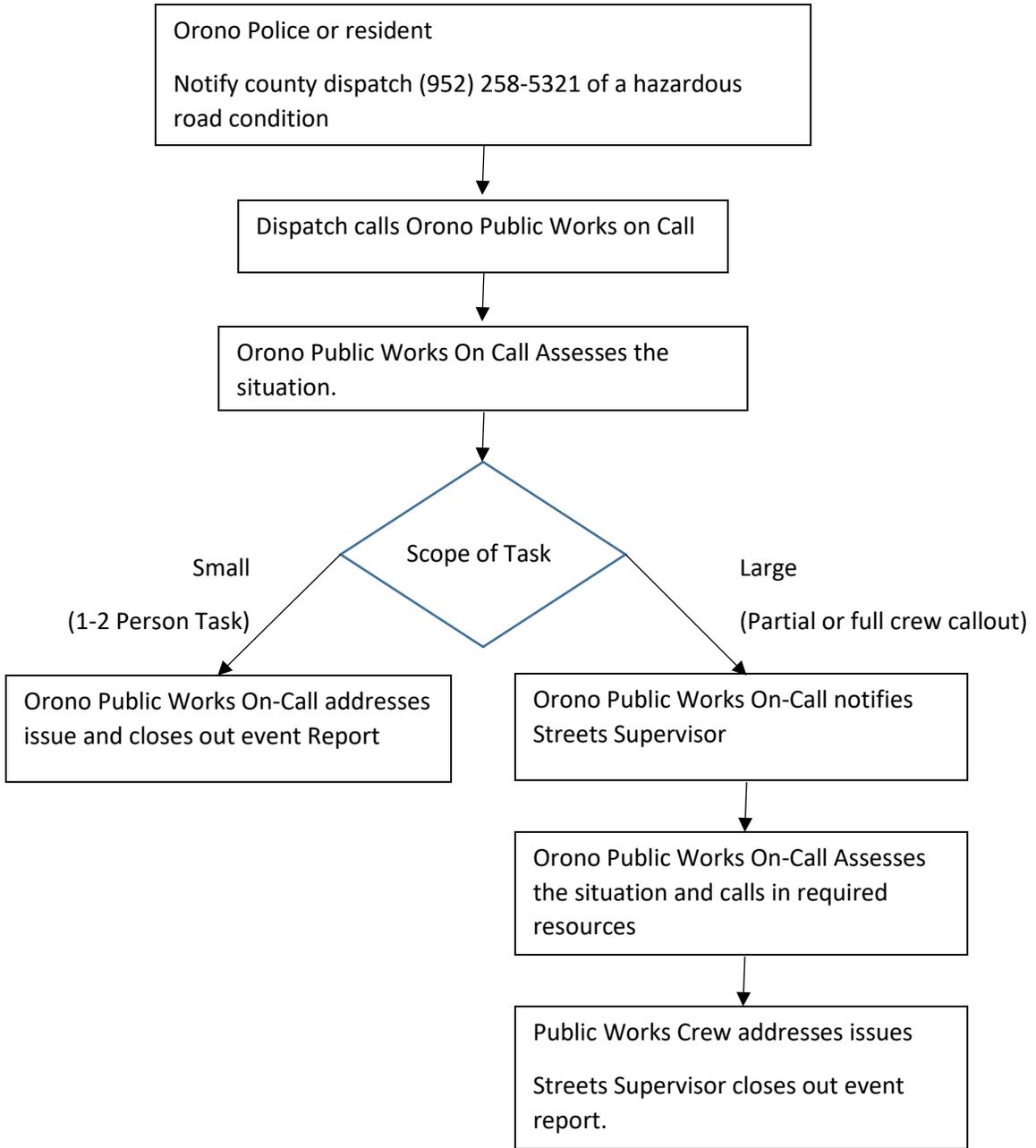
(a) *Primary responsibility.* It is the primary responsibility of the owner of property upon which there is abutting any public sidewalk to keep and maintain such sidewalk in safe and serviceable condition.

Sec. 66-4. - Motorized vehicles prohibited on sidewalks and trails.

It is unlawful for any person to drive or operate a motorized vehicle on any public sidewalk or public property designated for use as a pedestrian walkway or bicycle trail, except when crossing for ingress and egress to private property lying on the other side and for the purpose of snow removal.

Sec. 66-81. - Parking after snowfall prohibited.

It is unlawful for any person, except an operator of an emergency motor vehicle on an emergency call, to park or leave standing any vehicle on any street or municipal parking lot when there is more than two inches of snow on the street or municipal parking lot and snow is falling or has fallen within the previous 48 hours, or snow is blowing or has been blowing within the previous 48 hours.



SNOW & ICE PROCEDURES

The City of Orono has approximately 50 miles of roads, as well as some trails and municipal parking lots which are maintained by the Public Works Department from early November to late March. The City adopted the attached [Snow Plowing and Ice Control Policy](#) to define and provide reasonable snow plowing and ice control services on City roads for routine travel and emergency services and to provide such services in a safe and cost effective manner while balancing personnel resources and environmental concerns.

The city's snow plow plan varies depending upon the amount of snow that falls. If less than 2 inches falls, only major streets in the city system are plowed. Ice control is performed at stop signs, hills, bridges and curves and the entire system. If more than 2 inches of snow falls, all city streets are plowed curb-to-curb. Plowing all streets, including the removal of snow from cul-de-sacs, requires 8 to 10 hours.

Parking

Parking on all city streets and municipal parking lots is prohibited from 2:00 a.m. - 6:00 a.m. all year. Parking on all city streets is prohibited at any time when there is 2" or more of snow until the streets are cleared. Please refrain from parking on city streets whenever snow or ice conditions may require plowing.

Shovel Fire Hydrants

The Fire Department asks residents to shovel out fire hydrants near their homes. Keeping hydrants clear of snow can substantially reduce the time it takes firefighters to put out a fire.

Mail & Other Services

Keep your mailbox clear of snow to ensure mail delivery. If it snows on collection day, keep garbage cans and recycling bins away from the end of the driveway.

Clearing Driveways

Do not shovel, plow or blow snow into the street. Blowing snow in the street makes it more difficult to clear streets (especially cul-de-sacs).

Sidewalks & Trails

Property owners are responsible for keeping public sidewalks adjacent to their property clear of snow.

For Questions or concerns related to the Snow removal please contact Orono Public Works at #####.

SAFETY

Suggested personal safety gear

- Layers of clothes, extra gloves, heavy boots
- Shovel and ice scraper
- Flashlight for night operations
- Sunglasses for glare
- Water and/or hot liquid

Advance preparation

- Be properly trained and thoroughly familiar with all equipment and chemicals.
- Make sure an up-to-date first-aid kit, emergency contact information, and hand-held radios or cell phones are available in your vehicle.
- Be in good physical condition with adequate rest.
- Perform a pre-trip safety check of truck and equipment. Make sure the vehicle has adequate warning lights in good working order.
- Make a practice run of assigned route to check for obstacles and potential problem areas.
- Know the contact procedures for reporting crashes or equipment breakdowns.

During operations

- Dress in layers with heavy boots.
- Wear highly visible apparel when out of your vehicle.
- Plow at appropriate speed.
- Watch for pedestrians and other vehicles.
- Don't back up without a spotter.
- Operate wings carefully.
- Make sure warning lights are activated.