

CITY COUNCIL AGENDA ITEM
CITY OF SHORELINE, WASHINGTON

AGENDA TITLE:	Council Overview on Snow and Ice Event Right-of-Way Plowing Planning and Operations
DEPARTMENT:	Public Works
PRESENTED BY:	Lance Newkirk, Utility and Operations Manager
ACTION:	<input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution <input type="checkbox"/> Motion <input checked="" type="checkbox"/> Discussion <input type="checkbox"/> Public Hearing

PROBLEM/ISSUE STATEMENT:

Citywide Snow and Ice Event Planning and Operations includes considerations for safety in the right-of-way (ROW), access to City facilities (parks, trails, restrooms, buildings), care for our most vulnerable populations (warming facility and overnight shelter), support for emergency responders (police and fire), and duration of event issues. Tonight, staff will present an overview on Snow and Ice Event ROW Plowing Planning and Operations. This discussion will include information on the policies staff use to guide operations, service priorities, available resources, environmental considerations, and future capabilities.

The purpose of tonight’s briefing is to share how the City prepares for and responds to snow and ice events so that Council can respond to resident and business questions.

RESOURCE/FINANCIAL IMPACT:

There are no direct current financial or resource impacts on this agenda item. Funding for snow and ice removal is included in the Public Works Operating Budget.

RECOMMENDATION

No action is required at this time; this item is for information and Staff recommends Council ask staff questions regarding the City’s snow and ice control operations.

Approved By: City Manager **JN** City Attorney **MK**

BACKGROUND

Citywide Snow and Ice Event Planning and Operations includes considerations for safety in the right-of-way (ROW), access to City facilities (parks, trails, restrooms, buildings), care for our most vulnerable populations (warming facility and overnight shelter), support for emergency responders (police and fire), and duration of event issues. Safety in the ROW, through the removal of snow and ice from public streets and facilities, is the primary focus of City staff time and operational resources. The City's Public Works (PW) Department takes the lead for providing snow and ice control services for public streets, while Parks, Fleets and Facilities (PFF) is responsible for snow and ice control services at City facilities and their respective parking lots and sidewalks. PFF also provides reserve personnel to support PW snow and ice control operations as requested. During a snow and ice event, these services are considered emergency operations and take precedence over other operational tasks provided by PW and PFF.

DISCUSSION

The City's response to snow and ice events is guided by the [Snow and Ice Control Plan](#) (Plan), which was most recently updated in 2021. The Plan, which was developed to guide staff in planning for and conducting snow and ice control operations, sets reasonable goals and general practices to guide snowplowing and anti- and de-icing operations in the ROW, recognizing that many variables are encountered during these events and therefore precise methods of response must be a combination of policy, experience, and on-site judgment.

Snow and Ice Control Services

The City is resourced to provide winter weather services that match the fickle Pacific Northwest climate. Snow events and periods of sub-freezing temperatures can vary greatly from year to year due to meteorological conditions and weather patterns unique to our region. What follows are a few of the key elements of the City's snow and ice control strategies.

Planning – Preparation for the winter season begins in the early fall. Staff connect all snow and ice equipment (snowplows and spreaders) to their assigned vehicles to ensure that all equipment is operational. If problems are discovered, they are either repaired in-house or sent out for repair. Staff training follows the equipment readiness exercise. This is accomplished through the City's annual 'Snow School', which is held in late October or early November. All staff who serve as snowplow operators and support personnel receive classroom and field training. The training covers all aspects of our snow and ice control operations, from the administrative tasks to behind the wheel operations of the snowplows.

Route Management – Public Works provides anti-icing treatments and snow plowing services based on street classifications. Higher traffic volume streets (arterials) receive first priority. Secondary streets that funnel traffic to the arterials or collector streets have second priority. All other public streets are prioritized after these primary and secondary public streets. The current snowplow route map with primary and secondary routes identified is included as Attachment A.

Anti-icing/De-icing – Anti-icing is a proactive winter road maintenance strategy. It involves the application of liquid anti-icing products (also known as freezing-point depressants) to the roadway surface before a winter storm. Applying the product in dry weather prevents snow from becoming ice on the roadway. However, if it rains after application, the product can be washed away before it can be effective. De-icing, on the other hand, is a reactive treatment used to break the bond with the roadway surface after a snow and ice bond has already formed.

Personnel – Staff from multiple departments are involved in winter operations. PW staff have primary responsibility for snow removal and ice control on the City’s public streets and overall event management. Customer Response Team (CRT) staff work directly with PW in supporting street operations and fielding calls through the City’s main phone line. PFF staff are responsible for ensuring access to City facilities and parks. Service priorities for PFF staff include parking lot and sidewalk clearing at City Hall, Spartan Recreation, Richmond Highlands, and plowing the Interurban Trail. Secondly, PFF provides bathroom access to other City parks and supports PW as needed.

Equipment – PW has six vehicles available for snow plowing services on the City’s public streets. Two vehicles require commercial driver’s licenses (CDL) to operate due to their size and weight. These vehicles are assigned to the primary snow routes. The other four vehicles are assigned to secondary routes and are heavy duty vehicles that do not require a CDL to operate. PW also has two backhoes and a skidsteer loader available to load or move material. PFF has two light duty plow trucks available, one tractor and a Toolcat available for plowing parking lots and clearing sidewalks at their assigned facilities and parks. Equipment rental is also available if required.

Materials and Supplies – The City has a variety of materials and supplies to support snow and ice control operations, such as tire chains and plow blades to the chemicals applied to the street surface. Inventory is taken as part of seasonal preparations and items restocked as needed. The City maintains approximately 200 cubic yards of rock salt and 8,600 gallons of liquid anti and de-icing agent (calcium chloride) on hand. This amount of material is generally sufficient to sustain a weeklong event.

Facilities – Hamlin Maintenance Facility (HMF) is the command center for conducting all City snow and ice control operations. Other City facilities may house staff involved in a supporting role, but the HMF is where the Incident Commander, or “Snow Boss,” oversees the entire snow and ice control response. Staff report to HMF and the equipment and supplies used during the event are also located here.

Environmental Considerations – Some of the snow and ice fighting products can have negative environmental impacts. The two primary chemicals used today are road salt and calcium chloride. These products are used to combat the bonding of snow and ice to the pavement surface. As a Salmon Safe City, we have an obligation under this certification to minimize or negate these impacts. A few methods to help mitigate adverse environmental harm includes the judicious use of salt and using only the minimum amount required; equipment calibration as part of the seasonal prep activities to ensure product distribution is accurate; and using American Public Works Association (APWA) best management practices to minimize negative impacts to the environment.

Staff attendance at the annual APWA snow conference where national experts educate snowplow operators and winter weather event managers ensures City staff stay up to date on these evolving practices.

Future Capabilities – The future Ballinger Maintenance Facility (BMF) will provide new capabilities for the City's snow and ice control operations. This includes covered storage for the road salt and new liquid brine making capability that can lessen or eliminate the need for liquid calcium chloride. It will also eliminate reliance mid-event on outside vendors to provide us liquid product. The BMF will also nearly double our liquid storage capacity and give us the ability to experiment with even more environmentally friendly liquid products, such as beet juice or other organic products to further minimize negative environmental impacts.

Additionally, in 2022, the City ordered a second anti- and de-icing tank and spray equipment. This equipment will be added to an existing hook-lift vehicle and will improve response time to service the anti-icing routes by working in tandem with the existing liquid anti- and de-icing truck. The equipment is expected to be placed in service early in the first quarter of 2023.

Service Challenges

There are several challenges that impact the delivery of snow and ice control services within the City. While not an exhaustive list, the following are a few of the more problematic items that are present challenges with most snow and ice events.

Compact Snow and Ice – When snow has been compacted and bonds to the road surface, it is difficult to remove. This is exacerbated by irregular roadway surfaces found throughout the City. These irregular surfaces prevent the use of steel cutting blades on the City's snowplow fleet, as it risks damage to the plows. If a steel plow blade catches an uneven pavement surface edge, manhole, valve cover, catch basin, utility vault or other obstacles in the right-of-way, it can severely damage the plow and put it out of service. Because of this risk, the City uses hard rubber or polyethylene cutting blades that “glide” on the roadway surface and are less prone to catch an obstacle. Using the rubber or polyethylene cutting blades helps ensure snowplow uptime with the recognition that they are less effective than steel ones in addressing compact snow and ice conditions.

Residential Streets – The primary challenge with plowing residential streets is plow access caused by parked cars, lack of outlets, and nowhere to offload snow. Parked cars on either side of the street significantly narrow the road making access for the snowplows problematic and risky for vehicle damage. No outlet and cul-de-sac's streets present another challenge when they must turnaround, since plow vehicles are nearly 30-feet long. This challenge is exacerbated when cars are parked in the street. Unloading of snow from the plow blade as it plows the street leaves a one to one and a half foot physical barrier of snow that residents then must address to either access their car parked in the street or at the end of their driveway. The City receives regular complaints about the impacts of this on residents.

Solid Waste Collections – Garbage cans that are placed along the streets during snow events create another obstacle for snowplow operators to avoid. Like the challenges

mentioned for snowplow operators on residential streets, the contract solid waste provider has the same challenges of accessing clogged and narrow residential streets. For longer snow events that impact garbage and recycle collections, the solid waste service provider provides a roll off container in a central location (such as Hamlin Park) for residents drop off accumulated waste. While not a perfect solution, it does provide relief to those residences that choose to use the centralized service location.

Sidewalks – Sidewalk clearing is the responsibility of the abutting property owner as codified in [Shoreline Municipal Code 12.05.020](#). For City properties, PFF has responsibility for keeping sidewalks accessible during winter weather events. Prioritized properties include City Hall, Spartan Recreation Center, and Richmond Highlands. Other park properties receive services as staffing resources allow. The City often receives requests for additional sidewalk clearing, however, the City does not have the resources and it is the responsibility of the abutting property owner. Sidewalk clearing enforcement is challenging, as most winter events are over in a few days making the cost-benefit of pursuing enforcement impractical.

Bus Routes and Stops – The City’s snowplow route map overlays with the King County-METRO Emergency Snow Network bus routes in Shoreline. However, the City is not responsible for removing snow at bus stops. Property owners adjacent to the bus stops are responsible for abutting sidewalks clearing, as stated above. Bus stop snow and ice control service resides with King County-METRO as the mass transit provider in Shoreline.

Shoreline School District – The City shares information with the School District regarding our snow and ice control operations. Changes made to the City’s snowplow routes and road closure maps are provided to the School District. Local road conditions prior to or during a snow or ice event are also shared. However, the School District’s bus route is extensive and covers more streets than the City’s primary and secondary snow and ice control routes. For longer snow events, the City does work to coordinate with the School District to support school bus operations.

Possible Discussion Questions

Staff prepared the following discussion questions for Council consideration to gain a better understanding of the City’s Snow and Ice Event ROW Plowing Planning and Operations:

- How do you coordinate with other regional emergency management agencies in the planning and implementation of the City’s snow response?
- What combination of policies, experience, and on-site judgement help staff determine when to re-run priority routes rather than continue to secondary routes?
- How do you coordinate with first responders during an event to assist them reach residents in distress?
- During a snow and ice event, when can PFF staff be deployed to parks to clear sidewalks and other facilities so the public can use the parks for recreation purposes?
- Does the City plow private roads or private property?

RESOURCE/FINANCIAL IMPACT:

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RECOMMENDATION

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ATTACHMENTS

Attachment A: Snow Removal Routes



Snow Removal Routes

Snow Removal Routes

-  Primary
-  Secondary
-  Non-priority

City of Shoreline Boundary



Metro Bus Route



157.3 Total Lane Miles



0 500 1000 2000 Feet

No warranties of any sort, including accuracy, fitness, or merchantability, accompany this product.

