November 04, 2022

City of Kirkland
Public Works Department

Snow and Ice Response Plan
2022-2023

For Immediate Emergency Assistance:	Call 9-1-1
Kirkland 24/7 Emergency Update Hotline:	425.587.3767
For Public Works 24/7 Emergency Line:	425.587.3900
Puget Sound Energy 24/7 Emergency Line:	888.225.5773

For service requests, please use OurKirkland: https://kirklandwa.qscend.com/ourkirkland/

TABLE OF CONTENTS

APPENDICES

ACRONYMS

BMP	Best Management Practice
CDL	Commercial Driver's License
CKC	Cross Kirkland Corridor
CMO	City Manager's Office
EOC	Emergency Operations Center
FEMA	Federal Emergency Management Agency
HVAC	Heating, Ventilation, and Cooling
NOAA	National Oceanic and Atmospheric Administration
NORCOM	North East King County Regional Public Safety Communication Agency
NPDES	National Pollutant Discharge Elimination System
NWS	National Weather Service
OEM	Office of Emergency Management
PWMO	Public Works Maintenance and Operations
SOP	Standard Operating Procedure
SWMMWW	Stormwater Management Manual for Western Washington
WSDE	Washington State Department of Ecology
WSDOT	Washington State Department of Transportation

1. Introduction

1.1 Purpose and Goals

The purpose of this Snow and Ice Response Plan is to provide effective, clear, consistent, and environmentally responsible guidelines for the City of Kirkland to provide the best possible service for the residents, businesses, and visitors to Kirkland during winter weather using available resources.

During the winter season, Kirkland may experience hazardous weather including snow and ice accumulation. Storm patterns in the Pacific Northwest are irregular, and Kirkland's diverse landscape complicates the impacts of winter weather. Kirkland could experience low, moderate, or severe impacts from weather conditions during the winter of any particular year.

A major impact of winter weather is the effect on the City's road-transportation network; accumulations of snow and ice can reduce surface friction and increase risks to public safety. During especially heavy snowfall, accumulations of snow can collapse power lines, tree canopy, and the like, posing additional safety and road-efficiency risks.

The goal of the City's Public Works Department, led by the Streets Division, is to provide passable routes for emergency vehicles, school buses, public transportation, commercial vehicles, travelers, and commuters during conditions of snow, ice, and/or severe frost on the City's roads and streets.

1.2 Priorities and Service Expectations

The City's Public Works Department is responsible for snow and ice control activities within the public right-of-way including snow removal, anti/deicing, traction improvement, and debris removal. While Public Works cannot commit to reaching bare pavement, it will endeavor to provide passable roadways. This includes approximately 250 center line miles of roadway, pedestrian overpass bridges, public parking lots, and public parking lot stairs. Although Public Works will scale snow and ice response operations to the severity of the event, the inventory of right-of-way and travelled roadways in Kirkland exceed the available personnel, equipment, and resources needed to address all potential winter weather impacts simultaneously.

Parks and Community Services oversees snow removal around City facilities and within public parks.

The City in consultation with transit providers has identified and prioritized service for roadways considering access for emergency services, roadway classifications, and topography (Appendix A).

Public Works attends to higher priority routes first, and these priorities remain in effect unless there is a requirement to redirect resources. If snowfall is continuous, roadways along higher priority routes may require repeated snow and ice treatment before crews can work to clear others; this approach aids emergency services, as well as transit, school buses, and commuter traffic. In general, routes are identified as follows:

- **Priority 1** routes include arterial access to and around Evergreen Hospital Medical Center, the Kirkland Justice Center, and Kirkland Fire Stations along those routes.
- **Priority 2** routes include public transit access, access to and from I-405, remaining arterials, and key service areas.
- **Priority 3** routes include collectors serving key areas or neighborhoods.
- **Priority 4** routes include those with known needs typically shaded and east/west facing and local roads.
- The City may implement selected road closures to prevent collisions on roadways with substantial risk.
- Pre-treatment (anti-ice) routes cover steep and historically shaded/damp areas, bridges, and overpasses.

Sidewalks and stairs around Public Buildings are maintained by Parks and Community Services. Private Property owners are similarly responsible for shoveling and de-icing of sidewalks and steps adjacent to their property per Kirkland Municipal Code 19.20.020. This is especially important during winter events since many need to rely on transit or walking for mobility during these events.

King County Metro bus stops without shelters are equivalent to sidewalks, and snow removal is the responsibility of adjacent property owners. Snow removal for bus stops with shelters is the responsibility of King County Metro Transit Power and Facilities Section.

Since City resources cannot reach all locations or address every situation, community assistance along with personal responsibility are necessary to be safe during winter events. Measures that the Public are asked to do include:

- If possible, stay home throughout the storm until driving, walking, and biking routes are passable and safe for travel.
- Park vehicles in your driveway to give crews access to the street. Owners may have to dig out their vehicles if they are parked on snow routes. If a vehicle blocks snow and ice response activities, Police may utilize towing services to clear roads of these vehicles.
- Remain 50 feet away from all snow response equipment. Applications of anti/deicing materials can disperse at wide rates and it is best for the public to not have the materials coat their windshields for visibility. If anti/deicing material does get onto private vehicles, the public should rinse it from the vehicle as soon as possible to reduce corrosion and maintain clear window views.
- Uncover storm drains in front of your house to avoid flooding and uncover gas meters to avoid gas leaks. Crews try to keep from plowing snow onto storm drains and sidewalks, however this commonly happens during snow removal operations.
- Place requests for service 24/7 via the OurKirkland web-portal, use the 3900 #, or in person Mon-Fri 6:30 A.M. to 3:00 P.M. at the Public Works Maintenance Center, 915 8th Street, Kirkland, WA (requests outside of the pre-established priority routes may not receive high priority due to resource limitations).
- Use the OurKirkland web-portal to request updates on Waste Management (WM) service delays, using the topic 'I Want to Receive Waste Management Alerts'. Residents can also access WM service alerts at http://wmnorthwest.com/kirkland.

2. Planning and Preparedness

2.1 Proactive Response Measures

The City coordinates winter response proactively to the greatest extent possible. Proactive response requires constant vigilance, which the City maintains through several weather monitoring services.

Public Works staff monitor conditions and follow weather reports using National Weather Service (NWS) alerts, as well as a forecasting tool developed by the University of Washington called SnowWatch. SnowWatch helps to predict how a storm will most likely affect different areas of Kirkland which may impact road-clearing operations. Public Works Maintenance and Operations staff also have access to a portable weather alert radio.

If severe weather is forecasted, the City's Office of Emergency Management (OEM) may schedule a pre-incident meeting to initiate coordinated planning among City departments. Depending on the situation, the Emergency Manager, City Manager, or Department Director may proactively activate the Emergency Operations Center (EOC) (see Section 4.2.4).

The City has two remote weather stations that alert key staff when temperatures drop below 34 degrees via a subscription to Weathernet forecast services. One station located on Big Finn Hill next to Kirkland Fire Station #25 on Juanita Dr. NE is connected via fiber cable to the City technology system. A second station at Kirkland Fire Station #27 near Evergreen Hospital Medical Center is connected via cellular modem.

Before a winter weather event, when temperatures drop below 34 degrees and conditions permit, the City uses anti-ice equipment and chemicals to treat selected streets, bridges, and pedestrian overpasses (Appendix A); this helps to prevent ice from bonding to surfaces.

2.2 Preparedness Schedule

To address the irregularity of winter weather storms, it is important that snow and ice control procedures maintain flexibility. However, there are procedures before and after winter weather response which the City performs on an annual basis to prepare for inclement conditions. Generally, annual preparation is as follows:

September

- Public Works staff begins preparing for the snow season by getting snow equipment ready and stockpiling supplies.
- Chemical anti/de-icing materials are purchased, and spray trucks are purged of chemicals used for vegetation control during summer months.
- Staff review/update the Snow and Ice Response Plan for needed changes.
- Staff begins the priority route modification process based on changes in the community and in collaboration with Police, Fire, adjacent Cities, the Universities, King County Metro, Lake Washington Schools and Evergreen Hospital Medical Center.

October

- Staff more closely monitor weather and temperatures.
- Anti-ice treatment may commence as colder conditions warrant.
- Staff incorporates needed changes to the Snow and Ice Response Plan and snow and ice control priority routes identified during the review process.
- Staff shift schedules are drafted.
- Fleet Division prepares winter equipment with cleaning, tune up, and repairs.
- Members of the OEM staff, alongside staff from the King County Office of Emergency Management and Washington State Department of Transportation, attend annual winter weather meetings hosted by the National Weather Service (NWS). The OEM shares information from these meetings with the City and Public Works administration.

November

- Staff are trained, on snow if available, on the City's Snow and Ice Response Plan and Standard Operating Procedures (SOP) including plowing and spreader techniques, communications, and operation strategies. All staff are annually trained on procedures and equipment.
- Fleet Division coordinates preparation of emergency vehicles (Fire and Police) at individual stations.

Nov – Mar

- Most inclement weather in the Puget Sound region occurs during this timeframe.
- Crews perform emergency response activities such as anti-icing, plowing, sweeping, cleaning of enclosed drainage systems, and responses to wind and other events.

April

- Typically, April is a transition month, winding down from winter weather response mode.
- Equipment is returned to non-winter month status. For example, anti-icing trucks are returned to vegetation control preparation.
- Plows and sanders are cleaned, have maintenance performed on them, and stored.

3. Equipment and Material Inventory

3.1 Equipment

City crews use the same equipment for paving streets and maintaining utilities that they do for winter weather response which helps to balance the City's investments in equipment. City owned equipment available for snow and ice control are identified in Appendix C. It is City policy that for each new large piece of equipment replaced or newly purchased for Parks or Public Works, it is to be evaluated for snow removal duties, and if viable, funding for snow removal/treatment accessories (plows, sanders, lighting) included in the purchase.

During winter snow/ice events staff allocates vehicles and equipment in a manner which provides the best use and application for the event. Typically:

- Ten (cubic) yard and five-yard dump trucks and one-ton pickups equipped with snowplows/sanders are assigned in a prioritized manner throughout the Community.
- Two trucks mounted with deicing equipment are assigned to areas on a priority basis.
- The articulated loader remains in the Maintenance Center yard for use in stockpiling, loading sand, and performing snow removal in the Maintenance Center yard and parking lot areas.
- The grader, if used, will focus primarily on Juanita Drive and may assist the Downtown Transit Center bus access for King County Metro.
- Extra available equipment may be used to assist plowing and respond to intersection and collision-related requests.
- Backhoes may be staged at City Hall and Justice Center parking lots if large piles of snow need to be managed.
- One ten-yard dump truck will be available to haul sand materials to the Maintenance Center to replenish inventoried materials.
- Small plows mounted on trucks, backhoe/loaders along, and snow blowers are available to assist Parks and Community Services in maintaining designated public facilities.

3.2 Anti/Deicers and Traction Abrasives

The Public Works Department has access to various chemicals and traction abrasives for anti/deicing activity during storm events. Some are staged at the Maintenance Center, and access to additional materials from external sources and/or vendors is obtained on a case-by-case basis.

There are two 6,500-gallon storage tanks for Calcium Chloride with Boost (CaClB), used as an anti-icing material, installed at the Maintenance Center which crews can apply using spray equipped vehicles. 5-gallon containers of CaCLB are located at each Fire Station for onsite use.

Crews can also use Calcium Chloride with Boost which is available at the Maintenance Center to "pre-wet" sand using two 10-yard plow/sanders fitted with pre-wetting equipment. Pre-wetting equipment applies the CaCLB to the sand automatically as it is distributed. Pre-wetted sand will better adhere to frozen roadway surfaces as the water freezes to the roadway. A limited supply of bagged deicer is stored indoors on pallets, if needed.

Public Works also has access to a limited amount of sand/salt mix from the Washington State Department of Transportation (WSDOT) yard facility located at 10833 Northup Way, Bellevue, WA 98004. This stockpile is available via a mutual aid and support basis limited to $5,000 of material annually. A greater availability of sand can be unpredictable based on the demand and sources. Using regional relationships and coordination with other agencies, opportunities for additional salt are available.

3.3 Environmental Considerations

While snow and ice control activities that apply chemical or abrasive material onto roadways could have adverse environmental impacts if used improperly, vehicle collisions could have greater impacts if roads were left untended. Not only could vehicle collisions release motor oil, coolants, and other vehicle fluids or materials into the surrounding environment, injuries and damage to property as a result of collisions could also occur. As such, the City deems the use of chemical anti/deicers and abrasives necessary to protect public safety as well as to mitigate greater environmental damage from vehicle collisions.

To minimize the environmental impact of snow and ice control activities, Public Works follows best management practices with the use of chemicals. Appendix D outlines practices from the King County Stormwater Pollution Prevention Manual, adopted by the City.

4. Staffing

4.1 Administration

From the Kirkland Maintenance Center, 915 8th Street, staff conduct the administration and coordination of crews during snow and ice conditions. From this location, Public Works crews can perform winter weather response 24/7.

The Public Works Director and/or Superintendent initiates snow and ice control procedures determining when crews and equipment are to be activated in order to stay ahead of storm events. Crews may also be activated by the Public Works standby personnel or the Manager in charge during non-work hours.

The Public Works Superintendent, Operations Managers and Supervisors, or Standby personnel may be designated as the 'supervisor on-duty', supervising the snow event. The appointed supervisor on-duty will deal directly with incoming service requests at the Maintenance Center with consideration given to established priorities and limited resources. Briefings occur at a minimum at the beginning and end of established shifts to allow staff the opportunity to coordinate with each other (Section 4.3). In addition, the supervisor may be in contact with available Public Information staff or senior City management on a schedule determined by the event (Section 5.1).

In a declared City emergency during which the EOC is activated, the Maintenance Center will continue to function as the focal point for direct coordination of crew activities, however, priorities for snow and ice control efforts or other emergency conditions by all crews may be directed by the EOC from City Hall.

Recording of all winter storm response activities and follow-up cleaning throughout a major winter storm is important for future planning and budgeting. Work orders are tracked in the

City's maintenance management system, Lucity, and coded for ease of reporting; labor, equipment, and materials are tracked and documented. Near real-time reporting and mapping of work and progress are all enhanced by the tools available in Lucity. In the event of disaster declaration associated with a winter storm, detailed tracking forms (Appendix J) will aid staff if applying for Federal Emergency Management Agency storm response and restoration funding programs.

4.2 Departmental Roles and Responsibilities

In addition to response efforts from Public Works Staff, effective management and coordination of snow and ice control efforts are accomplished through efforts by various other City Divisions and Departments and their respective managers, supervisors, lead persons and crews. Generally, Divisions and Departments with distinctive areas of responsibility for snow and ice control are Equipment Rental, Facilities Services, Parks and Community Services, the Office of Emergency Management, and Public Information in the City Manager's Office. Division and Department staff regularly share shift schedules and rosters to ensure coordination.

4.2.1 Equipment Rental (Fleet)

On duty mechanics will perform equipment maintenance and repairs during shifts and assess equipment during shift changes to prevent equipment failures. Fleet is responsible for the setup, maintenance, and repair of vehicles and equipment during winter weather events. In addition, Fleet oversees the delivery of fuel and the emergency generator located at the Maintenance Center during power outages.

In the initial stages of preparation for a winter storm, Fleet and the Maintenance Division staff jointly prepare equipment. Additional Public Works and Parks Department crews may be used assist preparing vehicles and equipment for snow and ice tasks if the event dictates. Preparation may include assisting with mounting the plows and sanding equipment, and chaining vehicles.

Fleet maintains a complete set of cable chains and back-up chains for all Police vehicles and install the chains during an event. The Fire Department maintains an inventory of chains for all apparatus at each station which includes cable chains and 'lug' chains, which are used if snow reaches six inches. All firefighters receive training on how to install the chains, however Fleet personnel may assist if conditions warrant.

4.2.2 Facilities Services

Within the City Manager's Office (CMO), Facilities Services is responsible for exterior structural City building maintenance including power, plumbing/drainage systems, HVAC systems, furniture systems, elevators, windows, flooring, roof systems, and indoor structural system needs. City buildings are essential during winter events, and their continued operation is of vital importance.

4.2.3 Parks and Community Services

The Parks Maintenance Division has approximately 30 full time crew, two administrative employees, three lead persons, two supervisors, and one division manager situated at the Park Maintenance Building in the Totem Lake area at 12006 120th Place NE.

The Parks and Community Services Department is responsible for snow and ice control activities around the exterior of City buildings and facilities, including driveways, parking lots, and pedestrian access paths.

City buildings which Parks and Community Services are responsible for are as follows:

Station 21	9816 Forbes Creek Dr.
~~Station 22~~ (Out of Service during renovation)	6602 108th Avenue NE
Station 24	9820 NE 132nd ST
Station 25	12033 76th Place NE
Station 26	9930 124th Avenue NE
Station 27	11210 NE 132nd Street
City Hall	123 5th Avenue
Kirkland Justice Center	11740 NE 118th Street
North Kirkland Community Center	12421 103rd Avenue NE
Peter Kirk Community Center	352 Kirkland Avenue
Maintenance Center	915 8th Street
Annex Building	310 1st Street
Heritage Hall	203 Market Street
Parks Maintenance Facility	12006 120th Place NE

Parks operates pick-up truck mounted plows and backhoe/loaders along with snow blowers to maintain designated public facilities. Parks crews may not be able to immediately reach every facility due to traffic or street blockages. In these cases, Public Works may augment support if needed.

4.2.4 Office of Emergency Management (OEM)

The OEM provides additional logistic support throughout snow and ice response operations. Prior to an event, the OEM tracks potential large-scale events through several monitoring methods. These include but are not limited to regional calls with the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS), tracking NWS active alerts, and communications with emergency operations staff throughout the Puget Sound area.

Depending on predicted severity, the OEM may schedule a pre-incident meeting to coordinate key agencies, providing information necessary for tactical awareness and coordination.

The Emergency Manager, City Manager, or Department Director may engage the Emergency Operations Center (EOC) at any point before or during inclement conditions. If the EOC is activated, the Maintenance Center will still function as the focal point for direct coordination of crew activities; however, the EOC may direct PWMO priorities for snow and ice control efforts or other emergency conditions.

4.2.5 Public Information

Public Information staff from the CMO will provide the public with up-to-date reports and operational status updates using web-based platforms; information updates will be available on Facebook, Twitter, Nextdoor, and the City's website. Residents can use this information to anticipate and prepare for the impacts of inclement weather.

Depending on the severity of the event, Public Information staff will use differing strategies of communication with Public Works staff to ensure that all staff are using time and resources most effectively (Section 5.1).

4.3 Crews and Shift Scheduling

The Public Works Department has approximately 59 full-time Operations and Maintenance field staff, 50 with Commercial Driver's Licenses (CDL) required to drive snowplow equipped dump trucks, and 13 administrative and management staff at the Maintenance Center. The magnitude of a storm will have a direct bearing on the size of crew established.

During any winter event, the supervisor on-duty may need to adjust the initial response schedules as the weather event unfolds, and they may need to draw field crews from any or all divisions including Streets, Public Grounds, Water, Sewer, Storm, and Fleet.

Far more frequent than full-blown, largely anticipated, snow events, are forecast periods of freezing and/or high wind; these events may occur during or after regularly scheduled hours. Public Works management may shift schedules to provide weekend, early morning, and/or evening crews depending on weather forecasts. These small crews with a lead worker (skeleton crew) may be put on duty and will be assigned backup work to perform in case the forecasted event does not materialize.

For large winter weather events, short or long-term, the Public Works Director, the Public Works Superintendent, Division Managers, and/or the City Manager may shift Public Works Operations Maintenance staff to 24/7 coverage for snow and ice control. This coverage is comprised of two 12 hour shifts to maximize staff resources, make efficient use of equipment, and reduce staff fatigue.

Day	6:30 am to 6:30 pm
Night	6:30 pm to 6:30 am

During each shift, the supervisor on-duty will be responsible for coordinating, planning, scheduling, and dispatching crews. Staffing is typically pre-assigned to each shift with specific task and equipment assignments. The supervisors on-duty will operate under the general direction of the Division Public Works Director and Public Works Superintendent who will have oversight of the snow and ice control operations.

Supervisors and/or management are expected to conduct a short meeting (15-20 minute) exchange of critical information before each shift activates. Briefings should happen regularly at the beginning and end of shifts. Generally, staff will follow this 24/7 shifting for as long as

needed to effectively satisfy the mission statement objectives. The decision to discontinue the shift schedules are made by the Public Works Director.

5. Communications

5.1 Internal

During inclement weather events, the coordination of crews is especially critical to ensure that emergency situations will be responded to in an efficient, effective and timely manner.

Public Works Maintenance and Operations staff have access to equipment for effective communication. In addition to field laptop computers, field crews currently utilize 10 hand-held portable radios and approximately 60 City owned cellphones for internal communication. During snow and ice events, office staff or the supervisor on-duty will staff the telephones and 800 MHz radio at the Maintenance Center. The appointed supervisor on-duty will deal directly with service requests at the Maintenance Center, with consideration to established priorities and limited resources.

The supervisor on-duty will complete a summary of snow and ice shift highlights at the end of each shift (Appendix F) for communication and documentation purposes. The supervisor on-duty may also provide updates as required to the Public Outreach staff based on the event. The Public Works Superintendent will oversee the compilation of information and report to the Public Works Director, City Manager, or Communications Program Manager. Public Works will notify the City's Public Information Office and City Manager's Office if shifting is activated and will update them regularly on operation status and issues.

5.2 External Agencies

Maintenance and Operations Center telephone lines are the Public Works Department's primary communication link to coordinating with other divisions, departments, and external agencies. Telephone lines may fail or be damaged during heavy snow or ice events. As a backup to the telephone system, the Maintenance and Operations Center may be contacted directly through the Public Works band on the 800 MHz radio or via cell phone.

Public Works Department staff may maintain communication with a variety of external agencies, including King County Metro Transit, Lake Washington School District, Evergreen Hospital, Northwest University, and adjoining jurisdictions such as Redmond, Bothell, and Bellevue.

The City's Solid Waste Program Supervisor works directly with Waste Management to provide Kirkland residents with daily service alerts if inclement conditions are predicted to affect garbage collection services. This could include information about delays, cancellations, drop-off sites, etc., and will be available at http://wmnorthwest.com/kirkland or via out-dialer message.

NORCOM (Northeast King County Regional Public Safety Communication Agency) will provide site-specific emergency dispatching services to the phone messaging system the Public Works Department contracts with who then alert the Public Works command staff. Public Works supervisory staff will make specific crew assignments.

The Kirkland Police Leadership in charge will provide regular assessments of current conditions to the Public Works Director and/or the supervisor on-duty if shifting has been activated. Public Works will respond to requests from the Police and Fire departments for site specific road closures, and assist in preparing emergency response fleet equipment, provide fuel and other actions needed.

The Police Department, along with tow truck companies, may need to assist by towing stalled or abandoned vehicles to the nearest side street if these vehicles impede snow and ice response activities on priority arterials.

If the EOC is activated, it will serve as primary point of communication with a variety of external agencies which could include King County Transit, Lake Washington School District, Evergreen Hospital, Northwest University, Puget Sound Energy, and adjoining jurisdictions such as Redmond, Bothell, and Bellevue. The EOC may coordinate additional staffing or equipment to respond to an event if necessary, however the Maintenance Center will still function as the focal point for direct coordination of crew activities.

6. Operational Procedures

6.1 Anti-icing Application

The application of CaClB is weather dependent; treatment may be applied when temperatures drop below 34 degrees Fahrenheit, and there is no rain. If CaClB is applied to the roadway and temperatures rise above 40 degrees or humidity levels rise above 40 percent, the CaClB can decrease traction on roadways and make travel less safe.

The Manual of Practice for an Effective Anti-Icing Program (Appendix E) provides guidance for application of liquid chemicals and solid chemicals under six different winter weather conditions.

6.2 Plowing

When approximately one inch of snow or more is projected to accumulated, staff begins plowing according to established priority routes. On multi-lane roads, crews will typically plow snow to the right, from the center out to the shoulder. This is done so that melting snow doesn't flow across the travel lanes and refreeze when the temperature drops at night.

Crews are trained to avoid, if possible, pushing snow onto sidewalks, across driveways, storm drains, or in front of bus stops. However, in any city, urban factors such as parked cars, pedestrians, and narrow streets complicate snow removal. With large accumulations of snow over multiple days, conflicts with sidewalks, driveways, and other infrastructure cannot be fully avoided. Cities with regular heavy snowfall often have winter parking restrictions that make it easier to plow streets. Since Kirkland does not have regular significant snowfall, these sorts of parking restrictions have not been implemented.

6.3 Sanding/Salting

In general, crews only apply salt or salt/sand mix at key intersections, steep grades, or in locations of historical ice accumulation along priority routes. Extended full-length sanding/salting of streets is not performed for a number of reasons: 1) there is typically limited sand/salt available to address more than the areas stated, 2) the over-use of these materials may be environmentally detrimental to the receiving watershed when melting occurs, 3) sand tends to migrate to curbs and shoulders once snow and ice melt occurs which provides potential hazards to bicyclists, and 4) unlike CaClB which dissolves with time, in order to allow the storm water conveyance system to function as it should, post-storm cleaning is required to remove sand. As a BMP under the King County SPPM, crews are required to perform post-storm sweeping and cleanup on all roads where solid deicers and/or abrasives have been applied, and significant amounts of this work are not typically anticipated in assembling annual work plans. If necessary, three street sweepers and three eductor trucks are available for clean-up activities.

6.4 Debris Removal

If an event brings significant wind and/or wet snowfall, there is a high possibility that fallen tree canopy and other debris may impede Kirkland's road-transportation network. Appendix B identifies roads in Kirkland where debris is historically likely to fall within the public right-of-way.

According to the Transportation section of the City's Comprehensive Emergency Response Plan, "primary emphasis will be put on debris removal to allow for life safety and transport of essential resources coming into the community". If debris in the public right-of-way could impede the passage of emergency vehicles, staff should prioritize debris removal efforts.

6.5 Road Closures

During significant snow and ice events, the City may close especially hazardous streets that have steep grades and/or insufficient traction. Impacted streets are generally low-volume streets, although it may be necessary to close certain high-volume streets to sufficiently protect public safety. Public Works crews pre-stage road closure signs during winter months at some locations (Holmes Point Drive) and have access to road closure signs at the Maintenance Center warehouse.

The Public Works Department will coordinate Street closures with the Police and Fire Departments during snow and ice events. Communications staff update the City's Facebook page identifying road closures/openings for the duration of storm events.