CITY OF SHORELINE

Snow and Ice Control Plan

Effective Date:	**Approved by:** R Witt
Sponsor: Lance Newkirk, Utility & Operations Manager David LaBelle, Public Works Maintenance Superintendent	Randy Witt, PW Director 11/21/2021

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Purpose

The purpose of this plan is to communicate the means and methods by which the Public Works Department provides snow and ice control services to the citizens of Shoreline. The plan sets reasonable goals and general practices to guide the operation of snowplow and anti- and de-icing; recognizing that that many variables are encountered during these operations and therefore precise methods of response must be a combination of policy, experience, and on-site judgment. While the characteristic and severity of each winter storm is unpredictable, the city will continue to work within its resources to maintain the highest level of customer service possible while balancing efficiency in snow and ice control for maximum safe mobility while minimizing environmental impacts.

Introduction

The Public Works Department (PWD) is responsible for providing snow and ice control services for public streets within Shoreline. The services delivered by PWD are intended to provide vehicles properly equipped for winter driving conditions with reasonably safe driving surfaces under adverse winter weather conditions. Parks, Facilities and Fleet (PFF) is responsible for snow and ice control services at City facilities and their respective parking lots and sidewalks. PFF will provide reserve personnel to support PWD snow and ice control operations as requested.

However, the focus of this Snow and Ice Control Plan (Plan) is on public right-of-way component of the City's overall snow and ice control plan and thusly focuses on PWD and not PFF provided services. In doing so, PWD considers the unique characteristics of each winter storm. Storm intensity and duration, wind, temperature, and moisture content are all variables that influence the methods used to combat the resulting snow and/or ice related conditions. It also addresses the various elements required to have a comprehensive and uniform snow and/or ice control response, including:

- Pre-winter season preparation,
- Weather monitoring,
- Personnel scheduling,
- Mobilization,
- Material selection and usage,
- Equipment utilization,
- Route assignments and prioritization and
- Operational procedures.

Each component of the plan is addressed in the following sections.

Storm Warning Notifications

Snow events and periods of sub-freezing temperatures can vary greatly from year to year due to meteorological conditions and weather patterns unique to the Pacific Northwest. Receiving accurate and up to date weather forecasts are essential for staff and first responders to prepare and plan appropriately.

Shoreline Public Works subscribes to NorthWest Weathernet to monitor daily forecasts during the winter storm season. The storm season runs between November 1 and April each year. NorthWest Weathernet is a certified meteorologist weather forecasting service that provides advance notification of impending inclement weather based on geographic location.

City staff shall use additional resources such as the NOAA, local news, the web, and neighboring jurisdictions to supplement NorthWest Weathernet forecasts. Each winter storm has unique characteristics such as storm intensity, duration, wind, temperature, and moisture content. These factors will affect the total amount of snow and ice that may accumulate and influences the deployment of equipment and personnel required to address snow and/or icy conditions.

Personnel Scheduling

Scheduling of personnel to support a given snow or ice event is dependent upon many factors. One factor used to help determine staffing needs is the timing, size and anticipated duration of the storm event. The following table illustrates how the City has categorized snow and ice storms from low (1) to high (5) intensity.

Storm Category	Weather Condition or Forecast
1	Freezing Weather Conditions with No Snow Accumulation *(Single Storm)*
2	Trace to Two Inches Snow Accumulation *(Single Storm)*
3	Two to Six Inches Snow Accumulation *(Single or Multiple Storms)*
4	Six Inches and Above Snow Accumulation *(Single or Multiple Storms)*
5	Six Inches and Above Snow Accumulations *(Single or Multiple Storms and extended freezing temperatures predicted)*

Low intensity storms may only require Public Works personnel to provide the needed level of service. An example of this is a weather prediction of freezing temperatures where only a deicing chemical solution application to targeted streets. In this instance Operations and Maintenance Division personnel from the Streets crew will be scheduled to perform this activity; whereas, a storm of medium to high intensity may require staff from multiple Departments to fully staff the necessary snow and ice control level of service.

City policy 6.150115 (Exhibit A) identifies the Departments affected, minimum staff commitments, key activities, levels of service, and triggers for emergency support. The Employee Handbook policy also establishes the maximum number of hours that an employee may work per work period. Pursuant to the criteria outlined in the Handbook the maximum number of hours that an employee shall be assigned active and non-administrative snow and/or ice control operations is 12 hours.

Mobilization

The removal of snow and ice from public streets is considered an emergency operation that takes precedence over other operational tasks of the Public Works Department. While snow removal is ostensibly the responsibility of Public Works, due to the limited number of employees available to provide 24 hour

coverage during significant events, assistance from other departments and divisions is required when weather forecasts or on-the-ground conditions warrant the mobilization of additional City personnel. When additional City personnel are required for a given snow and/or ice event they will be notified and given work assignments in accordance with City policy 7.150130 (Mobilization and Staff Assignment Procedures – Exhibit B).

Snow and Ice Control Material

The City uses sodium chloride (salt) and liquid calcium chloride as part of its snow and ice control operations. These chemicals are used for pre-treatment, anti-icing, de-icing and pre-wetting.

- *Pre-treatment* – A form of anti-icing where chemicals are applied to the road up to 72 hours before a winter storm to prevent a bond from forming between the pavement and the snow and ice when the storm starts.
- *Anti-icing* – The application of chemicals to roads before a snow-pavement bond occurs. Anti-icing emphasizes prevention rather than reaction.
- *De-icing* – The practice of removing snow or ice once it has bonded to the pavement. This involves plowing and continual application of chemicals. Plowing generally begins when an inch or more of snow has accumulated on the road.
- *Pre-wetting* – Involves treating the dry de-icing chemicals with liquids before they are applied to the roadway as part of the deicing efforts. This accelerates the activation of the chemicals before they are applied to the road. Pre-wetted chemicals are not typically applied to roads before snow or ice accumulates.

The use of salt combined with snow plowing is the most effective, most economical and safest snow and ice control method currently available. Salt is most effective for melting purposes at temperatures above 20 degrees F, with reduced melting ability as the temperature drops. When temperatures fall below 20 degrees F the salt will be pre-wetted with liquid calcium chloride solution. The benefits of liquid calcium chloride provide the moisture needed to form liquid brine and initiate melting action. Once melting begins, the bond between ice and pavement can be broken allowing for mechanical removal.

The salt and calcium chloride used by the City is purchased under a Washington State contract and stored at the Hamlin Maintenance Facility. The Hamlin inventory is topped off prior to November 1 and maintained or supplemented as needed throughout the winter season. The salt is stored in a tarp covered material bin that holds approximately 170 cubic yards. The calcium chloride is stored in an 8,400 gallon above ground storage tank.

N1: The PWD has commissioned a study to examine its Snow and Ice Control equipment, operational practices, and chemical treatment methods to reduce the impact of chlorine-based products on the natural environment. The findings of that study will be incorporated into the next update of the Snow and Ice Control Plan.

Equipment Inspection

Late summer or early fall of each year, all City equipment used in winter snow and ice control operations shall be inspected. A list of all deficiencies shall be made, and the maintenance and repair of these deficiencies shall be completed by the City's vehicle and equipment repair vendors on or before by November 1. Vehicles and equipment inspected shall include, but are not limited to, the following:

- *Trucks/Loader* – Check for leaky hoses, fluid levels, tire wear and air pressure, electrical (interior gauges and switches and exterior lights and pigtails/sockets), cab spreader and plow controllers, mirrors, windshield wipers, horn, parking brake and all other safety and operational checks for the class of vehicle.
- *Snow Plows* – Plow equipment shall be inventoried, test mounted, and inspected for proper function, missing parts, structural damage, proper adjustment, etc. Plows shall be stored in a position for easy hookup and have easy-to-read identification to match them to the proper truck.
- *Spreaders* – All spreaders shall have their pumps, hoses and fittings, spinners, augers or auger chains and auxiliary hydraulic motors inspected for proper function.
- *Liquid Dispensing Systems* – All anti and de-icing chemical pumps and motors used snow and/or ice control operations shall receive required maintenance and be lubricated, repaired and calibrated.
- *Spare Parts* – Commonly used spare parts shall be acquired prior to the start of the snow and ice season. These include: cutting edges, plow shoes, shear pins, nuts and bolts, filters, bulbs, spreader controller parts, springs, tire chains, wiper blades, and other miscellaneous supplies.
- *Communication Equipment* – All City radios that will be used to communicate with supervisors or other snow removal personnel are to be operationally tested and ready for use.
- *Safety Equipment* — Make sure there are flashlights, flares, flags and safety vests in truck cabs.

Equipment Calibration

The snow and ice control spreading equipment used by the City is not standardized. As such, the equipment used to apply both liquid and dry snow and ice control material can vary greatly between vehicles. Therefore, calibration and regular re-calibration of this equipment is of the utmost importance to achieve proper rates of application. All liquid and dry distribution/spreading equipment used by the City are to be calibrated as part of the pre-winter season preparation activities. During the winter season as the equipment comes in for maintenance the spreader units are to be checked and recalibrated as needed, or at a minimum the calibration settings should be rechecked after each snow or ice control event.

All employees assigned to operate distribution/spreading equipment shall become thoroughly familiar with their controls and adjustments procedures. Employees shall familiarize themselves with the proper pattern of discharge based on weather and roadway conditions to guarantee that proper application is being completed. During snow or ice control operations, employees are required to monitor, inspect and adjust the discharge of their assigned distribution/spreader unit to ensure that the material application is both effective and efficiently completed.

Calibration of all distribution and spreader equipment is to be accomplished in accordance with the manufactures recommended procedures.

Personnel Training

Prior to the start of the snow season, the Streets Section will conduct training for all personnel that will be involved in snow and ice control activities. The training will review all procedures to be completed by snow removal personnel including but not limited to: Dispatch, Logistics and Plowing Safety, Truck Operations-Adjust Plows & Sanders and How to Install Tire Chains, Backhoe Loading Sanders and Mixing and Applying Deicer, Field Driving Course-Plowing Techniques, Communication Protocols, and documentation of De-icing Chemical Usage and other topics to refresh existing staff with their responsibilities and introduce new staff to their roles and assignments during snow and ice control operations.

Staff that drive commercial vehicles and have a commercial driver's license are trained in both the use of the vehicle and snow and ice control protocols, including handling and use of deicing materials. Employees using non-commercial vehicles are trained on proper plowing techniques, installation and storage of snow chains, plow attachment, and plow usage. Both commercial and non-commercial drivers are trained to yield to pedestrians and vehicles during snow and ice removal and the proper accident response protocols. There is also a "hands-on" component in which employees assigned to drive a snow plow are given the opportunity to drive their assigned vehicles and familiarize themselves with the safe operation of the plow and spreader equipment.

Employees assigned salt and de-icer material handling responsibilities practice utilizing the equipment used to load and unload salt. They are instructed how to receive bulk de-icing chemicals and load and unload de-icing chemicals from the storage tank.

Additional training will be made available to less experienced employees, as requested or needed.

Snow Route Assignments

Snow and ice removal priorities shall be defined according to street classification. Streets are classified as primary, secondary, or residential. Street classifications shall determine the order and/or emphasis that snow removal and ice control shall be carried out during and after a snow event. The following describes what makes up a particular street classification.

- Primary Streets are our main highways and arterials. These streets are key to the City's basic transportation network. Every reasonable attempt should be made to plow these streets. The City will attempt to keep these streets open to provide basic transportation capabilities and provide for public safety lifeline routes.
- Secondary Streets consist of collector streets that connect people and vehicles to primary streets where bus and commuter routes are located.
- Residential Streets are all other publicly maintained streets not classified as primary or secondary streets.

Snow and ice control resources shall be deployed according to the following priorities:

- Primary streets receive first priority,
- Secondary streets, receive second priority, and
- Residential streets are last priority.

The City is divided in to four (4) primary and secondary routes, each with assigned drivers and trucks. Snow Route Maps are reviewed and updated annually. Each update is posted on the City's website and also used as training aid for driver familiarization during the fall snow and ice control training class.

An example of the Primary Snow and Ice Removal Map is provided as Exhibit C and an example of the Secondary Snow and Ice Removal Map is provided as Exhibit D.

Loading Procedures

Personnel with snow and ice control material loading duties receive on-the-job training for proper and safe use of the loading equipment. This includes training on how to load and transfer (a) liquid chemicals into tanks and (b) salt into material storage bins and spreaders attached to vehicles. Refresher and initial training (for new employees) occurs annually as part of pre-winter season preparation.

Liquid Chemicals

All employees are required to wear appropriate personal protective equipment (PPE) when unloading or loading chemicals into storage or application tanks. For selection of the proper PPE and safe handling instructions employees should refer to safety data sheet (SDS) for the liquid anti and de-icing chemical.

When loading or unloading liquid chemicals employees shall:

1. Wear proper personal protective equipment (PPE) including rubber gloves and eye protection when working around the loading and unloading area.
2. Safely maneuver or direct driver of vehicle to park near liquid transfer equipment.
3. Keep an eye on fuel levels of all equipment. A gas can and funnel will be staged near the de-icer pump for necessary refueling. Although it is standard practice to reload and refuel trucks and equipment at the end of shift for the next crew arriving, some equipment can go through fuel at a quicker rate.
4. The pump is normally left running during an event to properly mix the product by circulating material; this is usually done at an idle. Pump rpm’s may be adjusted as needed when filling de-icer tanks or spraying onto material.
5. Inspect all hoses, pipes, pumps, and fittings for leaks. Repair or replace defective equipment prior to commencing loading or unloading operations.
6. There are two different hoses located off the pump, one for filling the tanks on such equipped sanders and one with a spray nozzle for spraying down materials.
7. Insure pumps and all other equipment function properly.

8. Select the correct for the loading or unloading operation. Connect the hose to the tank being filled or vehicle being unloaded. Verify positive and secure hose connections.
9. Open valves to allow transfer of product.
10. Turn on transfer pump.
11. Monitor tank levels during pumping operation.
12. Turn off transfer pump when receiving tank is full.
13. Secure valves and disconnect hoses.
14. Immediately cleanup spilled liquid deicing materials using an absorbent material such as clay floor sweep, double bag in plastic bags and dispose as non-hazardous domestic waste.
15. Record amount of product transferred and turn in log sheet at end of work shift.
16. Drive or safely direct vehicle away from loading/unloading facility.

Salt

When loading or unloading salt, employees shall do so as they have been trained and in accordance with the following guidelines.

Loading

1. If entering or exiting the Hamlin Yard STOP and make eye contact with backhoe operator before proceeding.
2. Safely maneuver or direct driver of vehicle to close to the material storage bin, but allow room for other vehicles to be staged nearby for loading.
3. If being loaded by someone else, vehicle driver should remain in their vehicle.
4. When operating the backhoe use caution; especially while backing. Watch for vehicles, equipment, and pedestrians.
5. Prior to loading into a spreader, salt shall be mixed sufficiently with backhoe bucket to break up caked material.
6. Four-wheel drive unit should be engaged on backhoe while scooping from material pile, but the turning radius is improved when in two wheel drive when loading into the spreaders.
7. Backhoe operator to scoop salt into bucket and load into spreader. Be as neat as possible to prevent spillage of material along the sides of the sander.
8. Backhoe operator to direct driver to exit loading area; unless vehicle driver is also the backhoe operator.
9. Spreaders should not be overloaded such that material spills off the vehicle.
10. Immediately sweep loading area and return material to storage bin.
11. Salt bin shall be fully covered by a tarp after material has been moved into the bin.

Unloading (Bulk)

1. Safely maneuver or direct driver of delivery vehicle to as close to the material storage bin as possible.
2. Unload salt onto impervious surfaces only.

3. Backhoe shall be standing by to push material into the storage bin.
4. Salt bin shall be fully covered by a tarp after material has been moved into the bin.
5. The loading area is to be cleaned after delivery of the material.

Unloading (Spreaders)

1. Safely maneuver or direct driver of vehicle to as close to the material storage bin as possible.
2. Driver to engage broadcast spreader and allow material unload in front of the material bin.
3. Unload salt onto impervious surfaces only.
4. Backhoe shall be standing by to push material into the storage bin.
5. Salt bin shall be fully covered by a tarp after material has been moved into the bin.
6. The loading area is to be cleaned after delivery of the material.

Spreading and Plowing Procedures

As long as snow continues to fall the City shall only plow and/or apply de-icing chemicals on primary streets. It is the City's goal to plow and/or treat for de-icing all primary streets within the following time frames based on the respective storm category:

- 24-hours from the time that the snow stops falling for Category 2 storms
- 48-hours from the time the snow stops falling for Category 3 storms
- 72-hours from the time the snow stops falling for Category 4 and 5 storms

Further, it is the City's goal to plow and/or treat for de-icing all secondary streets within 48 hours after the primary streets are plowed and treated. The City uses the following guidelines for its spreading and plowing procedures to help meet performance objectives.

Storm Category	**Street Impacts**	**City Response Level**
1	• Negligible • No noticeable travel delays	*Apply anti-icing or de-icing chemicals.*
2	• Minimal • Local travel delays on residential streets	*Anti-icing, de-icing, salting and limited or fully deployed plowing.*
3	• Moderate • Expect travel delays connecting to arterial and collector streets	*De-icing, salting and plowing.*
4	• Significant • Expect travel delays on all streets	*De-icing, salting and plowing.*
5	• Severe	*De-icing, salting and plowing.*

	• Major travel delays on all streets	

Spreading and plowing procedures are tailored to respond to each unique snow and ice event. Operations are scaled in response to on-the-ground storm conditions, crew availability and accomplished at any time of the day, weekend or holidays in accordance with the following spreading and plowing guidelines.

Spreading (Anti-icing)

1. Anti-icing is the application of liquids to the roadway before, or at the onset of a predicted winter storm.
2. When weather forecasts are predicting freezing conditions anti-icing equipment shall be utilized to apply liquid chemicals to streets identified on City Anti-icing Route. Other streets location may also receive spot treatment like, hills and curves, intersections or other areas as requested or directed.
3. Load liquid chemicals into anti-icing vehicle.
4. Calibrate sprayer heads and other anti-icing equipment according to manufacturer's instructions to insure that selected rates of application and spray patterns are attained prior to field deployment.
5. Apply liquid chemicals to streets at the lowest application rate that will be effective in order to prevent bonding of ice or hard pack snow to the road surface.
6. Avoid applying liquid products near storm drain inlets, creeks, drainage ditches or other water bodies.
7. Record amount of liquid product applied and turn in material log sheet to Supervisor at end of anti-icing operation.

Spreading (De-icing)

1. De-icing is the application of salt to the road surface after compacted snow and ice has formed on the roadway.
2. Each spreading unit is calibrated to insure that selected rates of application are attained prior to field deployment.
3. Load salt into spreader.
4. Calibrate spreading equipment according to manufacturer's instructions to insure that selected rates of application are attained prior to field deployment.
5. Apply salt to streets identified on City's Snow and Ice Control Route, as directed, and at the lowest application rate that will be effective in order to help break the bond of ice or hard pack snow from the road surface.
6. Care must be taken to avoid the inadvertent blasting of oncoming traffic with salt.
7. Accurate record keeping of material applications is necessary to demonstrate efforts made to respond to winter conditions for purposes of performance rating.

Plowing

1. Plow operators are to maintain moderate vehicle speeds when plowing wet snow and slush as they tend to be cast much further and faster than dry snow. Dry snow can also cause problems when plowed too fast by creating snow clouds which obscure visibility.
2. Plow operators should avoid casting snow onto windshields and obstructing the vision of other drivers. Drivers shall take extra care plowing in areas where pedestrians are present.
3. When removing snow in the vicinity of cars parked adjacent to the street, plow operators shall take reasonable care consistent with the necessity of accomplishing the work.
4. Plow operators shall exercise extra caution and good judgment when plowing around abandoned vehicles. Abandoned vehicles preventing safe plowing operations shall be called into the Police department for removal.
5. Extreme care should be taken when plowing near or around railroad crossings, raised curbs, raised pavement markings, and other obstructions. When possible, such obstructions should be marked and/or maintenance personnel should be made aware of the locations of such obstructions.
6. When accumulated, snow becomes compact and removal is not possible with available equipment, the accumulation is treated as an ice control operation. Ice and compact snow are best removed under thawing conditions. When possible, the City schedules its ice and compact snow removal operations during the temperature rise that often occurs between 11:00 a.m. and 3:00 p.m. and uses this time to clear surfaces of melting snow and ice, and to remove as much slush as possible.
7. Tandem plowing can be used for snow removal on multilane streets, like Aurora Avenue. Take care to assure that plowed snow is not thrown into the path of oncoming vehicles.
8. Never leave a windrow of snow on a railroad grade crossing. Drivers are to raise or otherwise adjust the blade before reaching the crossing to prevent damage to the crossing and/or equipment. Be aware of and avoid any conflicts between snow removal operations and approaching railway traffic.
9. Widening for snow storage, established turnouts, mailboxes, etc., may be accomplished when available manpower and equipment permit. Always establish proper traffic control before plowing against traffic.
10. Clear all drainage ways from the roadway surface prior to thawing conditions. Clear snow-covered highway signs after normal snow and ice control operations have been accomplished. Give first attention to regulatory and warning signs.

Snow Storage

The City does not remove excess snow from its streets. However, should the need ever arise to do so the Public Works staff will coordinate with Parks staff to designate available parks property that can function as a snow dump.

Snow Operation Damages

Snowplowing and ice control operations can result in property damage, particularly during blizzard conditions or during night-time snow plowing. Incidents involving contact between City equipment and private property typically occur within the public street right-of-way, which commonly extends beyond the adjoining sidewalk. The intent of the right-of-way is to provide for snow storage, utilities, sidewalks, and other City uses.

Parking Limitations

Due to its temperate climate, the snow and ice events experienced by the City of Shoreline are of relative short duration and intensity. As such, the City does not restrict parking during snow and ice events.

However, should the need arise to request removal of vehicles interfering with snow and ice control operations that request will be made to a City of Shoreline Police Officer. The Police are granted authority under SMC 10.05.30, (A), (2) to have removed a "… vehicle unattended upon a highway where the vehicle constitutes an obstruction to traffic or jeopardizes public safety." The decision to make this request will be made by person in charge of the Snow and Ice Control Operations or Incident Commander, as defined in City Policy 7.150130 (Mobilization and Staff Assignments Procedure).

Exhibit A

Shoreline Policy– 6. 150115

Snow and Ice Response Policy

Category and Number: Operations and Emergency Management 6. 150115	**Receiving Number:** 7609
Code and statutory authority: Employee Handbook, Sections 5.045 & 5.05 Comprehensive Emergency Management Plan	**Authorized:** Effective Date: January 15, 2015 By: Debbie Tarry, City Manager; Mark Relph, Public Works Director; Robert Hartwig, ASD Director; Dick Deal, Parks, Recreation and Cultural Services Director; Paula Itaoka , Human Resources Director; Margaret King, City Attorney and Rob Beem, Community Services Manager
Supersedes: none	

1.0 PURPOSE

To establish a Snow and Ice Response Policy for the provision of snow and ice storm services throughout the City's right-of-way. Snow and Ice response is a City wide effort requiring significant staff and resources to respond adequately to protect public safety. Consequently, multiple Departments shall be required to participate by providing staff or other resources upon request. This policy identifies the Departments affected, minimum staff commitments, key activities, levels of service, and triggers for emergency declaration.

2.0 DEPARTMENTS AFFECTED

Administrative Services Department – Central Services Division

Community Services Division – Customer Response Team (CRT) & Office of Emergency Management

Human Resources

Parks, Recreation and Cultural Services – Maintenance Division

Public Works

3.0 DEFINITIONS

Annual Snow and Ice Shift Schedule and Work Assignment Roster – An employee shift schedule and works assignment roster is developed and updated on an annual basis by the Public Works Maintenance Supervisor. The roster is prepared ahead of the winter storm season and used to provide a level of predictability and advance employee notification when planning for or staffing a snow or ice event.

Emergency – "An expected or unexpected event involving shortages of time and resources that places life, property or the environment in danger and requires response beyond routine incident resources." *(Comprehensive Emergency Management Plan,(CEMP).)*

Emergency Snow and Ice Event – Any Category 5 Storm as defined by this Policy or any snow and ice event where staff response exceeds seven (7) days in duration.

Dangerous High Winds – Sustained winds of 40 mph or greater are forecast for 1 hour or longer, or wind gusts of 58 mph or greater for any duration.

Snow and Ice Event Schedule – A work schedule shall be organized into two shifts – "A" and "B". "A" is the DAY shift and requires assigned personnel to work between the hours of 9:00 A.M. and 9:30 P.M. "B" is the NIGHT shift and requires assigned personnel to work between the hours of 9:00 P.M. and 9:30 A.M. Alternate shift start and stop timeframes may be selected based upon weather forecasts and event needs. The 12.5 hour work period defined herein shall not be exceeded.

Winter Storm Season – The months between November 1 and April 1.

4.0 PROCESS - SNOW AND ICE RESPONSE

City personnel policies as defined in the *City of Shoreline Employee Handbook (most current version) shall remain in effect during snow and ice response activities.*

The standard procedures for the Incident Command System (ICS), as defined in the City of Shoreline CEMP , shall be followed during snow and ice response.

4.1 Incident Commander.

4.1.1 The Public Works Maintenance Supervisor (PW Maintenance Supervisor), or his or her designee, shall be the incident commander for City snow and ice response.

4.1.2 As Incident Commander, the PW Maintenance Supervisor shall have the authority to assume command for responding to the event; assigning, scheduling, and dispatching staff to address snow removal; and other related emergent issues.

4.2 This policy shall be in effect and govern snow and ice response activities regardless of duration.

4.3 Weather Warning

During the winter weather season the Public Works Department Operation Division shall monitor daily weather forecasts for the possibility of snow and ice events and

provide warning to City Management and the Public according to Public Works Storm Warning Notification Procedure PW PRO.26.2.1410.

4.4 Storm Categories and Response Level

Forecasted snow and ice events shall be categorized according to the following matrix.

Storm Category	Weather Condition or Forecast
1	Freezing Weather Conditions with No Snow Accumulation *(Single Storm)*
2	Trace to Two Inches Snow Accumulation *(Single Storm)*
3	Two to Six Inches Snow Accumulation *(Single or Multiple Storms)*
4	Six Inches and Above Snow Accumulation *(Single or Multiple Storms)*
5	Six Inches and Above Snow Accumulations *(Single or Multiple Storms and extended freezing temperatures predicted)*

4.4.1 Response Levels

Storm categories and snow and ice response level shall be correlated according to the following matrix.

Storm Category	Street Impacts	City Response Level
1	• Negligible • No noticeable travel delays	*Apply anti-icing or de-icing chemicals.*
2	• Minimal • Local travel delays on residential streets	*Anti-icing, de-icing, salting and limited or fully deployed plowing.*
3	• Moderate • Expect travel delays connecting to arterial and collector streets	*De-icing, salting and plowing.*
4	• Significant • Expect travel delays on all streets	*De-icing, salting and plowing.*
5	• Severe • Major travel delays on all streets	*De-icing, salting and plowing.*

4.5 Street Priorities

Snow and ice removal priorities shall be defined according to street classification. Streets are classified as primary, secondary, or residential. Street classifications shall determine the order and/or emphasis that snow removal and ice control shall be carried out during and after a snow event. The following describes what makes up a particular street classification.

- Primary Streets are our main highways and arterials. These streets are key to the City's basic transportation network. Every reasonable attempt should be made to plow these streets. The City will attempt to keep these streets open to provide basic transportation capabilities and provide for public safety lifeline routes.

- Secondary Streets consist of collector streets that connect people and vehicles to primary streets where bus and commuter routes are located.

- Residential Streets are all other publicly maintained streets not classified as primary or secondary streets.

Snow and ice control resources shall be deployed according to the following priorities:

- primary streets receive first priority
- secondary streets, receive second priority
- residential streets are last priority

Primary, secondary, and residential street classifications shall be depicted on the City Snow Route Maps posted on the City's website.

4.6 Levels of Service

As long as snow continues to fall the City shall only plow and/or apply de-icing chemicals on primary streets. It is the City's goal to plow and/or treat for de-icing all primary streets within the following time frames based on the respective storm category:

- 24-hours from the time that the snow stops falling for Category 2 storms
- 48-hours from the time the snow stops falling for Category 3 storms
- 72-hours from the time the snow stops falling for Category 4 and 5 storms

It is the City's goal to plow and/or treat for de-icing all secondary streets within 48 hours after the primary streets are plowed and treated.

It is the City's goal to plow and/or treat for de-icing all residential streets within 48 hours after the secondary streets are clear. Dead end streets will not be plowed and/or treated if is unsafe or there is not adequate room to turn around plow equipment as determined by the Incident Commander.

If at any time it starts snowing again while snow and ice operations have moved onto secondary or residential streets, operations shall return to primary routes following the process described above, resetting the 24, 48, 72 hour clock.

Snow and ice control operations shall cease after primary and secondary street travel lanes are clear of snow and ice and when residential streets have a single travel lane plowed and/or treated.

4.7 General

4.7.1 Suspension and/or Cessation of Operations – Snow and ice operations may be temporarily suspended during periods of limited or zero visibility, dangerously high winds, equipment breakage, insufficient relief personnel, or at such other times that it would be reasonable to suspend snow plowing operations in the interest of safety. Any decision to suspend operations shall be made by the Incident Commander. The Incident Commander will notify the PW Director and the PW Utility and Operations Manager of the decision. The Leadership Team, Emergency Management Coordinator, and others as appropriate will be informed of the time and expected duration of suspension of operations and expected resumption.

4.7.2 Vacations – During the winter storm season, vacation and leave requests for the affected departments shall be managed to ensure staff availability for snow and ice response.

4.7.3 Accommodations – The City shall provide simple accommodations for overnight stay or rest periods between shifts. Simple accommodations shall be available either at the Spartan Recreational Center or at another designated location. PW Maintenance Supervisor shall request accommodations based upon the anticipated severity and duration of a given storm event. Staff is not required to use these facilities during storm activation, but the facilities are provided for use only as an option and at the discretion of staff.

4.7.4 Meals – If an unforeseen storm event takes place, requiring staff to be notified to respond under a 24-notice period, the City will provide meal compensation for the first 12 hours of operation. Meal breaks will be paid during City Manager declared 12-hour work shifts in accordance with City Employee Handbook Policy 5.045.D.

5.0 Emergency Snow & Ice Response

If conditions are expected to exceed the definition of an Emergency Snow and Ice Event (see Section 3.0) then the PW Director shall consult with the City Manager to determine if a citywide emergency is required. If so called by the City Manager, the Emergency Manager shall open the Emergency Operations Center to the appropriate level in order to provide incident planning, logistical, and resource support for continuous snow and ice removal efforts.

5.1 The Public Works Department remains in operational command of the event as defined in Section 4.1.2 above. When it becomes apparent that the service needs are greater than the current staffing and resources available, the City Manager should be advised to sign a Proclamation of Local Emergency (CEMP ESF 5 Appendix A or B). Under a proclaimed emergency the City can take advantage of mutual aid agreements, alter staff work schedules, suspend some purchasing policies, and allocate emergency funds in direct support of the snow and ice response effort.

6.0 Staffing Requirements

6.1 Staffing for snow and ice response is critical to meeting service levels based on the predicted storm category. Category 1 storms can be handled using PW Streets division staff and resources without additional support.

6.2 Category 2 and above storms may require using staff and resources from other Departments and Divisions: Public Works, Administrative Services, Parks, Human Resources, and Community Services Division. The Departments identified in this section shall be prepared to provide staff to support the snow and ice response effort upon request.

6.3 Training Requirements - All staff engaged in snow and ice response activities are required to participate in the annual snow and ice training class conducted by the Street Operation Division. The training is held each fall and covers crew dispatching, equipment operation, deicer material handling, and routes and priorities. The PW Maintenance Supervisor will develop a record of attendees and provide a copy to Human Resources upon completion of the training activity.

6.4 Staffing schedule and assignments will be according to Snow and Ice Control Mobilization and Staff Assignment Procedure 7.150130 Receiving 7959.

7.0 PROCEDURE

7.1 See Mobilization and Staff Assignment Procedure 7.150130 Receiving 7959.

Receiving Number **7609**

Document Number

(City Clerk will assign this number upon final approval)

POLICY & PROCEDURE/ ADMINISTRATIVE ORDER ROUTING FORM

Instructions
1. Before using this form, make sure the policy is routed via e-mail to capture any comments or changes.
2. Request a Receiving Number from the City Clerk's Office.
3. Review and proofread before printing the final document that will accompany this routing form. Documents less than ten pages long should be printed one-sided.
4. Remember to specify whether the staff listed at the end of the page should **review** or **approve** the final policy. Approval requires a signature on the first page of the policy.
5. Policy must be routed to the next person on the list and logged on the portal for tracking. Once the policy has been reviewed and approved, send it with this form and any attachments to the City Clerk's Office for recording.

Originator	Dan Repp	Routed by	Susana Villamarin
Department/Division	Public Works / Street Operations	Date	Jan 14, 2015

TYPE OF DOCUMENT

☒ **Policy or Procedure** Number/Category 6. Operations and Emergency Management (Facility Evacuation Plan, EOC Staffing)

DOCUMENT DESCRIPTION

Document Title Snow and Ice Removal Policy

Effective Date Jan 15, 2015 Supersedes none

Document Description To establish a Snow and Ice Removal Policy for the provision of snow and ice storm services throughout the City's right-of-way

REVIEW AND APPROVAL

To Review or Approve?	Name, Title	To Review or Approve?	Name, Title
Approve (sign the policy)	Mark Relph, PW Director	Approve (sign the policy)	Debbie Tarry, City Manager
Approve (sign the policy)	Dick Deal, PRCS Director		
Approve (sign the policy)	Robert Hartwig, ASD Director		
Approve (sign the policy)	Rob Beem, CSD Manager		
Approve (sign the policy)	Paula Itaoka, HR Director		
Approve (sign the policy)	Margaret King, City Attorney		

Exhibit B

Shoreline Policy and Procedure **7.150130**

Mobilization and Staff Assignments Procedure

Category and Number: Work Processes/Procedures 7.150130	**Receiving Number:** 7959
Code and statutory authority: none	**Authorized:** Effective Date: January 15, 2015
Supersedes: none	By: Debbie Tarry, City Manager Margaret King, City Attorney

1.0 PURPOSE

This procedure defines staff notification, mobilization and assignments during a snow and ice event.

2.0 DEFINITIONS/REFERENCES

REFERENCES

2.1 City of Shoreline Employee Handbook

2.2 Snow & Ice Response Policy 6.150115 (Receiving 7609)

DEFINITIONS

Loader – is defined as the person(s) who is responsible for preparing, tracking usage of, and loading into trucks, the deicing material used during snow and ice removal.

Plowing – is defined as the act of a snow plow to remove snow and ice from the roadway .

Dispatching – is defined as the call taking, communicating with plow operators about location, plowing completed, plowing needed, updating plowed routes, and other coordination duties needed to systematically deploy and track snow and ice response activities.

CDL - is defined as a commercial driver license required to operate certain snow plow vehicles.

3.0 DEPARTMENTS AFFECTED

Administrative Services Department – Central Services Division

Community Services Division – Customer Response Team (CRT) & Office of Emergency Management

Parks, Recreation and Cultural Services – Maintenance Division

Public Works

4.0 PROCESS - RESPONSIBILITIES

4.1 Public Works Maintenance Supervisor (PWMS) shall be responsible for providing notification to all relevant City Staff as defined herein.

4.2 The PWMS shall notify the Public Works Director of snow and ice event mobilization

4.3 The PWMS shall notify the PW Utilities and Operations Manager (PWUOM) of a snow and ice mobilization The PWMS shall notify the CRT Supervisor or On-Call Person of snow and ice event mobilization

4.4 Department Directors and Senior Managers shall provide the minimum staff required from each department as defined in Table 1.

5.0 PROCEDURE

STAFF NOTIFICATION AND MOBILIZATION

5.1 PWMS will use in person conversation, phone or email to notify PW Streets staff, CRT Supervisor or On-Call Person, PWUO, and PW Director that snow and ice event is imminent and as to what storm category is expected.

5.2 PWMS and CRT Supervisor will coordinate response notifications and activation timeframes directly for Category 1 storms. For all other category storms, the PWMS will coordinate notifications and activation timeframes with and through the PWUO and/or PW Director.

5.3 For all storm categories requiring a City Manager declared 12-hour standby or scheduled work shift (per Snow and Ice Response Policy), the PWUO shall prepare a snow and ice event activation recommendation to the PW Director and City Manager, by providing the time and date of recommended activation.

5.4 Once the snow and ice activation is approved by the City Manager or designee, the PWUO shall send a storm activation notice to the Leadership Team, Emergency Management Coordinator and others as appropriate.

5.5 The PWUO or PWMS shall contact CRT and Parks supervisors and managers to alert them of snow and ice activation and the possibility of needing additional staff depending on the event.

5.6 The PWUO, in consultation with the PWMS, shall determine the deactivation of storm mode operations and notify the PW Director for confirmation before dissemination to all assigned staff.

5.7 In the event of a prolonged storm event that it appears will drain city resources beyond their capacity, the PW Utility and Operations Manager shall consult with the Emergency Management Coordinator for possible EOC activation determination.

5.8 Responding Storm Staff – Once notified by their reporting supervisor or other management staff of snow storm activation, all affected and supplemental staff (PW, CRT, Central Services and/or Parks) shall confirm availability, either in person, via phone, or email with the PW Maintenance Supervisor at the Hamlin Park Maintenance Yard. Employees assigned to snowstorm response must make every

reasonable effort to notify their immediate supervisor and/or Human Resources if they are unable to report to their work assignment.

REQUIRED STAFFING AND STAFF ASSIGNMENTS

5.9 Table 1 identifies each staff assignment by position, department, and/or division needed for snow and ice response. Staff shall be assigned to one of three work task: plow operator, loader position, or dispatch. The PWMS shall decide the work assignment for a staff working on an event. Table 1 also identifies the minimum staff required from each department and/or division.

5.10 Table 2 shows typical 12 ½ hour shift assignments used for snow and ice response. Two shifts are used to complete one 24 hour cycle of response. The shifts are designated Shift A and Shift B. Shift A begins at 9am and Shift B begins at 9pm. The 12 ½ hour shift is designed to allow for a ½ hour overlap between shifts. Staff will get assignments and be placed on the A or B shifts based on availability.

Table 1. SNOW & ICE STAFF RESOURCES AND ASSIGNMENTS

Public Works STREETS Required Staff - Minimum 6, 9 total				
Position	**Plow**	**Loader**	**Dispatch**	**CDL**
PW Maintenance Supervisor			X	X
Senior PW Maintenance Worker	X	X		X
PW Maintenance Worker II	X	X		X
PW Maintenance Worker II	X	X		X
PW Maintenance Worker II	X	X		X
PW Maintenance Worker II	X	X		X
PW Maintenance Worker II	X	X		X
PW Maintenance Worker II	X	X		X
PW Maintenance Worker II	X	X		X
Community Services CRT Required Staff - Minimum 1, Prefer 2				
CRT Supervisor			X	
CRT Representative	X	X	X	
CRT Representative	X	X	X	
Administrative Assistant II			X	
Parks Maintenance Required Staff - Minimum 2, Prefer 3				
Parks Superintendent			X	
Senior Parks Maintenance Worker	X	X	X	X
Parks Maintenance Worker II	X	X	X	

Parks Maintenance Worker II	X	X	X	X
Parks Maintenance Worker II	X	X	X	
Parks Maintenance Worker II	X	X	X	X
Parks Maintenance Worker II	X	X	X	
Parks Maintenance Worker I	X	X	X	
Public Works SWM / Environmental Services Required Staff - Minimum 1, Prefer 2				
SW Utility & Environmental Services Manager			X	
Engineering Technician		X		
Environmental Services			X	
Engineering Technician-Asset Management			X	
Public Works ROW Required Staff - Minimum 1, Prefer 2				
Construction & Inspection Supervisor	X	X	X	
Construction Inspector	X	X		
Construction Inspector	X	X		
Administrative Services FACILITIES Required Staff - Minimum 1				
Facilities Maintenance Worker I	X	X		
Public Work TRAFFIC Required Staff - Minimum 1				
Engineer II: Traffic			X	
Engineering or Traffic Signal Technician			X	

Table 2. SAMPLE TYPICAL 12 ½ -HOUR SHIFT ASSIGNMENTS

Day Shift "A" 9 AM – 9:30 PM	
Assignment	**Division/Position**
Incident Commander - Logistics	PW Maintenance Supervisor
Dispatch	Construction Inspector
Loader	Construction Inspector
Plow	Streets - MW II
Plow	Streets - MW II
Plow	CRT Representative
Plow	Facilities MW I
Plow CDL	Streets - MW II
Plow CDL	Streets - MW II
Emergency Response	CRT Supervisor or On-Call Person
Night Shift "B" 9:00 PM - 9:30 AM	
Assignment	**Division/Position**

Incident Commander - Logistics	Senior PW Maintenance Worker
Dispatch	PW Admin
Loader	SWES - Engineering Technician
Plow	Streets - MWII
Plow	Parks - MW I or II
Plow	Parks - MW I or II
Plow CDL	Streets - MW II
Plow CDL	Streets - MW II
Emergency Response	CRT Supervisor or On-Call Person

Receiving Number **7959**

Document Number

(City Clerk will assign this number upon final approval)

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Originator	Dan Repp, Operations and Utility Manager	Routed by	Susana Villamarin
Department/Division	Public Works / Operations	Date	Jan 16, 2015

TYPE OF DOCUMENT

☒ **Policy or Procedure** Number/Category 7. Work Processes and Procedures - usually accompanied by a form

DOCUMENT DESCRIPTION

Document Title Mobilization and Staff Assignments Procedure

Effective Date Jan 15, 2015 Supersedes none

Document Description This procedure defines staff notification, mobilization and assignments during a snow and ice event

REVIEW AND APPROVAL

To Review or Approve?	Name, Title	To Review or Approve?	Name, Title
Approve (sign the policy)	Mark Relph, PW Director		
Approve (sign the policy)	Robert Hartwig, ASD Director		
Approve (sign the policy)	Dick Deal, PRCS Director		
Approve (sign the policy)	Rob Beem, CSD Manager		
Approve (sign the policy)	Margaret King, City Attorney		
Approve (sign the policy)	Debbie Tarry, City Manager		

Exhibit C

Primary Snow & Ice Removal Routes

City of Shoreline
Geographic Information System

Snow Removal Priorities

Non-Priority Road

Overall Priority

- 1 - Black Route
- 2 - Purple Route
- 3 - Red Route
- 4 - Yellow Route

Priority within Route

City of Shoreline

City Boundary

Metro Snow Bus Route

129.3 Lane Miles

1 inch = 1,900 feet

0 500 1,000 2,000 3,000 Feet

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

Request#: 28361

Exhibit D

Secondary Snow & Ice Removal Routes

City of Shoreline
Geographic Information System

Snow Removal Priorities

Non-Priority Road

Overall Priority

- 1 - Black Route
- 2 - Purple Route
- 3 - Red Route
- 4 - Yellow Route

Priority within Route

City of Shoreline

City Boundary

Metro Snow Bus Route

28.0 Lane Miles

1 inch = 1,900 feet

0 500 1,000 2,000 3,000 Feet

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

Request #: 28361