

Purpose:

The purpose of the *Winter Roads Management Policy* is to:

- establish an acceptable balance between the community's transportation and safety needs and its financial capacity;
- ensure that City transportation infrastructure is managed appropriately during snow and ice conditions;
- to recognize the operational direction of the *Winter Roads Management Guidelines* as attached;
- Provide a consistent level of service throughout the community.

Scope:

The *Winter Roads Management Policy* applies to the City's roads, lanes, parking lots and trail networks, as defined in the City's Official Community Plan. Snow and ice management along provincial highways is managed by the BC Ministry of Transportation and Infrastructure (MoTI) by their contractor (Emcon).

Priority levels are established to ensure that emergency response routes are maintained, transit services can continue, the public has reasonable access to arterial and collector roadways throughout the community and to mitigate or reduce hazards to the community.

Definitions:

Anti-icing:	is the application of a chemical or other agent to prevent or reduce the opportunity for precipitation or frost to bond to the road surface (Brine)
Deicing:	is the application of a deicer to the top of the snow, frost or iced surface to promote melting of the snow, frost or ice
Minor Storm:	a storm that produces less than 15 cm of snow in one continuous event (start to finish as reported by Environment Canada)
Major Storm:	a storm that produces more than 15 cm of snow in one continuous event (start to finish as reported by Environment Canada)
Pre-wetting:	the application of a liquid deicer into the sand or salt at time of application
Snow Plowing:	the use of equipment to move or remove snow from accumulating on the roadway surfaces
Passable Lane:	Cleared roadway that may have accumulation of snow or slippery surfaces. May be limited to a single cleared lane on a local roadway. Drivable by most vehicles with suitable winter tires or equivalent

- Traveled Lane:** the traveled lane is the asphalt surface from the road centerline, the width of the marked lane (multi-lane roadways) or equivalent of a lane width on a two-lane roadway. (Traveled lanes on multi-lane roadways or those with marked bike lane would be addressed as per the *policy and guidelines* outlined below)
- Highways:** Inland Highway 19, Jubilee Parkway and Highway 19A (from downtown at the ferry to the connection to Highway 19 - Campbellton and south of Jubilee Parkway) are the responsibility of the MoTI
- Arterial Roadways:** Major roadways within the community generally connecting the north and south portions of the community. They include, but are not limited to Dogwood, Alder, Island Highway (19A); Hilchey and Petersen (refer to the Master Transportation Plan)
- Collector Roadways** Roadways that connect to the main arterial roadways. They include but are not limited to Erickson, Evergreen, McPhedran, Willis, Rockland, 2nd, 7th & 9th Ave., Merecroft. (Refer to the Master Transportation Plan)
- Local Roadways** The remainder of the roadways within the community that feed into the collector roadways. These do not include lanes or private property (strata's, etc.)
- Commercial/Downtown Core**
Areas as identified in the OCP as commercial in designation and the areas around Shoppers Row
- Public Parking Areas** Parking lots or areas owned and maintained by the City and may include parking lots for City parks or facilities.
- Transit Routes** Those route on which BC transit operates regularly scheduled transit service that may change at time with schedule adjustments, etc. These routes do not include areas serviced by custom transit (HandyDART) services
- Winter Roads Management Guidelines:**
This refers to the procedural guidelines established to evaluate and undertake the appropriate actions to carry out the operations related to the *Winter Roads Management Policy*. These procedures are to be operationally reviewed by the Transportation Department annual and amended as required to reflect best management practices.

Priority:

First Priority shall be to given to the City's arterial road network; and any designated emergency routes and facilities. The objective is to ensure passable driving lanes along the major road networks and to emergency service providers.



Secondary Priority shall be given to winter roads management along collector roads, transit routes and most commercial areas, which may include select public parking facilities. The objective is to provide passable driving lanes along collector roadways that connect local roads to the arterial road network. This will also provide access to transit services within the community and to most commercial areas. School zones that are not on arterial or collector roadways will be included in this level of service wherever practical.

Third Priority for winter roads management will be along local roads and responses to site-specific hazards. The objective is to provide passable driving lane(s) from the local roadways to the collector road network. Site-specific locations/hazards may receive more timely service based on the assessment of those conditions.

Levels of Service

The City shall apply snow and ice management levels of service as described in the *Winter Roads Management Guidelines* component for each of its priority areas. This *Policy* applies to the winter months of November 1 to March 1. Snowfalls and ice maintenance outside of this time frame will be responded to based on the equipment and manpower available, and may vary from the policy and procedures outlined.

The goal of snow removal is to open up a driving lane (or bi-directional lanes on arterial and collector roadways) to provide the public and emergency vehicles reasonable access around the community. As outlined in the *Guidelines*, this may not provide or maintain a “bare asphalt surface,” but passable driving lanes based on the rate and accumulation of the snowfall event.

Regular application of an anti-icing solution will be used as a preventative measure to control the development of ice/frost, and delay the accumulation of snow on the road surface. The solution will be applied on prescribed routes generally considering the priority routes for snow plowing.

Service levels for a minor storm event will focus on salting/sanding streets and intersections with plowing of the streets as a secondary goal. In major events (or forecasted major events), the focus will shift to plowing operations followed by sanding and salting operations. Winter storm events vary in duration, intensity and potential accumulation. These factors will all be considered in the deployment of resources to deal with any occurrence. Focus will continue, in most cases on the first and second priority until the end of the storm event. This will result in a limited number of residential roads being plowed prior to the end of an event.

In response to snow and ice management requests, the City will:

- Focus efforts on first priority routes until they are safe and passable.
- Emergency Services requests will be given priority for assistance responding to a call.
- Receive the requests and prioritize the requests
- Investigate, if deemed necessary; or undertake appropriate action based on the location of the issue (based on the priority schedule and management guidelines)
- Requests will only consider the emergent issues versus a request for service in an area as all areas of the City need to be considered and systematically dealt with to ensure efficiencies.

Inspection of the key roadways is to be used as a preventative approach to possible developing problems. This will be done under the direction of the Roads & Drainage Supervisor and/or the Transportation Manager; and will be scheduled based on existing conditions and short term forecasting by Environment Canada. Service level inspections and actions will be based on the *guidelines*.

Third Priority roadways shall be dealt with generally during normal operating hours (Monday to Friday) unless directed otherwise, based on the event and overall conditions. Work outside of normal hours shall be based on recommendations of the Roads & Drainage Supervisor and requires the approval of the Transportation Manager or General Manager of Operations.

Sidewalk and Roadside Maintenance:

Snow and ice maintenance for sidewalks is outlined in the *Traffic and Highways Regulation Bylaw* (No. 3043, Part III, Section 20 or current Bylaw) that requires:

- the owners or occupiers (tenants) to remove snow or ice from any roof or other part of a structure that is situated adjacent to or abutting any portion of the highway (roadway) that constitutes a danger to persons or property using the highway by imposing a threat of falling on the highway (roadway)
- owner or tenants of all commercial, industrial or institutional premises are required to clear snow and ice from the sidewalks abutting their premises by 10 am on any day that the premise is open to the public
- owners or managers of all multi-unit residential premises are required to clear snow and ice from the sidewalks abutting their premises by 10 am on any day the premises are occupied
- owners or residents of single or duplex residences are requested to clear snow and ice abutting their premises.
- No person shall remove snow or ice from the sidewalks abutting their premises and place it on the roadway except where the removal of the snow or ice is impractical.

Sidewalks adjacent to City properties will be dealt with to coincide with the priority removal of snow and ice from the roadway. Service levels are to be determined based on the storm event, sidewalk conditions, and needs and safety of the greater public. City maintained sidewalks might be delayed based on other priorities and available equipment/resources.

Sidewalks along major roadways and primary pedestrian corridors shall be cleared by the City as equipment/resources allow. The goal of this service is to provide pedestrians areas to walk off the roadways and access transit stops on these routes.

The City shall endeavor to clear snow adjacent bus stops when practical based on location and equipment available. Snow and ice management at the bus stop locations will be dealt with on an as needed basis.

Pathways and similar structures will be given a low priority. Culverts and catch basins shall be dealt with on an as needed basis.

Environmental Awareness

In light of a heightened awareness of environmental impacts that winter maintenance services may impose, the City will;

- Assign a heightened priority to environmental impositions;
- Annually review and evaluate the environmental impact of maintenance operations;
- Be proactive in researching and implementing methodologies to mitigate negative impact.
- Snow removal from the roadways and dumping shall be discouraged due the potential impact on the environment through concentrated salt accumulation

Emergency Response

Emergency response to snow and ice management will be evaluated and determined by the Roads Supervisor and/or the Transportation Manager. Any conditions that exceed the City's normal operational capacity to manage snow and ice conditions will be brought to the General Manager of Operation for further support.

Response to calls from emergency agencies and the public will be dealt with as per response plan under levels of service. Variation on this response to local issues or specific hazards will be solely at the discretion the Roads Supervisor and/or the Transportation Manager.

Focus must be maintained on the priority routes and the systematic plowing of these areas unless deemed an emergent issue. This can result in delays to local roads due to the urgent nature to maintain these priority routes.

Communications:

The City will work to advise the public of any significant changes forecasted in the weather between November 1 and March 1. These advisories could be in the form of using the City's website, multi-media, local radio and paper. Situations occur where sudden changes in the weather happen or forecasts change, that reduce the ability for the City to provide significant warning.

Ongoing information will be made available on the City's website that will include the current *policy* and *guidelines* undertaken by City staff during this period.

Staff will endeavor to provide updates during events to keep the public, other City staff and the elected officials informed of work being undertaken to deal with the weather conditions. Due to the volume of requests for service during major events, staff may not be able to provide detailed information to the public related to maintenance activities in specific areas.

WINTER ROADS MANAGEMENT GUIDELINES

Purpose:

The following is the City of Campbell River's guidelines to be utilized as per the *Winter Roads Management Policy*

Scope:

These guidelines will identify the desired level of service attribute to *First, Second and Third Priorities* for winter road maintenance based on specific class of road as well as warrants for starting and finishing winter maintenance operations for each class of road.

These guidelines are to assist the priorities of the operations and meet the application of the *Policy*. There will undoubtedly be isolated exceptions; however, the intent of the guidelines will prevail with those exceptions being resolved at the discretion of the Roads & Drainage Supervisor in consultation with the Foreman.

Hours of operations shall generally be during normal working hours, Monday to Friday. Operations outside of this time will be as recommended by the Roads & Drainage Supervisor and shall proceed only when approved by the Transportation Manager or General Manager of Operations. Overtime will generally be limited to *First and Second Priority* routes unless otherwise approved by the Transportation Manager or General Manager of Operations.

Levels of Service:

- Maximum Allowable Accumulation for snow during **Minor and Major Storm** events: (Measurements at Dogwood Operations Centre)

Road Class	Maximum Allowable Accumulation Primary Lane	Maximum Allowable Accumulation Secondary Lane
Arterial	*50mm	*125mm
Collector	*75mm	*125mm
Local	*150mm	

* At the discretion of the Foreman. Local roadways **may exceed** this amount based on the priority of the work and the intensity/duration of the event.

- The following are anticipated levels of service and the estimated time to complete the primary routes. (^The time to complete will vary based on the changing conditions and reassessments during the event – time to complete **after the event is ended**)

Road Class	Level of Service [^]	Time to Complete [^]
First Priority (Arterial)	Passable or better	2 to 6 hrs.
Second Priority (Collector)	Passable or better	6 to 24 hrs.
Third Priority (Local)	Passable or better	24 to 48 hrs.
City Parking Lots and Facilities	Passable or better	24 to 48 hrs.

It is the intent of this procedure to service the roadways based on the *Policy*. The focus on snow and ice management will differ based on the type of event, and the anticipated or experienced snow accumulations. During *Minor Events*, the focus will be on salting and sanding; and may shift based on the conditions experienced. Service delivery will be re-evaluated during the event and may require re-focusing the City's efforts back to the *first* or *second* priorities.

Priority sidewalks and City facilities will be completed based on equipment/resources available. The level of service and areas included will be reviewed annually, and maintenance routes will be established.

Winter Abrasive & Chemical Controls:

Winter abrasives (sand) and chemical controls (de-icers/anti-icing agents) are to be used to facilitate the safe and efficient movement of traffic on municipal roadways during winter conditions. Preference will be given to the application of anti-icing solutions as the most effective method for prevention. Existing conditions and forecasts from Environment Canada shall be used to assist in the scheduling of the application of these products.

Performance goals/expected timelines based on regular operating hours

CONDITION	LOCATION	ARTERIAL	COLLECTOR	LOCAL
From beginning of or during snowfall event	Hills over 5% grade	1-4 hrs.	2-8 hrs.	8-24 hrs.
	Curves at 60 km\h or less	1-4 hrs.	2-8 hrs.	8-24 hrs.
	School zones & intersections (near schools)	1 hr prior to school opening	1 hr prior to school opening	1 hr prior to school opening
	Controlled intersections	1 hr	2 hrs.	8-24 hrs.

CONDITION	LOCATION	ARTERIAL	COLLECTOR	LOCAL
Freezing Rain	Hills over 5% grade	1 hr	2-4 hrs.	4-24 hrs.
	Curves under 60 km\h	1 hr	2-4 hrs.	4-24 hrs.
	*Near School intersections	1 hr	1 hr	4-24 hrs.
	Controlled intersections	1 hr	2-4 hrs.	4-24 hrs.

*during school hours/days

CONDITION	LOCATION	ARTERIAL	COLLECTOR	LOCAL
Black ice	Hills over 5% grade	1 hr	2-4 hrs.	4-24 hrs.
	Curves under 60 km\h	1 hr	2-4 hrs.	4-24 hrs.
	School controlled intersections	1 hr	1 hr	4-24 hrs.

	Stop controlled intersections	1 hr	2-4 hrs.	4-24 hrs.
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CONDITION	LOCATION	ARTERIAL	COLLECTOR	LOCAL
After snowfall	All hills	1-6 hrs.	6-24 hrs.	24-48 hrs.
	All curves	1-6 hrs.	6-24 hrs.	24-48 hrs.
	All other locations	1-6 hrs.	6-24 hrs.	24-48 hrs.

CONDITION	LOCATION	ARTERIAL	COLLECTOR	LOCAL
Slippery conditions noted from inspections	Municipal facilities	Immediate application	Immediate application	Immediate application

Materials

Winter Sand shall meet the following sieve criteria:

Maximum Particle Size	Percent Passing
12.5 mm	100%
9.5 mm	100%
4.75 mm	90% - 100%
2.36 mm	70% - 90%
0-0.6 mm	50% - 70%
0-0.3 mm	25% - 50%
0.075 -0.1 mm	5% - 25%

When winter sand is stock piled, it is to be blended with coarse salt at a ratio of 1:5 that being 1 part salt to 5 parts sand. Ratios may vary up to a 1:1 ratio. Weather and road conditions may require truck batching of the mixture to a higher ratio.

Calcium chloride liquid (Brine) solution shall be a 20% to 30% (ideally 23%) concentration and applied via an on board truck distribution system.

Road Side Maintenance

Roadside maintenance should address sight line obstruction removal, off road walkway - stairway snow/ice removal, and catch basin/culvert clearing.

Sight line obstruction removal requirements will be at the discretion of the Foreman and shall be coordinated with other removal operations, typically undertaken through a night shift.

Off road walkway – stairway snow and ice removal shall be given the least priority save and except stairways which shall be in a bared off state within 48 hrs. of the cessation of a snowfall event.

Catch basin/culvert clearing shall be performed on an as needed basis.