
CITY OF KELOWNA MEMORANDUM

Date: September 30, 2008
File No.: 5400-11
To: City Manager
From: Transportation Manager
Subject: SNOW AND ICE CONTROL POLICY
Report Prepared By: Dale Beaudry, Roads & Equipment Superintendent

RECOMMENDATION:

THAT Council receive, for information, the Report of the Transportation Manager dated September 30, 2008;

AND THAT Council adopt the revised Snow and Ice Control Policy No. 332 as outlined in the Report of the Transportation Manager dated September 30, 2008.

BACKGROUND:

On October 2006, Council adopted Resolution R936/06/10/02, Snow and Ice Control Policy 332. The Policy was recently reviewed by staff and legal counsel with several changes to the wording for logistic purposes.

Past practice for snow and ice control in lanes was to only plow the lanes when they became impassable. Since the introduction of Carriage homes, there has been an increased demand for improved service in lanes. The revised Policy introduces lanes as a Priority 4 and states lanes will be plowed and/or sanded during regular work hours.

INTERNAL CIRCULATION TO:

- Risk Management

EXISTING POLICY:

- Snow and Ice Control Policy 332

FINANCIAL/BUDGETARY CONSIDERATIONS:

- The introduction of Priority 4 for lanes will increase our annual budget by \$30,000.

LEGAL/STATUTORY AUTHORITY: N/A

LEGAL/STATUTORY PROCEDURAL REQUIREMENTS: N/A

PERSONNEL IMPLICATIONS: N/A

TECHNICAL REQUIREMENTS: N/A

EXTERNAL AGENCY/PUBLIC COMMENTS: N/A

COMMUNICATIONS CONSIDERATIONS: N/A

ALTERNATE RECOMMENDATION: N/A



Submitted by:

A handwritten signature in blue ink, appearing to read 'Westlake', written over a horizontal line.

Ron Westlake, P. Eng.
Transportation Manager

Approved for Inclusion:

A small square box containing the handwritten initials 'J.V.' in blue ink.

J. Vos, Director of Works & Utilities

cc: Lance Kayfish, Risk Manager
Dale Beaudry, Roads & Equipment Superintendent



CITY OF KELOWNA

POLICY: 332
PAGE 1 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
REPLACING #: R936/06/10/02
DATE OF LAST REVIEW: August 2008

DRAFT

SUBJECT: SNOW AND ICE CONTROL

Definitions

Anti-icing

A snow and ice control strategy for the prevention of a strong bond between frozen precipitation or frost and a pavement surface by timely application of a chemical freezing point depressant.

Deicing

An operation where a treatment of a deicer is applied to the top of an accumulation of snow, ice, or frost that is already bonded to the pavement surface.

Downtown Core

The downtown core will mean the area from Harvey Avenue north to Doyle Avenue and from Abbott Street east to Richter Street, as well as the area from Doyle Avenue north to Clement Avenue and from Water Street to Ellis Street.

End of an Event

A snow event, minor or major storm, will be considered to be over when the last truck returns to the yard.

Minor Storm

A minor storm is a storm where we receive less than 10 cm of snow in one event.

Major Storm

A major storm is constituted by a snowfall of 10 cm or more; freezing rain.

Pre-wetting

Applying a liquid deicer to the sand or salt, at the time of application.

Snow Plowing

Crews of graders and/or front end loaders engaged in clearing accumulated snow from the roadway surfaces.

Travelled Lane

The traveled lane is to be measured by the asphalt surface from the centerline, left delineation line or the centre of an unmarked road to the bike lane line, edge line or edge of pavement on two lane unmarked roads. Where asphalt is extended past the normal edge of road (bike lanes, driveways, pullovers, parking lanes, parking pads, etc.), the end of the traveling lane will be considered to end where the edge of road would have been if the extension did not exist.

Priority #1 Roads

- All main routes with an average daily traffic volume (ADTV) greater than 15,000
- All routes with a posted speed limit of 70 km/h or greater
- Main route from a neighbourhood



CITY OF KELOWNA

POLICY: 332
PAGE 2 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
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Priority #2 Roads

- All secondary routes with ADTV greater than 5,000 but less than 15,000
- All roads with a grade greater than 10% or ADTV greater than 300 with a grade over 5%
- Bus Route (School and Transit)
- School Zone
- Town Centre improvement district
- Emergency vehicle station

Priority #3 Roads

- All remaining roads
- Lanes providing only access to property

Priority #4 Lanes

- All remaining lanes

3.1.1 General Purpose

- (a) Winter maintenance of roadways and sidewalks, within the road right-of-way and does not apply to road shoulders; boulevards; sidewalks and roads within other properties owned or operated by the city; or parking lots;
- (b) To address potential hazardous roadway and sidewalk conditions caused by the accumulation of snow and ice;
- (c) To provide guidance to management and operating personnel respecting winter maintenance operations;
- (d) To provide guidelines for establishing priorities within the framework of allocating limited resources towards winter road and sidewalk maintenance;
- (e) Recognizes winter conditions in the City will from time to time result in hazardous conditions and reduce traction within the road right-of-way that cannot be addressed within the resources available;
- (f) This Policy applies to winter months November 1 to March 1. Snowfalls outside this time frame will be responded to within significant resource limitations and this Policy will not apply.

3.1.2 Priority System

Applicable To Ice Control, Snow Plowing And Snow Removal Operations

For the purpose of ice control, snow plowing and snow removal operations, the entire street system are assigned to one of four priority classifications. Lanes will be considered to be Priority 4 unless they provide the only access to the property and there is no on-street parking. Emphasis of operations shall generally be in order of assigned street classification priority. When necessary the order of priority for the provision of the required services may be altered.



CITY OF KELOWNA

POLICY: 332
PAGE 3 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
REPLACING #: R936/06/10/02
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On an annual basis the street priority classification shall be reassessed by the Roads & Equipment Superintendent or his designate, and revisions made where warranted. Following the street priority classification review, a map will be prepared reflecting the resolved street classifications.

3.1.3 Plowing and Ice Control Policy

Plowing, sanding and/or deicing of streets will be performed in an endeavour to address local snow and ice conditions. Ice control on sidewalks is the responsibility of property owners as per Bylaw No. 8120, Section 2.5.1. The City may carry out an in-kind service of plowing sidewalks within resource availability.

Emphasis for plowing operations will be placed on endeavouring to prevent blocked roadways.

3.1.3.1 Minor Snow Storms

A minor storm is defined as any storm where we receive less than 10 cm of snow in one event. As measured at the City of Kelowna Works Yard.

(a) Priority System of Sanding/Salting Streets

Notwithstanding circumstances beyond the City's control, including shortage of personnel, fuel, equipment and materials, the City will endeavour to implement the following service levels in priority order.

Priority #1 – All key points sanded and/or salted within 4 – 8 hours of the completion of a snow storm.

Priority #2 – All key points sanded within 6 – 12 hours of the completion of a snow storm.

Priority #3 – All key points sanded within 24 – 48 hours of the completion of a snow storm.

Priority #4 – All key points sanded during regular work hours.

(b) Priority System of Plowing Streets

Priority #1 – Driving lanes plowed within 12 – 72 hours.

3.1.3.2 Major Snow Storms

A major storm is defined as any storm where we receive 10 cm of snow or more, as measured at the City of Kelowna Works Yard.



CITY OF KELOWNA

POLICY: 332
PAGE 4 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
REPLACING #: R936/06/10/02
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SUBJECT: SNOW AND ICE CONTROL

(a) Priority System of Plowing Streets (Grader Plowing)

Notwithstanding circumstances beyond the City's control, including shortage of personnel, fuel, equipment and materials, the City will endeavour to implement the following service levels in priority order after a major storm.

Priority #1 - Driving lanes plowed within 12 – 24 hours.

Priority #2 - Driving lanes plowed within 36 – 72 hours.

Priority #3 - Residential streets will only be plowed, using graders, when required for parking or to keep the road passable or at the discretion of the Roads & Equipment Superintendent.

Priority #4 - Residential lanes will be cleared once all roads have been completed, during regular working hours.

(b) Additional Manpower and Equipment to Combat Major Storms

If, following a major storm, insufficient personnel and equipment are available within the City forces, rented equipment (if available) shall be engaged.

3.1.4 Sidewalk Clearing Policy

In accordance with Bylaw No. 8120, Section 2.5.1, residence and businesses shall be responsible for the clearing of snow from sidewalks bordering their property within 24 hours of the accumulation of such snow. The City will be responsible for maintaining the sidewalk listed under the exemption to Section 2.5.1 of Traffic Bylaw No. 8120.

Notwithstanding the above, the City may provide an in-kind service of attempting to clean all sidewalks within 24 – 72 hours after a storm where we receive a snowfall of 5 cm or more. Sidewalks will be cleared using sidewalk plows and will not be plowed to bare concrete. The occurrence of a second storm will reset the service objective of clearing sidewalks within 24 – 72 hours. The residence or business will still be responsible to ensure all ice has been removed. Sidewalk clearing practices will follow these priorities:

Priority #1 - Sidewalks downtown, sidewalks surrounding City owned property and businesses.

Priority #2 - Sidewalks fronting bus routes, schools and on major arterial that have no residences or businesses abutting them.

Priority #3 - Sidewalks fronting residences.



CITY OF KELOWNA

POLICY: 332
PAGE 5 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
REPLACING #: R936/06/10/02
DATE OF LAST REVIEW: August 2008

DRAFT

SUBJECT: SNOW AND ICE CONTROL

3.1.5 Snow Removal Policy

Snow removal operations will be considered only in situations where lack of adequate storage prohibits the normal winter movement of vehicular and/or pedestrian traffic and sight restrictions at intersections. During most winter seasons, snow removal will be limited to the main downtown core. Snow Removal priorities will be as follows:

- Priority #1** - Streets in the downtown area bounded by Harvey Avenue north to Doyle Avenue and from Abbott Street east to Richter Street, as well as the area from Doyle Avenue north to Clement Avenue and from Water Street to Ellis Street. Locations where sight restrictions have been created by piled snow.
- Priority #2** - Pandosy Town Centre, Rutland Town Centre, Highway 97 and Highway 33.
- Priority #3** - Problem windrows of snow at City owned and operated parking lots, bus stops and school drop-off zones.

3.1.6 Bus Stop Policy

City Forces will endeavour to clear snow from the roadway adjacent to Bus Stops as is practical to the design of the Bus Stop, given standard snow clearing equipment, immediately following the plowing of the road or sidewalk.

3.1.7 Parking Lot Clearing Policy

Notwithstanding circumstances beyond the City's control, including shortage of personnel, fuel, equipment and materials, the City will endeavour to implement the following service levels.

City owned and operated parking lots will be cleaned within 24 – 72 hours after a storm where we receive a snowfall of 5 cm or more, unless otherwise stated. Parking Lots will not be plowed to bare pavement. The occurrence of a second storm will reset the service objective of clearing parking lots within 24 – 72 hours. Snow plowing will occur at times when the parking lots are least busy.

Parking Lots listed below are deemed to have higher than normal pedestrian and vehicle traffic, requiring higher service levels.

Parkinson Recreation Centre
Rutland Sportsfield
Mission Sportsfield

The roadways within the lots listed above will be cleared within 12 – 24 hours after a storm where we receive 2.5 cm or more. The entire parking lot will be cleared within 24 – 72 hours after a storm where we receive 5 cm or more.



CITY OF KELOWNA

POLICY: 332
PAGE 6 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
REPLACING #: R936/06/10/02
DATE OF LAST REVIEW: August 2008

DRAFT

SUBJECT: SNOW AND ICE CONTROL

The Roadways Foreman will be responsible to monitor parking lots between events and request sanding by the contractor on an as needed basis.

3.2 PUBLIC RELATIONS

1. All inquiries will be handled by the City Works Yard during normal work hours and the Kelowna Fire Hall after hours, on weekends and holidays.
2. Complaints of an emergency nature are to be transmitted to appropriate field personnel for action.
3. All Media inquiries are to be handled by the Roads & Equipment Superintendent, or his designate.

3.3 OPERATING PROCEDURES

3.3.1 Anti-icing

- (a) Anti-Icing procedures are used to prevent the bond of snow and ice to the asphalt.

This Policy recognizes anti-icing resources are limited and will be administered on an ad hoc basis by the Roads & Equipment Superintendent, or his delegate. The Policy is not intended to require anti-icing take place or create an obligation for the City to employ anti-icing under any specific weather conditions, specific locations or whatsoever.

3.3.2 Ice Control By Sanding and Salting

- (a) Sanding operations shall be initiated by the Roadways Supervisor, or his designate, and shall be continued until service levels have been attained.

Salting operations shall be undertaken in the downtown core and all Priority 1 roads.
- (b) When salting, the entire length of road will be treated.
- (c) Sanding priorities within each area shall be in accordance with the street classifications designated for sanding/salting streets. Within these priority routes, sanding will only take place at the following locations:



CITY OF KELOWNA

POLICY: 332
PAGE 7 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
REPLACING #: R936/06/10/02
DATE OF LAST REVIEW: August 2008

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SUBJECT: SNOW AND ICE CONTROL

- Street Signalized Intersections
- Stop Signs
- Railroad Crossings
- Street Crosswalks
- Curves
- Hills
- School Zones
- Bus Stops
- Straight Sections (intermittent sanding @ the operators discretion)

Once sanding operations have started, they will continue until the completion of the storm and all Priority 1 and 2's are completed. Priority 3 roads will be completed within 24 – 48 hours of the completion of the storm.

- (d) Lengths of areas to be sanded and/or salted are based on calculating stopping distance requirements assuming vehicles are equipped with highway tread tires, a sanded ice surface and a temperature of -1°C as follows:

<u>Posted Speed Limits</u>	<u>Length to be Sanded at Intersections</u>
50 kph (30 mph)	61 m (200 ft.)
60 kph (40 mph)	152 m (500 ft.)

The above table shall apply as a guideline to the sanding Priority 1 and 2 streets. Actual lengths will be estimated as the trucks are not equipped with accurate enough measuring devices.

- (e) Residential roadways (Priority 3) shall generally be sanded at street intersections for a length of 15 m (50 ft.) back from the intersection, as estimated by the operator.
- (f) All sand/salt may be pre-treated with a liquid de-icer, where mechanically possible.

3.3.3 Snow Plowing

- (a) Snow plowing operations shall be implemented as required throughout the winter season.
- (b) Snow plowing operations shall follow the established priority street program.
- (c) The streets included in each of the priorities shall be reassessed, on an annual basis, as to whether or not they should be noted in a higher priority classification. Emphasis shall be given to those areas of high vehicle and pedestrian traffic flow, main arterials and essential service routes and bus routes.



CITY OF KELOWNA

POLICY: 332
PAGE 8 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
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SUBJECT: SNOW AND ICE CONTROL

- (d) The City shall prepare a map outlining the various priorities as well as lists outlining the same priorities broken down into individual areas. This information shall be distributed to operating personnel.
- (e) In order to ensure efficiency in operation, the Roadways Supervisor shall attempt to assign City and hired equipment to designated routes in order that operators become familiar with the areas, thereby increasing efficiency and decreasing damage. This practice will not be followed during minor events, when not all trucks are required.
- (f) The Roadways Supervisor may implement and coordinate a joint effort by all areas in plowing snow on all Priority 1 streets. When all Priority 1 streets have been completed, the remaining priorities may be handled by individual areas.
- (g) If, following a major storm, insufficient personnel and equipment are available in the City work force to meet the snow plowing schedule, private contractor personnel and equipment may be hired, if available.
- (h) In bus stop locations, an area may be opened for the loading and unloading of passengers from buses.
- (i) In designated areas where snow storage is limited, snow ridges may be accumulated along the centre median to be hauled away.

3.3.4 Sidewalk Clearing

- (a) Sidewalk clearing operations may be implemented immediately following all storms.
- (b) Sidewalk plows will normally be used for sidewalk clearing operations.

3.3.5 Snow Removal

- (a) Snow removal will be undertaken only in situations where lack of adequate storage prohibits the reasonable movement of vehicular and/or pedestrian traffic.
- (b) Emphasis for snow removal will be according to established priorities.
- (c) Blowers and/or front end loaders will generally be used for the loading of snow from streets.

3.3.6 Snow Dump Sites

- (a) The Roadways Supervisor shall confirm proposed snow dump sites with private owners and other City departments. Once confirmed, a list outlining these areas shall be provided to the operations personnel.



CITY OF KELOWNA

POLICY: 332
PAGE 9 OF 9

COUNCIL POLICY MANUAL

APPROVAL DATE: 2006/01/09
RESOLUTION #: @
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- (b) The Roadways Supervisor will ensure adequate drainage at all snow dump sites.
- (c) The Roadways Supervisor will ensure that the snow dump sites, which are only to be used by City equipment, are properly signed in this regard.
- (d) The Roadways Supervisor will arrange to clear the snow dump sites of accumulated debris as soon as possible following the thawing of the accumulated snow.

3.3.8 Winter Staff Crew Meeting

The Roadways Supervisor will schedule a crew meeting to review all Snow and Ice procedures and policies on an annual basis.

3.3.9 Standby

The Roadways Supervisor will set up a winter standby shift starting no later than November 1 and ending no earlier than March 1.

Standby personnel, or his designate, shall do checks of all key areas at appropriate times to allow adequate response of crews before rush hour traffic periods. If slippery conditions are noted sanding and/or snow plowing crews will be called in.

REASON FOR POLICY: A guideline for management and operating personnel in the handling of winter maintenance operations.

LEGISLATIVE AUTHORITY: Council Approval.

PROCEDURE FOR IMPLEMENTATION: