



Policy Title: Snow and Ice Control Policy

Policy Number: TP004

Report Number: TTP2003-39, C2007-44, LPT2011-57

Approved by: City Council

Effective Date: Interim policy approved 2009 December 14 and amended 2011 June 20

Business Unit: Roads

BACKGROUND

The City of Calgary Roads business unit is responsible for The City's snow and ice control program and is committed to helping make The City of Calgary safe for pedestrian and vehicle passage along the developed rights-of-ways according to the City-Council approved policy and priority system.

The Snow and Ice Control Policy is necessary to make a clear statement of the intent of the City of Calgary winter maintenance operations and establish the priorities, standards and service levels of the snow and ice control program. An effective and efficient snow and ice control program is necessary to allow the municipality to function under normal winter weather conditions to reduce snow and ice hazards and to provide reasonable winter mobility on City infrastructure including roadways, sidewalks and pathways.

The City of Calgary will manage snow and ice control operations on City infrastructure within City of Calgary Right of Ways in accordance with Council approved policy and priority system, relevant City Bylaws and the Municipal Government Act (MGA).

The intent of the snow and ice control program is to minimize the economic loss to the community, reduce the inconvenience and hazards of winter conditions for motorists, cyclists and pedestrians, and facilitate the operation of Transit and Emergency Services vehicles.

The aim of the Snow and Ice Control Policy is to provide reasonable winter driving conditions for vehicles/cycles that are:

- properly equipped for winter driving; and
- are operated in a manner consistent with good winter driving habits.

It is expected that there will be Extreme Winter Conditions where the immediate demand for snow and ice control services will exceed the available resources. Public Service Announcements will be issued at these times to provide information and to encourage safe driving practices in these poor driving/cycling conditions. In the event of Extreme Winter Conditions additional funding may be accessed with City Council approval.

Alberta Transportation is responsible for snow and ice control on Deerfoot Trail. The public can contact Carmacks at 403-543-8750 with concerns or questions about the maintenance of Deerfoot Trail.

PURPOSE

This purpose of this policy is to:

- Maintain reasonable conditions on roadways and sidewalks so as to minimize hazards and economic loss to the community;
- Ensure safe access for emergency vehicles providing Fire, Police and Emergency Medical Services;
- Provide guidelines for management and operating personnel in the handling of winter maintenance operations; and
- Outline citizens' responsibilities regarding sidewalk snow and ice control on private property.

DEFINITIONS

- **Arterial Roads:** major roadways that carry high volumes of traffic. They are generally four or more lane roadways carrying over 20,000 vehicles per day.
- **Bare Pavement standard:** the continuous ploughing and salting/sanding of the driving lanes of a road until bare pavement is achieved. This is the standard for Priority One and Two routes.
- **Bus Routes:** Calgary Transit routes.
- **Central Business District:** the area bounded in the north by the Bow River, in the east by the Elbow River, on the south by 17 Avenue S and on the west by 14 Street W.
- **Collector Road:** this type of roadway carries vehicles between major and residential roadways. It may be divided and have more than two travel lanes with full access to adjacent properties. These roadways carry moderate volumes of traffic between 5,000 to 19,000 vehicles per day.
- **De-Icer:** the chemical agent that the City of Calgary mixes with sand to control ice, usually road salt or calcium chloride.
- **Emergency Access Routes:** roads providing access from major, collector roadways or bus routes to a hospital, police station, fire station or emergency medical services centre.
- **Extreme Winter Conditions:** where the immediate demand for snow and ice control services will exceed the available resources. Normally this will trigger Council to declare a snow emergency and provide the Roads Maintenance Division with additional funds to increase the response using contracted services.
- **Freeway / Expressway:** divided multi-lane roadways with controlled access providing optimum mobility for through traffic and connecting major points of traffic generation.
- **Hard pack snow conditions:** As opposed to bare pavement conditions, hard pack snow refers to a standard of winter maintenance whereby snow is allowed to accumulate and be compacted on a road. This is the standard for non-Priority One and Two roads.
- **Ice Control:** the application of abrasives and/or chemical de-icers to the surface of roads, sidewalks, steps and pathways to improve traction and to control or eliminate the formation of ice.
- **Lanes:** also known as back alleys, lanes provide access to the rear of properties.

- **Marked, on-street bike lane:** a portion of City roadway, designated for the use of cyclists, which are identified with pavement surface markings such as painted lane lines or symbols.
- **Pathway:** a route used by pedestrians and other recreational users that typically has an asphalt surface.
- **Passable road:** a road with a total accumulation of less than 12 centimetres, or ruts that do not exceed 12 centimetres in depth.
- **Residential Street:** an undivided roadway that provides direct access and collects traffic from abutting residential properties and distributes this traffic to higher standard roadways.
- **Sanding:** the application of abrasive materials mixed with road salt to roadways by calibrated mechanical spreaders to improve vehicle traction and promote safe traffic flow.
- **Sidewalk:** that part of the roadway intended for the use of pedestrians which may be alongside the road or separated by a boulevard.
- **Snow drifting:** the deposit of windblown snow on roadways or lanes which makes the passage of vehicle traffic impossible.
- **Snow emergency:** In a general sense it refers to a winter storm that overwhelms the base compliment of snow fighting equipment and personnel. Actions can include banning all traffic except emergency personnel, restrictions or prohibitions to on-street parking and closure of public buildings. Normally issued before the storm begins as drivers may not be able to reach their destinations after it has begun.
- **Snow ploughing:** pushing accumulated snow from the roadways surface either to the sides of the roadway or the centre of the roadway to ensure that travel lanes, turn lanes and ramps are passable to traffic.
- **Snow removal:** the removal of ploughed and accumulated snow that is impeding the flow of traffic and pedestrians to a snow dump or nearby green space.
- **Street Storage:** the on-street storage of ploughed snow.
- **Trouble Spots:** Identified areas such as hills which may cause traffic congestion or be a driving hazard if Ice Control occurs as a lower priority or continuous Ice Control does not occur.
- **Walkway:** Similar to a pathway, but typically a connector between two houses joining two roads, or a road and a lane.
- **Windrow:** A continuous pile of snow along a roadway as a result of snow ploughing by a truck or grader.

POLICY

Levels of Service Applicable to Ice Control, Sanding, Salting and Snow Ploughing

How, when and where The City of Calgary Roads sands, salts and ploughs streets and sidewalks depends on a City Council approved priority system as well as other factors which may include:

- the temperatures before, during and after a storm.
- the duration of the storm.
- the amount of accumulated snow.
- the road surface temperature.
- wind speed and direction.
- the weather forecast for the following days.

For the purpose of ice control, snow ploughing and snow removal, the entire street system is assigned to one of four priority classifications. Emphasis of operations shall be generally in order of assigned street classification priority. When necessary, for reasons of safety, at the discretion of the Manager of Roads Maintenance, the order of priority for the provision of the required services may be altered.

Winter Maintenance

Ploughing, Sanding and Salting

- Ploughing operations using graders begin after accumulations of at least five centimetres of snow or when drifting snow significantly impedes traffic flow. On residential streets, ploughing operations using graders begin after accumulations of at least 12 centimetres of snow or when drifting snow significantly impedes traffic flow and the temperatures are too low for truck mounted ploughs to be effective. In the event of snowfall, salt or a mixture of sanding chips and salt are generally applied for snowfall amounts of less than five centimetres.
- Snow ploughing may result in windrows on one or both sides of the road. The clearing of windrows in front of driveways left by snow ploughing equipment shall be the responsibility of the abutting property owner.
- Truck-mounted ploughs are used to plough snow off of the driving lanes during salting and sanding operations.
- Crews adjust snow and ice control materials depending on the prevailing temperature and weather conditions.
- Remote sensors embedded in the asphalt on major roads to measure surface temperatures are used in combination with sophisticated weather forecasting to get the right materials on the roadways in the right amount at the right time.
- Salt is used to melt snow and ice on roads when road surface temperatures are between 0 and -5C; and
- When road temperatures drop below -5C, a sanding chip mixture (4% salt, 96% fine gravel) is used to improve traction.

Priority One

- Streets in the Central business district with traffic volumes exceeding 8,000 vehicles per day (4 Avenue S to 12 Avenue S and 14 Street W to 6 street E,); and
- Designated routes on high-traffic-volume arterials (currently based on traffic volumes of 20, 000 plus vehicles per day).
- Bare pavement standard applies.

Priority Two

- Designated streets with volumes of 5,000 to 19,999 vehicles per day.
- Traffic lights and controlled crosswalks.
- Designated emergency routes (adjacent to hospitals and police and fire stations)
- Roadways which facilitate marked, on-street bike lanes.
- Problem areas.
- Bare pavement standard applies.

Priority Three

Designated feeders, collectors and bus routes at:

- School and playground zones.
- Designated hills.
- Stop/yield signs.
- Bus stops.
- Hard pack snow standard applies.

Priority Four

Residential areas at:

- School and playground zones.
- Designated hills.
- Hard pack snow standard applies.

Residential Roads

When temperatures permit, all residential roads will be ploughed following each snowfall with accumulations of five centimetres or greater. When excessively low temperatures preclude the use of truck mounted ploughs, graders will be used as required on a priority basis. Once temperatures fall, residential ploughing will commence. The purpose behind this policy is to ensure that the snow and ice does not ever reach a depth where rutting will cause difficulties. Additionally, routine residential ploughing and sanding will ensure that windrows are kept to a minimum.

When ploughing or levelling of ruts occurs with trucks or equipment and windrows are created, the removal of the windrows will be the responsibility of the abutting property owner if action is desired.

Snow Removal and Storage

Snow removal commences when ploughed snow impedes traffic in the Central Business District and on major arterial roadways. All snow removed is hauled to designated snow storage sites.

Elimination of windrows on an as needed basis will be executed at the discretion of the Road Maintenance Manager.

Sidewalks, Walkways and On-street Bikeways

The policy is also designed to maintain reasonable walking and cycling conditions along City controlled sidewalks and pathways for pedestrians and marked, on-street bike lanes for cyclists. The City's snow and ice control program determines how roadways and sidewalks are maintained and includes the following services:

- Removal of snow and ice from roadways, sidewalks and stairways using a combination of sanding and salting, ploughing, and snow removal.
- The provision of winter maintenance services for Stephen Avenue Mall and Barclay Mall.

The Parks business unit is responsible for snow and ice control on the regional pathway system.

Service Levels

Road Designation	Response Time
Priority 1 Routes	Through lanes ploughed and sanded completed within 24 hours of the end of snowfall (100% sanded/salted and 90% ploughed)
Priority 2 Routes	Through lanes ploughed and sanded completed within 48 hours of the end of snowfall (100% sanded/salted and 90% ploughed)
Priority 3 Routes	Within 4 days after Priority 2 routes complete (sanded and ploughed when temperature conditions allow)
Priority 4 Routes	Within 4 days after Priority 2 routes complete (sanded and ploughed when temperature conditions allow)

Owners and Occupants of Private Property

The following outlines the responsibilities of the owners and occupants of private property in snow and ice control.

In accordance with the Street Bylaw 20M88, section 67 (1) The owner or occupant of a private parcel of land adjacent to a Sidewalk or Pathway that runs in front of the property or along side of the property where:

- (a) such a Sidewalk or Pathway runs parallel to and directly adjacent to a Street; or
- (b) such a Sidewalk or Pathway runs parallel to and adjacent to a street, where the Pathway or Sidewalks and Street are separated only by a grassed or otherwise covered boulevard;

shall remove ice and snow from that portion of the Sidewalk or Pathway within twenty four (24) hours after the ice or snow has been deposited.

[See the Street Bylaw 20M88](#) for further information on the responsibilities of owners and occupants of private property regarding sidewalk snow and ice control.

[Visit the Roads Web Page](#) for updates and additional information.

PROCEDURES and RESPONSIBILITIES

City Council

- When deemed necessary, or on the advice of the City Manager, declare a Snow Emergency allowing the Roads Maintenance Division to return roads to a passable condition in fastest time possible. The declaration should include restrictions on vehicle movement, parking and the operation of public buildings.

The City Manager

- Authorize funding at the request of the Roads Business Unit for non-base funded activities including:
 - Snow Emergency
 - Removal of rutting on residential streets

The General Manager of the Transportation Department

- Authorize the instructions or specifications necessary to implement this policy of City Council and bring forward any changes in the policy upon direction of City Council.
- Exercise control of the staff of the Transportation department directing such assistance as may be required to the Roads Maintenance Division during snow related emergencies.
- Act as a liaison with City Council on policy related matters.

The Director of the Roads Business Unit

- Authorize the instructions or specifications necessary to implement this policy of City Council and bring forward any changes in the policy upon direction of City Council or the General Manager of Transportation.
- Exercise control of the staff of the Roads Business Unit directing such assistance as may be required to the Roads Maintenance Divisions during snow related emergencies.
- Act as a liaison with the General Manager of Transportation on policy related matters.

The Manager of the Maintenance Division

- Authorize the instructions or specifications necessary to implement this policy of City Council and bring forward any changes in the policy upon direction of City Council, the General Manager of Transportation or the Director of Roads.
- Exercise control of the staff of the Roads Maintenance Division requesting such assistance as may be required by the Roads Maintenance Division during snow related emergencies.
- Act as a liaison with the Director of the Roads Business Unit on policy related matters.

Note: Detailed instructions necessary to properly implement this policy are contained in the Snow and Ice Control Program Plan as approved by the Manager, Roads Maintenance and the Road Salt Management Plan as approved by the General Manager of Transportation for the direction of all employees and equipment concerned. For inquiries or concerns related to snow and ice control, please contact 311.

AMENDMENTS

LPT2011-57