



# **CITY OF KINGSTON**

**OPERATIONS DEPARTMENT  
ROADS DIVISION**

**WINTER CONTROL PLAN**

**2002 – 2003**

**ROADWAYS & SIDEWALKS**

**TABLE OF CONTENTS**

<b>LIST OF APPENDICES</b>	<b>2</b>
<b>I. OBJECTIVE</b>	<b>3</b>
<b>II. RESPONSIBILITIES</b>	<b>3</b>
<b>III. WORK LOCATIONS</b>	<b>5</b>
<b>IV. CONTRACTS</b>	<b>5</b>
<b>V. ROADWAY CLASSIFICATIONS</b>	<b>7</b>
<b>VI. ROADWAY SERVICE STANDARDS</b>	<b>8</b>
<b>VII. LEVELS OF SERVICE – ROADWAYS</b>	<b>9</b>
<b>VIII. ROADWAY PROCEDURES</b>	<b>10</b>
<b>IX. SIDEWALK / WALKWAY CLASSIFICATIONS</b>	<b>11</b>
<b>X. SIDEWALK / WALKWAY SERVICE STANDARDS</b>	<b>11</b>
<b>XI. WINTER PREPARATIONS</b>	<b>12</b>
<b>XII. SNOW REMOVAL</b>	<b>14</b>
<b>XIII. RECORDS</b>	<b>14</b>
<b>XIV. COMMUNUCATIONS</b>	<b>15</b>
<b>XV. NOTES</b>	<b>15</b>
<b>XVI. APPENDICES</b>	<b>16</b>

## **LIST OF APPENDICES**

- A City of Kingston, Winter Control Plan,  
Roadway Classification Map
- B 2002 / 2003 Winter Control, Route Descriptions  
(Roads Plowing & Salting/Sanding)
- C Individual Plowing & Salting/Sanding Routes
- D Standard Road Surface Condition Report (Winter)
- E Winter Control Summary
- F Excerpt of By-law #10
- G Central Business District (BIA)
- H Sidewalk Priority Plow & Sand map  
and Sidewalk Plow Zone maps
- I Walkway Classifications
- J City of Kingston, Snow Removal Routes
- K Notice Regarding By-law Enforcement Officers,  
Authorized to Seize Vehicles
- L Winter Control Notification Advertisement
- M Minimum Maintenance Standards for Municipal Highways

## **I. OBJECTIVE**

The objective of the Winter Control Plan, is to define standards to be maintained and procedures to be followed, to reduce the hazards resulting from winter snow and ice, in order to maintain the City's roadways and sidewalks in a safe condition.

Winter control standards establish levels of service for snow and ice control across the City, for various classes and priorities of roadways and sidewalks, to ensure the safe and efficient movement of people, goods and services, through out the community. The standards recognize the difference in traffic conditions and associated required risk management, on the various classes of roadways and sidewalks. Additionally the standards indicate that levels of service may not be met until after the cessation of a winter storm or snowfall event.

Winter control procedures indicate the actions to be taken in order to maintain the above noted standards. The procedures, in conjunction with the standards, recognize that winter control measures cannot be carried out on all roadways and sidewalks at the same time, and due to the associated required risk management, must follow the priorities as defined by the classifications of the roadways and sidewalks.

## **II. RESPONSIBILITIES**

The Commissioner of Operations is ultimately responsible for winter control operations within the City of Kingston. The Manager of the Roads Division, of the Operations Department, reporting to the Commissioner, is directly responsible, for winter control operations. The two Supervisors of the Roads Division, have the front line management level responsibility, for directing the winter control operations.

Winter control operations are carried out by a combination of full-time and four month term Roads employees, including four Assistant Leaders of Roads, reporting to the two Roads Supervisors, supplemented by contracted service providers.

### **DUTY LEADER**

One Supervisor or Assistant Leader, will be assigned as "Duty Leader" each week to cover the weekday period between 4:00 p.m. and 12:00 midnight, and over the weekend. The Duty Leader will be responsible to contact the other Supervisors and Assistant Leaders, as may be required, to ensure that the roads are cleared of ice and snow in accordance with this plan.

## HOURS OF WORK

Two regular shifts for Roads staff will be employed from Monday to Friday:

Shift 1) 12:00 midnight – 8:00 a.m.  
( 8:00 p.m. - 8:00 a.m., as may be required during or after storm events )\*

Shift 2) 8:00 a.m. – 4:00 p.m.  
( 8:00 p.m. - 8:00 a.m., as may be required during or after storm events )\*

*\* This provides for 24 hour operational coverage, during or after storm events, and maintains “on duty hours” at 12 hours or less in a given 24 hour period.*

Monday to Friday, between 4:00 p.m. – 12:00 midnight, one Roads staff member, will provide patrol coverage, with the intent to keep the Duty Leader informed of weather and roadway conditions.

Weekend coverage will be provided by two road patrol shifts, with one Roads staff member on each shift, intended to keep the Duty Leader informed of weather and roadway conditions, as follows:

Shift 1)	Shift 2)
8:00 am – 8:00 pm Friday	8:00 pm Friday – 8:00 am Saturday
8:00 am – 8:00 pm Saturday	8:00 pm Saturday – 8:00 am Sunday
8:00 am – 8:00 pm Sunday	8:00 pm Sunday – 8:00 am Monday

## SUPPLEMENTAL STAFF

Beginning December 1<sup>st</sup>, 2002, a minimum of ten (10) four month term, driver/labourers, will be acquired by the Operations Department, Roads Division, on a full time basis, for the purpose of supplementing Roads staff for winter season operations. Those term driver/labourers will be released, at the end of the 2002–2003 Winter Control season.

Also between December 1<sup>st</sup>, 2002 and April 1<sup>st</sup>, 2003, approximately thirty (30) four month term, utility persons, will be retained on a strictly casual, call in basis only, for utilization as wingpersons, as may be required, during winter storm events.

### **III. WORK LOCATIONS**

All Winter Control Staff, will generally work out of the 701 Division Street yard. Equipment and materials will be stored at the Division Street yard, along with materials and some equipment being stored at the Creekford Road yard, the Gardeners Road yard, the Joyceville yard and a Middle Road location.

### **IV. CONTRACTS**

For the winter of 2002-2003, contractors will be hired or contracted, to supplement:

- Snow Hauling operations
- Rural and Kingston East road plowing/salting & sanding operations
- Kingston East sidewalk plowing operations

#### **SNOW HAULING**

Contractors will be hired as required to supplement City trucks, hauling snow during snow removal operations, to the snow dump on Perth Road, immediately north of Highway 401.

A local advertisement asks interested contractors to complete an “Operations Department Truck Rental Agreement”. Submissions of the agreement are used to prepare a contractor call in list, from which contractors are called, as may be required, for snow removal operations.

#### **ROADWAY PLOWING & SALTING/SANDING CONTRACT**

Routes in Kingston East and CFB Kingston, along with two routes north of Highway 401 and west of the Cataraqui River, are identified in tender documents, **OSRD 2002-05**, a tender for contracted plowing and salting/sanding services.

The outsourcing of these winter control routes is necessary, because the City of Kingston does not currently have enough in house personnel or equipment, to provide the consistent level of winter control service, across the entire City of Kingston, that the public demands and this Winter Control Plan requires.

The Plowing & Salting/Sanding contractor, is under the direction of the two Roads Division Supervisors, and initiates operations upon being called out by one of the Supervisors. The contractor is required to carry out operations as may be directed by one of the Supervisors and it is the contractor's responsibility to meet the standards and follow the procedures as defined in this Winter Control Plan. The contractor's operations must be carried out in a timely fashion and hours of operation must be approved by one of the Roads Division Supervisors.

### **SIDEWALK PLOWING CONTRACT – KINGSTON EAST**

Routes in Kingston East and CFB Kingston, are identified in tender documents, **OSRD 2002-06**, and include;

**Route 1** – Hwy 2 / Ontario St from Barrick St to Princess Mary Rd

**Route 2** – Hwy 15 from Grenadier Dr to Entretien Ave

**Route 3** – Barriefield Hill from James St to causeway

**Route 4** – Grenadier Village walkways to Rideau Town Centre

**Route 5** – Greenwood Park, Woods Landing, Point St Mark, Grenadier & Barriefield

**Route 6** – CFB & RMC

The Sidewalk Plowing contractor, is under the direction of the two Roads Division Supervisors, and initiates operations upon being called out by one of the Supervisors. The contractor is required to carry out operations as may be directed by one of the Supervisors and it is the contractors responsibility to meet the standards and follow the procedures as defined in this Winter Control plan. The contractors operations must be carried out in a timely fashion and hours of operation must be approved by one of the Roads Division Supervisors.

## **V. ROADWAY CLASSIFICATIONS**

On November 1, 2002, Ontario Regulation 239/02, came into effect. This Provincial regulation sets out “Minimum Maintenance Standards for Municipal Highways”. This regulation includes minimum maintenance standards for “snow accumulation” and “icy roads”, both Winter Control concerns.

The levels of service for the minimum maintenance standards, vary according to the classification of the road, street or highway. The standards classify roads, streets or highways based on Average Annual Daily Traffic (AADT) and on the posted or statutory Speed Limit, in six (6) roadway classifications. ( The entire Minimum Maintenance Standards for Municipal Highways, is attached in Appendix M )

The current City of Kingston roadway classifications, classify roads, streets or highways, according to their; importance in the overall transportation system, average annual daily traffic (AADT), and posted or statutory speed limits, in four (4) roadway classifications. However, the City of Kingston Roadway Classifications and corresponding Levels of Service, for clearing “snow accumulation” and treating “icy roads”, as presented in the 2002 - 2003 Winter Control Plan, meet or exceed the Minimum Maintenance Standards, as set out in the regulation.

A map entitled “New City of Kingston – Priority Snowplow Routes” identifying roadway classes is included in the appendices. The following classifications apply:

<b>CLASS</b>	<b>DESCRIPTION</b>
Class 1	Arterial and Collector roads with Average Annual Daily Traffic (AADT) > 5000, Business Improvement Area and Major Rural roads.
Class 2	Collector roads and Transit routes.
Class 3	Local Residential, Commercial and Minor Hard Surfaced Rural roads.
Class 4	Gravel Rural roads.

## **VI. ROADWAY SERVICE STANDARDS**

<b>CLASS</b>	<b>WINTER HAZARD</b>	<b>DESCRIPTION</b>
Class 1	Snow Accumulation	The objective is essentially bare pavement, to be reached as soon as possible, after a storm has ended, and normally within four (4) hours.
	Icy Road	The objective is to treat the icy roadway as soon as practicable after becoming aware that the road is icy, and normally within three (3) hours.
Class 2	Snow Accumulation	The objective is essentially center bare pavement, to be reached as soon as possible, after a storm has ended, and normally within six (6) hours.
	Icy Road	The objective is to treat the icy roadway as soon as practicable after becoming aware that the road is icy, and normally within four (4) hours.
Class 3	Snow Accumulation	The objective is essentially center bare pavement, to be reached as soon as possible, after a storm has ended, and normally within sixteen (16) hours.
	Icy Road	The objective is to treat the icy roadway as soon as practicable after becoming aware that the road is icy, and normally within twelve (12) hours.
Class 4	Snow Accumulation	The objective is to make the road as safe as possible, to be reached as soon as possible, after a storm has ended, and normally within twenty four (24) hours.
	Icy Road	The objective is to treat the icy roadway as soon as practicable after becoming aware that the road is icy, and normally within sixteen (16) hours.

## **VII. LEVELS OF SERVICE - ROADWAYS**

The following summary is a guide for a winter storm. Conditions will dictate the appropriate work required. The degree to which the objectives and timing are achieved depends on the nature and duration of the storm, and post storm weather conditions.

<b><i>Kingston Roadway Classification</i></b>	<b><i>Class 1</i></b>	<b><i>Class 2</i></b>	<b><i>Class 3</i></b>	<b><i>Class 4</i></b>
<b>Objective:</b>	Essentially Bare	Essentially Center Bare	Essentially Center Bare	Safe and Passable
<b><u>*De-icing/Sanding:</u></b>				
<b>Time to meet objective, ASAP after becoming aware of condition</b>	3 hours	4 hours	12 hours	16 hours
<b>Begin when snow accumulation is;</b>	≤ 2 cm	≤ 3 cm	≤ 4 cm	n/a
<b>follow-up de-icing/sanding</b>	as required	as required	as required	n/a
<b>theoretical circuit</b>	3 hours	4 hours	6 hours	n/a
<b><u>Plowing:</u></b>				
<b>Begin when snow accumulation is;</b>	≤ 2.5 cm	≤ 6 cm	≤ 8 cm	≤ 10 cm
<b>Time to meet objective, ASAP after storm, not exceeding;</b>	4 hours	6 hours	16 hours	24 hours

\* **NOTE:** Road Classification and Weather Conditions will determine whether de-icing or sanding operations are to be conducted.

“ ≤ “ means “less than or equal to”, indicates activity can start before snow accumulation reaches the defining depth in cm, but should at the latest start when the snow accumulation has reached the defining depth in cm.

## **VIII. ROADWAY PROCEDURES**

Roadway de-icing and/or sanding initiates the winter control operation when the first effects of a storm are felt in order to provide traction for traffic until the depth of snow has reached approximately 2.5 cm, at which time plowing operations typically commence. Plowing and de-icing/sanding continue, with respect to each class of roadway, in accordance with its classification and level of service standard. The Route, Priority and Zone maps included in the appendices identify the areas to be cleared and the general priority in each area.

During the regular Monday to Friday, day or midnight shifts, winter control procedures will be initiated by one of the Road Supervisors or by an Assistant Leader in conjunction with one of the Road Supervisors, as weather and road conditions demand. Monitoring of Environment Canada weather forecasts, patrol reports and other information as may be available, may allow preparations for winter control operations to be initiated prior to the beginning of an actual event.

During the Monday to Friday, 4:00 p.m. to 12:00 midnight shift, or either of the two weekend coverage shifts, the Roads Division staff member on patrol, will notify the assigned Duty Leader, of changing road and weather conditions. The Duty Leader will as may be required make the appropriate call outs, to initiate winter control operations.

During and upon completion of winter control roadway operations, a daily log is maintained and updated, indicating roadway winter control activities carried out.

## **IX. SIDEWALK / WALKWAY CLASSIFICATIONS**

Sidewalks and walkways are classified in accordance with the associated pedestrian traffic and proximity to high volume roadways, in addition to the ease with which they can be cleared. A map entitled “City of Kingston – Sidewalk Priority Plow & Sand” is included in the appendices (Appendix H), together with a list of Class 3 and 4 sidewalks/walkways. Class 2 Sidewalks consist of the bulk of the City sidewalks that can be cleared with mechanized plow equipment and are not adjacent to high volume roadways and/or have high pedestrian volumes.

Sidewalk clearing in the Downtown Business Improvement Area is the responsibility of the abutting property owner as per City of Kingston By-law 10 (excerpt in appendices). However, in the event of heavy snowfalls or extreme ice, initial plowing and sanding, will be carried out by City forces, if necessary.

<b>CLASS</b>	<b>DESCRIPTION</b>
Class 1	Sidewalks / walkways adjacent to high volume roadways with high pedestrian volumes.
Class 2	Balance of sidewalks / walkways that can be cleared with mechanized plow equipment.
Class 3	Sidewalks / walkways that require a blower or hand shoveling to clear.
Class 4	Sidewalks / walkways that will not be cleared due to destination.

## **X. SIDEWALK / WALKWAY SERVICE STANDARDS**

<b>CLASS</b>	<b>DESCRIPTION</b>
Class 1	The service standard is for an accumulation of no more than 2.5 cm of snow. It is the objective to be reached as soon as possible after a storm has ended and normally within 24 hours.
Class 2	The service standard is for an accumulation of no more than 5.0 cm of snow. It is the objective to be reached as soon as possible after a storm has ended and normally within 48 hours.

- Class 3        The service standard is for an accumulation of no more than 5.0 cm of snow. It is the objective to be reached as soon as possible after a storm has ended and normally within 72 hours.
- Class 4        The service standard is for no winter maintenance. They may be cleared if time and manpower permits.

Typically, during a winter storm event, roadways will be maintained with available staff, until such time as road and weather conditions allow for staff to be diverted to sidewalk operations.

Sidewalk operations will begin with operations on Class 1 sidewalks and/or Downtown sidewalks, if necessary. As staffing availability and weather conditions allow, Class 2 sidewalk operations will follow, and typically will continue on a regular shift basis, until complete. Class 3 sidewalks and walkways will be the last to be addressed.

## **XI. WINTER PREPARATIONS**

### **SNOW FENCE**

The erection of snow fence at strategic locations is done in order to trap snow and deposit it on the ground surface before it accumulates on the street. It is erected in the fall and removed in the spring in locations where heavy drifting has historically occurred.

### **SNOW MARKERS**

Snow markers are placed in order to identify hazardous conditions or for outlining the turning radii on roads and sidewalks. They are placed and removed during the same time period as snow fence.

### **SAND BOXES**

Sandboxes are placed in areas where traction is a potential problem, such as at steep road or street grades, or at major intersections where stop/start manoeuvres are hindered by slippery conditions.

## **STOCK PILING of WINTER SAND & SALT**

Sanding preparation begins with the placement of approximately 4,000 tonnes of MTO specified winter sand in the dome at the Creekford Road yard, 5,000 tonnes at the Division Street yard, 2,000 tonnes at the Joyceville yard and 1,000 tonnes at the Middle Road MTO yard. The sand is mixed with approximately 8% salt to maintain the workability of the winter sand mix and to improve de-icing capabilities. This operation takes place by October & November in preparation for the winter season. The Winter Control Sand tender makes allowance for replenishment of these stockpiles, should winter conditions require.

Salt is delivered regularly as required throughout the winter and stored at the various yards. Storage capacity is approximately 200 tonnes at the Creekford Road yard, 250 tonnes at the Division Street yard, 100 tonnes at the Joyceville yard and 100 tonnes at the Middle Road MTO yard.

## **ADVERTISING**

Public knowledge of the City's by-laws with respect to no parking during winter months is essential for proper implementation of the winter control program. For example, the “**No Parking**” by-law with respect to city streets; between “**1:00 am & 7:00 am, from December 1<sup>st</sup> to March 31<sup>st</sup>**”, is advertised in the local news media throughout the period.

Also a **Winter Control Notification** will be advertised, periodically, through out the winter control season, advising residents of the City of Kingston's, Roads Division, Winter Control Activities & Requirements. This notification will inform the public of normal winter control activities, and list the **Do's & Don'ts**, that they as responsible citizens, should be aware of, to help the Roads staff to efficiently maintain their roadways and sidewalks. (see Appendix “L”)

## **PARKING BY-LAW ENFORCEMENT**

Effective October 7<sup>th</sup>, 1993, the City of Kingston, By-law Enforcement Officers, were granted the authority to seize vehicles without the presence of a police officer (see Appendix “K”) Removal of illegally parked vehicles, could take place regardless of snow conditions, as in the event of a snow storm, those vehicles would hinder the efficient plowing of the roads and sidewalks, or the removal of snow banks.

## **XII. SNOW REMOVAL**

Removal of snow will take place on streets taking into consideration public safety, snow storage capability, emergency access routes, street parking requirements, vehicle & pedestrian traffic volumes and parking lot capacity. Snow is removed in accordance with the Snow Removal Routes as shown in the appendices.

Snow removal usually commences as soon as it is practical after a storm. It normally takes place when snow windrows reach a height of 45 cm and the width at the base is 60 cm. However, some variations may occur due to parked vehicles or in order to take advantage of the no parking provision which becomes effective at 1 am. (2 am. in the Central Business Area). As equipment is required to windrow snow for removal purposes, this operation may require the removal of vehicles parked in contravention of the “No Parking By-law”.

Snow removal begins in the Central Business Area followed by the second and the third priority areas. Streets with little or no snow storage capacity are also considered for removal. Streets which are not indicated on the schedule are not normally removed unless the traveled width becomes less than 7 metres or is requested by the Fire Department due to safety concerns.

The most efficient snow removal operation requires the use of road snow blowers, road graders, sidewalk plows and hired trucks. This work is carried out at nights when the No-parking By-law is in effect. Salt or Winter Sand is applied to the street after snow removal to fully restore safe conditions.

Cul-de-sacs and dead-ends with a short turning radius are difficult for wing plows to manoeuvre in. In these areas an initial pass is made for traffic to access the area and they are subsequently cleared with graders and loaders after the storm has subsided.

Snow is hauled to a designated Snow Storage Site (Snow Dump), located on City property, on the west side of Perth Road, immediately north of Highway 401.

## **XIII. RECORDS**

A daily summary shall be maintained identifying the times that equipment is deployed and noting when the Level of Service Objectives have been met. This information will be reviewed annually in order to compare performance against service levels.

#### **XIV. COMMUNICATIONS**

Each year a notice will be advertised in order to advise the public of the Winter Control Plan and the associated objectives and levels of service.

#### **XV. NOTES**

1. It is acknowledged that conditions may occur which temporarily prevent achieving the levels of service as detailed in this document. In such cases, attempts will be made to keep Class 1 & 2 roads as clear as possible by utilizing all maintenance equipment at maximum efficiency.
2. Winter operations will continue until the prescribed level of service is achieved where conditions permit. Should conditions not permit accomplishment of the prescribed level of service, operations shall continue as required to maintain as good a driving service as possible.
3. The order of priority for winter control operations during a storm is Class 1 through Class 4 roads and Priority 1 then Priority 2 sidewalks. Priority 1 sidewalks will be plowed at the same time as roads if and whenever possible.

**XVI. APPENDICES**