

# Winter Operations Implementation Update 2006/2007

## **Presented by:**

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Infrastructure & Emergency Services

Priorities Committee Meeting  
June 21<sup>st</sup>, 2006

**Winter Operations Implementation**  

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**Update 2006/2007**



# Presentation Outline

- Approval Timelines
- Background
- Review CGS Winter Roads Service Standard
- Review Winter 2005 - 2006 Deployment Plan
- Review February 2006 Revised Action Plan
- Snow Accumulation Review
- Maintenance Standards Comparisons
- Municipality Comparison
- Winter Roads Maintenance Options
- Sidewalk Winter Maintenance Options
- Estimated Costs for Winter Roads & Sidewalk Maintenance Options
- Union Concerns
- Discussion and Direction on Option(s)

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# Approval Timelines

**June 21, 2006 – Priorities – Direction on which Option(s) you wish expanded and funding estimates solidified**

**June 28, 2006 – Council – Direction to include:**

- **Confirmation of the CGS Minimum Winter Maintenance Standards**
- **Winter Roads Maintenance Options**
- **Sidewalk Winter Maintenance Options**
- **Authority to proceed with the tendering of winter maintenance contracts**

# Background

- **November 2005, Council approved CGS Minimum Winter Maintenance Standards and directed staff to implement the BMA Winter Maintenance Audit which allowed for their attainment.**
- **Staff commenced the implementation December 2005. Forced to modify the winter operations plan to meet abnormal winter.**
- **Public perception to the City's inability to meet "peak" storms - vocal and critical.**
- **Staff directed to review the Standards and the 2006 maintenance plan - recommendations for winter 2007.**
- **In addition to Council's direction, staff was further directed to:**
  - **Downtown, urban, residential, and rural areas treated to assure uniformity across the CGS;**
  - **Class 1 roadways were to be cleared in 1.5 hours vice 3 hours following a storm;**
  - **Meet day-to-day and ability to up staff to meet major snow and ice storms;**
  - **Not to exceed full-time staffing - any increase in staffing to be achieved through alternative delivery methods;**
  - **City prepared to implement winter operations plan on November 1, 2006.**

## Background - continued

Staff recommend the following elements of the BMA Audit be included in the 2007 winter operations plan:

- introduction of a 24/7 winter operations command centre from Nov. 1, 2006 - April 30, 2007
- continued introduction of new equipment and the rationalization of older equipment
- continued procurement, installation and use of AVL on all City owned snow equipment
- training of all winter operations personnel, especially driver/operators
- the purchase of technology which will allow more accurate delivery of salt/sand mixtures to meet roadway conditions, changing weather conditions and environmental concerns.



# Winter Roads Service Standard

- **Class 1 to 3 Roads**

- to have a bare road condition in 3 to 8 hours for the arterial and collector road network;

- **Class 4 to 6 Roads**

- to have residential/rural routes plowed/sanded in 8 to 24 hours; and

- **Sidewalks**

- sidewalk maintenance with a normal four (4) to eight (8) hour response, up to twenty-four (24) hour response during extreme weather conditions

# Winter 2005 - 2006 Deployment Plan

## Winter Operations 2006

### 3 Shift Option

Arterial & Collector Routes Class 1-3							Residential and Rural Routes Class 4-6											
MonTuesWedThursFriSatSun							MonTuesWedThursFriSat											
00:01AM	<div>Crew #1</div> <div>8 Hours40 hours</div> <div>Arterial Routes</div> <div>21 beats/vehicles</div>						<div>Crew 2</div> <div>10 hrs</div>		<div>Crew 3</div> <div>12 hrs</div>		<div>3rd String</div> <div>34 Beats</div> <div>CGS 34 multi/plow w/dvrs</div> <div>12 hr</div> <div>Probability of deployment</div> <div>17 major storms and</div> <div>25% of 106 incidents</div> <div>max 26 call outs - 6 mon pd</div>				<div>3rd String</div> <div>34 vehs</div> <div>Avail OT</div> <div>12 Hrs</div> <div>1.5 OT</div> <div>17 major storms</div> <div>40% prob of 25</div> <div>max 10 call outs</div> <div>on Sat</div>			
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6:00 AM																		
7:00 AM																		
8:00 AM																		
9:00 AM	<div>Crew #2</div> <div>8 Hours40 hours</div> <div>Arterial Routes</div> <div>21 beats/vehicles</div>						<div>Crew 1</div> <div>12 hrs</div>		<div>Crew 2</div> <div>10 hrs</div>									
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# February 2006 Revised Action Plan

- Expand the use of contractor operated equipment;
- Examine arterial and collector routes with assigned residential and rural secondary routes and, where required, design new routes;
- Install AVL tracking system;
- Re-distribute our spare vehicles to ensure vehicle replacement for any vehicle which will be off the road for more than a 2-hour period;
- Establish a 24/7 vehicle repair program to ensure that our operations are not affected by vehicles awaiting repair;
- Investigate the hours of operation call center and dispatch;
- Continue to refine our current command, control and reporting systems;
- Enforcement of the “No Parking” and “Fouling of Roads” bylaws; and
- Enhance our communication strategy to ensure more timely PSAs are provided to the public during significant events.



## Snow Accumulation Review

Winter Season	Oct/Nov cm	Dec cm	Jan cm	Feb cm	Mar cm	Apr cm	Total snow in cm
Average 2001- 2005	35	51	50	60.6	44	15.7	256.3
<b>2005 - 2006</b>	14.8	<b>53</b>	<b>92</b>	<b>106</b>	9.8	4.6	<b>280.2</b>
Monthly Average	31	52	58	69.7	38	13	263.3

Winter 2005 was the warmest year on record

Extreme weather and natural disasters will place a huge financial burden on Municipalities.

Costly clean up efforts will become more common.

Weather patterns become more erratic and severe.

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# Maintenance Standards Comparisons

City	Roads	Sidewalks
Thunder Bay	Class 1-3: surface bare as possible, commence 2:00am after storm stopped Class 4-6: after 1-3 are complete, 10 cm, 72 hrs to complete	5cm or more, 14 hrs to complete  5cm or more, 72 hrs to complete
SSM	Class 1-3: 8 hrs to complete Class 4-6: after 1-3 routes, at night after accm of 5-8cm	Only designated plowed within 8hrs
Timmins	Class 1-3: Ontario Min Maint Stds 2-12 hrs Class 4-6: within 10 hrs	Major plowed in 8 hrs Others plowed 48 hrs
North Bay	Class 1-3: Ontario Min Maint Stds 2-12 hrs Class 4-6: Ontario Min Maint Stds 12-24 hrs	Where designated Major plowed in 8 hrs Others plowed 48 hrs
CGS	Class 1-3: 3-8 hrs to complete Class 4-6: 8-24 hrs to complete	Where designated 4-8 hrs to complete except extreme storms where 24 hrs

# Municipality Comparison

## Winter Maintenance Costs of Roadways per Lane Km. (MPMP 2005)

Municipality	Lane Km.	\$/Lane Km.
Toronto	13,290	5,672.66
Ottawa	11,854	4,224.12
York	3,298	3,395.94
Greater Sudbury	3,572	2,722.25
London	3,500	2,545.93
Thunder Bay	2,132	1,905.53
Windsor	2,329	1,775.07
Muskoka	1,492	1,789.89

# Winter Roads Maintenance Options

- **Option One (1)** is the 2005 beginning winter model. Most cost effective model which exceeds the Ontario Winter Maintenance Standard. The difference in this option compared to the others is the time to deploy resources and then to clean-up from a storm.
- **Option Two (2)** is the 2005/2006 end-winter model.
- **Option Three (3)** is an enhanced 2005/2006 end-year model which reacts to challenges in last years model by increasing routes and increasing the use of contractors on our Class 4-6 (residential and rural) routes.
- **Option Four (4)** the Route Optimization Model is the most expensive option meeting all the criteria.

# Winter Operations Implementation 2007/08

## Sidewalk Winter Maintenance Options

- Option A** Maintain current service levels with sidewalks serviced within 24 hours, under normal conditions.
- Option B** Existing (2005/06) sidewalks maintained with enhanced service times to complete plowing of sidewalks within 8 hours and snow blowing within 12 hours, under normal conditions.
- Option C** Re-design sidewalk routes to include sidewalks on one side of all roads where they exist and both sides of arterial roads where they exist. This option addresses the areas that do not currently receive sidewalk maintenance. Increase service time to 8 hours under normal conditions.



## Estimated Costs for Winter Roads & Sidewalk Maintenance Options

ROADS	Option 1	Option 2	Option 3	Option 4
Estimated	\$10,600,000	\$11,300,000	\$12,800,000	\$14,400,000
Estimated Supervisor	\$900,000	\$900,000	\$900,000	\$900,000
Total	\$11,500,000	\$12,200,000	\$13,700,000	\$15,300,000

SIDEWALKS	Option A	Option B	Option C
Estimated	\$900,000	\$1,200,000	\$1,500,000

## APPENDIX “A” Winter Roads Maintenance

### Options Comparison <sup>(1)</sup>

	<b>Option #1 Original 3 Shift Model</b>	<b>Option #2 Option #1 with Nine (9) Additional Units</b>	<b>Option #3 Option #1 with Fourteen (14) Additional Units</b>	<b>Option #4 Route Optimization</b>
<b>Design</b>	<ul style="list-style-type: none"> <li>legislative changes to hours of work (December 2004) were implemented.</li> <li>BMA suggested changes to decrease costs by removing 14 units and having the same trucks service Class 4 to 6 roads after servicing Class 1 to 3 roads.</li> <li>24 hour service, Monday to Friday, to arterial and collector roads (Class 1 - 3).</li> <li>service to rural and residential roads (Class 4 to 6) provided at 8 cm accumulation.</li> <li>13 hour service on rural and residential; overtime after 8 hours.</li> <li>potholes and snow removal accomplished with same crews between events.</li> </ul>	<ul style="list-style-type: none"> <li>legislative changes to hours of work (December 2004) were implemented.</li> <li>24 hour service, Monday to Friday, to arterial and collector roads (Class 1 - 3).</li> <li>potholes and snow removal accomplished with same crews between events.</li> <li>add 9 additional units.</li> <li>13 hour service on rural and residential; overtime after 8 hours.</li> </ul>	<ul style="list-style-type: none"> <li>legislative changes to hours of work (December 2004) were implemented.</li> <li>24 hour service, Monday to Friday, to arterial and collector roads (Class 1 - 3).</li> <li>potholes and snow removal accomplished with same crews between events.</li> <li>add 14 additional units.</li> <li>2 hour service time on Class 1 road (&gt; 70 km/hr).</li> <li>3 hour service time on Class 1 - 3 roads (≤ 70 km/hr).</li> <li>8 hour service time on Class 4 - 6 roads, preferably from midnight to 8:00 a.m., where possible.</li> <li>8 to 13 hour sanding on Class 4 - 6 roads.</li> <li>extend rural and residential service levels by providing plow coverage 24 hours per day, 7 days per week, using alternate service delivery.</li> </ul>	<ul style="list-style-type: none"> <li>legislative changes to hours of work (December 2004) were implemented.</li> <li>24 hour service, Monday to Friday, to arterial and collector roads (Class 1 - 3).</li> <li>potholes and snow removal accomplished with same crews between events.</li> <li>add 14 additional units.</li> <li>three service levels are recommended: <ul style="list-style-type: none"> <li>1.5 hour service time on Class 1 roads (high speed highways such as MR35, MR55, etc).</li> <li>2 hour service time on Class 1 - 3 roads (remaining arterials and collectors such as LaSalle Blvd. and Errington Drive).</li> <li>8 hour plow service time and 8 to 13 hours sanding on Class 4 - 6 roads.</li> </ul> </li> <li>extend rural and residential service levels by providing plow coverage 24 hours per day, 7 days per week.</li> </ul>
<b>Estimated Cost <sup>(2)</sup></b>	<b>\$10.6 Million</b>	<b>\$11.3 Million</b>	<b>\$12.8 Million</b>	<b>\$14.4 Million</b>

(1) Any option selected will be fine tuned based on Automated Vehicle Locator (AVL) System information.

(2) This cost estimate does not include costs for supervision.

## APPENDIX 'B'

### Sidewalk Deployment Options

Options Comparison				
	Option #A	Option #B	Option #C	
<b>Design</b>	<ul style="list-style-type: none"> <li>Maintain current service levels and sidewalks maintained at existing service levels ( up to 24 hours)</li> </ul>	<ul style="list-style-type: none"> <li>Existing (2005/2006) sidewalks maintained and enhanced service times to complete plowing of sidewalk in 8 hours and snow blowing in 12 hours.</li> </ul>	<ul style="list-style-type: none"> <li>Redesign sidewalk routes to include sidewalk on one side of all roads where they exist and both sides of arterial roads where they exist. This option addresses the areas that do not currently receive sidewalk maintenance. Increase service time to 8 hours under normal circumstances.</li> </ul>	
<b>Estimated Cost</b>	<b>\$900,000</b>	<b>\$1,200,000</b>	<b>\$1,500,000</b>	

# Union Concerns

- Support of winter operations 24/7 model.
- Overtime after 8 hours to a maximum of 13 hours.
- Saturday and Sunday coverage will be at overtime without agreement.
- Option 3 and Option 4 – the only work by the Union is Class 1 – 3 roads and sidewalks.
- Sub-forepersons in accordance with Collective Agreement ie. Monday-Friday.
- Agency employees as a contracting out option.
- Bus stops and fire hydrants need to be under the winter control language.
- **The Union requires ratification of their membership prior to July 1<sup>st</sup>, 2006.**

## **Discussion and Direction on Option(s)**

That Council continues to support the CGS Minimum Winter Maintenance Standards approved in November 2005;

That Staff proceed implementing and executing Option \_\_\_ for Winter Roads Maintenance;

That Staff proceed implementing and executing Option \_\_\_ for Sidewalks Winter Maintenance;

And

That Council authorize staff to proceed with the tendering and award of winter maintenance contracts and include in the 2007 Budget.