

Winter Operations Report

Presented by:

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Finance Committee Meeting

December 05th, 2005

Winter Operations Report



Recommendation

That staff proceed with the _____ Shift Model in accordance with the trial winter control model outlined in a report prepared by the General Manager of Infrastructure and Emergency Services, dated November 29th, 2005.

BMA Recommendations

September 2005 Report to Council:

- BMA identified a number of current and proposed practices with potential savings of \$2.95M by 2009
- BMA recommended the adoption of the provincial winter maintenance standard Regulation 239/02 which sets out minimum winter maintenance standards or service level expectations.
- BMA recommendations can not be taken as is; they must be staged, timed and coordinated

Major Changes Impacting on the Winter Operations Budget

These regulations included in the Employee Standards Act, The Highway Traffic Act and our Collective Agreement include:

- limiting of operator driving time to thirteen (13) hours per day;
- limiting the maximum work time of an employee to 6 days in a 7 day period; and
- limiting the maximum number of hours an employee can work in a 6 day period to 60 hours.

Ontario Regulation 239/02

Ontario Regulation 239/02 requires:

- a. “bare road” service levels for “plowed and salted” designated arterial and collector roads (Class 1-3) in 3 to 12 hours;
- b. “plowed and sanded” service levels on residential and rural roads (Class 4-6) in 12 to 24 hours following the storm; and
- c. there is no regulation for service levels for sidewalks and walkways.

Annex “A”

ONTARIO MINIMUM Snow Accumulation

	O. Reg. 239	
Road Class	Depth (cm)	Max. Time (hrs)
1	2.5	4
2	5	6
3	8	12
4	8	16
5	10	24
6	None	None

ONTARIO MINIMUM Ice Accumulation

	O. Reg. 239	
Road Class	Cycle Time (hrs) *	
1	3	
2	4	
3	8	
4	12	
5	16	
6	None	

* to sand or salt

Recommended Service Standard for Winter 2006

For winter 2006 we are recommending a service level standard as follows:

- for arterial and collector road network (Class 1-3 roads) to have a bare road condition in 3 to 8 hours;
- for residential and rural routes (Class 4 – 6 roads) to have these roads plowed /sanded in 8 to 24 hours; and
- sidewalk maintenance with a normal four (4) to twelve (12) hour response, up to twenty-four (24) hour response during extreme weather conditions

Annex “B”

Recommended City of Greater Sudbury 2006 Winter Operations Service Level Standards

Snow Accumulation

	O. Reg. 239	
Road Class	Depth (cm)	Max. Time (hrs)
1	2.5	3
2	5	5
3	8	8
4	8	8
5	8	16
6	10	24

Ice Accumulation

	O. Reg. 239	
Road Class	Cycle Time (hrs) *	
1	3	
2	4	
3	8	
4	12	
5	16	
6	None	

* to sand or salt

Annex “B” – cont’d

Sidewalks & Walkways

Sidewalk Class	Depth		Response	
	Planned	Maximum	Planned	Maximum
1	2.5	15	4	24
2	5	15	8	24
3	8	15	12	24

#1 – All walkways adjacent to class 1 to 3 roads

#2 – Walkways on one side of class 4 to 6 roads where there are two walkways present

#3 – Connecting links through parks or the grounds of public facilities

Budget Implications

- For the past 4 years the City has spent on average of \$11.6 million dollars a year on Winter Operations.
- Staff working with its new management structure, BMA, and CVC have designed a 2006 budget (transitioning to the 2009 BMA end state) which ranges from \$9.8 million dollars to \$10.95 million dollars depending on the trial model selected.
- This represents a savings of between \$150 K to \$1.3 million dollars, again given the model selected.

Deployment Options

- The staff has reviewed three models which could be implemented immediately for full operation for a trial period from 01 January to 30 April 2006.
- The three models recommended for consideration include:
 - a two shift model;
 - a three shift model; and
 - a 24/7 shift model.

Model Inclusions

- The 3 proposed transition models recommend changes to Arterial and Collector route (Class 1-3) response
- All models include an identical service level standard response to residential and rural routes (Class 4-6)
- All models include identical sidewalk maintenance
- All models include an identical supervisory model (24/7)
- All models budget based on the historic and probability of storm occurrence of the past 5 years including:
 - 181 winter operations days (26 weeks)
 - 108 snow incidents in a season, including:
 - 81 storms of 4 hrs deployment;
 - 27 storms ranging from 12 to 16 hrs deployment

Two Shift Model

For Arterial and Collector Routes, (Class 1 – 3), this is a two eight (8) hour shift program providing 16 hour coverage per day Monday to Friday and utilizes swing shift as required for plowing and sanding rural and residential streets (Class 4-6) during major storm events.

Two Shift Model

Winter Operations 2006															
Two Shift Model															
	Arterial and Collector Routes (1-3)					Residential and Rural Routes (4-6)									
	Mon	Tues	Wed	Thurs	Fri	Sat	Sat	Sun	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
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10:00 PM															
11:00 PM															
11:59 PM															

Note: Saturday and Sunday Arterial Routes shortage of 12-13 hours.

Winter Operations Report



Two Shift Model - Data

- This model will require:
 - a minimum of 42 trained drivers for Arterial/Collector Routes and a minimum of 34 trained for swing shifts (reality is 51 person work pool given the nature of non-availability for call-outs).
 - This model will require an additional 33 seasonal/temporary employees during the winter control season
 - 2006 most expensive budget model \$10,481,829 to \$10,950,353 (difference between BMA and CGS numbers)

Three Shift Model

For Arterial and Collector Routes (Class 1-3), this is a three eight (8) hour shift program providing 24 hour per day coverage from Monday to Friday utilizing a swing shift as required for plowing and sanding rural and residential streets (Class 4 – 6) during major storm events.

Three Shift Model

Winter Operations 2006																												
Three Shift Model																												
	Arterial Routes 1-3					Residential and Rural Routes (4-6)																						
	Mon	Tues	Wed	Thurs	Fri	Sat	Sun																					
00:01AM	Crew #1 8 Hours 40 hours Arterial Routes 21 beats/vehicles					Crew 2 10 hrs	Crew 3 12 hrs																					
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2:00 AM																												
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Three Shift Model - Data

This model will require:

- a minimum of 63 trained drivers for Arterial/Collector Routes and a minimum of 34 trained for swing shift
- This model will require 54 additional seasonal/temporary employees during the winter control season
- 2006 least expensive model \$9,800,686

24/7 Shift Model

For Arterial and Collector Routes (Class 1 – 3), this is a two 12 hour shift program providing 24 hour per day coverage 7 days per week, utilizing swing shift as required for plowing and sanding rural and residential streets (Class 4 – 6) during major storm events. Shifts begin at 8:00 a.m. until 8:00 p.m. and from 8:00 p.m. until 8:00 a.m. for seven (7) days per week from November through April.

24/7 Shift Model

24/7 Shift Model

Arterial and collectors (1-3)				
Day	0800 2000	2000 - 0800	0800 2000	2000 - 0800
1				
2	Shift #1 On	Shift #2 On	Shift #3 Off	Shift #4 Off
3				
4				
5				
6				
7	Shift #1 Off	Shift #2 Off	Shift #3 On	Shift #4 On
8				
9				
10				
11				
12	Shift #1 On	Shift #2 On	Shift #3 Off	Shift #4 Off
13				
14				
15				
16	Shift #2 Off	Shift #2 Off	Shift #3 On	Shift #4 On
17				
18				
19				
20	Shift #1 On	Shift #2 On	Shift #3 Off	Shift #4 Off
21				
22				
23				
24				
25				
26	Shift #1 Off	Shift #2 Off	Shift #3 On	Shift #4 On
27				
28				

Residential and Rural Routes (4-6)						
Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Swing Stream			Swing		Swing	
CGS						
34 Beats			34 vehs		34 vehs	
34 multi/plow w/dvrs			Avail OT		Avail OT	
12 hr			12 Hrs		12 Hrs	
			1.5 OT		2.0 OT	
Probability of deployment			17 major storms		17 major storms	
17 major storms and			40% prob of 25		40% prob of 25	
25% of 108 incidents			max 10 call outs		max 10 call outs	
max 27 call outs - 6 mon pd			on Sat		on Sun	

24/7 Shift Model - Data

- This model will require:
 - a minimum of 84 trained drivers for Arterial/Collector Routes and 34 trained for swing shifts
 - This model will require an additional 75 seasonal/temporary employees during the winter control season
 - Middle of 3 Models \$10,031,088 but provides the greatest opportunity for further cost avoidance and savings given the nature of the 24/7 operation

Winter Operations

Activity	BMA 2009 Endstate	BMA 2006 Transition	Model 2	Model 3	Model 4
Details	2 shift with 3 string 8 hr shift Mon - Fri 2 x reg shift Mon - Fri as req OT Sat & Sun as req OT	2 shift with 3 string 8 hr shift Mon - Fri 2 x reg shift Mon - Fri as req OT Sat & Sun as req OT	2 shift 3rd string 8 hr shift Mon - Fri 2 x reg shift Mon - Fri as reqr OT Sat & Sun as reqr OT	3 shift 8 hr shift Mon - Fri 3 x reg shift Sat & Sun OT as req	4 shift 12 hr shift Mon-Sun Reg shift 4 week rotation
Plowing and Spreading Contractors		\$ 1,739,254.00	\$ 1,758,360.00	\$ 2,118,574.00	\$ 2,311,487.00
Material		\$ 2,530,188.00	\$ 2,356,688.00	\$ 991,368.00	\$ 991,368.00
Vehicle Charges		\$ 1,300,000.00	\$ 1,300,000.00	\$ 1,300,000.00	\$ 1,300,000.00
Total	\$ 4,670,400	\$ 6,984,455.00	\$ 7,452,979.00	\$ 6,721,746.00	\$ 7,231,440.00
Supervisors	\$ 182,232	\$ 607,440	\$ 607,440	\$ 607,440	\$ 607,440
Ditching	\$ 1,134,000	\$ 888,520	\$ 888,520	\$ 698,657	\$ 470,794
Snow Removal	\$ 840,000	\$ 540,000	\$ 540,000	\$ 440,000	\$ 440,000
Winter Misc.	\$ 878,000	\$ 624,415	\$ 624,415	\$ 495,843	\$ 444,415
Side walks	\$ 854,000	\$ 837,000	\$ 837,000	\$ 837,000	\$ 837,000
TOTAL	\$ 8,558,632	\$ 10,481,829	\$ 10,950,353	\$ 9,800,686	\$ 10,031,088

Note: 4 year average actual - \$11.1 million
2006 proposed - \$10.1 million

Questions and Answers

- Questions?

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