

COMMITTEE OF THE WHOLE - SEPTEMBER 7, 2004

USE OF ALTERNATIVE DE-ICING MATERIALS

Recommendation

The Commissioner of Engineering and Public Works, in consultation with the Director of Purchasing Services, recommends that:

1. In accordance with the City's purchasing policies and procedures, ClearLane continue to be used in the west portion of the City for the 2004-2005 winter season; and,
2. Council authorize staff to continue to seek out alternative de-icing products, and where appropriate and funds are available, conduct trials to determine their effectiveness.

Purpose

To obtain approval to continue use of the ClearLane de-icing product in the west portion of the City, and, to obtain approval to conduct further trials with other products to determine their effectiveness.

Background - Analysis and Options

For the past two winter seasons (2002-2003, 2003-2004), the City has used sodium chloride (straight rock salt) and a modified salt product called "ClearLane", to maintain its roads during winter storms. Straight salt is used in the east portion of the City, while ClearLane is used in the west portion of the City.

ClearLane was chosen as an experimental de-icing agent due to its ease of use (pre-mixed), environmental benefits, its ability to provide de-icing abilities at temperatures lower than that of straight salt, and the fact that that a residue is left to promote quick melting of subsequent snow/ice. However, with those benefits come additional costs. The following table outlines the costs comparing ClearLane to straight salt.

Winter 2004-2005 cost per tonne (1000kg) for ClearLane vs Straight Salt

Material	Cost (including GST) early fill*	Cost (including GST) regular fill
Straight Salt	\$ 58.19**	\$ 58.19** (no change)
ClearLane	\$ 72.42	\$ 73.28

* Early fill refers to ordering and filling the domes prior to October 31, 2004.

** Anticipated 2004-2005 price

The table below shows the amount of material purchased for the past winter season.

Actuals for Winter 2003-2004

Material	Number of tonnes	Price (including GST)
Straight Salt	18,337.66	\$ 1,035,857.74
ClearLane	13,655.71	\$ 977,578.14
Total		\$ 2,013,435.88

As can be seen above, there is a significant difference in the price per tonne comparing the two products. However, since ClearLane can be applied at spread rates less than salt, another factor

to consider is the cost per lane kilometer of roadway maintained. The following table outlines the costs, and uses a 20% differential in spread rates.

Cost per two lane kilometer for Clearlane vs Straight Salt

Material	Spread Rate	Cost/km
Straight Salt	130 kg/km	\$ 7.57
Clearlane	104 kg/km	\$ 7.53 (early) \$ 7.62 (regular)

One of the benefits/factors that is hard to measure, is the environmental impact of using ClearLane. One of the environmental concerns raised by Environment Canada when declaring road salts as being toxic, was the use of ferrocyanides as an anti-clumping agent in straight salt, and their impact on the environment. ClearLane uses molasses as an anti-clumping agent, as opposed to Yellow Prussiate of Soda (YPS), which is a cyanide compound that is added to straight salt to prevent clumping when the product is stored. Over time, the density of salt will increase from approx. 1944 lbs/cy to 2270 lbs/cy in the storage domes. Without anti-clumping agents, salt will harden and form into large, hard, clumps that do not pass through the grates of the spreader trucks. ClearLane does not have this problem.

In addition to the ferrocyanide issue, the overall amount of de-icing materials applied is reduced through the use of the ClearLane product. Again, this reduction in overall tonnes applied during a winter season will be a benefit to the City in its overall salt management plan.

Concerning the ClearLane product, Roads Division staff are happy with its performance and have no concerns recommending its continued use for 2004-2005. However, staff would also like to test other alternative de-icing materials to determine their overall effectiveness in the future. If another product appears to be beneficial to Vaughan, staff would bring forward a report and seek approval to compare its effectiveness to straight salt and/or the ClearLane product.

Relationship to Vaughan Vision 2007

The use of the ClearLane product, and staff's desire to experiment with alternative de-icing agents, is in keeping with Vaughan Vision's principles concerning environmental protection and stewardship. However, depending on the severity of the winter, sufficient funds may or may not be available in the 2004 Operating Budget to cover the cost of purchasing all the necessary winter de-icing materials. However, the recommendations contained in this report are consistent with the priorities previously set by Council, and additional funds would be available in the Winter Reserve account to cover any shortfall should another severe winter be encountered.

Conclusion

In accordance with the City's purchasing policies and procedures, it is recommended that ClearLane continue to be used in the west portion of the City for the 2004-2005 winter season.

To ensure that the City continues to be a leader in salt management and innovative winter maintenance practices, it is also recommended that staff be authorized to seek out and test alternative de-icing materials to determine their effectiveness, if funds are available.

Attachments

N/A

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Respectfully submitted,

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Commissioner of Engineering and Public Works

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