

## **COMMITTEE OF THE WHOLE - OCTOBER 24, 2005**

### **USE OF ALTERNATIVE DE-ICING MATERIALS**

#### **Recommendation**

The Commissioner of Engineering and Public Works, in consultation with the Director of Purchasing Services, recommends that in accordance with the City's purchasing policies and procedures, ClearLane and ClearLane Enhanced Deicer, be purchased for use as an alternative de-icing material for use in a portion of the City for the 2005-2006 winter season.

#### **Economic Impact**

As was previously reported to Council, there are insufficient funds in the Salt Purchase Account to fill the domes prior to the 2005-2006 winter season. Regardless, the storage domes must be filled prior to the winter. While the cost per tonne of the ClearLane products is higher than sodium chloride (road salt), it has environmental benefits, it permits a lower spread rate, has a lower cost per kilometer, and its use is in accordance with the City's Salt Management Plan.

#### **Purpose**

To obtain approval to continue use of the ClearLane de-icing products in a portion of the City.

#### **Background - Analysis and Options**

For the past three winter seasons (2002-2003, 2003-2004, and 2004-2005), the City has used sodium chloride (straight rock salt) and a modified salt product called "ClearLane", to maintain its roads during winter storms. Salt has been used in the east portion of the City, while ClearLane has been 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 2005-2006 price per tonne costs comparing ClearLane to straight salt.

Material	\$/Tonne
Salt	\$61.69
ClearLane	\$74.43
ClearLane Enhanced Deicer	\$74.98

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

#### Winter 2003-2004

Material	Number of tonnes	Price (including GST)
Salt	18,337.66	\$ 1,035,857.74
ClearLane	13,655.71	\$ 977,578.14
Total	31,993.37	\$ 2,013,435.88

#### Winter 2004-2005

Material	Number of tonnes	Price (including GST)
Salt	21,976.74	\$1,317,241.84
ClearLane	14,161.43	\$1,061,986.88
Total	36,138.17	\$2,379,228.72

There is a difference in the price per tonne comparing ClearLane to salt. However, since ClearLane can be applied at spread rates that are less than salt, the cost per lane kilometer of roadway maintained is similar. The following table outlines the costs, and uses the 20% differential in spread rates used for the past three winter seasons.

Cost per lane kilometer for Clearlane vs Straight Salt

Material	Spread Rate Per Lane Km	Cost/km
Salt	130 kg/km	\$8.02
ClearLane	104 kg/km	\$7.79
ClearLane Enhanced De-icer	104 kg/km	\$7.80

With the lower cost per kilometer, its use on a City wide basis appears to make sense. However, one of the issues in the past has been the amount of ClearLane material that the City could obtain during a winter season. Cargill Deicing Technology had limited on-site storage capacity and once the City had used its committed allotment of material, there was no opportunity to obtain additional material. Cargill staff indicated that this should not be an issue in future winters, as they now have constructed four large storage structures on their site, with the capability to supply the City all of its deicing materials if the City was to expand the use of ClearLane products on a City-wide basis. Staff will report further on this after the 2005-2006 winter season is complete.

One of the other benefits/factors that is hard to measure quantitatively 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 non-toxic molasses as an anti-clumping agent. Without anti-clumping agents, salt will harden and form into large, hard, clumps that do not pass through the grates of the spreader vehicles. 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 complying with its Salt Management Plan.

Council previously authorized staff to continue to seek out alternative de-icing products, and where appropriate and funds are available, conduct trials to determine their effectiveness. Cargill Deicing Technology has a new formulation called ClearLane Enhanced Deicer. This product has additional magnesium chloride added to the mix, and has a lower operating temperature than either straight salt, or the original ClearLane product. In addition, it has a non-staining, non-toxic dye added to enhance its visibility on the road surface after application. Roads Division staff are happy with the performance of the ClearLane products and have no concerns recommending continued use for 2005-2006 as an alternative deicer. The testing of the newest product will allow staff to determine how effective it is in the field compared to salt and the original ClearLane formula.

Although the ClearLane products have been used for the past 3 winter seasons, and is recommended again for the 2005-2006 winter season, staff have sought out other alternative deicing materials. Based on cost comparisons to date, the ClearLane products are the most economical, and require no changes to the City's or contractors' fleet, or its operations. However, staff will continue to seek out and evaluate other alternative de-icing materials to determine their overall effectiveness and cost.

**Relationship to Vaughan Vision 2007**

The use of the ClearLane products, and staff's desire to experiment with alternative de-icing agents, is in keeping with Vaughan Vision's principles concerning environmental protection and stewardship, specifically Vaughan Vision A-3 "Safeguard Our Environment".

**Conclusion**

In accordance with the City's purchasing policies and procedures, it is recommended that ClearLane and ClearLane Enhanced Deicer be purchased for use in a portion of the City for the 2005-2006 winter season.

**Attachments**

N/A

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Respectfully submitted,

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