RESPONSE TO COUNCILLOR INQUIRY

COUNCILLOR SANDS

Councillor Sands inquired if it might be a simple calculation for Administration to determine the cost of snow clearing for the entire Town.

Estimated Administrative Time to Respond

☒ Under 4 hours (no motion required)

☐ Over 4 hours (motion required) Estimated Hours: n/a

Motion

n/a

Response

The Town's Snow and Ice Control Policy separates roads into three priority levels: Priority 1 and Priority 2 roads are generally main roads defined as collector and arterial roads that carry the largest volume of traffic; and Priority 3 roads are generally residential roads that see low daily vehicle trips.

The current practise, in accordance with the Policy, is to clear snow from Priority 1 and 2 routes initially following a snow event once a trigger point has been reached. This process involves clearing and pushing snow to the sides of the road where snow can be stored within boulevard areas in the form of windrows. When extraordinary circumstances warrant, snow in these areas is hauled away to a snow storage site. Priority 3 routes are monitored throughout the winter and flat bladed (ruts are shaved to create a smoother surface) and sanded when necessary. In extraordinary circumstances, snow may be hauled away from Priority 3 routes.

The current budget for snow and ice control for roads is approximately $500,000. The total kilometre distance for all categories of roads and lanes (back alleys) is approximately 385km. Priority 1 routes are approximately 145km, Priority 2 routes approximately 15km, and Priority 3 routes approximately 150km.

Based on a typical winter and attributing the majority of the annual cost to maintaining Priority 1 and 2 routes, an approximate cost estimation would be $3,000 / laned kilometre. The majority of the cost of service delivery is directly attributed to maintaining Priority 1 and 2 routes. However, there are costs attributed to maintaining Priority 3 routes along with other Town owned infrastructure not listed in the Policy. If Priority 3 routes were given the same level of clearing priority as routes 1 and 2, the cost of this enhanced service level would equate to an additional $450,000 approximately.

Due to subdivision and roadway designs in Priority 3 (residential) areas, the technique of plowing the road to the sides would create significant challenges in already dense areas such as:

- burying monolithic (immediately abutting the road) sidewalks with the snow being cleared off the road;
- implementation of parking bans;
- front or curb side garbage collection impeded by the windrows; and
- equipment that is smaller in size may need to be purchased in order to effectively maneuver narrow streets, cul-de-sacs, tight radius corners, etc.

Due to these challenges with clearing Priority 3 roads, consideration could be given to hauling snow from these areas instead, however, this would be costly and time consuming; a preliminary cost estimate for the complete removal of snow is $800,000.

An alternative to hauling snow from Priority 3 routes could be the utilization of snow melting machines. However, these machines are very large (some in excess of 10m in length) and are required to be set up and left stationary for extended periods of time during the snow melting process. Snow melting machines essentially remove the need for trucking and operate as an oversized “melting pot” where snow is dumped into super heated water using a front end loader and then discharged directly into the storm sewer. These machines generally work well in parking lots or commercial environments where there is plenty of space for loaders to manoeuver and the machine to be located in a centralized location immediately adjacent a storm sewer intake point (catch basin). Employing melting machines for snow removal in residential areas would not be practical due to several factors including:

- lack of space in narrow residential areas to maneuver and set up large melting machines;
- the process of moving and setting up the machine repeatedly is time consuming and may take longer than using trucks to haul snow away;
- the machine must be set up immediately adjacent a catch basin and catch basin spacing in residential areas can be upwards of several hundred metres apart, thus increasing hauling distances for loaders and decreasing the expediency of the snow removal;
- melting machines are costly to rent and require a significant amount of fuel to operate;
- the impacts of allowing super heated water from a melting machine to enter already frozen storm sewers and any down stream implications as a result of this activity are unknown and would require further analysis.

There are a number of other factors to be examined if removing snow entirely from Priority 3 routes including:

- snow storage capacity would be excessive and require increased maintenance of the snow storage site – i.e.: excessive time pushing snow pile;
- full parking bans would need to be implemented in residential areas;
- a trigger point would need to be established. (typical trigger points are 15 – 20cm of compacted snow before snow removal is considered);
- fresh snow generally takes longer to haul requiring more trucks;
- snow removal would have to be completed during daylight hours as performing this work at night would be disruptive, and it would be impractical to implement full parking bans in congested residential areas during night time hours.
- subsequent weather events may occur during this activity, essentially re-setting the snow and ice control delivery.
- the environmental impacts of increased Greenhouse Gas emissions due to excess equipment operations.

Attachment(s)

1. Snow and Ice Control for the Integrated Transportation Network P17-04
2. Streets and Roads Snow Clearing Routes map

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