

## **Introduction**

At the June 27<sup>th</sup>, 2017 meeting, Council passed resolution CC2017-190 which states the following:

WHEREAS the City of Greater Sudbury performs ice blading / scraping operations when winter road conditions require removal of ice and slush;

AND WHEREAS the ice blading / scraping operations can often result in a large amount of ice shavings, ice chunks and / or slush being deposited in driveway entrances;

AND WHEREAS the City of Greater Sudbury only performs the removal of ice chunks and / or slush in driveway entrances resulting from ice blading / scraping operations under certain circumstances;

AND WHEREAS the removal of these ice shavings, ice chunks or slush from driveway entrances can be very challenging for residents;

THEREFORE BE IT RESOLVED THAT the City of Greater Sudbury directs staff to bring a report to the Operations Committee at its September 18th, 2017 meeting outlining the current process for ice blading/scraping operations and removal of ice chunks, slush and/or ice shavings resulting from those operations from driveway entrances, including a business case outlining the cost for the provision of consistent removal of ice blading/scraping debris from driveway entrances, to be included as part of the 2018 budget deliberations.

## **Background**

Over the past few years there has been an increase in the number of melting events during the winter months likely due to climate change. It has become increasingly common to experience two or more occasions during the winter where the temperature is sufficiently high enough to cause the snow pack on our roads to melt. It should also be noted that snow packed roads are only found on Class 4 to 6 roadways (local roads) and not the arterial and collector roads which are maintained to a “bare pavement” condition.

During a typical thaw event, the snow packed roads begin to melt inconsistently and at varying degrees, (i.e. may depend on existing snow depth; changing weather and tracking of salt) and when they refreeze, cause a phenomenon commonly referred to as “ice ruts”. In most instances, ice ruts are a manageable inconvenience for Northern Ontarians. However, in severe circumstances, it is necessary to remove the peaks and fill in the valleys that result from ice rutting to enable a reasonably smooth driving surface (refer to pictures 1, 2 & 3). This is typically done with the use of a motor grader equipped with a serrated cutting edge, commonly referred to as “ice blades”. An afflicted road section is scraped or ice bladed by a City or contract grader to mitigate ice ruts. The grader typically makes multiple passes in order to create thin layers of ice shavings. These ice shavings are plowed to the edge of roadways

## Ice Blading

similar to the snow plowing operation. It is unlikely that ice shavings result in large ice chunks being deposited in driveways. However, in some instances, when road widths narrow due to significant snow accumulation, the edges of frozen snow banks may be “clipped” by the grader during the ice blading operation. This may result in large ice chunks breaking off the snow bank and/or debonding from the road surface and falling into driveways.

Picture 1 – Minor Ice Ruts



Picture 2 – Moderate Ice Ruts



## Ice Blading

Picture 3 – Severe Ice Ruts



It is worth noting that since ice blading is utilized during a winter thaw event, the resulting ice ruts are considered very much a temporary condition. That is, if winter continues (i.e. during a January thaw), additional snowfall will fill in the ice ruts and recreate a snow packed state. If winter is coming to an end (i.e. during a March thaw), the likelihood is that ice rutting will melt with the warming weather conditions.

Picture 4 – Melting Ice Ruts



## **Current Winter Maintenance Standard for Ice Blading**

When ice ruts are deemed to be too deep / excessive or when the snow pack has a hole that is too large (see picture 2 or 3 for examples), the ice blading activity is initiated.

If very heavy / dense ice chunks (i.e. 2 feet around or larger) are created during ice blading the City will remove them from residential driveways. Small ice chunks or soft snow chunks left in driveways as a result of ice blading are typically not cleared by City forces. Clearing this type of material from the edge of a driveway after an ice blading operation is considered very similar to clearing snow from the edge of a driveway after a winter snow storm.

Picture 5 – Remove Large Ice Chunk in Driveway



Picture 6 – Motor Grader with Ice Blades



## **Intangibles with Ice Blading**

Although many driveways are partly installed on City property, to date, the City has largely been absolved of legal responsibility for maintaining private driveways on City property. However, routinely removing snow and / or ice shaving from driveways may increase our legal liability.

## **Budget Estimate for Removing Ice Shavings from Driveways**

Staff took a three year average of its current model blading / scraping operation, and added the necessary equipment, labour and material to complete the additional work (remove large ice shaving/debris from driveways). The associated additional cost for this operation is approximately \$66,000 annually. It is important to note that this additional cost is only related to delivering the current discretionary ice blading model and does not include a complete City wide response.