

## Finance Implications

If Option B, C or D is accepted by Council a budget option will be prepared for Finance Committee as part of the 2017 budget.

Option A: No additional operational or capital budget

Option B: Approximate Annualized Impact \$110,000; Capital Cost \$155,000

Option C: Approximate Annualized Impact \$240,000; Capital Cost \$310,000

Option D: Approximate Annualized Impact \$575,000; Capital Cost \$765,000

## Background

There are approximately 440 km of sidewalks within the City of Greater Sudbury. The City provides winter maintenance to approximately 325 km (75%) of these sidewalks. Approximately 115 km (25%) of the sidewalks do not receive winter maintenance. Of the 115 km of sidewalk not receiving winter maintenance, approximately 50 km are 1.2 m (4-feet) wide and the remaining 65 km are 1.5 m (5-feet) wide. The location of the sidewalks not receiving winter maintenance are scattered throughout the entire City (refer to Maps 4, 5 & 6).

In order to maintain narrow 1.2 m width sidewalks, specialty plowing equipment would be required. The majority of the 1.2 m wide sidewalks are located in the communities of Falconbridge, Lively, Levack, Onaping, Coniston, Garson, Capreol, and Copper Cliff. In many instances, the City inherited these 1.2 m wide sidewalks which were constructed by the former mining companies INCO and Falconbridge to their respective standards of the time.

A comparison between the official plan requirements for sidewalk construction and the current sidewalk construction practice is shown in Table 1. This applies for sidewalks constructed through mayor capital reconstruction and development projects.

**Table 1**

Official Plan	Current Practice
1 side of local/residential streets	1 side urban local/residential street except for short cul-de-sacs
2 sides of collector and arterial streets	1 or 2 sides depending on residential density
Pedestrian connections to Transit Service	Pedestrian connections to Transit Service
Pedestrian connections between neighbourhoods	Pedestrian connections between neighborhoods
Pedestrian linkages to major attractions	Pedestrian linkages to major attractions

Within the older areas of the former City, sidewalks were generally constructed on both sides of residential streets. In 1984, the former City changed their standards to construct sidewalks only on one side of residential streets. As such, since 1984, when residential streets in the former City were fully reconstructed, sidewalks would only be replaced on one side of the street (i.e. Charlotte Street). This standard has been carried forward to date.

## **New Sidewalks**

New sidewalks are typically installed during major road reconstruction or through new development (i.e. subdivision construction). Sidewalks are also constructed anew or rebuilt through other capital projects tendered annually. As a condition of development, developers are required to provide sidewalks within new subdivisions in accordance with the standards outlined in Table 1. Under the current policy, Roads Operations undertakes summer maintenance of these sidewalks once they are initially accepted with all relevant repairs completed as required.

The capital roads budget has a \$750,000 annual allotment for new or reconstructed curbs and sidewalks. This budget is typically shared evenly between reconstruction of existing sidewalks and curbs and new sidewalk and curb.

New sidewalks that are constructed as part of a development or capital program and that connect to an existing maintained sidewalk network that receives winter sidewalk maintenance, will automatically be included in the winter sidewalk maintenance plan. The remaining sidewalks that do not connect to a winter maintained sidewalk will not receive winter maintenance.

## **Summer Sidewalk Maintenance**

Under current policy, Road Operations performs summer maintenance on all sidewalks throughout the City regardless of the width of the sidewalk platform. Summer sidewalk maintenance includes sweeping in the spring, spot repairs, patching and removal of displacements on an as needed basis. The current summer maintenance budget for curb and sidewalk maintenance is approximately \$360,000. This budget allows the City to remain in compliance with Regulation 239/02 of the Minimum Maintenance Standards for Municipal Highways (as of January 2013) as it relates to sidewalk summer maintenance (such as trip hazards).

## **Winter Sidewalk Maintenance**

Winter sidewalk maintenance involves plowing and sanding sidewalks to reduce slip hazards and provide safe passage for pedestrians during the winter months.

Presently, the City plows and / or sands sidewalks once an accumulation of 8 cm of snow or icy conditions are detected. The City has City 4 - 24 hours after the storm has ended to complete this service standard during typical winter storms. During non snow / ice events, sidewalks are patrolled generally on a daily basis and are spot plowed and / or sanded as necessary to ensure safe pedestrian passage.

Sidewalk maintenance is performed by Municipal Tractors (MT's). They operate with a straight plow blade or snow blower depending on weather conditions. The MT's are capable of maintaining a maximum sidewalks width of 1.5 m in a single pass.

When plowing with a straight plow blade, snow is directed either towards the road or residential property. Snow blowing is required when the weather event is so significant that the snow cannot be pushed with a blade or when there is limited snow storage available.

**Picture 1 - Sidewalk Snow Blowing**



**Picture 2 - Sidewalk Plowing**



The City currently employs a single Operator shift for every one of its sidewalk routes. Winter maintenance of sidewalks has been designed to the following thresholds;

- Time to plow with a straight blade and sand after an 8 cm accumulation of snow = 8 hours
- Time to snow blow and sand after an 8 cm accumulation of snow = 12 hours

It is important to note, the route design is based on a typical winter event (snow storms less than 15 cm). When there is a more significant event, service times to complete sidewalk routes increase because of the additional effort required to clear the increased snow depth. In significant events, efforts are focused on sidewalks that are adjacent to Class 1 to 3 roads prior to maintaining sidewalks on local roads (Class 4 - 6).

### **Snow Removal due to Winter Sidewalk Maintenance**

The current policy for snow removal allows removal of snow banks when the minimum lane width is less than the standard set out in the minimum maintenance standards. The costs associated with this work are included in the overall snow removal budget which is \$650,000.00 for 2016.

An example of a local road where sidewalks are plowed on one side versus two sides is shown in the pictures below of Montague Avenue in the Donovan. One section (Picture 3) of the road receives sidewalk maintenance on two sides while another section (Picture 4) of the same road receives sidewalk maintenance on one side. The available driving width is much greater on the section of Montague Avenue receiving sidewalk winter maintenance on one side. Further to this, even when adequate snow storage is available on the roadway (i.e. many roads in Levack, Capreol and Lively have a wide road surfaces) some snow removal will still be required to clear catch basins to facilitate drainage and prevent ice buildup on the roadway.

**Picture 3 - Two Sides of Sidewalk Plowed (Montague Av.)**



South facing picture, narrower Road Width (more snow removal required)

**Picture 4 - One Side of Sidewalks Plowed (Montague Av.)**



North facing picture, wider Road Width (less snow removal required)

The proposed sidewalk winter maintenance options include operating costs needed for snow removal due to additional winter sidewalk maintenance. To remain consistent with the current policy for snow removal, only road areas where limited snow storage is available have been identified as a funding need.

### **Current Sidewalk Maintenance Times / Distances**

As mentioned previously, the City provides winter maintenance on approximately 325 km of the 440 km of sidewalk in the City. Maintenance of these sidewalks is divided into 20 routes. In the report to the Operations Committee dated September 9, 2014 titled "Winter Sidewalk Maintenance Enhancements" we reviewed each of the 20 winter sidewalk maintenance routes to ensure each route fully optimizing the equipment / time currently budgeted. The results of the investigation revealed that there was little room for expanding existing sidewalk routes. Therefore, additional labour and equipment will be required to facilitate additional winter sidewalk maintenance.

### **Proposed Sidewalk Winter Maintenance Options**

Indirectly, additional snow will be plowed onto residents' lawns, the length of residents driveway will have the perception of being reduced in length which may generate more complaints from residents.

It is also noteworthy to mention that sidewalk plowing results in a second windrow (windrow is also created by road plow) at driveways that require clearing for property owners. For some, the benefits of sidewalk plowing will outweigh the inconvenience of clearing a second windrow.

## Option A – Status Quo

The status quo option will keep the current winter sidewalk maintenance service. The current state allows winter maintenance of primarily 1.5 m wide sidewalks to service standards that were in place at the various area municipalities prior to amalgamation. Newly constructed (i.e. through development or capital projects) 1.5 m wide sidewalks that directly connect to the existing winter maintained sidewalk network will also be maintained under the current policy. As the City continues to grow, eventually additional labour and equipment will be required to service these new developments.

## Option A - Budget Impacts

None.

## Option B – Maintain all Sidewalks on Priority Routes and Arterial Roads + Option A

Option B proposes to maintain sidewalks included in Option A plus additional sidewalks located on all priority routes and arterial roads. For the purpose of winter sidewalk maintenance, priority routes are defined as sidewalks located adjacent to or near a school, library, hospital or bus stop. One such example is for providing winter maintenance to the presently unmaintained sidewalk along Bruce Avenue and St. George Street (in the Donovan) which would link the maintained sidewalk along St. George Street to Queen Elizabeth School. This accounts for approximately 10 km (refer to Maps 1 & 2) of additional sidewalk winter maintenance throughout the City.

The approach to maintaining some of these sidewalks involves transporting the sidewalk plow and attachments with a truck and trailer to various areas across the City. It is expected that floating equipment to various sites increases the “deadhead” time and decreases the actual plowing / sanding time. Therefore, to complete the 10 km included in this option, one (1) additional sidewalk snow plow route will be required.

## Option B - Budget Impacts

### **Additional Capital**

\$150,000 (sidewalk plow and attachments)

\$5,000 (trailer)

### **Roads Operations**

\$35,000 (sidewalk plowing - labour)

\$35,000 (snow removal)

### **Fleet Operations**

\$40,000 (includes maintenance, replacement contribution & fuel consumption)

If the service is delivered in-house, the City will need to purchase one (1) additional sidewalk maintenance unit with its respective attachments along with one (1) additional part time employee. The capital investment is estimated at approximately \$150,000 (\$150,000 per unit which includes a blower, blade and sanding unit). The approximate annual labour component will be \$35,000 (\$35,000 per employee including fringes for six months of employment). The approximate annual equipment maintenance, replacement rate & fuel consumption for the

sidewalk plow and trailer will be \$40,000. A truck and trailer combination will also be required to mobilize and demobilize (float) the sidewalk plowing equipment to various locations. The truck utilized for hauling the equipment will be taken from the existing Roads Operations fleet. The capital acquisition cost for the trailer would be approximately \$5,000.

The need for snow removal will increase due to the reduced snow storage that will result from maintaining additional sidewalk sections. Presently, snow is stored on sidewalks that are not maintained in the winter. Storing snow on unmaintained sidewalks reduces the frequency for removing snow on roadways to maintain a minimum road width. If the same sidewalk is plowed and adequate snow storage is not available on the road or boulevard, then snow removal will be necessary.

In arriving at the additional snow removal budget, staff assumed that only 50% of the areas included in this option would require some form of snow removal due to lane width and / or drainage issues. Based on the need to remove snow on average twice per winter season, additional snow removal costs to facilitate the additional sidewalk maintenance is approximately \$35,000 ( $\$3,500 / \text{one side-km} * 10 \text{ Km} [50\%] * 2 \text{ events annually}$ ).

#### Option C – Maintain One-side of all Two-sided Sidewalks + Option A & B

Option C proposes to maintain sidewalks included in Option A plus Option B (10 Km's) plus sidewalks located on one side of all streets.(i.e. Third Avenue, Lively). This accounts for approximately 26 km (10 km, Option B + 16 km) of additional sidewalk winter maintenance throughout the City (refer to Map 2 and Map 3). The majority of these sidewalks are found in the Donovan, Flour Mill, West end, Copper Cliff, Levack, Falconbridge and Lively communities.

The approach to maintaining these sidewalks also involves transporting the sidewalk plow and attachments with a truck and trailer to various areas across the City. It is expected that floating equipment to various sites increases the “deadhead” time and decreases the actual plowing / sanding time. Therefore, to complete the 26 km included in this option, two (2) additional sidewalk snow plow routes are required.

#### Option C - Budget Impacts

##### **Additional Capital**

\$300,000 (two sidewalk plows and attachments)

\$10,000 (two trailers)

##### **Roads Operations**

\$70,000 (sidewalk plowing - labour)

\$90,000 (snow removal)

##### **Fleet Operations**

\$80,000 (includes maintenance, replacement contribution & fuel consumption)

If the service is delivered in-house, the City will require the purchase of two (2) additional sidewalk maintenance units with its respective attachments along with two (2) additional employees. The capital investment is estimated at approximately \$300,000 (2 \$150,000 per unit which includes a blower, blade and sanding unit). The approximate annual labour component will be \$70,000 (2 \* \$35,000 per employee including fringes for six months of employment). The approximate annual equipment maintenance, replacement rate & fuel consumption will be

\$80,000 (2 \* \$40,000 per unit). A truck and trailer combination will also be required to mobilize and demobilize (float) the sidewalk plowing equipment to various locations. The truck utilized for hauling equipment will be taken from the existing Roads Operations fleet. Total capital acquisition cost would be approximately \$10,000 for 2 trailers (\$5,000 each).

In arriving at the additional snow removal budget, staff assumed that only 50% of the areas included in this option would require some form of snow removal due to lane width and / or drainage issues. Based on the need to remove snow on average twice per winter season, additional snow removal costs to facilitate the additional sidewalk maintenance would be approximately \$90,000 (\$3,500 / one side-Km \* [5 Km (50% of Option B) + 8 Km (50% of Option C)] \* 2 events annually).

#### Option D - Provide Winter Maintenance to all Sidewalks

Option D proposes to maintain all (1.5 m and 1.2 m wide) sidewalks throughout the City. This involves maintaining an additional approximate 115 km of sidewalk (refer to Maps 4, 5 & 6). The majority of unmaintained sidewalks are found in the former City of Sudbury, Levack and Lively communities.

Based on winter sidewalk maintenance route design, this translates to the creation of five (5) additional sidewalk routes. Two of the proposed sidewalk routes will be designed to integrate into the network of winter maintained sidewalks while the last three routes will require the sidewalk plow and attachments to be transported to various areas throughout the City.

#### Option D - Budget Impacts

##### **Additional Capital**

\$750,000 (sidewalk plow and attachments)

\$15,000 (trailer)

##### **Roads Operations**

\$175,000 (sidewalk plowing - labour)

\$200,000 (snow removal)

##### **Fleet Operations**

\$200,000 (includes maintenance, replacement contribution & fuel consumption)

The City would require the purchase of five (5) additional sidewalk maintenance units with their respective attachments along with five (5) additional part time employees. The capital investment is estimated at approximately \$750,000 (5 \* \$150,000 per unit which includes blowers, blades and sanding units). The approximate annual labour component will be \$175,000 (5 \* \$35,000 per employee including fringes for six months of employment). The approximate annual equipment maintenance, replacement rate & fuel consumption will be \$200,000 (5 \* \$40,000). A truck and trailer combination will also be required to mobilize and demobilize (float) the sidewalk plowing equipment to various locations. The trucks utilized for hauling the equipment will be taken from the existing Roads Operations fleet. Total capital acquisition cost is approximately \$15,000 (3 \* \$5,000) for the trailers.



Snow removal costs will increase due to lack of snow storage as a result of maintaining additional sidewalk sections. In arriving at the additional snow removal budget, staff assumed that only 25% of the areas included in this option would require some form of snow removal due to lane width and / or drainage issues. Based on the need to remove snow on average twice per winter season, additional snow removal costs to facilitate the additional sidewalk maintenance would be approximately \$200,000 ( $\$3,500 / \text{one side-km} * 115 \text{ km} [25\%] * 2 \text{ events annually}$ ).

### **Potential Impacts to Fleet Services**

If any combination of Options B, C, or D is chosen, there will be an impact to Fleet Services. Added utilization of existing MT's or the expansion of the sidewalk maintenance fleet may stretch Fleet Services staff. It may be required that they secure additional help internally or externally in order to keep up with routine maintenance of the sidewalk maintenance fleet.

The average purchase price of an MT or equivalent 1.2 m wide sidewalk maintenance unit (i.e. Wille) is approximately \$150,000. The annual average maintenance charge and replacement contribution for additional MT's will be approximately \$40,000 / MT ( $\sim \$3,200 / \text{month} / \text{MT}$ ). The associated annual fuel consumption equates to approximately \$2,250 / MT.

#### **4-foot Sidewalk Maintenance Vehicle (Wille)**



#### **5-foot Sidewalk Maintenance Vehicle (MT)**



### **Equipment Lease versus Owned**

Should Council choose to proceed with one of the enhanced maintenance options (B, C or D), staff will tender the purchase of the sidewalk equipment with both a lease and purchase option. The option yielding the greatest economic benefit to the City will be chosen.

### **Option for Contracting Sidewalk Winter Maintenance**

Although it cannot be determined without tendering, contracting out Option B, C or D may result in savings to the capital investment. If sidewalk winter maintenance is contracted-out, the City would not incur the upfront capital cost associated with purchasing new equipment. However, contractors will amortize their capital investment over the term of a contract into the standby rates or hourly rates of the contract. Further savings may be realized from the labour component since a contract-out option will utilize an “on demand” service model rather than utilizing full time internal staff.



If any one of options B, C or D is chosen, a period of time will be required to secure the necessary equipment and labour required to fulfill the mandate. In lieu of this situation, Operations will explore the contract-out option on an interim or long term basis. If costs savings are realized from a contract-out option, the actual contract value will be presented prior to finalizing the budget requirements for this enhanced service.

## **Summary**

This report will confirm and approve a formal policy for sidewalk standards, for winter maintenance.

Council has identified the importance of pedestrian year round mobility with an emphasis on a healthy community, supporting alternative forms of transportation in a sustainable economic manner.

If any one of the above noted options is chosen by the Finance and Administration Committee staff will include the total cost to deliver the sidewalk winter maintenance as part of the 2017 budget.