

## COUNCIL REPORT

M&C No.	2019-06
Report Date	January 09, 2019
Meeting Date	January 14, 2019
Service Area	Transportation and Environment Services

His Worship Mayor Don Darling and Members of Common Council

***SUBJECT: Winter Management Plan Overview***

***OPEN OR CLOSED SESSION***

This matter is to be discussed in open session of Common Council.

***AUTHORIZATION***

Primary Author	Commissioner/Dept. Head	City Manager
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***RECOMMENDATION***

It is recommended that Council receive for information this report.

***EXECUTIVE SUMMARY***

The Winter Management Plan is a document developed by staff to manage the service levels during and after a winter storm event. The plan outline the minimum service levels objectives and allow staff to measure their effectiveness during the winter season.

The snow, ice, sleet, freezing rain, rain and fluctuating temperatures of Saint John winters can produce public safety concerns of varying degrees. These varying weather conditions coupled with our hilly terrain and coastal weather influences can impact the traveling public on both our public streets and sidewalks.

The resource allocations and standards outlined in this Winter Management Plan for Streets and Sidewalks are intended to keep the community functional through the winter months. The intent of the Plan is to coordinate winter preparations, organize resources and guide operational protocols for servicing our public streets and sidewalks, under widely varying conditions.

The success of this plan depends on the community working together. Ultimately, success means the public sharing in the responsibility, working with the City and having realistic expectations of winter service.

## **PREVIOUS RESOLUTION**

N/A

## **REPORT**

The Winter Management Plan is reviewed annually and is subject to amendment as our needs, service levels, weather conditions and technology change over time. This report in particular will focus on the service level objectives, the outcomes for winter 2017-2018 season and operational initiatives.

The Winter Management Plan breaks down the City streets into 4 priority levels:

1. Arterial streets, highway connections, emergency routes
2. Major bus routes, schools, community centers, business districts
3. Collector streets, minor bus routes, industrial parks
4. Local or subdivision streets

These street priorities are used to determine the appropriate level of service during and post winter storm events.

The focus of City resources during a winter snow storm event is to provide safe passage for the traveling public on our street and sidewalks. These service levels change slightly depending on the type of weather event we are experiencing at the time.

During a winter snow storm event our objective for streets is to plow off accumulated snow off the travel lanes of the streets to allow basic accessibility for emergency vehicles and the traveling public with our focus on priority 1 and 2 streets. The applications of de-icing and/or abrasive materials are reserved for specific location such as intersections and steep hills. Depending on the weather event, i.e. how much accumulation/hr, will depend on whether or not we can service all our priorities (1 thru 4) for streets.

During a winter snow storm event our objective for sidewalks is to plow or blow accumulated snow off priority 1 and 2 sidewalks to provide a minimum level of pedestrian passage. Priority 3 and 4 sidewalks are typically dealt with after the storm event has ended.

After a winter snow storm event has ended our objectives change for both streets and sidewalks. Our focus is now on plowing remaining snow off travel lanes to ensure basic traveling public movement. Once all streets have received this basic level of accessibility the crews will then focus on pushing back to widen the travel lanes and open drainage basins. Application of de-icing and/or abrasive materials will accompany the push back operation and be applied as required based on conditions and priority.

Our focus for sidewalks is to plow or blow accumulated snow for all designated serviceable sidewalks (61% of our total inventory) and apply de-icing or abrasive materials as necessary.

Once the winter snow storm event has ended the City starts measuring specific service levels that are time related. These service level measurements are typically gathered for a winter storm event 10cm or more of snow.

The service level measurables for streets post storm event are:

- Priority 1/2:
  - 8 hours after end of storm - travel lanes passable; and
  - 48 hours after end of storm – travel lanes pushed back and appropriate anti-icing material applied.
- Priority 3/4:
  - 12 hours after end of storm - travel lanes passable; and
  - 72/96 hours after end of storm - travel lanes pushed back and appropriate anti icing material applied.

The service level measurables for sidewalks post storm event are:

- Priority 1:
  - 12 hours after end of storm – basic pedestrian passage
  - 48 hours after end of storm - walking surface with salt or sand applied at least once.
- Priority 2/3:
  - 24 hours after end of storm – basic pedestrian passage
  - 3 days after end of storm - walking surface with salt or sand applied at least once.
- Priority 4:
  - 72 hours after end of storm - pedestrian passage
  - 4 days after end of storm - walking surface with salt or sand applied at least once.

Sidewalk service levels cannot mirror (in practical terms of time, consistency and quality) what is possible on streets. This reflects the physical characteristics of sidewalks (limited width and lack of direct drainage), effects of pedestrian traffic versus vehicles, and limitations of sidewalk equipment. Service expectations need to be tempered; severity of weather is a much more determinant of sidewalk conditions.

Storm severity, temperature fluctuations, localized conditions and successive storms will limit or prevent attainment of our stated objectives for both streets and sidewalks.

### **Outcomes From 2017-2018 Season**

The winter season for 2017-2018 brought 6 recordable storm events to our City. The review of the data collected during this season is as follows:

Storm severity index is the measure of how impactful the particular storm event was on our community. The Storm Severity Index is a scale for 0 to 100 and incorporates variable such as accumulation, type of precipitation, temperature fluctuations and wind speed. The average Storm Severity Index for 2017-2018

was 46. Many of the storms involved changing precipitation and large temperature fluctuations.

The service level measures were met 87% of the time for streets and 81% of the time for sidewalks. This is due to the fluctuating temperature and mix precipitation that the region received last season. The wet damp conditions that were present combined with deep freeze temperature drops were ideal for ice buildup on both our streets and sidewalks. This affected our ability to maintain our infrastructure within our outlined time lines.

### **Winter Asphalt Maintenance**

With a winter season with fluctuating temperatures brings cycles of freeze and thaw for our road base. This impacts not only the road surface with an increase in pot holes but also the underground infrastructure, specifically water breaks.

During the winter the City purchased approximately 250 tons of cold mix asphalt for maintenance of pot holes and utility cuts. This included approximately 630 potholes and approximately 54 utility cut of varying sizes.

### **Snow Removal**

Snow and ice removal operations involve a combination of internal and contracted resources to remove (truck away) accumulated snow from the street rights-of-way. The City removed 76 loads for the South Central Peninsula during this winter season. This number is low due to the scale of the snow event the region had in conjunction with the mild temperatures that facilitated significant melting.

### **Parking Bans**

The City has 2 different parking bans during the winter season; The South Central Peninsula (SCP) parking ban and the North East West (NEW) parking ban. The Motor Vehicle Act permits the municipality to prohibit on-street parking without a traffic control device (sign), providing the restriction is for purposes of winter snow control and does not extend beyond the midnight to 7 am time period. Parking Bans are declared for the safe operation of snow clearing in various parts of the City. There were 2 SCP parking bans call last season and no NEW parking bans. There were 194 parking tickets issued and 12 cars towed.

### **Inventory Adjustment**

There were two adjustments to the streets and sidewalks serviceable inventory during this season. Staff added a section of sidewalk the Coast Gard parking lot to Market Square. Birch Hill Lane was removed for the serviceable streets list as it was a private road that was receiving service in error.

## **New Department Led Initiatives**

### **Brine Usage**

The City purchased two brine plants in 2015 and adjusted the specifications for plow equipment to ensure that all newly purchased equipment is coming brine ready. The objective of brine is to reduce overall salt consumption while sustaining a high level of service.

Straight salt is only effective until -7 to -10 degrees C. Straight Brine Freezes at -21 degrees C and when applied to salt, called pre-wetting, it becomes effective until -15 degrees C. Pre-wetting helps keep 80% of salt on the road as it tends to make the salt sticky and thus when applied to the road surface it stays in place rather than bouncing off to the edge of the road.

Anti-icing is the process of applying liquid brine directly to the road surface. This application can be done up to 48 hours prior to an upcoming storm event. As the liquid brine dries it crystalizes on the road surface. The moisture from a storm event reactivates the brine and prevents snow and ice from sticking to the road surface and thus reduces anchor ice and starts melting snow and ice on contact. The City currently has one Anti-icing truck in its fleet. We have ordered two of our new tandem plow trucks with the capability of performing anti-icing.

### **Live Edge technology**

The blades of a live edge plow follow the curvature and contour of the roads and allows for up to 60% more material to be scrapped from the surface thus leaving less snow and ice to be treated with de-icing materials. The use of Live Edge plows should reduce plow maintenance costs, and salt and sand consumption required to meet our service levels.

## **Citizen Education, Engagement & Customer Service**

The significant changes to the Winter Management Plan in 2009 were followed by a number of 'Open Houses' for the public to learn of the new service levels and priorities. Since the original plan was adopted by Common Council in 2009, any required annual updates, such as changes to priorities, sidewalks serviced, etc., have been reported to Council. In more recent years, there have not been any significant changes to the plan that require Council approval.

Due to a number of inquiries about service level standards in recent weeks, staff feel there is sufficient need for an annual presentation to Council on the Winter Management Plan at the start of each winter season. This will be done in conjunction with the City's annual media session organized to help remind citizens of the Plan and ensure that current service standards and public expectations are aligned.

Since the introduction of the Winter Management Plan, the City has carried out substantial public awareness campaigns to educate citizens on details of the plan. The campaigns have included web and social media content, signage, radio and print ads, direct mail pieces, news releases, and other public notifications. The communications material has provided information on alternate side parking and on-street rules, overnight parking bans, maps and listings of priority streets and sidewalks, and other details of the Winter Management Plan. The plan is available on the City's website. Staff continue to work on various other education materials, including infographics and interactive maps, to enhance citizen awareness and understanding.

Specific inquiries from citizens, or work requests related to winter operations, can be directed to our customer service team at 658-4455. Calls are answered 24/7 and customer service staff are able to communicate any service requests to management or frontline staff as appropriate.

#### ***STRATEGIC ALIGNMENT***

This report aligns with Council's priority for valued service delivery

#### ***SERVICE AND FINANCIAL OUTCOMES***

N/A

#### ***INPUT FROM OTHER SERVICE AREAS AND STAKEHOLDERS***

N/A

#### ***ATTACHMENTS***

Winter Management Plan