

Background

In March 2018, the Operations Committee was presented with a report entitled "[Winter Control Operations Update for December 2017](#)". This report provided the Committee with financial results of the 2017 winter control season. During the presentation, members of the Operations Committee asked staff questions regarding the relative efficiency of services delivered with internal resources compared to services delivered by contracted (i.e. private sector) resources. Ultimately, the Committee passed resolution OP2018-07, directing staff to report back to Council with analysis and, potentially a business case, to adjust resources so that an appropriate balance of in-house and contracted resources are available to meet Council's desired service levels for both summer and winter road maintenance services.

As per the Operations Committee resolution staff returned to Council in September 2018 with a report titled "[Overview and Analysis of Approach to Roads and Distribution & Collection Maintenance Services](#)" which provided an overview of current maintenance services for roads and distribution and collection infrastructure. The report concludes with a description of opportunities and next steps for a detailed review of these services that will inform choices about the extent to which the service levels should be provided by in-house or contracted resources. Furthermore, the future contracting in initiatives detailed within this report align with the objective to analyze the potential for service changes which is contained within the Next Steps section of the "[Core Service Review Phase 1](#)" report presented to Council September 24, 2019 (a copy of the report and service level profiles for Roads/D&C, Appendix B - pages 88 to 92 are attached).

The areas identified for future investigation within this report includes;

1. Contracting in a higher proportion of winter snow plowing services;
2. Investigating opportunities to complete a portion of spring street sweeping using internal resources;
3. Contracting in more excavation and road restoration work (i.e. temporary asphalt patches for watermain breaks) associated with distribution and collection reactive maintenance activities;
4. Continuing to evaluate the existing approach to addressing reactive maintenance needs in distribution and collection; and
5. Evaluating our existing maintenance vehicle fleet to ensure it is optimized to meet core service obligations.

The data contained herein provides an update on how we have progressed on these initiatives to date with details on what staff will be studying in the coming months

Contracting In Initiatives to Date

As part of the 2019 collective bargaining agreement staff were able to negotiate shift schedules for both Roads Maintenance and Distribution and Collection Maintenance. The schedules allow for a limited number of work crews to work a seven day work schedule rather than five day work schedule we had previously. The crews will allow us to have first response maintenance services available each day.

In Roads Maintenance, we will have six maintenance crews available during the winter control period (November – April) on the new seven day work schedule. This approach will allow us to better respond to emerging issues as well as provide consistent plowing/sanding/salting services with internal staff. Furthermore, these crews will be able to provide our community with other general winter maintenance services such as snow removal, pothole patching and drainage issues to name a few. One of the impacts of having staff available seven days a week is it will allow us to avoid excessive overtime and the use of Contractors. To date, we have completed hiring our new staff and are in the final preparations of winter control services.

In Distribution and Collection, we will have four maintenance crews available twelve months a year on a new seven day work schedule. Having these crews available on this schedule will ensure we have at least one crew available seven days a week to perform emergency watermain repairs as well as other routine maintenance tasks. The result of having the additional labour is that we will eliminate the need for some contract services and will now have the ability to review and establish a more fulsome preventative maintenance program for both our water and sewer pipes and appurtenances. This initiative has helped us address reactive maintenance needs in the distribution and collection maintenance area which was identified in item 4 in the Opportunities and Next Steps section of the September 2018 Council Report (Overview and Analysis of Approach to Roads and Distribution & Collection Maintenance Services). We are currently in the planning stages of hiring the additional staff necessary to fulfill our new schedule. Over the coming weeks we plan on meeting with Union executive of CUPE 4705, Outside and commencing work on hiring the first response crews.

Future Contracting In Initiatives

Over the coming months staff will commence work on the preparation of business cases on services that currently rely on Contractors to provide all or part of them. We have chosen four areas where staff feels the greatest opportunity exist to consider delivering the services with internal staff rather than Contractors. In determining whether a maintenance activity will be more efficiently and effectively delivered using

internal resources or contracted/purchased services requires careful consideration and a balance of a variety of factors:

1. The availability and expected utilization of specialized skills. One of the primary factors in this decision-making process is the capacity and availability of specialized or skilled labour within the existing internal employee pool. Skilled trades' people provide valuable services for specific maintenance activities; however it is not always feasible or necessary to retain these specialized staff as full-time employees. It can be a much more cost-effective approach to contract or purchase skilled trades services, as required to complete maintenance activities. By procuring external specialized services, the contracted service employees come highly skilled and trained to complete the task required, reducing the need to undertake extensive training activities internally.

2. The availability and need for specialized equipment. In addition, contracting for specialized skills means these individuals typically own or have access to the proper specialized equipment required to complete the task, again potentially realizing a cost-savings to the municipality from having to purchase specialized equipment which may only be used on a small number of occasions.

3. The consistency and volume of work. An additional factor to consider in deciding whether or not to contract/purchase equipment or services is whether the City's existing staff capacity and availability is sufficient to be able to meet the needs of reactive maintenance activities. Contractors are often able to provide "on-demand" services and work well within tight response timelines, whereas limitations on number of consecutive hours worked for internal staff as outlined in the Collective Bargaining Agreement, for example, may pose a challenge to the City being able to address a time-sensitive emergency effectively. In this regard, the use of contractors may also help to reduce the burden on internal staff, allowing them instead to focus on delivering long-term, preventative maintenance activities, rather than on short-term reactive work.

4. The risk and consequence of service interruptions. Maintaining a mix of in-house and contracted resources helps minimize the risk and consequence of service interruptions. When staff become unavailable for a variety of reasons, or when operating conditions create peak demands, contracted resources help ensure services continue to be provided.

Based on the factors noted above staff have selected the following four services to review.

1. Temporary Asphalt Repairs for Distribution & Collection Excavations

Description

The Distribution and Collection section of the Linear Infrastructure Services Division undertakes approximately 500 excavations per year for planned and reactive maintenance including watermain breaks, curb box repairs, water service leaks, and sanitary sewer lateral and main repairs. These repairs are undertaken 365 days a year on a 24/7 basis as required. When an excavation is completed outside of construction season, a temporary repair to the roadway is required in order to allow full driving access for the remainder of the season. These temporary repairs are required to be maintained throughout the winter until a permanent repair can be carried out during the spring/summer construction season. The annual budget for Distribution and Collection road and property restoration is \$1.2 million of which, approximately 15% is allotted to temporary asphalt repairs.

Current Service Level

Upon completion of an excavation on Class 4-6 roads city operations crews backfill to surface with granulars and place the location on a list for Construction Services to access and provide to a contractor. The contractor then has 72 hours to attend the location and temporarily repair the asphalt with cold mix. On Class 1-3 roads city operations crews backfill to surface with granulars and place cold mix asphalt at the location before placing it on a list for Construction Services to access and provide to a contractor. The contractor then has 24 hours to attend the location and begin any maintenance that is required until paving warm mix is undertaken at the location within 2 weeks of the excavation. These locations are then continuously monitored for settlement and/or deterioration and topped up as required by the contractor.

Drivers for Proposed Course of Action

Currently, the City relies solely upon contractors to monitor and maintain these patches and due to this, when a patch is in need of significant maintenance in order to protect the integrity of the roadway, it is sometimes challenging to get the issue resolved in a timely fashion. This can lead to dissatisfied motorists and, in extreme cases, damage to vehicles.

In order to ensure service levels are being met, the contractor is required to react quickly to all patch deficiencies which could mean working on evenings and weekends. This requirement for response comes at a premium cost to the City. With increased shift flexibility for city staff within Linear Infrastructure Services, there will be available staff on straight time for a majority of this work and stand-by crews available outside of regular shifts if necessary. This is contemplated to be a significant cost savings.

There is also a potential that the City will see an added benefit to increasing staff operations hours in order to undertake this work as there may be more available hours to increase preventative maintenance activities within the Linear Infrastructure Services division. Additional staffing could be utilized to undertake such activities as pothole patching, manhole inspections, snow plowing, and street sweeping when they are not required to undertake temporary asphalt repairs.

Overall, contracting in more work is anticipated to provide the public with significantly higher quality service. Undertaking temporary asphalt repairs with city staff will allow for more city control over patch maintenance, a more organized and efficient approach to maintenance, and more timely reactions to urgent maintenance requirements. This is anticipated to significantly increase resident satisfaction and has the potential to result in cost savings.

Next Steps

A detailed analysis must be undertaken to determine the specific requirements for additional equipment and staffing hours to undertake temporary asphalt repairs with internal forces. Once the volume of work is understood, staff will analyze the best approach to staffing for this initiative whether it be with full-time, part-time, or temporary employees or a combination of the aforementioned.

Risks/Challenges

Additional staff and equipment would be required to undertake this work. This could mean that the City would be required to purchase equipment which could sit idle during certain periods of time when no work is required to be done. There is also a potential for surplus staff time when no temporary restorations are required to be completed but this time is contemplated to be utilized to supplement the existing preventative maintenance program.

The recommended solution could include temporary or part-time staffing to undertake this work which could run the risk of the City not retaining appropriate, qualified staffing. If there were to be a problem with retention, it has the potential to take away from other preventative maintenance activities or see the temporary asphalt repairs not being completed in a timely fashion.

2. Permanent Restoration of Distribution & Collection Excavations

Description

The Distribution and Collection section of the Linear Infrastructure Services Division undertakes approximately 500 excavations per year for planned and reactive maintenance including watermain breaks, curb box repairs, water service leaks, and sanitary sewer lateral and main repairs. These repairs are undertaken 365 days a year on a 24/7 basis as required and are required to be fully restored during the following spring/summer construction season. Such restoration is contemplated to include curb, sidewalk, asphalt, sod, and driveways. The annual budget for Distribution and Collection property and road restoration is \$1.2 million of which, approximately 85% is allotted to permanent restoration of property and roadways.

Current Service Level

A contractor undertakes all permanent restoration of Distribution and Collection excavations on an annual basis. The contractor is responsible to complete all restoration work for all locations by the end of each construction season.

Drivers for Proposed Course of Action

Currently, the City relies solely upon contractors to complete permanent restoration on Distribution and Collection excavations. Historically, there have been significant issues with getting the contractor to complete this work in a timely fashion and prioritize appropriately. Specifically, with an inability to control the contractor's work plan, often sod work is completed last leaving many residents dissatisfied with the fact that their yard goes unrestored through the majority of the spring/summer months. The City currently receives approximately 170 calls annually from residents with requests/inquiries relating to property and road restoration, this initiative is anticipated to significantly decrease these calls.

Many of the restoration activities such as sod, fence and retaining wall repairs, and tree planting are outside of the prime contractor's specific expertise. Due to this, they tend to hire subcontractors to complete this work which leads to significant price implications. Undertaking this work with internal forces is anticipated to result in significant cost savings.

There is also a potential that the City will see an added benefit to increasing staff operations hours in order to undertake this work as there will be more available hours to increase preventative maintenance activities within the Linear Infrastructure Services division. Additional staffing could be utilized to undertake such activities as pothole patching, manhole inspections, snow plowing, and street sweeping when they are not required to undertake temporary asphalt repairs.

Overall, contracting in more work is anticipated to provide the public with significantly higher quality service. Undertaking some permanent restoration activities with city staff will allow for more city control over schedule for permanent restorations, a more organized and efficient approach to undertaking these restorations, and more timely reactions to resident concerns. This is anticipated to significantly increase resident satisfaction and decrease costs.

Next Steps

Staff must fully analyze all permanent restoration activities and determine which activities are feasible and appropriate to be done internally by city staff. Once this is completed, a detailed analysis must be undertaken to determine the specific requirements for additional equipment and staffing hours to undertake these activities with internal forces. Upon understanding the volume of work, staff will analyze the best approach to staffing for this initiative whether it be with full-time, part-time, or temporary employees or a combination of the aforementioned.

Risks/Challenges

Some aspects of permanent restorations require specialized skills and equipment to undertake the work. This will lead to a hybrid approach where city forces undertake such restoration activities as sod, fences, retaining walls, hand laid asphalt patches, and hand laid concrete curb and sidewalk while a contractor would undertake larger spreader laid patches and curb and sidewalk patches. In order to implement this, significant co-ordination would be required between city and contract forces in order to effectively and efficiently complete the work.

Additional staff and equipment would be required to undertake this work which could mean that the City would be required to purchase equipment that could sit idle through the winter months. There is also a potential for surplus staff time when no permanent restorations are required by internal forces but this time is contemplated to be utilized to supplement the existing preventative maintenance program.

The recommended solution could include temporary or part-time staffing to undertake this work which could run the risk of the City not retaining appropriate, qualified staffing. If there were to be a problem with retention, it has the potential to take away from other preventative maintenance activities or see the permanent restoration activities not being completed in a timely fashion.

3. Spring Clean Up – Street Sweeping

Description

Street sweeping operations makes up part of the Roads Operations spring clean-up and is considered to be part of winter maintenance activities. Sweeping begins as soon as possible in the spring time once snow banks have melted and nighttime temperatures reach consistently above freezing.

Sweeping operations are initially focused on environmentally sensitive areas such as Ramsey Lake, downtown centres, as well as marathon routes. Historically the Sudbury Rocks Marathon has been the second Sunday of May and a main priority for street sweeping. Recently other, early Spring community events have been added as priority.

Typically, a Contractor is hired to sweep the majority of the curbed streets throughout the City. Initially, City crews sweep the sand from the sidewalks and boulevards into the curb along the roadway. The Contractor then sweeps the sand from the roadway into the curb and then utilizes a specialized piece of equipment to pick up the sand from the curb line. Currently City crews are sweeping all sidewalks, a small percentage of curbed streets and all curbless streets.

Current Service Level

Street Sweeping Operations can start as early as the middle of March or as late as the end of April and typically takes 6-10 weeks to complete the majority of the roads and sidewalk throughout the City. The amount of sand used throughout the winter can impact street sweeping productivity and the type of winter dictates sand usage. The City uses somewhere between 60,000 and 85,000 tonnes of sand per year. This means that the sand volume fluctuates by up to 50% year to year.

The Contractor is currently responsible for sweeping 795 km's or 78% of the curbed roads throughout the City. The Contractor runs a 24hr/7day a week operation, or 2 crews to complete all major arterial roads and completes the remainder of the roads with a 12hr/7day a week operation, or 1 crew. The Contractors program typically takes 6 weeks to complete.

City crews are responsible to sweep 215 km's or 22% of the curbed roads throughout the City, 440km's of sidewalk and all of the City's curbless road network. City crews normally operate in 3 shifts each day, with multiple crews each shift, working throughout the City 5 days a week. The City's program typically takes 6-10 weeks to complete.

Drivers for Proposed Course of Action

With the current program, each maintenance section start their sweeping program as soon as possible in the springtime so City crews are actively working throughout the City during the entire sweeping program. The Contractor starts sweeping in one area of the City and progressively works from one community to the next throughout the City. This can result in some parts of a community swept well in advance of other parts or one entire community swept, well in advance of another. This generates confusion among residents as well dissatisfaction of their current service level.

As well, many municipalities require this service largely at the same time of the year. This can make it difficult to ensure a timely start of the Contractor's program.

Next Steps

To evaluate the current program structure focusing on the evaluation of distribution of sweeping routes completed by City crews and Contractor crews with emphasis on schedule cohesiveness and appropriate equipment requirements. The Contractor currently uses specialized equipment not owned by the City to complete the majority of the curbed roadways throughout the City. The cost of owning this specialized equipment to complete more sweeping internally, with cost of equipment and labour, and possible additional training can be reviewed.

Risks and Challenges

The current program is structured so that the City hires a Contractor to perform the majority of the work requiring the highly specialized equipment. If owned, this equipment cannot be repurposed for other activities and is only required for 6-10 weeks once a year. If utilizing existing staff to operate this specialized equipment, this has the potential to take away from other maintenance activities such as potholes repairs.

4. Snow Plowing

Description

Snow plowing operations is the major component of the Roads Operations winter maintenance program. Crews start preparation for winter activities in the fall. Some examples of these activities include ensuring winter sand and salt deliveries to the depots and transitioning equipment from summer maintenance requirements to winter maintenance requirements

Throughout the winter months, when it's not snowing, crews are actively working on other maintenance activities. Some examples of these activities include snow removal at intersections, winter ditching pothole patching, sanding sidewalks and local roads and monitoring road conditions throughout the City.

City hired Contractors are required to be available from November 15 to March 31 annually to supplement snowplowing operations during winter storms. Contractors are obligated to ensure timely deployment. To do this, the required number of plow trucks are stationed each City depot.

Current Service Level

City crews sand or salt all arterials and major collector roads when it starts to snow. These routes are designed to be completed within 2-4 hours of the storm beginning. Once snow accumulation has reached 5cm (2"), crews begin plowing all arterials and major collector roads. These routes are designed to be completed within 3-8 hours once a storm has ended.

Full deployment of City and Contractor crews occurs when snow accumulation reaches 8cm (3"). At this stage of a winter event, City crews continue to plow all arterials and major collector roads. Contractor and supplemental city crews begin plowing and sanding residential and rural roads for the duration of the storm. These routes are designed to be complete within 8-24hrs once a typical storm has ended. The Contractor equipment completing these routes includes multi-use plow trucks, graders and 4x4 trucks depending on route requirements.

Bus stops are cleared by Contractor crews within a day or two of the end of the storm and sidewalks are sanded and plowed by City crews within 24hrs of the storm being completed

Drivers for Proposed Course of Action

Winter has been starting early and lasting into the spring months. The average snow accumulation through the winter months has increased in the last few years. With more extreme weather conditions, including freezing rain events, extreme low temperatures and high number of freeze thaw conditions, the City has consistently been over spending the winter maintenance budget to maintain service level. An increase in call volume to 311, specifically relating to plowing and snow removal concerns demonstrates that residents are unsatisfied with the level of service that they are receiving considering the changing weather implications.

Next Steps

To evaluate the current program for efficiencies and cost saving measures.

For example, the City currently owns 5 graders. These graders are mainly utilized for summer maintenance and are used as spare units when required in the winter to supplement a plowing route, as well as for ice blading residential roads. Ice blading is a requirement when there is reoccurring freeze thaw conditions and severe rutting occurs. A contemplated option could be to complete Contractor routes that utilize a

grader with City crews and City owned graders with cost of labour, and possible additional training to be reviewed.

Risks and Challenges

Contract requirements state that all Contractor crews must deploy within a certain timeframe at the beginning of a storm. For equipment such as graders, Contractors typically maintain their equipment near the plowing route. A City Grader would deploy from a City depot. The additional time it takes for this equipment to begin plowing its designated route will increase the risk of not meeting the service level target for that route.

Also, if Contractors are not contracted to provide graders for plowing through the winter months, Contractors may not be able to provide the equipment on an as needed basis. This type of equipment is typically winterized and would be unavailable in short notice.

This initiative would also require additional staff and additional training needs.

Resources Cited:

Winter Control Operations Update for December 2017, presented to Operations Committee on March 19, 2018.

<https://agendasonline.greatersudbury.ca/index.cfm?pg=agenda&action=navigator&lang=en&id=1253&itemid=14744>

Overview and Analysis of Approach to Roads and Distribution & Collection Maintenance Services, presented to City Council on September 25, 2018.

<https://agendasonline.greatersudbury.ca/?pg=agenda&action=navigator&lang=en&id=1247&itemid=15615>

Core Service Review Phase 1, presented to City Council on September 24, 2019.

<http://agendasonline.greatersudbury.ca/?pg=agenda&action=navigator&lang=en&id=1329&itemid=17502>