1. REVIEW OF WINTER OPERATIONS ON ROADWAYS

EXAMEN DES OPÉRATIONS HIVERNALES CONCERNANT LES ROUTES

COMMITTEE RECOMMENDATIONS, AS AMENDED

That Council approve $3.2 Million net in cost containment strategies and operational adjustments as outlined in this report, including:

a) Establishing a tiered response approach that adjusts the ratio of internal and contracted services (anticipated operating savings of $1.5 Million);

b) Adjusting salting and plowing routes to meet Maintenance Quality Standards (anticipated operating savings of $1.2 Million);

c) Delegating the authority to Public Works and Emergency and Protective Services staff, in consultation with Legal Services, to list on the agenda of Council any related by-laws necessary to put Council's decisions into effect.

RECOMMANDATIONS DU COMITÉ, TELLES QUE MODIFIÉES

Que le Conseil approuve la somme nette de 3,2 millions de dollars pour les stratégies de contrôle des coûts et les rajustements opérationnels, comme il est exposé dans le présent rapport, notamment :

a) la mise au point d'une approche de déploiement hiérarchisé permettant de rajuster le ratio entre effectifs internes et services sous-traités (économies opérationnelles escomptées de 1,5 million de dollars);

b) l'ajustement des trajets d'épandage du sel et de déneigement pour respecter les Normes de qualité de l'entretien (économies opérationnelles escomptées de 1,2 million de dollars);

c) la délégation au personnel du Service des travaux publics et des Services de protection et d'urgence, en consultation avec les Services juridiques, du pouvoir d'ajouter à l'ordre du jour du Conseil tout règlement connexe nécessaire à la mise en œuvre des décisions du Conseil.

DOCUMENTATION / DOCUMENTATION

1. Acting Deputy City Manager, City Operations report dated 29 June 2016 (ACS2016-COS-PWS-0026).

   Rapport de la directrice municipale adjointe par intérim, Opérations muncipales daté le 29 juin 2016 (ACS2016-COS-PWS-0026).

2. Extract of Draft Minutes 16, Transportation Committee, 6 July 2016.

   Extrait de l'ébauche du procès-verbal 16 du Comité des transports, le 6 juillet 2016.

Report to
Rapport au:

Transportation Committee
Comité des transports
6 July 2016 / 6 juillet 2016

and Council
et au Conseil
13 July 2016 / 13 juillet 2016

Submitted on June 29, 2016
Soumis le 29 juin 2016

Submitted by
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Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE

File Number: ACS2016-COS-PWS-0026

SUBJECT: Review of Winter Operations on Roadways

OBJET: Examen des opérations hivernales concernant les routes

REPORT RECOMMENDATIONS

That the Transportation Committee recommend that Council approve $3.2 Million net in cost containment strategies and operational adjustments as outlined in this report, including:

a) Establishing a tiered response approach that adjusts the ratio of internal and contracted services (anticipated operating savings of $1.5 Million);

b) Adjusting salting and plowing routes to meet Maintenance Quality Standards (anticipated operating savings of $1.2 Million);

c) Amending the Maintenance Quality Standards for Roads to increase the minimum depth of snow accumulation for deployment of resources from 7cm to 10cm for Class 5 roads (residential roadways and lanes) (anticipated operating savings of $1 Million), including:

i. Approving the reinvestment of $0.5 Million of the operational savings in subsequent annual budgets to decrease the length of time it takes to complete residential roadway plowing operations;

ii. Amending the Winter Overnight Parking Ban such that the ban will be in effect when there is a 10 cm snowfall or a range that includes 10 cm is forecast; and,

d) Delegating the authority to Public Works and Emergency and Protective Services staff, in consultation with Legal Services, to list on the agenda of Council any related by-laws necessary to put Council's decisions into effect.

RECOMMANDATIONS DU RAPPORT

Que le Comité des transports recommande au Conseil d'approuver la somme nette de 3,2 millions de dollars pour les stratégies de contrôle des coûts et les rajustements opérationnels, comme il est exposé dans le présent rapport, notamment :

d) la mise au point d'une approche de déploiement hiérarchisé permettant de rajuster le ratio entre effectifs internes et services sous-traités (économies opérationnelles escomptées de 1,5 million de dollars);

e) l'ajustement des trajets d'épandage du sel et de déneigement pour respecter les Normes de qualité de l'entretien (économies opérationnelles escomptées de 1,2 million de dollars);

f) la modification des Normes de qualité de l'entretien pour les routes afin d'accroître la quantité minimale de précipitations de neige pour le déploiement des ressources pour la porter de 7 cm à 10 cm sur les routes de la catégorie 5 (rues et voies résidentielles) (économies opérationnelles escomptées de 1 million de dollars), y compris :

i. l'approbation du réinvestissement d'une tranche de 500 k$ de ces économies opérationnelles dans les budgets annuels subséquents afin de réduire le délai nécessaire pour mener à terme les opérations de déneigement des rues résidentielles;

ii. la modification de l'Interdiction de stationner dans les rues la nuit en hiver de façon à ce que l'Interdiction soit en vigueur seulement lorsqu'une chute de neige de 10 cm ou une chute de neige approximative incluant le seuil de 10 cm est prévue;

g) la délégation au personnel du Service des travaux publics et des Services de protection et d'urgence, en consultation avec les Services juridiques, du pouvoir d'ajouter à l'ordre du jour du Conseil tout règlement connexe nécessaire à la mise en œuvre des décisions du Conseil.

EXECUTIVE SUMMARY

The City of Ottawa operates and maintains a large and complex transportation network. During the winter months, snow and ice control services are deployed along the transportation network as per the Council-approved Maintenance Quality Standards. As a result of growth in Ottawa's population and lane kilometers of roadway, as well as variable weather conditions, the City's winter operations has experienced deficits in its winter operations budget for the past four years.

Assumptions and Analysis

In order to ensure the City's winter operations expenditures better reflect its allocated budget, the Public Works Department embarked upon a Winter Operations Review to determine both cost containment strategies and operational adjustments to ensure it

provides efficient services in the most cost effective manner. To complete this review, the City undertook both an internal review as well as an independent review conducted by KPMG. The internal review focused on operational adjustments that could be made without impacting levels of service while the independent review looked at the potential for service level changes and major operational adjustments. Where the KPMG review identified options that were not operationally feasible, the internal review offered alternate solutions that could be implemented within the City.

Financial Implications

The findings of both reviews determined recommendations for cost containment and service adjustments between 2016 and 2018 that will result in $6.4M in savings ($5.9M net in savings). Council approved $2.7M of efficiency savings without impacting levels of service as part of the 2016 budget. This report recommends $3.7M in service adjustments including a true efficiency of $1.5M; a minor beat adjustment to meet existing Maintenance Quality Standards (MQS) resulting in savings of $1.2M; and, a modest adjustment to the MQS to yield an additional $1M in savings as outlined in this report. The report further recommends that $0.5M be reinvested into the Winter Operations budget to reduce the time it takes to complete residential roadway plowing.

Subject to Council approval of the adjustment to the MQS, the report also recommends an amendment to the Winter Overnight Parking Ban such that the ban will be in effect when there is a 10 cm snowfall or a range that includes 10 cm. This change will require the approval of delegating the authority to Public Works and Emergency and Protective Services staff, in consultation with Legal Services, to list on the agenda of Council any related by-laws necessary to put Council's decisions into effect.

Subject to Council approval of the report recommendations, all savings will be achieved by the end of 2018.

BACKGROUND

The city of Ottawa is the fourth largest city in Canada and the second largest city in Ontario with a population of over 950,000. At 2,790 km^2, Ottawa is half the size of the province of Prince Edward Island and is larger than Toronto, Montreal, Vancouver, Edmonton, and Calgary combined.

Ottawa spans over 90 km from west to east and has one of the largest municipal transportation networks in Canada consisting of the following:

- 5,705 km of roads
- 2,233 km of sidewalks
- 40 km of winter maintained cycling lanes
- 233 km of dedicated Transitway and Highway 174
- 7,500 parking spaces
- 15 Park and Ride lots

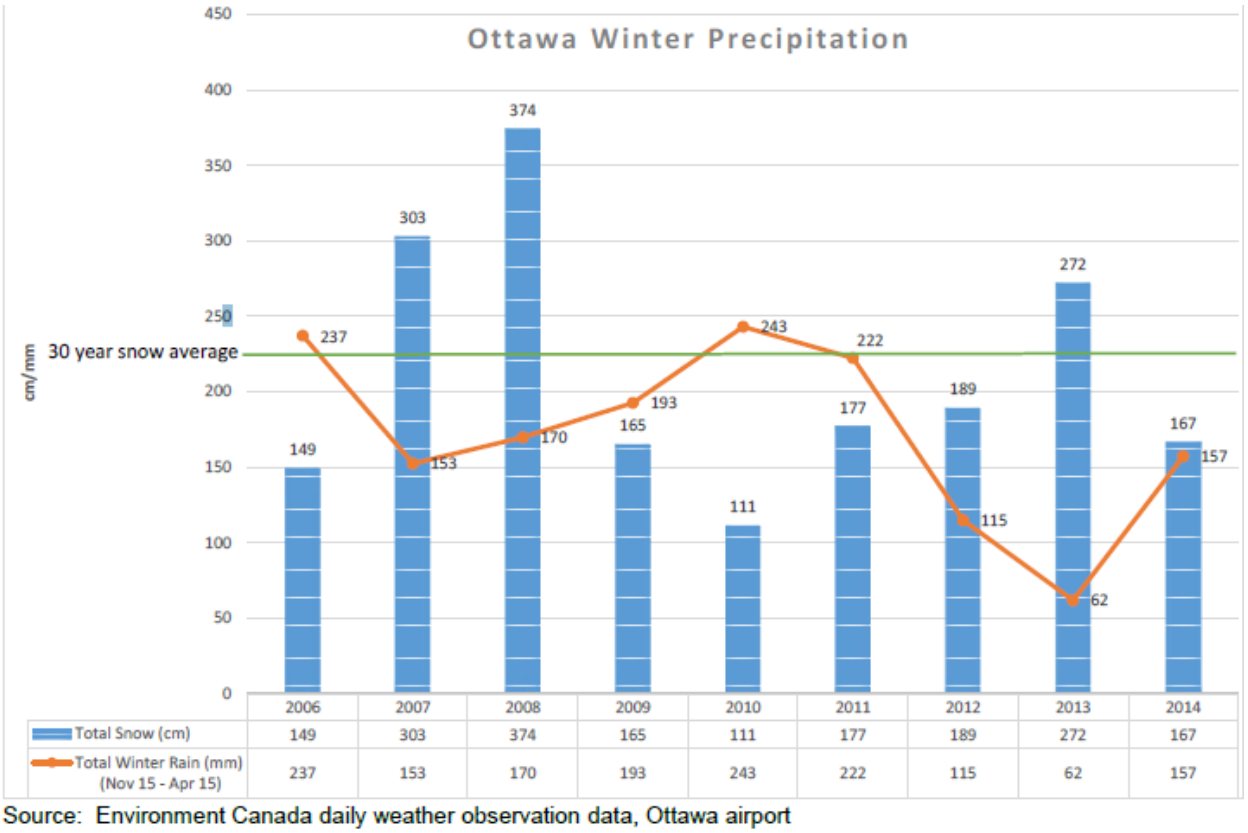
Ottawa's roadway distances are equivalent to a two-lane road from Halifax to Vancouver, and its sidewalk distances are the equivalent of a trip from Ottawa City Hall to Tampa Bay, Florida.

This complex transportation system is bounded within an urban area surrounded by a heavily populated and growing suburban community with an extensive rural countryside.

Winter in the City of Ottawa

Situated in the lower Ottawa Valley, the city experiences high levels of variability from year-to-year with respect to snowfall and winter rainfall amounts. As noted in Table 1 – Ottawa Winter Precipitation (2006-2014), Ottawa averages 223 cm of snow per year (30 year average) based on Environment Canada's daily weather observation data taken from the McDonald-Cartier International Airport.

Figure 1 - Ottawa Winter Precipitation



Source: Environment Canada daily weather observation data, Ottawa airport

This is more snow than most other major Canadian cities as summarized in Table 2 below.

Figure 2 - Summary of Average Snowfall Amounts for Other Major Metropolitan Centres

City	Average Snowfall Amount
Toronto	121 cm
Calgary	129 cm
Edmonton	123 cm
Winnipeg	114 cm
Halifax	154 cm

City	Average Snowfall Amount
Montreal	209 cm
Ottawa	**223 cm**

Only two major Canadian cities receive more snow than Ottawa on an annual basis: Québec City, Québec and Saint John, New Brunswick, which average 303 cm and 240 cm, respectively.

The City of Ottawa's Winter Operations

Residents, businesses, visitors, and emergency services all rely on the City of Ottawa's snow and ice control services to ensure the transportation network is safe and passable during the winter months. It is the responsibility of the Roads Services Branch of the Public Works Department to provide integrated, safe, and efficient maintenance of the City's road right of way and transportation network. The Branch functions as a one-stop shop for proactive operations and maintenance of the City's streets, sidewalks, pathways, and cycling facilities on a 24/7 basis.

During the winter months, the Roads Services Branch employs several methods to reduce hazards resulting from snow and ice accumulation, including salting, gritting, plowing, and removing snow banks. These methods are deployed in varying degrees across Ottawa as the transportation demands and uses vary significantly, as do the weather patterns. In order to ensure consistency across the city, snow and ice control services are structured and delivered in accordance with the Council-approved Maintenance Quality Standards for Roads and Sidewalks (MQS).

The MQS define the desirable level of winter maintenance necessary to achieve the overall objective of safe and passable roads and sidewalks. Maintenance classifications are used to categorize roads with similar characteristics and functions into similar groups and help to prioritize the delivery of snow and ice control services, as outlined in Document 1. The maintenance classification is derived using three variables (intended use, speed, and traffic volume) and a weighted average approach (20%, 40%, 40%, respectively) that is separated into five classes: High Priority Roads (Class 1), Arterial Roads (Class 2), Major Collector Roads (Class 3), Minor Collector Roads (Class 4), and Residential Roads and Lanes (Class 5). For example, Highway 174 is considered a

Class 1 roadway as a result of its traffic volume and speed, while Hunt Club Road and Eagleson Road are considered Class 2 roads as their speed is lower than that of Highway 174.

Using the MQS, the Roads Services Branch delivers snow and ice control services from 17 locations that are managed by five area-specific organizations: West, East, South, Core, and Special Operations, which has specific responsibility for the Transitway and Highway 174.

The Branch employs approximately 614 staff during the winter season (November 15 to April 15). Work is organized into day and night shifts, Monday to Friday, with overtime required when winter events occur on weekends or extended shifts when there are major events throughout the week. On-call may be required to ensure staff are available to work overtime on weekends or before/after shifts during the week. Staff may be called in on Stand-by when a winter weather event is imminent until operations begin.

Snow and ice control services are organized into “beats” (the route taken to clear streets in a given area). Operations are classified by salt beats and plow beats, which denote the type of equipment and roadways for which the beat is responsible.

Salt Beats

There are 127 salt beats that encompass operations along the Transitway and Highway 174 as well as arterial and major and minor collector roads that are served by combined units (salters with plows) and deployed for approximately 40 to 50 events each winter. An event could include anything from freezing rain to major storms. Both day and night shifts have staff and/or contractor support to operate their salt beats.

Plow Beats

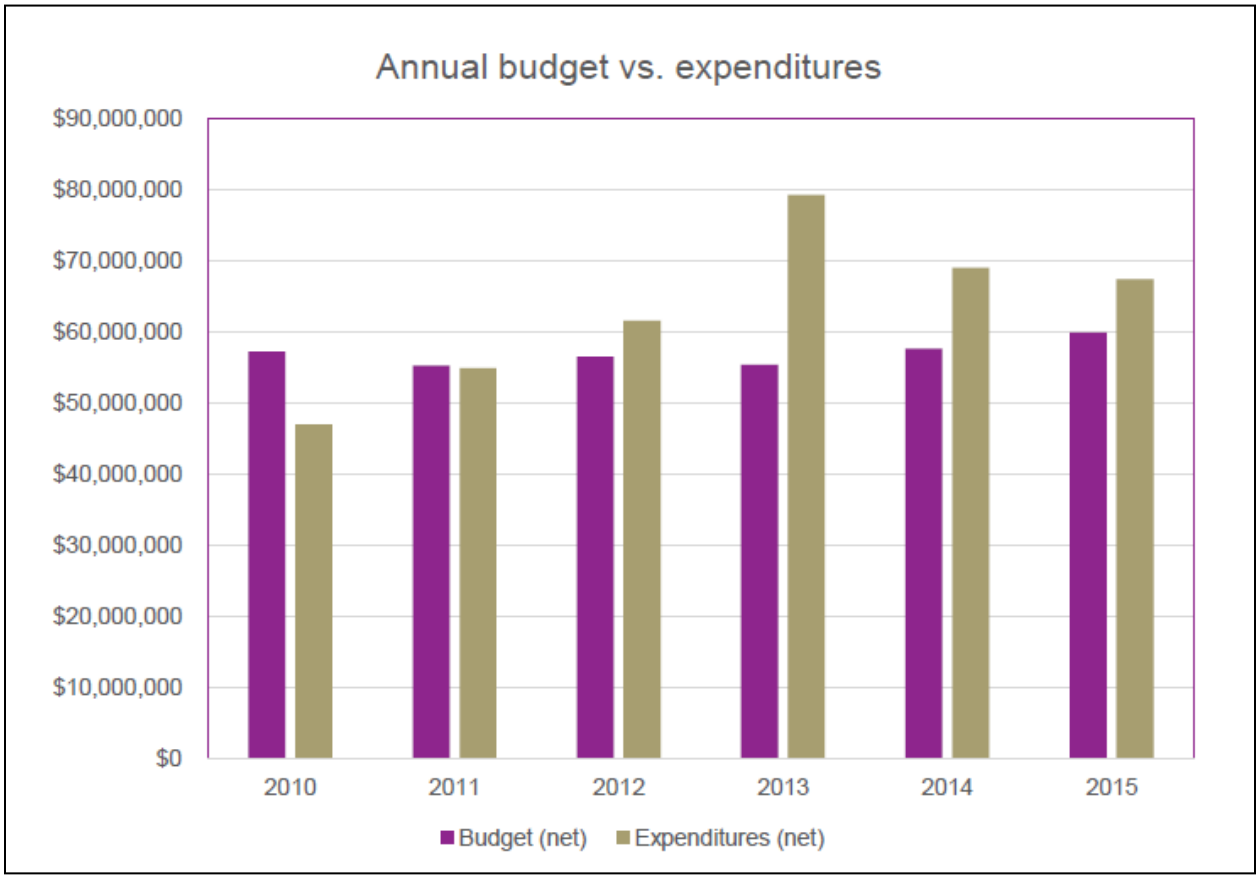
In total, there are 195 plow beats made up of residential road beats as well as tandem plow beats where equipment is used to assist combined units to plow high priority, arterial, major collector and minor collector roads during storms. The beats are serviced with equipment, such as graders, loaders and plow trucks.

In addition to the above mentioned beats, contracted services and in-house resources are utilized for 112 sidewalk beats.

The size and complexity of Ottawa's operations coupled with the variable weather conditions continuously experienced in the city have a correlating effect on the winter operations budget as harsher than normal winter weather can result in increased expenditures as the City must ensure the transportation network is safe and passable at all times.

As shown in Table 3 below, the Public Works Department has incurred deficits of $5M, $23.9M, $11.4M, and $7.5M in 2012, 2013, 2014, and 2015, respectively.

Figure 3 - Winter Operations Budget versus Expenditures (2010-2015)



Winter Operations Review

While weather variability is the largest factor influencing winter operations expenditures, the Public Works Department strives to find innovative solutions to support its operations in the most cost effective manner.

As such, in 2014, the Department committed to conducting a comprehensive internal review and analysis of its winter operations to ensure that its snow and ice control services were being delivered consistently across the City as efficiently and effectively as possible in an effort to contain costs without impacting levels of service.

The initial findings of the internal review identified opportunities to implement operational adjustments in the areas of on-call and overtime management, salt management tracking and training, snow removal standards, and plowing and salting on minor collector surface treated roads. These opportunities were presented to the Transportation Committee as part of the 2015-2016 Winter Operations Update as a means of achieving $2.7M in operational efficiencies identified in the City's 2016 budget.

In conjunction with its internal operational review, the Public Works Department retained the services of KPMG to conduct an independent review of the City snow and ice control services. KPMG assessed the City's current service levels and service delivery model with a specific view to identify cost containment strategies and opportunities to achieve further operational efficiencies.

As part of the 2016 budget process, Council approved the implementation of a corporate Service Review Program as outlined in the Budget Challenge and Service Reviews – Information Supplemental to the 2016 Budget Estimates report. This report included reference to seven operational reviews, including the Winter Operations Review.

While the Winter Operations Review was underway when the corporate Service Review Program was approved by Council, the review and analysis conducted by KPMG followed the prescribed principles and methodology defined within the Service Review Framework in order to achieve the overall objective specific to determining ways in which the City can deliver its programs and services in the most cost effective manner.

DISCUSSION

The Winter Operations Review conducted by KPMG included an assessment of the City's snow and ice control services for roadways in order to ensure consistent service delivery using the most cost effective approach by focusing on the following objectives:

- Review and compare current practice levels of service with the Council-approved Maintenance Quality Standards;
- Identify cost effective approaches to achieve consistent levels of service across the city; and,
- Identify potential short, mid, and long term service adjustments taking into consideration growth, statutory regulations, changing weather patterns, demographics, and specialize snow and ice control functions, such as cycling lanes.

The original scope of KPMG's review included an assessment of the City's snow and ice control services on sidewalks. After consideration of the overall goal of the review, it was determined that the focus of a review of sidewalks should first include multi-use pathways and, second, be specific to operational enhancements and determination of potential changes to the criteria used to prioritize sidewalk and pathway maintenance. Including these objectives would have significantly increased the scope of the Winter Operations Review and put in jeopardy the Department's ability to complete the review on time. As a result, the review focused on roadways only.

Furthermore, the Public Works Department was directed by the Transportation Committee at its meeting on September 2, 2015, to explore, as part of the Winter Operations Review, opportunities to partner with School Boards to coordinate winter maintenance activities. Given the revised scope to focus specifically on cost containment strategies and operational adjustments, it was determined to be premature to include coordination efforts with School Boards as part of the review.

Based on the approval of the cost containment strategies and operational adjustments identified in this report, staff will endeavor to work with School Boards once snow and ice control services on roadways have been optimized as outlined below.

Findings of KPMG Review

Analysis of Ottawa's snow and ice control services along with a review of other Canadian municipalities with similar characteristics, KPMG identified multiple findings and opportunities as outlined below:

The City of Ottawa is experiencing intensification – Ottawa's population has grown. Population estimates for 2014 show growth in the range of 7.7% over the 2011 census

data with a total population of 951,727. Over the past 5 years, the City's road network has grown by 7% and the sidewalks have grown by 11%. This equates to 390 km of new roads (equivalent to a trip from Kanata to Toronto) and 226 km of new sidewalks.

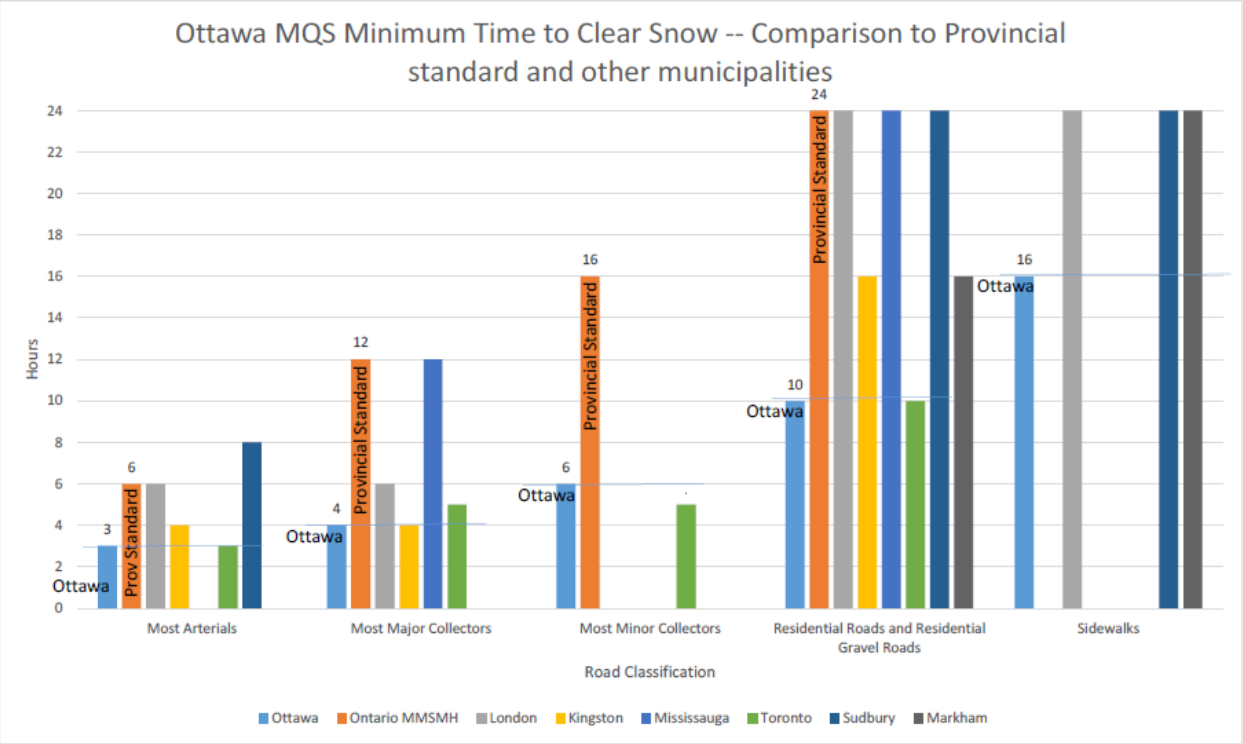
Spending has exceeded the Winter Operations budget in previous years – The 2015 budget was 4.6% higher than the budget for 2010, yet there were 7% more roads and 11% more sidewalks to maintain, and during the same period the Consumer Price Index cost have inflated by 10%. These external factors are a key reason spending has exceeded budget in recent years and outline that the budget growth has not been keeping pace.

The KPMG findings suggest the net impact is that the Roads Services budget appears to be $7.6M lower in 2015 than would be required to maintain 2010 levels of service.

Ottawa's winter operations standards (MQS) exceed Provincial standards – Ottawa's MQS requires the Department to start winter maintenance activities earlier and complete them quicker than the Province of Ontario's minimum maintenance standards.

Ottawa's standards exceed those of many comparable Canadian cities – While the service standards for Quebec City and Gatineau are comparable to Ottawa's standards, the City's MQS exceed the standards of London, Kingston, Mississauga, Toronto, Sudbury, Markham, Winnipeg, Calgary and Edmonton. Table 4 demonstrates how the City exceeds the standards of cities benchmarked by KPMG and the Provincial standards.

Figure 4 - Ottawa MQS Minimum Time to Clear Snow – Comparison to Provincial Standards and Other Municipalities



The trigger for residential road and lane plowing set by most municipalities benchmarked as part of KPMG's review is 10cm whereas Ottawa commences its residential plow operations at 7cm.

The use of contracted services is not consistently applied across the City – Ottawa uses a combination of internal staff and contracted services to deliver snow and ice control services (primarily for its plow beats). The ratio of internal staff to contracted services is 70/30. Similarly, the makeup of City owned versus contracted vehicles and equipment complements this ratio with hired equipment (contracted vehicles) making up 30 per cent of all vehicles and equipment, such as combined units, graders, loader plows, and backhoes. However, contracted services are not used consistently in each area, leading to slight differences in deployment times during winter storm events.

The City is servicing its roads at a higher level of service than those set out in the MQS – As a result of the design of existing salt and plow beats, the actual services provided by the City are carried out at a higher level of service than what is dictated in the Council-approved MQS, particularly on major collector and minor collector roads.

Generally, arterial, major collector and minor collector roads have been combined as part of the same beat resulting in the same service being applied to all three road classifications; thereby, servicing major collector and minor collector roads above the MQS.

The City's salt inventory management system is similar to that of other municipalities – Salt inventory management and reporting in Ottawa is based on procurement and year-end inventory assessments. This practice is consistent with the municipalities benchmarked by KPMG. However, none of the municipalities were able to establish an appropriate threshold to address the variance between salt purchases and salt use.

Based on these findings, KPMG identified specific adjustments to the City's current service delivery that would support the containment of costs and/or reduce costs associated with Ottawa's snow and ice control services. Some of the opportunities outlined by KPMG can be achieved within the Council-approved MQS while others would require amendments to existing standards. The complete list of KPMG's findings and opportunities is attached to this report as Document 2.

Opportunities Achieved within MQS

A total of $2.7M can be achieved through operational adjustments specific to increasing the use of contracted services through a tiered response approach to the City's service delivery model ($1.5M) and adhering to the standards set in the Council-approved MQS by reducing over-servicing on arterial and major and minor collector roads ($1.2M), as outlined below.

Furthermore, in time for the 2015-2016 winter season, the Public Works Department implemented specific operational adjustments as a means of achieving $2.7M in operational efficiencies, bringing the total savings based on operational adjustments achieved within the current Council-approved MQS to $5.4M.

Recommendation a) Tiered Response Approach ($1.5 M savings)

In response to KPMG's findings specific to the inconsistent use of contracted services across the city, the Public Works Department is proposing a tiered response approach that adjusts the ratio of internal and contracted services for winter operations.

Retaining an internal resource complement is necessary to salt all roads within three hours as prescribed in the MQS and to complete other winter maintenance duties not related to winter storm events, such as filling potholes and responding to service requests.

When both salting and plowing are required during a winter storm event, contracted services will be utilized depending on the scale of the event; hence it is referred to as a tiered response as different levels of internal and contracted services will be utilized depending on the size and scale of the winter storm event.

As an example, if salting roads is required to manage a winter storm event, but no plowing is necessary, internal resources on shift will respond. However, as soon as plowing is required, contracted services will be called in to supplement the internal resources on shift. This will ensure consistent deployment during winter events as both internal services and contracted resources will shift to plowing and salting, which generally take longer to complete. Contracted services can also be leveraged during times when staff, as per provincial regulations, are required to cease the operation of heavy vehicles and equipment for mandated breaks.

The proof of concept for the proposed tiered response approach has already been implemented in the Rideau Valley Zone of the South Roads Area. Consistent with the scenarios noted above, when there is a need for salt application, in-house staff and equipment are deployed within the MQS; when plowing is required, contracted services are called in to ensure that the standards for plowing are also achieved.

Increasing contracted services, and the resulting reductions in City-owned vehicles and equipment, would achieve estimated savings of $1.5M without impacting service levels.

Recommendation b) - Beat Optimization ($1.2M savings)

As outlined in KPMG's analysis and findings, the City is over-servicing above the MQS, particularly on major and minor collector roads. This is a result of the current beat structure which, in some cases, combines arterial, major collector and minor collector

roads into the same beat. As a result, they are often treated the same using the same combined unit and operator. This leads to additional salting and unnecessary plowing can contribute to the deterioration of roads.

The Council-approved standards outline that the time to complete salting and plowing of arterial roads is 3 hours; while the time to complete major collector roads is 4 hours, and minor collector roads are to be completed in 6 hours.

The Public Works Department recommends adjustments to the salt beat structure for arterial, major collector, and minor collector roads to optimize the appropriate time for deployment and material application as outlined in the MQS. These redesigned beats will combine arterial and major collector roads, which will be serviced within 3 hours. Minor collector roads will be serviced within 6 hours.

Minor collector roads that include a bus route will not be redesigned as part of this beat optimization process – they will continue to be serviced within 3 hours. This accounts for 7 per cent of all minor collector roads.

Given the complexity of beat optimization, this recommendation will be phased in over the 2016-2017 and 2017-2018 winter seasons. During the 2016-2017 winter season, the City's salt management and tracking tool will be leveraged to benchmark the current state of existing beats. To date, some work has been completed in the West Roads Area to optimize its beat structures, and, as such, it will be used as the proof of concept for the 2016-2017 winter season while the other areas are benchmarked. Progress in West Roads will be monitored closely and the results will be used to make further enhancements to the salt beat structures in the remaining operational areas. All areas will be optimized in time for the 2017-2018 winter season.

By optimizing the salt beat structure and restoring services to the original standards prescribed in the MQS for arterial, major collector and minor collector roads, the Department will realize savings of $1.2M.

Recommendation c) Minor Service Adjustments ($1M savings)

KPMG's analysis and findings confirmed that the trigger for initiating plowing operations on residential roads and lanes in most cities benchmarked in this review was 10 cm. The City's MQS outline a 7 cm trigger for deployment on residential roads and lanes; 3 cm earlier than most other municipalities and the Provincial maintenance standards.

Based on the five year average of Ottawa's historical weather data, the city has experienced winter storm events where greater than 7 cm but less than 10 cm of snow fell just 3.6 times, as noted in Table 5.

Figure 5 - Environment Canada Daily Weather Observation Data

	2010	2011	2012	2013	2014	Five Year Average
Less than 5 cm	37	46	40	49	44	**43.2**
>5 but <7 cm	0	5	0	5	1	**2.2**
>7 but <10 cm	5	3	2	1	7	**3.6**
>10 but <25 cm	1	5	5	8	3	**4.4**
25 cm or more	0	0	1	1	0	**0.4**
Total for year	43	59	48	64	55	**53.8**

Given that, based on the five year average, Ottawa receives more than 7 cm but less than 10 cm only 3.6 times per year, the Public Works Department recommends that Council approve an amendment to the Maintenance Quality Standards – Roads and Sidewalks/Paths, specifically Table 103.1.1, to increase the minimum depth of snow accumulation for the deployment of resources from 7 cm to 10 cm for residential roads and lanes. Internal resources will still be deployed during regular hours to sand, grit, and plow as required between storms and as part of routine operations throughout the winter season. This change will result in $1M in savings.

Currently, the trigger for the Winter Overnight Parking Ban is a snowfall forecast of 7 cm, or a range including 7cm, meaning that Parking Control Officers enforce the on-street parking restrictions of the Traffic and Parking By-law that prohibit parking between 1:00 and 7:00 a.m. Should Council approve Recommendation c), the Traffic and Parking By-law (2003-530, as amended) will require an amendment with respect to the trigger for the Winter Overnight Parking Ban to increase from 7 cm to 10 cm.. However, from the enforcement perspective, there is no net change in enforcement

activity given that the trigger is on the basis of the forecasted range. If this recommendation is approved, the necessary by-law amendments will be made and in place in time for the 2016-2017 winter season. Furthermore, the by-law currently provides the General Manager of the Public Works Department with the delegated authority to call a ban outside of the prescribed guidelines should operational requirements warrant this flexibility.

Rather than applying all $1M in savings achieved through deploying at 10 cm as opposed to 7 cm to offset the growth requirements of the winter operations budget, the Department recommends that $0.5M be reinvested into residential road deployment to decrease the amount of time needed to complete a full plow run. Currently plow runs on residential roads take up to 10 hours to complete.

In addition to reinvesting back into residential road operations, the Department will also focus on consistent deployment of resources across the City through a multifaceted approach of improving the balance of staff and contracted resources in each Area and Yard. This will ensure equitable deployment during residential plowing operations without compromising the effective start times.

Furthermore, the Department will pilot reverse plow beats on a few residential roads and lanes. As a result of the configuration of plow beats, roads at the beginning of the plow run are completed, in some cases, hours before those roads at the end of the plow beat. Additionally, one side of each street receives the first pass from the snow plow, thereby pushing a larger pile of snow onto one side of the street for the duration of the winter season. By piloting reverse plow beats, the Department will measure its ability to alternate its plow beats each storm. For example, during the first storm of the winter season, the City will run its normal plow beat. However, during the next winter event, the plow beat will commence in the area that is towards the end of the first plow beat and work its way back to the previous start location.

The Public Works Department is also exploring the possibility of a pilot that would involve equipping one City-owned garbage truck with an attachable snow plow to assist regular snow clearing operations during significant weather events. This practice is currently implemented in several major cities in the United States, such as New York City and Chicago, and is viewed as a cost-effective method to temporarily complement snow clearing efforts when necessary. Given that these cities have different approaches to utilizing these vehicles as part of their operations in terms of roads serviced,

deployment thresholds, and rescheduling of garbage collection, to name a few, the Public Works Department and Environmental Services Department intend to work together on this potential pilot to further examine its feasibility and discuss high-level logistics.

Recommendation d) Delegation of Authority

Approval of recommendation d will delegate authority to Public Works and Emergency and Protective Services staff, in consultation with Legal Services, to list on the agenda of Council any related by-laws necessary to give effect to the decisions approved as part of consideration of this report.

Summary

In total, the City has accepted and/or amended 16 of the 18 recommendations KPMG put forward for the City of Ottawa's snow and ice control services. The findings and potential adjustments as well as the Public Works Department's rationale for accepting, amending or rejecting the recommendations are attached as Document 2. The final KPMG Winter Operations Review Report is included as Document 3.

The two recommendations that were not accepted included a reduction in the number of salt beats and an extension of plow run times as well as a recommendation to discontinue an existing contract for winter operations services. Both recommendations were considered and it was determined that they were not operationally feasible.

As outlined in Document 2 and 3, the KPMG findings determined significant cost savings could be achieved by making changes to the MQS, thereby substantially reducing levels of service. Recognizing the importance of maintaining a balance between providing quality services and containing costs, both KPMG and the City determined some changes were not feasible despite resulting in further savings.

The $3.7M savings associated with the recommendations provided in this report, in conjunction with the savings realized during the 2015-2016 winter season, will result in $6.4M of savings by the end of 2018 ($5.9M net in savings), $5.4M of which can be achieved without impacting Council approved levels of service. Of the $1M associated with a minor adjustment to the existing MQS, $0.5M will be reinvested to support plowing operations on residential roads and lanes.

RURAL IMPLICATIONS

There are no specific rural implications associated with this report.

CONSULTATION

For the purposes of informing KPMG's review, the cities of London, Edmonton, Winnipeg, Calgary, Quebec City and Gatineau, respectively, were consulted.

COMMENTS BY THE WARD COUNCILLOR(S)

This is a City-wide report.

LEGAL IMPLICATIONS

There are no legal impediments to the implementation of the Recommendations in this report.

Legal Services provides the following specific information to address the legal issues related to Recommendations.

City Council's adoption of road and sidewalk maintenance standards may be one of the more effective ways of precluding legal claims against the municipality. Where staff has met the standards adopted by Council, the combined operation of the Municipal Act, 2001 and the common law should help insulate the City from any claim that an individual has suffered injuries or damage to property due to the condition of the roads or sidewalks. The reason for this is detailed below.

Prior to 2002, municipalities' liability in relation to the care and maintenance of their roads was determined by the common law of negligence. Put simply, a municipality that failed to maintain its roads or sidewalks in accordance with the prevailing industry standards was open to claims for damages caused by that inadequate maintenance. These types of claims could include slips and falls on sidewalks, damage to vehicles caused by potholes or more serious accidents caused - at least in part – by the municipality's failure to adequately salt, sand or clear the road surface.

As Courts struggled with determining what precisely was the prevailing industry standard, concerns developed that municipalities were being found liable to ensure that injured plaintiffs were adequately compensated, rather than because their maintenance practices were markedly inferior to those used elsewhere. In an effort to give greater

legal protection to municipalities, the Ontario Government amended Section 284 of the former Municipal Act in 1996 to pave the way for “minimum maintenance standards” for roads and bridges to be brought forth by regulations issued by the Minister of Transportation. Section 44 of the Municipal Act, 2001 (which came into effect on January 1st, 2003) repeated those earlier clauses as follows:

> 44. (1) The municipality that has jurisdiction over a highway or bridge shall keep it in a state of repair that is reasonable in the circumstances, including the character and location of the highway or bridge.

Liability

(2) A municipality that defaults in complying with subsection (1) is, subject to the Negligence Act, liable for all damages any person sustains because of the default.

Defence

(3) Despite subsection (2), a municipality is not liable for failing to keep a highway or bridge in a reasonable state of repair if,

(a) it did not know and could not reasonably have been expected to have known about the state of repair of the highway or bridge;

(b) it took reasonable steps to prevent the default from arising; or

(c) at the time the cause of action arose, minimum standards established under subsection (4) applied to the highway or bridge and to the alleged default and those standards have been met.

Regulations

(4) The Minister of Transportation may make regulations establishing minimum standards of repair for highways and bridges or any class of them.

General or specific

(5) The minimum standards may be general or specific in their application.

Adoption by reference

(6) A regulation made under subsection (4) may adopt by reference, in whole or in part, with such changes as the Minister of Transportation considers desirable, any code, standard or guideline, as it reads at the time the regulation is made or as it is amended from time to time, whether before or after the regulation is made.

After a lengthy period of public consultation, the Minister of Transportation issued Ontario Regulation 239/02, being, the Minimum Maintenance Standards for Municipal Highways (MMS). The MMS, in place since 2002, and on file in the City Clerk and

Solicitor's Office, establish uniform maintenance standards for all types of bridges and roads in Ontario.

Despite initial optimism in the municipal sector, the court decisions that followed the introduction of the MMS were inconsistent and, in some instances, effectively deprived municipalities of much of the protection that the MMS were intended to confer.

For example, as a result of the Ontario Court of Appeal's December 2011 decision in the case of Giuliani v. Halton(Region), it was generally felt that municipalities had been deprived of the legal protection they had won with the Provincial Government's implementation of the MMS. This was the first time that the MMS had been reviewed in detail by the appellate court. In this case, a driver lost control due to the snowy conditions on the road and the Parties agreed that these hazardous road conditions had developed within hours before the accident occurred. In a unanimous decision, the Ontario Court of Appeal determined that the accident would not have occurred if the municipality had monitored the weather and taken preventative measures in response. At paragraph 22 of its decision, the appellate court observed when a municipality could rely upon the MMS:

> *It is worth repeating that the purpose of minimum standards is to provide a municipality with a defence even if it would be otherwise liable under the provisions of Section 44. Thus, if a municipality complies with the minimum standards, it is not liable even if it did not maintain a highway in a state of repair that is reasonable in the circumstances, knew or ought to reasonably have known of the faulty state of repair, and did not take steps to prevent the default. To use the common law language, a municipality is not liable for negligently failing to maintain a highway if it complied with the minimum standards that applied to its failure.*

At trial, the judge found the Region of Halton liable, among other things, for failing to keep the road clear of snow and ice, thereby creating an unreasonable risk of harm to users of the road. This determination was made despite the fact that the municipality showed that the accumulation of snow, being 2 cm, was less than the 5 cm required to trigger the level of service set out in the MMS. Upon appeal, the appellate court found that the municipality could not rely upon the MMS as a defence since it was the municipality's failure to take steps to prevent the formation of ice prior to the accumulation of 5 cm of snow that was the cause of the accident. As there was no

minimum standard dealing with the specific situation – the prevention of ice formation - the MMS did not apply to protect the municipality.

Trying to address the concerns raised in the wake in the Giuliani decision, the MMS were amended by the Province of Ontario in January of 2013. As noted by one legal observer, "the amendments specify expected preventative measure, increase municipal responsibilities and costs, expand the application and predictability of the MMS as a defence, and yet still leave open the prospect of future litigation.": see "Amendments to the Minimum Maintenance Standards: A Response to Giuliani v. Halton". Obviously, it remains to be seen whether these regulatory changes will prompt the courts to look more favourably on municipal defendants. Given this uncertainty, it is advisable for the City of Ottawa to take all available steps to try and minimize its liability. One of these steps is for Council to adopt, by policy, the road maintenance standards that residents can expect, based on the comparative cost of other options.

It must be noted that the MMS are not mandatory and a municipality is free to adopt maintenance standards that are lower than the MMS. The municipality that does so may forego whatever protection is offered by the MMS, and will need to show that it took reasonable steps in the care and maintenance of its roads in the event of an incident. It is possible that a court may show deference to the public policy decision underlying the adoption of a particular level of road maintenance, even if it is below the MMS. This is particularly so where the standard was adopted following consideration of the financial impact to residents of setting some different standard. Put simply, a court may respect a municipal council's policy decision to spend less on road maintenance - thereby accepting the higher risk of damage to property or injury to person – because this reflects the public's preference for lower taxes as opposed to better-maintained roads. Having obtained the benefit of lower maintenance costs, road users must accept the greater risks that come with lower maintenance standards. Provided, of course, that those standards have been met. Such an approach does bear a high risk that a court, faced with a sympathetic plaintiff and a municipality that has not met the MMS, will not defer to Council's policy decision and impose liability in negligence.

In order to mitigate this risk, a municipality should look to adopt maintenance standards that exceed the MMS, and such an approach is endorsed by the Ontario Good Roads Association ("OGRA") in its "Guideline for Developing a Level of Service Policy", a copy of which is on file in the City Clerk and Solicitor's Office. In the OGRA's view,

A successful winter control program is guided by a council endorsed policy. In the wake of the Ontario Court of Appeal decision in Giuliani which largely renders the defence under s.4 and s.5 of Ontario Regulation 239/02 Minimum Maintenance Standards (MMS) inoperative in most practical circumstances, current municipal Level of Service policies (LOS) tied to compliance with the tables in s.4 and s.5 are likely to be inadequate in ensuring a defence to negligence claims. As a result, it is recommended that municipalities in Ontario review their LOS, and revise them to exceed the tables in s.4 and s.5.

In conclusion, claims against the City alleging inadequate care and maintenance of its road and sidewalk network are commonplace. Between 2010 and 2015, the City received more than 4,000 of these claims. While the City was able to show that it met its legal obligations in the vast majority of these cases, Council's adoption of maintenance standards that conform to the MMS and that can be met within the allocated budget may further bolster the City's defence against these types of claims and help to limit its legal liability.

RISK MANAGEMENT IMPLICATIONS

There are risk implications. These risks have been identified and explained in the report and are being managed by the appropriate staff.

FINANCIAL IMPLICATIONS

The projected savings of $3.7M identified in this report is approximately 5.8% of the total 2016 Winter Operations budget of $63M. Of this $3.7M, $2.7M or 4.2% is related to operational efficiencies, and $1M or 1.6% is related to a change in the MQS service level for residential roadways. As outlined in the report, the net savings of $3.2M (includes the reinvestment of $500K), will be reflected in the 2017 and 2018 budget process to align to the phased-in approached required to align these changes to the operations.

ACCESSIBILITY IMPACTS

Staff will ensure that any applicable accessibility standards are adhered to during the execution of the recommendations identified in this report. This will involve consultations with the appropriate staff within the City.

TERM OF COUNCIL PRIORITIES

The recommendations of this report align to the 2015-2018 Strategic Priority of Financial Sustainability - FS1: Demonstrate sound financial management.

SUPPORTING DOCUMENTATION

Document 1	City of Ottawa Maintenance Quality Standards for Snow and Ice Control Services on Roads
Document 2	Summary of KPMG Recommendations from the Winter Operations Final Report
Document 3	KPMG Final Report – The City of Ottawa Winter Operations Review

DISPOSITION

Upon approval of this report, the Public Works department will carry out the recommendations of this report. Upon approval, staff from the Public Works, Emergency and Protective Services and City Clerk and Solicitor Departments will prepare the required by-law amendments and will place them on Council’s agenda for enactment.