



**Office of the Auditor General**

**Follow-up to the 2014 Audit of Winter  
Operations: Capacity Planning and Performance  
Measurement**

**Tabled at Audit Committee  
May 29, 2019**

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## Executive summary

The Follow-up to the 2014 Audit of Winter Operations: Capacity Planning and Performance Measurement was included in the Auditor General's 2017 Audit Work Plan.

The key findings of the original 2014 audit included:

1. There was no documented process that considered resource capacity requirements for Winter Operations in the annual planning and/or budgetary cycle.
2. The existing Maintenance Quality Standards (MQS) for snow and ice control were adopted in May of 2003. Since that time they had not been systematically reviewed or assessed for financial impact.
3. The mix of internal and external service providers was primarily based on historical and/or legacy systems that were in place at the time of amalgamation (2001). Since that time there had not been a review to determine the optimal mix of internal and external service providers.
4. Public Works did not have a documented process to identify potential operational efficiencies.
5. When there was no requirement to apply abrasives or plow / clear snow, staff were assigned to miscellaneous duties. There was no documented list of tasks to be addressed on a priority basis and tasks could potentially have been provided more cost effectively by commercial sources.
6. All City and contracted roadway snow clearing vehicles were equipped with one of two task specific GPS. Management had not determined if the intended benefits of these investments in technology had been realized.
7. The City had a detailed communication plan for overnight parking bans. Management believed it would not be practical to implement a "rolling ban" for snow related overnight parking bans as is utilized in some municipalities.
8. Monthly variance reporting included appropriate and relevant measures such as comparison of budgeted to actual and detailed costs by category. Reporting could have been enhanced by providing commentary on performance associated cost drivers.

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9. The key performance indicators (KPIs) used in Winter Operations were the Council-approved Standards detailed in the MQS. These were not routinely reported to department management, Committee or Council. The KPI reporting did not include information available in the Ontario Municipal Benchmarking Initiative (OMBI) report.
10. Supervisors' reviews of snow clearing activities were largely unstructured and experience-based. There was no documented assurance that MQS were being applied consistently across the City or that standards were being met or overachieved.
11. The Standard Operating Procedure for salt deliveries allowed for acceptance of deliveries with a high variance and did not specify the number of times that random weighing should be performed. There was no monitoring to ensure portable weigh scales were used at every yard throughout the winter season and that contractors were not notified in advance. The amount of salt remaining in the spring of 2012, 2013 and 2014 was less than the amounts in inventory per SAP.
12. As of June 2015, 96% of workers and 95% of Supervisors in the Roads Services Branch had completed their Occupational Health and Safety Awareness Training. Public Works was in the process of assessing the risks of Winter Operations' occupations for the departmental Hazard Identification and Risk Assessment (HIRA).

Table 1: Summary of status of completion of recommendations

<b>Recommendations</b>	<b>Total</b>	<b>Complete</b>	<b>Partially complete</b>	<b>Not started</b>	<b>No longer applicable</b>
<b>Number</b>	20	17	3	0	0
<b>Percentage</b>	100%	85%	15%	0%	0%

## **Conclusion**

Management has made good progress by completing 17 out of 20 recommendations.

Management also made significant progress in addressing the three partially complete recommendations. Management should continue to assess the costs, benefits and efficiencies of outsourcing resources on an ongoing basis in order to ensure the optimal mix of internal and external resources. Finally, the revised Roads Services dashboard, intended to enhance financial and KPI reporting, is expected to be implemented by the end of Q2 2019.

## **Acknowledgement**

We wish to express our appreciation for the cooperation and assistance afforded the audit team by management.

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## Detailed report – Assessment of implementation status

The following information outlines management's assessment of the implementation status of each recommendation as of November 2018 and the Office of the Auditor General's (OAG) assessment as of January 2019.

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**Recommendation #1**

Table 2: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works develop and document a planning process methodology to establish the optimal capacity of resources, both internal and external, to provide efficient and effective Winter Control services.

That this methodology include specific processes to identify and assess:

- a. The costs, benefits and efficiencies of outsourcing resources, both staff and equipment, to establish the optimal mix of internal and external resources;
- b. Resourcing to match activity requirements (i.e. demand) which are clearly determined to be legitimate work activities to ensure idle capacity is reduced to the minimum level;
- c. Opportunities for efficiencies and/or outsourcing through an in depth review and analysis of activities at the level of Winter Operations overall, including a mix of severe and mild winters;
- d. The impact of adjustments to MQS to bring them in line with Provincial Standards;
- e. The impact of new developments, historical weather patterns, and information gathered from relevant technologies such as GPS and vehicle weather sensors;
- f. Potential operational changes in order to realize cost reductions;
- g. Historical data and general weather patterns to ensure mild winters are factored into the analysis; and
- h. The real cost of depreciation and overhead.

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**Original management response:**

Management agrees with this recommendation.

Public Works is currently developing a planning process methodology through the Roads Services Winter Operations Review. As part of this Review, the mix of internal and external resources is being analysed in order to provide efficient and effective winter operations services.

The Review findings and subsequent recommendations will be presented to the Transportation Committee and Council in Q2 2016.

**Management update:**

Staff tabled the Review of Winter Operations on Roadways report in July 2016. Included as Document 3 was a report prepared by KPMG which examined the service levels and delivery model of the Roads Services snow and ice control program (winter operations). The winter operations were reviewed to ensure that the services are being delivered using the lowest cost approach that will reliably achieve the service levels required.

**OAG assessment:**

KPMG's Winter Operations Review looked at the City's winter maintenance costs, deployment approach and service levels. It identified opportunities for cost reduction through efficiencies and outsourcing, some of which were approved by Council in 2016. In addition, Road Services carries out a planning process at the beginning of each winter season. The optimal mix of internal and external resources has not yet been established, in part due to operational constraints, however Road Services is actively piloting new initiatives and strategies such as beat optimization, resource reviews and "right-sized" deployment in order to establish this.



**Recommendation #2**

Table 3: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works review the Climate Change Adaption Strategy to ensure:

- a. That it is still current and relevant;
- b. The steps taken to date have been effective; and
- c. The MQS triggers incorporate measures to address changing weather patterns such as freezing rain, rain on snow and wet snow.

**Original management response:**

Management agrees with this recommendation.

As part of the Roads Services Winter Operations Review, historical weather patterns along with work completed as part of the 2006 Climate Change Adaption Strategy, will be analyzed and will inform any recommendations that may be made specific to the Maintenance Quality Standards.

The Review findings and subsequent recommendations will be presented to the Transportation Committee and Council in Q2 2016.

**Management update:**

Staff has reviewed the 2006 Report to Council and agrees that many of the challenges identified are still valid in today’s climate. Specific to weather and climate change, KPMG noted as part of its review, “...colder temperatures contradict the expected effects of global warming, and have occurred over a short period (three years) in terms of climate change. It is premature to conclude that there is any ‘new normal’ for weather that will influence winter maintenance costs over the long term. For example, Environment Canada [currently] uses a 30 year average to define climactic conditions.”

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Staff has piloted a variety of new technologies and initiatives over the years to address several of these challenges, including but not limited to: use of high-performance cold patch asphalt during winter months, proactive social media messaging on clearing catch basins, use of a garbage truck with plow attachment, use of a sidewalk machine with ice breaker attachment, etc.

Furthermore, staff can confirm that changing weather patterns are a factor in deploying under the MQS identified through Road Patrols (Standard Operating Procedure 7.04).

Although “Complete”, the Department is committed to continuous improvement through ensuring that it stays up-to-date with industry best practices and emerging technologies.

**OAG assessment:**

We concur with management that many of the challenges identified in the 2006 Report to Council are still valid in today’s climate. Road Services has piloted various initiatives, strategies and technologies in order to respond to changing weather patterns.

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**Recommendation #3**

Table 4: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works assess the impact on costs of adjustments to MQS to bring them in line with Provincial Standards including reporting the results and changes to Committee and Council on a mid-term basis.

**Original management response:**

Management agrees with this recommendation.

Adjustments to the Maintenance Quality Standards are currently being investigated through the Roads Services Winter Operations Review, comparing costing between the City’s current Maintenance Quality Standards and the provincial Minimum Maintenance Standards.

The Review findings and subsequent recommendations will be presented to the Transportation Committee and Council in Q2 2016.

**Management update:**

Staff tabled the Review of Winter Operations on Roadways report in July 2016. Included as Document 3 was a report prepared by KPMG which assessed the impact on costs of adjustments to MQS to bring them in line with Provincial Standards.

Management included a recommendation in the July 2016 report to amend the MQS for Class 5 Residential Roads, however – the proposed operational change was removed from the report at Transportation Committee via Motion TRC 16/2.

**OAG assessment:**

In July 2016, as a cost saving measure, staff recommended to Transportation Committee a change to the MQS for Class 5 Residential Roads. The change was not accepted by Committee.

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Management indicate that they intend to review the MQS again and implement any changes by the winter of 2022-2023.

**Recommendation #4**

Table 5: Status

Management update	OAG assessment
Partially complete	Partially complete

**Audit recommendation:**

That Public Works assess the costs, benefits and efficiencies of outsourcing resources to establish an optimal mix of internal and external resources. That this include:

- a. A comparison of City Forces costs to costs for comparable commercial services;
- b. An in-depth review and analysis of activities at the level of Winter Operations overall, including a mix of severe and mild winters, with an objective of resourcing to match activity requirements (i.e. demand) which are clearly determined to be legitimate work activities reducing idle capacity to the minimum level; and
- c. The true cost of overhead and depreciation.

**Original management response:**

Management agrees with this recommendation.

Public Works is currently developing a planning process methodology through the Roads Services Winter Operations Review. As part of this Review, the mix of internal and external resources is being analysed in order to provide efficient and effective winter operations services.

The Review findings and subsequent recommendations will be presented to the Transportation Committee and Council in Q2 2016.

**Management update:**

Staff tabled the Review of Winter Operations on Roadways report in July 2016. Included as Document 3 was a report prepared by KPMG which assessed the costs, benefits and efficiencies of outsourcing resources to establish an optimal mix of internal and external resources.

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In addition to this analysis, a review of the resource requirements was also initiated by identifying the primary winter functions being provided by Roads Services, and then identifying the existing distribution of internal and external resources city-wide. Some initial movements of resources early in this process balanced immediate needs to offset growth. Further validation of resources and beats is ongoing and additional re-balancing may be required as contracts come up for renewal and growth occurs. The Department is also undertaking cost analysis and research that will support future rebalancing efforts.

Concerning Item 4b, staff developed a process whereby the level of internal resources required for an event is based on weather severity and operation type. This process will promote consistency by ensuring the right level of response city-wide.

Management expects this resource review to be completed by Q1 2019.

**OAG assessment:**

The KPMG Winter Operations Review assessed some of the costs, benefits and efficiencies of outsourcing resources. Management is in the process of assessing levels of staff and equipment at the various City yards with a view to harmonization based on workload. Once completed, adjustments to the mix of internal and external resources will be considered.

**Recommendation #5**

Table 6: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works ensure that the intended benefits of the investments in technology are being obtained.

**Original management response:**

Management agrees with this recommendation.

To ensure that the intended benefits of ‘Where is My Plow’ and Webtech are being realized, Public Works will continue to review performance reporting in order to identify that the intended KPIs are being achieved. The public will have access to ‘Where is My Plow’ for winter 2015-16 for the first time since making the tool available to supervisors, managers and the 3-1-1- Call Centre. As part of the public launch, a feedback process has been developed for the application. Public Works will review all feedback received from the public in order to analyze the effectiveness of ‘Where is My Plow’ upon conclusion of the winter season. This analysis will be completed by Q3 2016.

**Management update:**

Staff has reviewed data provided through the Webtech application to measure the compliance with salt application rates outlined in the Roads Manual. Based on this review, staff were able to identify an increase in compliance of approximately 15% (estimated compliance of 85% pre-Webtech vs. 100% post-Webtech). This delta is equal to approximately 10,500 metric tonnes (MT) of salt saved annually, which represents savings of roughly \$0.8M to \$1.2M.

It is also worth noting that the Webtech software has been used successfully in several instances of claim defense, representing financial savings to the Department.

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**OAG assessment:**

Mechanisms to monitor and report on total costs, total savings, payback period and return on investment (ROI) were not established prior to the implementation of Webtech in 2009. As a result, it will never be possible to measure the benefits actually achieved in order to compare them to the benefits described in the business case. That said, salt training for staff combined with Webtech reporting did contribute to salt savings during the 2016-17 season.

As a business case was not developed for 'Where is My Plow', its intended benefits were not documented and their achievement cannot be measured. The tool continues to be used internally to monitor and rebalance snow plowing resources.



**Recommendation #6**

Table 7: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works develop a practice to occasionally track any differences between the application rates of abrasives of City vehicles and contracted vehicles to ensure compliance with rates established in the Roads Manual.

**Original management response:**

Management agrees with this recommendation.

To ensure compliance with the Material Application Policy, Public Works will develop a report using the data available in Webtech that will monitor and track any differences in the application rates of salt and abrasives for both City vehicles and contracted vehicles. The report will be developed by Q2 2016.

**Management update:**

Staff developed a salt tracking report using data provided by Webtech. This report allows management and supervisors to track any differences between the application rates of abrasives (for both City vehicles and contracted vehicles) to ensure compliance with rates established in the Roads Manual. Furthermore, staff have implemented a formal Salt Management Training Program which provides a comprehensive overview of best practices and guidelines for staff.

**OAG assessment:**

Differences in the application rate of abrasives by City and contracted vehicles are periodically reviewed by supervisors using a salt tracking report that is based on data provided by Webtech.

**Recommendation #7**

Table 8: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works identify and assess potential operational changes in order to realize cost reductions.

**Original management response:**

Management agrees with this recommendation.

Public Works is currently developing a planning process methodology through the Roads Services Winter Operations Review. As part of this Review, the mix of internal versus external resources is being analysed in order to provide efficient and effective winter operations services.

The Review findings and subsequent recommendations will be presented to the Transportation Committee and Council in Q2 2016.

**Management update:**

Staff tabled the Review of Winter Operations on Roadways report in July 2016. Included within the staff report were three proposed operational changes for potential cost reductions based on the review conducted by KPMG:

1. Tiered Response Approach
2. Beat Optimization
3. Amending the MQS for Class 5 Residential Roads

The latter proposed operational change was removed from the report at Transportation Committee via Motion TRC 16/2.

Separate from this report, staff have also developed business cases in support of other initiatives and opportunities for cost savings, including the use of high performance cold patch and the centralization of incidental after-hours work out of the Hurdman Works Yard.

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**OAG assessment:**

Public Works has identified and assessed potential operational changes in order to realize cost reductions. For example, it has implemented “right-sized” deployment such that the number of resources deployed depends on weather conditions and is consistent across the City and throughout the season. In addition, on-call and overtime hours have been eliminated from East, West and South Roads Services and centralized in Core Road Services to achieve cost savings.

**Recommendation #8**

Table 9: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works consider charging the owners of illegally parked vehicles for the cost of towing required during snow clearing activities.

**Original management response:**

Management agrees with the recommendation.

Public Works will work with By-law Services to investigate the feasibility of charging owners of illegally parked vehicles for the cost of towing required during snow clearing activities. This review will be completed by Q4 2016.

**Management update:**

Vehicles can be ticketed and towed if they are parked in contravention of the winter parking regulations of the Traffic and Parking By-law. Typically, tickets are issued for vehicles without a permit that are parked on-street during a ban. Towing, on the other hand, is typically initiated when parked vehicles block access for snow plows. Towing activities are usually limited due to the complexity of organizing a towing operation. When required, vehicles are generally towed to the closest legal parking space, which is usually an adjacent street that has already been cleared.

To charge or invoice the owners of towed vehicles an additional amount for the tow would require the establishment of an administration system that would negate its benefits. Further, tracing of vehicle plates back to their owners would be required. The agreements in place with the Ministry of Transportation of Ontario and its Quebec equivalent for tracing vehicle plates do not provide that authority for this purpose.

Based on the logistical requirements and associated costs, this recommendation is deemed to not be feasible at this time.

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**OAG assessment:**

The possibility of charging the owners of illegally parked vehicles for the cost of towing required during snow clearing activities was considered by management and deemed not cost-effective and operationally unfeasible.

**Recommendation #9**

Table 10: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works conduct the analysis to determine if steps can be taken to initiate a “rolling ban” in order to minimize the number of residents receiving tickets unnecessarily.

**Original management response:**

Management agrees with this recommendation and it has been implemented.

Public Works has completed a review of the winter overnight parking ban and has presented the findings of this review to the Transportation Committee and Council. As a result, on October 14, 2015 Council approved the following changes to the Winter Overnight Parking Ban:

- Expansion of the Authority of the General Manager of Public Works to allow for greater flexibility to implement or not implement an overnight parking ban based on public safety or operational requirements;
- Free parking in City-owned parking garages for time periods in which an overnight winter parking ban has been implemented; and
- Amendments to the fee structure for on-street parking permits to reflect the true maintenance costs associated with on-street parking during the winter months.

As part of this review, consultations were conducted with internal stakeholders and the public, which identified some concerns with a rolling ban including communications to residents on when different areas of the City would be impacted in addition to the increased costs associated with signage.

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**Management update:**

Staff tabled the Winter Overnight Parking Regulations report in October 2015. As part of this review, consultations were conducted with internal stakeholders and the public, which identified some concerns with a rolling ban including communications to residents on when different areas of the City would be impacted, in addition to the increased costs associated with signage.

**OAG assessment:**

Analysis to determine the feasibility of rolling bans and other solutions to minimize the number of residents receiving tickets unnecessarily was completed in 2015.

**Recommendation #10**

Table 11: Status

Management update	OAG assessment
Partially complete	Partially complete

**Audit recommendation:**

That Public Works review the feasibility of enhancing monthly financial reporting through providing commentary on performance associated cost drivers. This would include items/activities such as: monthly lane/Km cost, impact of monthly precipitation and average temperature and the amount of staff time spent on-call as well as on other duties not directly related to snow and ice control, such as litter and yard duties.

**Original management response:**

Management agrees with this recommendation.

Public Works will review the feasibility of including commentary on performance associated cost drivers such as lane/km cost, impact of precipitation and average temperature and the amount of staff time spent on non-winter activities in the monthly Service Excellence Scorecard for Roads Services in order to enhance monthly financial and performance reporting. This review will be completed by Q2 2016.

**Management update:**

The Public Works Department developed a template of performance associated cost drivers and the amount of staff time spent on non-winter activities for inclusion in the monthly Service Excellence Scorecard (SES) for Roads Services. However, the template was not officially added to the

Scorecard prior to Phase 2 of the Corporate Realignment in October 2016. After the realignment, it was determined that the enhanced Scorecard would be too cumbersome to complete monthly given the level of support required for the new departmental service areas.

The Business and Technical Support Services (BTSS) Branch has committed to undertaking a review of performance measurement and reporting practices for all departmental service areas. The Technology, Innovation, and Engineering Support



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(TIESS) Branch will also support these efforts through the Roads Mobility Project and various corporate data analytics pilots.

Management expects this revised Roads Services dashboard to be complete by the end of Q2 2019.

**OAG assessment:**

Management has reviewed the feasibility of enhancing monthly reporting and expects to produce a revised Roads Services dashboard in Q2 2019.

**Recommendation #11**

Table 12: Status

Management update	OAG assessment
Partially complete	Partially complete

**Audit recommendation:**

That the City improve its KPI reporting by:

- a. Including the information included in the OMBI report such as time to meet MQS after a storm event and Lane per Km costs. That this information is also included in semi-annual reports to the Transportation Committee.
- b. Identifying staff time for non-winter control activities (and including On-Call) in SES.
- c. Identifying time to complete Service Requests in number of days.

**Original management response:**

Management agrees with this recommendation.

Public Works will review the feasibility of enhanced and more frequent KPI reporting such as time to meet MQS after a storm event and Lane per Km costs. The review will be completed by the end of Q2 2016.

Based on the results of this review, Public Works will incorporate any required enhancements specific to staff time associated with non-winter control activities including on-call into the Roads Services Service Excellence Scorecards so that KPIs can be tracked on a monthly basis. The implementation of this recommendation will be completed by the end of Q3 2016.

As part of the Client Journey Experience Initiative, Public Works with the assistance of Service Ottawa, is looking at establishing a quality standard related to the client experience and satisfaction with the services provided by Roads. As a result of this initiative, specific targets for 3-1-1 service request response time will be established and reported on the City/Public Works Balanced Scorecard. The implementation of this recommendation will be completed by the end of Q3 2016.

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**Management update:**

Implementation of this recommendation is partially complete.

The Public Works Department developed Key Performance Indicator (KPI) data for the monthly Service Excellence Scorecard (SES) for Roads Services. However, the data was not officially added to the Scorecard prior to Phase 2 of the Corporate Realignment in October 2016. After the realignment, it was determined that the enhanced Scorecard would be too cumbersome to complete monthly given the level of support required for the new departmental service areas.

The BTSS Branch has committed to undertaking a review of performance measurement and reporting practices for all departmental service areas. The Technology, Innovation, and Engineering Support (TIESS) Branch will also support these efforts through the Roads Mobility Project and various corporate data analytics pilots.

Management expects this revised Roads Services dashboard to be complete by the end of Q2 2019.

**OAG assessment:**

Management has reviewed the feasibility of enhancing KPI reporting and expects to produce a revised Roads Services dashboard in Q2 2019.

**Recommendation #12**

Table 13: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That the City develop a Standard Operating Procedure (SOP) which outlines an adequate process for the supervisor review of the adequacy of snow clearing activities.

**Original management response:**

Management agrees with this recommendation.

Public Works will develop a Standard Operating Procedure, which outlines the process for snow clearing activities in accordance with the Maintenance Quality Standards.

This Standard Operating Procedure will be completed immediately and will be ready for implementation as part of the 2015/16 winter response plan.

**Management update:**

Staff have developed the Monitoring and Documentation of Snow Clearing Non-Performance Standard Operating Procedure.

**OAG assessment:**

A Standard Operating Procedure has been adopted and communicated to staff which outlines the role of the supervisor as it relates to monitoring of snow clearing activities, documentation and follow-up of non-performance by employees and contractors.

**Recommendation #13**

Table 14: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That the City develop a Standard Operating Procedure (SOP) which outlines the process as well as roles and responsibilities for pre-event communications for operational supervisors.

**Original management response:**

Management agrees with this recommendation.

A Standard Operating Procedure, which outlines the process as well as roles and responsibilities for pre-event communications will be completed for operational supervisors.

This Standard Operating Procedure will be completed immediately and will be ready for implementation as part of the 2015/16 winter response plan.

**Management update:**

Staff have developed the Pre-Event Communications for Operational Supervisors Standard Operating Procedure.

**OAG assessment:**

A Standard Operating Procedure has been adopted and communicated to staff outlining the process and roles and responsibilities for pre-event communications.

**Recommendation #14**

Table 15: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That the City develop a Standard Operating Procedure (SOP) which outlines the process for the supervisor to establish and prioritize assignments for staff when there is no requirement for snow clearing activities.

**Original management response:**

Management agrees with this recommendation.

Public Works will develop a Standard Operating Procedure for Supervisors that will outline the process to establish and prioritize work activities when there is no requirement for snow clearing activities. This SOP will build on the current practice investigating service requests in relation to weather conditions factoring in a number of variables such as mild weather, potholes, winter drainage, presence of litter and/or freeze/thaw cycles.

This Standard Operating Procedure will be completed immediately and implemented during the 2015/16 winter season.

**Management update:**

Staff have developed the Activities Performed Outside of Snow Clearing Operations Standard Operating Procedure.

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**OAG assessment:**

A Standard Operating Procedure has been adopted and communicated to staff. It outlines the process for supervisors to establish and prioritize assignments for staff when there is no requirement for snow clearing activities. Prioritization of activities is as follows:

1. Legislated activities / activities that ensure public safety;
2. Activities that preserve infrastructure and maintain maintenance quality standards; and
3. Other activities as required.

**Recommendation #15**

Table 16: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Winter Operations assess why a 15% threshold is used to determine if a salt shipment is acceptable or not and whether the threshold should be lowered.

**Original management response:**

Management agrees with this recommendation.

Public Works has conducted an assessment that concluded that there are a number of factors that can impact weighing of salt delivery trucks including the accuracy of the scale, if they are being weighed on level ground, moisture content of the salt and to a lesser extent the burning of fuel. A survey of best practices specific to the weighing of salt will be conducted as part of the Roads Services Winter Operations Review in order to determine an acceptable threshold. This survey will be completed by Q2 2016.

**Management update:**

Implementation of this recommendation is complete.

The original 15% threshold identified in 2007 was determined from a combination of the scale manufacturers' two error influences: 1) a scale accuracy of  $\pm 1\%$  in the weight range being measured compounded by two weights being taken per axle with typically 6 to 7 axles, and 2) external factors, such as poor/uneven site conditions that exist in some of the yards, as well as vehicle suspension or brake friction influences would add even more potential for error. To date, weighing results have been well within the prescribed 15%.

Staff conducted preliminary research with peer municipalities and confirmed that they do not have the additional control measure of using portable weigh scales to randomly test delivery loads. Based on this information, Public Works did not proceed with a survey concerning this variance threshold as it would have limited value.



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**OAG assessment:**

The reason for the use of the 15% threshold for salt shipments is well understood. It was derived based on the scale manufacturer's recommendations and it has never been exceeded.

**Recommendation #16**

Table 17: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Winter Operations put in place a monitoring process to ensure the portable weigh scales are used throughout the season. That Winter Operations consider setting a minimum number of times random weighing will be performed per season. That Winter Operations ensure random weighing is performed at all yards that receive salt.

**Original management response:**

Management agrees with this recommendation.

The current Standard Operating Procedure will be updated and processes will be put in place to ensure that the monitoring and frequency is followed.

The revisions to the SOP will be implemented for the 2015-16 winter season.

**Management update:**

Staff have updated the Deliveries to Maintenance Yards Standard Operating Procedure.

**OAG assessment:**

Standard Operating Procedure 2.01 has been updated to reflect random salt weighing requirements and these have been communicated to staff.

However, salt weighing procedures could still be improved as they provide only limited assurance that the amount of salt received is correct. Trucks are weighed once, as they enter the yard, before dumping their load. The weight recorded is compared against the weight recorded on the vendor’s invoice. While this verification ensures that no salt is lost in transit, it does not ensure that the weight of the truck is accurately represented by the vendor. Occasionally weighing empty trucks after they have dumped their load would provide improved assurance.

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**Recommendation #17**

Table 18: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Winter Operations ensure that all Operations Technicians and other staff do not notify the delivery trucks in advance that they will be weighed.

**Original management response:**

Management agrees with this recommendation.

This requirement will be incorporated into the Standard Operating Procedure referred to in Recommendation 16 and will be implemented for the winter of 2015-16 season.

**Management update:**

Staff have updated the Deliveries to Maintenance Yards Standard Operating Procedure.

**OAG assessment:**

Standard Operating Procedure 2.01 has been updated to indicate that no advance notification is to be provided and this has been communicated to staff.

**Recommendation #18**

Table 19: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Winter Operations obtain a clear understanding of the reasons behind the difference between the SAP ending inventory of salt in the accounting system compared to the actual physical amount counted as remaining in the domes.

**Original management response:**

Management agrees with this recommendation.

Public Works will conduct a survey of best practices to obtain a clear understanding of the reasons behind the difference between the SAP ending inventories of salt in the accounting system compared to the actual physical amount counted as remaining in the domes as part of the Roads Services Winter Operations Review. This survey will be completed by Q2 2016.

For the 2015-16 winter season, salt dome inventory reports will also be provided to management on a bi-weekly basis, which will alert Managers to any inconsistencies in salt reporting.

**Management update:**

The Roads Services Branch retained NAD Consulting in October 2016 to conduct a Salt Inventory Management Review. This review involved the analysis of processes and procedures for salt inventory management to identify potential causes of an overstatement of salt inventory in the system (SAP) compared to remaining physical inventory at year-end.

**OAG assessment:**

The reasons for the difference between the SAP ending inventory of salt compared to the actual amount remaining in the domes are now better understood. Work has now shifted to addressing some of these reasons.

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A salt inventory management review was completed by an external firm in 2016 which identified possible causes for the difference and made recommendations to address them. Two of the five recommendations that management agreed with are expected to be implemented during the 2019-2020 winter season.

**Recommendation #19**

Table 20: Status

<b>Management update</b>	<b>OAG assessment</b>
Complete	Complete

**Audit recommendation:**

That the Roads Services Branch ensure that the individuals who had not completed the Occupational Health and Safety Awareness Training complete the training as soon as possible and/or as soon as they return from their leave.

**Original management response:**

Management agrees with this recommendation.

As of Q3 2015, 99% of Roads Services Supervisors and 98% of Roads Services Workers respectively had completed the training.

Public Works will continue to train and monitor new Roads Services employees through the on-boarding process and returning to work from leave.

**Management update:**

As of November 2018, 99% of Roads Services Supervisors and 95% of Roads Services Workers respectively had completed the training. Given that new staff frequently join the Branch throughout the year, it is unlikely that this number will be 100% at any given point in time; however, these new staff are typically trained within the first year of hire.

**OAG assessment:**

The Road Services Branch is ensuring that employees complete their Occupational Health and Safety training within the required timeframe.

**Recommendation #20**

Table 21: Status

Management update	OAG assessment
Complete	Complete

**Audit recommendation:**

That Public Works ensure the Hazard Identification and Risk Assessment for Winter Operations be completed by addressing the highest risk workplaces and occupations first.

**Original management response:**

Management agrees with this recommendation.

Corporate Health and Safety is leading the Hazard Identification and Risk Assessment project across the City with support from Public Works. All positions within Roads Services were reviewed and grouped into three groups by priority from highest to lowest. As of October 22, 2015, HIRAs for all priority 1 and 2 categories, which are the highest risk workplaces and occupation, are 100% complete. HIRAs for the priority 3 group, which includes office staff will be completed by Q4 2015.

**Management update:**

As of October 2015, all Priority 1 and 2 Category HIRAs for the Public Works and Environmental Services Department (PWESD) were completed.

As of June 2016, all Priority 3 Category HIRAs for PWESD were completed.

**OAG assessment:**

A Hazard Identification and Risk Assessment was completed for the former Public Works Department.

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Table 22: Status legend

<b>Status</b>	<b>Definition</b>
<b>Not started</b>	No significant progress has been made. Generating informal plans is regarded as insignificant progress.
<b>Partially complete</b>	The City has begun implementation; however, it is not yet complete.
<b>Complete</b>	Action is complete, and/or structures and processes are operating as intended and implemented fully in all intended areas of the City.
<b>No longer applicable</b>	The recommendation is obsolete due to time lapses, new policies, etc.