



Media Release: Friday, October 31, 2014, 4:30 p.m.

Regional Municipality of Waterloo

Audit Committee

Agenda

Tuesday, November 4, 2014

1:00 p.m.

Waterloo County Room

150 Frederick Street, Kitchener, Ontario

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- 1. Declarations of Pecuniary Interest under the “Municipal Conflict of Interest Act”**
 - 2. Reports**
 - a) [CA-14-010/ E-14-115](#), Transportation Operations - Program Review 2013-2014 1
 - 3. Information/Correspondence**
 - 4. Other Business**
 - 5. Next Meeting**
 - 6. Adjourn**



Report: CA-14-010/ E-14-115

Region of Waterloo
Office of the Chief Administrator
Internal Audit
Transportation & Environmental Services
Transportation

To: Chair Tom Galloway and Members of the Audit Committee
Date: November 4, 2014 **File Code:** A10-20, A35-01
Subject: **Transportation Operations - Program Review 2013-2014**

Recommendation:

That the Audit Committee endorse the recommendations and proposed actions of the Transportation Operations - Program Review 2013-2014 as described in Report CA-14-010/ E-14-115, dated November 4, 2014.

Summary:

In 2013, the Internal Auditor, together with the Director, Transportation, initiated a comprehensive program review to ensure the services and operations of the Transportation Operations Program (generally referred to as “Transportation Operations” and herein referred to as the “Program”) are managed and delivered effectively and efficiently. A specialist consulting firm, with experience in reviewing Transportation Operations processes, was retained to complete a detailed assessment of the Transportation Operations Program based on industry best practice.

The results of the review indicated that a number of the Program’s current practices are working well. In general, the Program has:

- **Engaged Staff:** The interviews and focus groups were well-attended and the overall culture of the section seems to be that of an engaged workforce.
- **Desire to Improve:** Staff expressed their interest and desire to make the work environment better and improve service delivery value to the public.

- **Technologists Perceived as Adding Value:** Transportation Operations Technologists are seen as providing real value to the group in fostering innovation, providing needed analysis and solving day-to-day operational problems.
- **Appropriate Levels of Management:** Organizational structure / management layering is appropriate for the section and is balanced with peer jurisdiction configurations.

However, there are opportunities in all areas of the Program to better align with best practices and increase efficiency and effectiveness. These opportunities could be centered on the following key themes:

- Improve communications between divisions and section.
- Improve data collection, reporting and accountability.
- Increase the efficiency of the current information management model and asset management framework to better meet the needs of the Program.
- Finalize and implement succession planning to transfer institutional knowledge from long-serving employees to new employees when long-serving employees retire.

Details on these recommendations and the implementation plan are included in the main body of this report. Many of the recommendations resulting from this review are focused on increasing efficiency, which should result in a savings of time and money. However, some of the recommendations are oriented towards increasing effectiveness and removing or mitigating risk, and will require an investment of staff time or other resources, as described in this report.

Report:

Purpose of the Program Review

Program reviews are intended to provide an objective assessment of the extent to which a program is achieving its intended results, the proficiency with which resources are administered, and the manner in which associated risks have been managed. In this case, risk means the activities and events that could potentially prevent programs from achieving defined goals. Program reviews support the strategic objective of ensuring that all Regional programs and services are responsive, efficient, effective, and accountable to the public. In 2013, Internal Audit, together with Transportation Operations, determined that a program review would be helpful in determining what improvements, if any, could be made to processes supporting the achievement of the Transportation Operations Program objectives. The review was to identify opportunities for improvement and a strategy for optimizing service delivery and organizational value while making the best use of resources. The review was also to assess that the risks associated with the delivery of the program are being managed effectively.

Methodology and Approach of the Program Review

A detailed assessment of processes was undertaken in the following distinct sections of the Program: (1) Roads Maintenance Operations; (2) Traffic Signals; (3) Signs and Markings; (4) Technical Operations; (5) Operations Administration.

Several sources of data were drawn upon in the course of this program review. These were:

- Review of relevant municipal policies and documentation.
- Interviews with management and staff.
- Staff focus group sessions with each of the aforementioned sections.
- A review of practices and approaches at peer municipalities through discussions with senior personnel from the Region of Halton, City of Hamilton, City of London, and Region of Niagara.
- Performance measurement and benchmarking.
- Business process mapping and gap analysis.
- Risk analysis. The Strengths, Weaknesses, Threats and Opportunities (SWOT) currently being faced by the Program were identified in order to concentrate on risks and potential mitigation strategies.

Overview of Transportation Operations

The Transportation Operations Section (“Transportation Operations”) is situated within the Transportation Division under the Region’s Transportation and Environmental Services Department. The Transportation and Environmental Services Department (“the Department”) is one of the largest at the Region based on its share of the tax-supported Operating Budget. The Department provides the physical services and infrastructure necessary to support the Region’s economic prosperity and quality of life.

As mentioned, Transportation Operations is within the Transportation Division. Transportation Operations includes a complement of one Manager, seven non-Union Supervisors, six Technologists and three Operations Assistants providing dispatch and administrative support (CUPE 1883). It also includes 60 full-time unionized field Staff (CUPE 1656), additional winter season Supervisors (winter 2013-2014 hired two), and temporary Staff (winter 2013-2014 hired 13).

To help fulfill the goals and objectives of the Division, Transportation Operations is responsible for the operation and maintenance of Regional roads, traffic signals, and roadway signs (regulatory, warning, and information signs), and ensuring the safe and efficient movement of people and goods. Services provided by Transportation Operations include:

- Winter control (salting and plowing).
- Snow removal.
- Catch basin and storm sewer maintenance.
- Pavement markings;
- Road and roadside maintenance, including:
 - Potholes.
 - Grass cutting.
 - Street sweeping.
 - Shouldering.
 - Ditching.
 - Flooding and erosion control.
 - Retaining wall and fence repair.
 - Street tree replacement and removal.
- Traffic signal maintenance.
- Sign fabrication, installation and maintenance; and,
- Utility locates.

To deliver its services effectively, Transportation Operations consists of the following five sections:

- Roads Maintenance Operations.
- Traffic Signals.
- Signs and Markings.
- Technical Operations; and,
- Operations Dispatch and Administration.

Traffic signals, signs, markings, technical operations, dispatch and administration services are provided directly by Regional staff. Within the four Townships, winter control, snow removal and road maintenance services for Regional Roads are provided predominantly by Regional forces supplemented by the limited use of external contractors. Within the three Cities, winter control, snow removal and road maintenance services are provided by City forces and the Region reimburses the Cities for the costs to provide these services.

General Findings and Observations:

The results of the review indicated that a number of the Program's current practices are working well. In general, the Program has:

- **Engaged Staff:** The interviews and focus groups were well-attended and the overall culture of the section seems to be that of an engaged workforce.
- **Desire to Improve:** Staff expressed their interest and desire to make the work environment better and improve service delivery value to the public.

- Technologists Perceived as Adding Value: Transportation Operations Technologists are seen as providing real value to the group in fostering innovation, providing needed analysis and solving day-to-day operational problems.
- Appropriate Levels of Management: Organizational structure / management layering is appropriate for the section and is balanced with peer jurisdiction configurations.

The Consultant also noted that they believe that the Region is “middle of the pack” compared to other similar municipalities in its ability to provide efficient and effective service delivery. Benchmark comparisons show that the Region’s costs for road maintenance and winter control are similar to or below the median costs of its peers. The Region’s efforts towards program reviews, such as this one, demonstrate the corporate commitment to ongoing improvement.

They also believe there are always opportunities to improve, and that the Region could benefit significantly from leveraging its engaged front line labour-force. These opportunities could be centered on the following key themes:

- Improve communications between divisions and section.
- Improve data collection, reporting and accountability.
- Increase the efficiency of the current information management model and asset management framework to better meet the needs of the Program.
- Finalize and implement succession planning to transfer institutional knowledge from long-serving employees to new employees when long-serving employees retire.

It should be noted that many of the Region’s peer comparators have similar challenges with their data management and are also unable to confirm the actual time spent on specific maintenance tasks. If these recommendations are implemented, the Region may be in a leadership position among its peers relating to productivity management.

Recommendations

The Program Review consultant developed 31 recommendations for improving the efficiency and effectiveness of the Transportation Operations Program. These recommendations are discussed in detail below. In general, the Internal Auditor and the Acting Director, Transportation agree with the consultant’s recommendations. **Unless otherwise noted in the body of this report, all of the recommendations will be included in the detailed implementation plan.**

High Level Recommendations, Focus Areas and Implementation

The recommendations are shaped by the research, Staff interviews, peer municipal reviews, peer municipal benchmarking and comparative analysis. The recommendations are organized around the following six improvement themes / focus areas:

- Focus Area 1: Performance Measurement Framework.
- Focus Area 2: Process Automation.
- Focus Area 3: Asset Based Management.
- Focus Area 4: Results Based Culture.
- Focus Area 5: Activity-Based Program Budgeting.
- Focus Area 6: Reduced Succession Challenges.

For each focus area, a brief synopsis of the observations and findings are stated along with an explanation of the opportunity, the specific change(s) to the system that are needed to achieve the improvement, and the benefit offered by implementing the change.

Comprehensively, the consultant's recommendations represent a shift to automate the Program's work processes to improve efficiency, performance measurement and asset management. Some of the focus areas are linked and the recommendations can be broadly organized and summarized in the following three groups.

- 1. Performance Measurement and 4. Results-Based Culture:** Develop and track performance measures and set performance targets to conduct performance reviews and identify and implement continuous improvement opportunities.
- 2. Process Automation, 3. Asset Based Management and 5. Activity-Based Program Budgeting:** Automate the utility locating, work order and timesheet data entry and tracking processes including the use of in-field hand-held data entry devices to reduce double entry of data, increase productive in-field labour hours and enhance monitoring of work crew productivity and effectiveness. The data will be managed by a new, upgraded and centralized asset management software system to provide valuable information for the management, maintenance and monitoring of assets. The data will also be used to develop and track activity-based budgets and ensure an appropriate balance of resources for planned versus reactive maintenance.
- 6. Staffing and Succession Challenges:** Develop and adopt a succession and knowledge transfer plan to overlap new staff with near-retirement staff. Define and include the financial implications of adding new staff in future budget preparations.

The focus areas form the basis of an implementation plan to be carried out over the next three years. The timing for each element of the implementation plan represents the period in which the actions would be initiated: do now (2015); do soon (2016); and do later (2017). A summary of the implementation plan is provided in Appendix A. It is noted that implementation of new asset management software system is an ongoing initiative involving other Divisions and Departments, including Water Services, Waste Management, Facilities Management and the Region of Waterloo International Airport.

Divisional management resources in collaboration with IT, Finance and HR will create the supporting structures and processes necessary to a successful implementation. These will include implementation planning, project controls, change management and communication.

Focus Area 1: Performance Measurement Framework

Transportation Operations does not currently track service delivery performance in a systematic fashion and has not established quantified performance targets. For example, the Region contributes to OMBI, but the information associated with this performance measurement is not fully utilized as a continuous improvement tool. Current time sheet tracking procedures mix productive, travel and non-productive time into a given maintenance activity. There is no set formula for this “time mixing” on days with multiple maintenance activities scheduled for a crew.

Opportunity: The capacity to assess how efficiently and effectively Transportation Operations delivers service could be increased and this information could be used to set quantifiable targets for improvement.

Recommended Change(s):

1. Restructure business rules and timesheets to separate direct productive time (i.e. labour hours) from travel time and non-productive time – thereby providing critical daily productivity data about deployed crews in the field;
2. Set “in the field” weekly time requirements for non-Union Supervisors that supersede office administration tasks;
3. Establish an on-going portfolio of Key Performance Indicators (KPIs) for each asset-based core program (e.g. winter control, signals, signs, line markings, pavement, etc.).
4. Consolidate winter control storm event reporting (i.e. major system-wide winter events). This consolidated reporting should include: the measurement of system-wide winter event clean-up results by each road category; an event report from each Region Yard, private sector contractor and each Tri-City municipal service provider; and, an end of season performance report to Council linking results to the season’s budget.

5. Maximize the use of GPS data for target setting and monitoring service level achievement and productivity; and,
6. Establish an annual Business Plan for Transportation Operations featuring performance targets.

Benefit: Management will gain the ability to identify improvement opportunities and develop / implement solutions.

Focus Area 2: Process Automation

The Region recently established its own “Service First Call Centre” to take all incoming calls from the public relating to the Region’s Transportation Operations. Once a call comes in, the Call Centre generates a request that is forwarded to Administration and Dispatch Staff within Transportation Operations. The request is relayed directly to Staff in the field who are tasked with resolving the complaint rather than going to a Supervisor who should prioritize the requests.

A number of the data input systems being used by Transportation Operations Staff are not automated and do not link to assets nor are geo-referenced. For example, timesheet forms are manually filled in daily by Staff. These timesheets are then input into the computer by administrative Staff. Descriptions of tasks are included in a general comments cell and in most cases the time is not associated with an asset. The manual entry of timesheet information into the Hansen software system currently occupies the majority of one administrative FTE’s time.

Ontario One Call locates are currently responded to manually by Transportation Operations. Typically, Staff deal with 1,100 to 1,200 locates in a summer month. When the locate request is received administrative staff look up the property using hard copy records. A hand-drawn sketch of the underground utilities is prepared and provided to field staff to conduct the locate.

Opportunity: The current call centre process could provide the opportunity for a Supervisor to prioritize requests that would allow them to be organized into more efficient groups. The current approach for timesheets and locates could be streamlined to reduce or eliminate inefficient double-inputting and cumbersome paper-based systems.

Recommended Change(s):

7. Review the process between the Call Centre and Transportation Operations to reduce inefficiencies;
8. Fast-track in-field data collection technologies (i.e. hand held devices or tablets) and set up an automated dashboard in order to free up Supervisors from time-

consuming paperwork, to promote informed maintenance decisions in the field, and to promote accountability.

9. Implement in-field timesheet recording on electronic devices to reduce time associated with timesheet input;
10. Implement in-field work order processing for field staff and Supervisors; and,
11. Automate the process for undertaking locates by using electronic records.

Benefits: The involvement of a Supervisor (or Lead Hand) to prioritize service requests received through the Call Centre will create efficiency by organizing requests in groups. Since the requests are grouped, then they can be completed efficiently while maintaining customer service expectations. This has been implemented for non-urgent requests. Urgent requests are directed to the nearest crew in the vicinity.

In-field data entry devices will assist in reducing double-entry of data. Pilot projects within the Region of Waterloo that implemented hand-held data entry devices (such as the Airport and Signs and Markings) recognized significant efficiencies in level of effort, reduced risk relating to documented adherence to minimum maintenance standards and improved confidence, accuracy and quality of data after being implemented. Electronic data entry will free up administrative resources from manual timesheet input and work order data entry. The administrative resources can then focus on reducing the administrative burden on Supervisors so that they can spend more time in the field. Improving the efficiency of in-field data entry will result in more productive in-field labour hours per front-line Staff; furthermore, Supervisors can reduce their in-office administration time and increase their in-field leadership and oversight time.

Through an automated dashboard and reports, management will be able to monitor, compare and assess the productivity and effectiveness of Transportation Operations crews using quantitative measurement. Council and Senior Management could receive reports that track actual program delivery results.

It is difficult to quantify the benefits to the Region from implementing mobile technology and since many governments are moving towards this solution there are limited quantitative results available. One Canadian service provider of mobile technology to municipalities claims an average 100 minutes/day enhancement in productivity through the implementation of mobile (Source: Fieldflex.ca).

The Region can also consider the following results from other jurisdictions to help it understand the magnitude of potential benefit by implementing mobile technology for work orders:

- The City of Phoenix (population 1.4 million) Water Services Department's implementation of a mobile solution for work orders through 2002 has achieved over 20% efficiency as measured against the O&M budget¹.
- The City of Hamilton's implementation of a mobile solution for facility work orders through 2007 "yielded many operational efficiencies and productivity gains – time savings alone [were] equivalent to \$295,000 in the first year"².
- The City of Ottawa's Technology Roadmap (2009) aimed to create a mobile workforce in multiple service lines. For the maintenance of roads, sidewalks, trees, and park land, the roadmap estimated a one-time investment of \$510,000 and annual benefits of \$1,000,000 using "potentially less new staff than would otherwise have been required"; and,
- Bernalillo County in New Mexico (population 673,000) implemented a mobile solution for its Public Works Division after a demonstration of the technology in early 2012. It has eliminated paper order processing and opens work orders 50% faster, processes work orders 45% faster, and completes 95% of work orders within 10 days.³

As previously noted, since many governments are still moving towards mobile technology, there is limited quantitative data available about implementation costs, annual operating costs, and cost savings.

With respect to the Ontario One Call locate process, using electronic records will eliminate the need for hand-drawn sketches, thereby reducing the risk of inaccuracies and reducing the amount of time/effort to respond to each locate request.

Focus Area 3: Asset Based Management

The Hansen computer system has not been updated and instead of having a centralized source of data, there are multiple standalone databases containing information on the management / maintenance of assets. The lack of a centralized system means that valuable information is not available or difficult to access for Management's monitoring, Supervisors' oversight / priority-setting, and Staff's record-keeping. Live data is also not available in the field where the work is being conducted. It is recognized that a new asset management software system is planned; however, Staff perceive that the implementation of the new system seems unusually slow given the significant shortcomings of the out-dated system currently in place. Significant effort

1 G.Ramon and C.Stern. 2005. *Deploying Mobile GIS and Workforce Management Technology to Track, Measure And Improve Utility Field Services*.

<http://gisdevelopment.net/proceedings/gita/2005/papers/13.pdf>

2 S.Lisle. 2013. *Field Service Management: Improving The Work Cycle*. FieldFlex: Ottawa, ON.

<http://fieldflex.ca/wp-content/uploads/FieldFLEX-whitepaper-field-service-management.pdf>

3 <http://www.sap.com/customer-testimonials/public-sector/bernalillo.html>

is required before the asset inventories and maintenance data will be in a condition that is ready to be brought into any new asset management software solution.

Opportunity: Staff could be better prepared with high-quality data that is ready for incorporation into the new asset management system once target dates have been established.

Recommended Change(s):

12. Identify a dedicated project management resource to fast-track software acquisition and implementation during 2015;
13. Establish a critical path for integrating new asset management software implementation with tracking of planned maintenance activities across the Region's core programs;
14. Investigate opportunities for a common asset management / maintenance management platform with the Tri-Cities; and,
15. Confirm and consolidate asset data (i.e. inventories, condition ratings, maintenance history) to prepare for immediate population of the new asset management system with Transportation Operations' data.

Benefit: Staff will see progress on implementing the new asset management system, believe there is value in data collection efforts, and will provide consistent quality input. Good quality data will be available for immediate incorporation into the new asset management system. This good quality data will help maintain a streamlined implementation timeframe and minimize cost overruns caused by cleaning-up poor quality data.

Focus Area 4: Results-Based Culture

Not all staff receive regular performance reviews to maintain morale, support productivity, and foster communication about continuous improvement. The Transportation Operations Program is not currently utilizing formal continuous improvement tools (such as Lean). Some peer municipalities have implemented continuous improvement systems and they report that their staff are communicating more service delivery improvement ideas.

Opportunity: Regular performance reviews could clarify objectives, recognize good performance more effectively and address under-performance more proactively while enhancing morale and employee engagement. This could foster improved communication of employee ideas for continuous improvement.

Recommended Change(s):

16. Conduct annual performance reviews for all non-Union Staff based on existing procedures.
17. Redesign annual performance reviews for all non-Union Staff linked to measurable targets for core programs for goal setting.
18. Adopt a continuous improvement toolkit to foster results-based management (examples include a Lean pilot project).
19. Initiate celebration events across the Yards, business units and the entire section when targets are achieved or surpassed.
20. Conduct redesigned annual performance reviews for all non-Union Staff linked to measurable targets.
21. Communicate performance results in highly visible locations at the Yards.
22. Involve front-line Staff in setting annual targets in Transportation Operations Business Plan; and,
23. Use KPI data to set targets and foster internal learning among the Yards.

Benefit: The Region will gain an evolving results-based culture featuring motivated and engaged front-line Staff working towards well understood organizational goals. The increased clarity for Staff on their roles and contributions will help foster more effective practices, thereby generating continuous improvements for Transportation Operations.

Focus Area 5: Activity-Based Program Budgeting

For the 2014 Budget, Management provided information on how the existing major road maintenance services on Regional roads are contracted out to the three cities, but these activities and service levels were not linked to budget allocations.

A realistic, performance-based activity Budget for each year can be created, but it relies on the tracking and planning of labour hours which currently does not happen in Transportation Operations.

Opportunity: The budget for Transportation Operations could be linked to the labour hours required for different maintenance activities to ensure that assets are not over-maintained or under-maintained. The Region could then use this knowledge to more effectively scale its resources to serve the increasing number of assets every year and improve resource allocation between planned versus reactive maintenance. Overall, this could reduce the frequency of some more costly capital rehabilitation projects.

Recommended Change(s):

24. Establish required annual / seasonal planned maintenance hours for categories of program assets.

25. Establish available annual / seasonal planned maintenance hours for categories of program assets.
26. Translate required planned maintenance hours into an allocation of budget dollars to core programs.
27. Develop a multi-year "Term of Council" report for required planned / reactive maintenance hours for each core program (note: labour hours will need to be estimated to begin this process).
28. Implement an activity-based budgeting pilot for two core programs; and,
29. Provide annual reporting of required / budgeted maintenance hours versus actual hours executed in the field.

Benefit: The Transportation Operations Budget will be based on the labour hours needed to execute a planned maintenance program plus meet anticipated reactive maintenance needs. The Region of Peel implemented its Corporate Performance Measurement program in 1997 which uses activity-based budgeting for a number of departments including their Public Works group. The program has allowed Peel to identify costs per unit of service for each of their program areas, compare internal program costs over time and to conduct cost and quality benchmarking with other municipalities. If the Region of Waterloo moves towards an activity-based budget, planned maintenance can be delivered on-schedule with sufficient resources allocated to it and management will be able to track and monitor activity-based budgets to identify opportunities for improvements and lessons learned, ultimately leading to more efficient deployment of resources.

Focus Area 6: Staffing and Succession Challenges

There is a general perception among Staff and peers that the Region's full-time staffing model is lean. Based on this lean staffing model, there seems to be evidence of instances where not all equipment / crews can be deployed due to Staff illness, vacation, etc. The Region is growing and will need to continue to monitor Staff and resource levels in order to meet growing demands.

In addition to the lean staff model, the Region's human resources projections for Transportation Operations demonstrate that a significant number of the front-line Staff and Management are eligible for retirement within the next few years. Although the Region faces this workforce demographics challenge, succession plans have not been finalized for Transportation Operations. Additionally, there are no knowledge transfer plans in place that would facilitate the transfer of institutional knowledge from long-serving employees to new employees.

Opportunity: Succession and knowledge transfer planning may result in institutional knowledge (i.e. the most efficient approach to completing a task) being transferred from long-serving employees to new employees when long-serving employees retire. As a

result, the labour hours delivered by new Staff are more likely to be as productive as the labour hours delivered by the Region's senior Staff.

Recommended Change(s):

30. Develop and adopt a succession and knowledge transfer plan for Transportation Operations. The plan should include overlapping new Staff with near-retirement Staff for mentoring and knowledge transfer; and,
31. Conduct financial modelling of the expected impact of retiring Staff, adding new Staff, time for mentoring, and the available labour hours for service delivery. Incorporate the results of this modelling in future Budget preparations.

Benefit: Valuable knowledge on how to efficiently and effectively deliver service will be passed on from senior to new Staff thereby contributing to the continued advancement of Transportation Operations. The allocation of additional labour hours and budget for mentoring during these years of workforce transition will help ensure that Transportation Operations is well-prepared to deliver its program of planned and reactive maintenance.

Implementation Benefits

A program review such as this one is focused upon the assessment of efficiency and effectiveness of current operations, as well as any risks that might be entailed in the running of the program or the provision of the service. Any recommendations for change that result from the review, accordingly, are oriented towards improving efficiency and effectiveness as well as reducing or eliminating risks. While some of the benefits will be quantitative and measurable in dollar value terms, many will be qualitative in nature or not necessarily measurable financially. The key benefits can be summarized as follows:

- 1. Performance Measurement and 4. Results-Based Culture:** Management and staff will gain the ability to identify improvement opportunities and develop / implement solutions.
- 2. Process Automation, 3. Asset Based Management and 5. Activity-Based Program Budgeting:** Electronic data entry using mobile technology will free up administrative resources from manual data entry, result in more productive in-field labour hours and allow supervisors to increase their in-field leadership and oversight time. Management will be able to monitor, compare and assess the productivity and effectiveness of work crews using quantitative measurement. Good quality data will be available for immediate incorporation into the new asset management system to provide valuable information for the management, maintenance and monitoring of assets. Management will be able to track and

monitor activity-based budgets to ensure an appropriate balance of resources for planned versus reactive maintenance.

- 6. Staffing and Succession Challenges:** Valuable knowledge on how to efficiently and effectively deliver service will be passed on from senior to new Staff to help ensure that Transportation Operations is well-prepared to deliver its program of planned and reactive maintenance.

Reporting

Staff will report back to Council on the various stages of implementing the recommendations from this Program Review through the development of an annual reporting process. Staff will track the various implementation actions and report on the actual costs and benefits. The first report should be anticipated by the end of 2015.

Corporate Strategic Plan:

The completion of the study was done in keeping with Focus Area 5.3: Ensure Regional programs and services are efficient and effective and demonstrate accountability to the public.

Financial Implications:

The automation of data entry and tracking using mobile technology will improve efficiency and productivity. Based on the limited available information about costs in other municipalities, preliminary estimates of the one-time capital cost for hardware, software and training range from \$250,000 to \$500,000. Staff recommend that the one-time capital cost of automation using mobile technology be funded from the Transportation capital budget for a new asset management system. The draft 2015 Ten-year Transportation Capital Program proposes a budget of \$4,550,000 over the next three years (2015 to 2017) for the Transportation share of costs to implement a new asset management system. The proposed capital budgets for 2015 will be subject to Council approval as part of the overall 2015 budget deliberations.

Ongoing annual operating costs for automation of data entry and tracking using mobile technology are expected to be on the order of \$100,000 to \$150,000 per year for wireless data plans, periodic hardware life-cycle replacement and information technology support. The avoidance of future cost increases is expected to at least offset the annual operating costs for the automation of data entry and tracking using mobile technology. The avoidance of future cost increases is expected to result from the increased efficiency and productivity of automated data entry and tracking using mobile technology reducing the magnitude of future cost increases for staffing to maintain new, expanded and aging Transportation infrastructure.

Financial modelling of the expected impact of retiring Staff, adding new Staff, time for mentoring, and the available labour hours for service delivery will be conducted in 2015

and the results of this modelling will be incorporated in future budget preparations.

Other Department Consultations/Concurrence:

In addition to the staff from Transportation Operations who participated in this program review, staff from Corporate Resources, Chief Administrator's Office, Finance, Transportation and Environmental Services, and Human Resources were directly involved in this program review through interviews, and review of the recommended actions.

Attachments:

Appendix A: Planned Implementation Activities Summary by Focus Area

Prepared By: **David A. Young**, Manager, Internal Audit

Phil Bauer, Acting Director, Transportation

Approved By: **Michael L. Murray**, Chief Administrative Officer

Thomas Schmidt, Commissioner, Transportation & Environmental
Services

Appendix A

Planned Implementation Activities Summary by Focus Area

Note: the recommendation numbers are shown after each task.

Do NOW Implementation Priorities (2015)

Division Preparedness

- Secure Implementation Budget and Staff Resources. Allocating resources is critical to meet this implementation schedule.

Performance Measurement Framework

- Restructure business rules/timesheets to separate direct productive / travel / non-productive time **(1)**.
- Set "in the field" weekly time requirements for non-Union Supervisors **(2)**.
- Establish an on-going portfolio of KPIs for each asset-based core program **(3)**.
- Consolidate winter control storm event reporting (i.e. major system-wide winter events) **(4)**.
- Maximize the use of GPS data for target setting and monitoring service level achievement **(5)**.

Process Automation

- Review the process between the Call Centre and Transportation Operations to reduce inefficiencies **(7)**.
- Fast track in-field data collection technologies to free up Supervisors **(8)**.
- Implement in-field timesheet recording on electronic devices **(9)**.
- Automate the process for undertaking locates by using electronic records **(11)**.

Asset-Based Management

- Identify a dedicated project management resource to fast-track software acquisition and implementation **(12)**.
- Establish a critical path for integrating new asset management software implementation **(13)**.
- Investigate opportunities for a common asset management platform with the Tri-Cities **(14)**.

- Confirm and consolidate for immediate population of the new asset management system **(15)**.

Results-Based Culture

- Conduct annual performance reviews for all non-Union Staff based on existing procedures **(16)**.
- Redesign annual performance reviews for all non-Union Staff linked to measurable targets **(17)**.
- Adopt a continuous improvement toolkit to foster results-based management (e.g. Lean or 4DX pilot) **(18)**.
- Initiate celebration events across the Yards, business units and the entire section **(19)**.

Activity-Based Program Budgeting

- Establish required annual / seasonal planned maintenance hours for categories of program assets **(24)**.
- Establish available annual/seasonal maintenance hours for categories of program assets **(25)**.
- Translate required planned maintenance hours into an allocation of budget dollars to core programs **(26)**.
- Develop a multi-year “Term of Council” report for required planned / reactive maintenance hours **(27)**.

Reduce Succession Challenges

- Develop and adopt a succession and knowledge transfer plan; model impact of retiring Staff **(30, 31)**.

Do SOON Implementation Priorities (2016)

Performance Measurement Framework

- Assess results and effectiveness of Do Now Implementation Plan; revise accordingly; addresses potential slippage in implementation plan
- Implement in-field work order processing for Supervisors **(10)**.

Results-Based Culture

- Conduct redesigned annual performance reviews for non-Union Staff linked to measurable results targets.
- Communicate performance results in highly visible locations at the Yards **(21)**.

Activity-Based Program Budgeting

- Implement an activity-based budgeting pilot for two core programs.

Do LATER Implementation Priorities (2017)**Performance Measurement Framework**

- Assess results and effectiveness of Do Soon Implementation Plan; revise accordingly.
- Establish an annual Transportation Operations Business Plan featuring performance targets **(6)**.

Results-Based Culture

- Involve front-line Staff in setting annual results targets in Transportation Operations Business Plan **(22)**.
- Use KPI data to set targets and foster internal learning among the Yards **(23)**.

Activity-Based Program Budgeting

- Provide annual reporting of required / budgeted maintenance hours versus actual hours executed in the field.