

Item:



Finance, Administration and Audit Committee Report

DATE: Wednesday, June 06, 2018

WARD(S): ALL

**TITLE: INTERNAL AUDIT REPORT – FORESTRY AND
HORTICULTURE OPERATIONS AUDIT**

FROM:

Kevin Shapiro, Director of Internal Audit

ACTION: FOR INFORMATION

Purpose

To present to the Finance, Administration and Audit Committee the Internal Audit Report on the Audit of Forestry and Horticulture Operations.

Recommendations

1. That the Internal Audit Report on the Audit of Forestry and Horticulture Operations be received.

Report Highlights

- In response to the 2013 ice storm and the damage caused by the Emerald Ash Borer (EAB), re-establishing the urban tree canopy became a top priority for this Term of Council.
- Approximately 13,260 residential trees were identified for replacement as a result of the ice storm, ongoing damage caused by EAB as well as natural tree mortality.
- Improvements are required to ensure risks related to the execution of the City's Forestry and Horticulture operations are efficiently and effectively mitigated.
- Management has developed action plans which will mitigate the identified risks and address the recommendations outlined in the report.
- Internal Audit will follow up with management and report on the status of management action plans at a future committee meeting.

Background

The objective of the audit was to evaluate the adequacy and effectiveness of the internal controls, processes and procedures in place to mitigate the business risks associated with managing Forestry and Horticulture Operations.

The audit approach included a review of City policies and procedures, tree planting and beautification strategy, contractor performance and payment processing, data analyses of transactional and work order data, physical sampling of records, and interviews with staff and management.

The scope of the audit covered Forestry and Horticulture activities for the period of January 2016 to August 2017.

Previous Reports/Authority

Not applicable.

Analysis and Options

Transportation Services, Parks and Forestry Operations (TSPFO) maintains over 130,000 boulevard trees, 195 hectares of woodlots, approximately 750 hanging baskets, 550 flower planters, 200 planting beds, over 800 hectares of parks, 200 playgrounds, a wide variety of sports fields, boulevards, open spaces and numerous trail systems. TSPFO also maintains the local road network, which accounts for over 2,000 lane-kilometers, over 80 traffic signals, traffic signs, pavement markings and the School Crossing Guard program.

Forestry Operations strives to lead and promote environmental sustainability as part of their vision for Service Excellence. This is done through the care and maintenance of the City of Vaughan's Urban Forests which includes boulevard trees, green spaces, parks, natural areas, and woodlots. Forestry staff have developed a seven-year plan to manage the Urban Forest. Managing and controlling invasive plant species as well as caring for trees within the city will visually enhance outdoor spaces, creating inviting spaces for visitors, businesses, and a source of civic pride.

Horticulture staff oversee the maintenance of the City's horticultural displays and flower beds. They are also responsible for the maintenance of shrub beds. Shrub bed maintenance consists of the pruning, weeding and mulching of more than 500 borders and gateway features throughout the City. Horticulture staff have also developed and implemented a citywide beautification strategy.

Forestry and Horticulture Operations staff are also responsible for snow removal/walkway clearing at city facilities, citywide fence repair and replacement, community outreach and Service in Kind, which entails staff setting up, taking down and running City and third-party events year-round.

Financial Impact

There are no direct economic impacts associated with this report.

Broader Regional Impacts/Considerations

Not applicable.

Conclusion

Improvements are required to ensure risks related to the execution of the City's Forestry and Horticulture operations are efficiently and effectively mitigated. The following opportunities were identified:

- Establishing a risk based framework to determine priority activities, service levels and whether existing resources can appropriately sustain these activities, considering present and future City growth.
- Improving monitoring and oversight activities over several processes including contract administration, work order administration and inspections.

Internal Audit will follow up on the status of outstanding Management Action Plans related to this audit and will report the status to the Finance, Administration and Audit Committee.

For more information, please contact: Kevin Shapiro, Director of Internal Audit, ext. 8293

Attachments

1. Internal Audit Report – Forestry Operations Audit

Prepared by

Kevin Shapiro, Director of Internal Audit, ext. 8293



INTERNAL AUDIT REPORT

Forestry and Horticulture Operations Audit

May 2018

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FORESTRY AND HORTICULTURE OPERATIONS AUDIT

CONCLUSION AND SUMMARY

Improvements are required to ensure risks related to the execution of the City's Forestry and Horticulture operations are efficiently and effectively mitigated. The following opportunities were identified:

- Establishing a risk based framework to determine priority activities, service levels and whether existing resources can appropriately sustain these activities, considering present and future City growth.
- Improving monitoring and oversight activities over several processes including contract administration, work order administration and inspections.

In response to the 2013 ice storm and the damage caused by the Emerald Ash Borer (EAB), re-establishing the urban tree canopy became a top priority for this Term of Council. At present, a majority of the replanting activities have been completed.

Management is currently working on developing a seven-year plan to ensure the health and wellbeing of green infrastructure assets, specifically the urban forest. The first few years of a tree's life is critical for its long-term health. Adequate watering, pruning, and other tree care ensures a healthy growing tree that will drastically reduce future maintenance costs and limit tree removal or replacement. It is imperative that as part of this review, management establishes a risk based framework to determine priority activities, service levels and whether existing resources can appropriately sustain these activities, considering present and future City growth.

Management oversight is an important element of the City's overall governance framework. As the City continues to grow, management will need to continually assess whether the City has the right tools, resources and controls in place to mitigate the most crucial risks facing the organization. There are increased operational, financial, liability and reputational risks to the City when management oversight is absent or focused on activities that are not crucial to meeting the City's organizational objectives. For Forestry and Horticulture, this includes enhancing processes and use of resources to support effective supervision over contract and work order administration by clearly defining and documenting roles, responsibilities, accountabilities and outcomes for all stakeholders.

The City has established an inspection process to review forestry and horticulture assets prior to assumption from contractors and developers. Opportunities exist to enhance the process to ensure the completeness of inspections prior to assuming the asset. Ensuring the inspection process is operating appropriately reduces the risk of paying for and assuming assets that do not meet the City's specifications.

Internal Audit will follow up on the status of outstanding Management Action Plans related to this audit and will report the status to the Finance, Administration and Audit Committee.

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BACKGROUND

Transportation Services, Parks and Forestry Operations (TSPFO) maintains over 130,000 boulevard trees, 195 hectares of woodlots, approximately 750 hanging baskets, 550 flower planters, 200 planting beds, over 800 hectares of parks, 200 playgrounds, a wide variety of sports fields, boulevards, open spaces and numerous trail systems. TSPFO also maintains the local road network, which accounts for over 2,000 lane-kilometers, over 80 traffic signals, traffic signs, pavement markings and the School Crossing Guard program.

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Forestry and Horticulture Operations staff are also responsible for snow removal/walkway clearing at city facilities, citywide fence repair and replacement, community outreach and Service in Kind, which entails staff setting up, taking down and running City and third-party events year-round.

OBJECTIVES AND SCOPE

The objective of the audit was to evaluate the adequacy and effectiveness of the internal controls, processes and procedures in place to mitigate the business risks associated with managing Forestry and Horticulture Operations.

The audit approach included a review of City policies and procedures, tree planting and beautification strategy, contractor performance and payment processing, data analyses of transactional and work order data, physical sampling of records, and interviews with staff and management.

The scope of the audit covered Forestry and Horticulture activities for the period of January 2016 to August 2017.

Auditor: Mustafa Paracha CPA, CGA, FCCA, CIA, CFE

Author and Director: Kevin Shapiro CIA, CFE, CRMA

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DETAILED REPORT

1. *Develop a Formal Strategic Plan to Manage Existing and Future Activities and Service Levels*

In response to the 2013 ice storm and the damage caused by the Emerald Ash Borer (EAB), re-establishing the urban tree canopy became a top priority for Forestry Operations this Term of Council.

In 2015, TSPFO developed a tree replacement strategy that considered all neighbourhoods equally, prioritizing entire streets rather than single locations. Approximately 13,260 residential trees were identified for replacement as a result of the ice storm, ongoing damage caused by EAB as well as natural tree mortality. Approximately 3,000 trees were replaced in 2015, 6,000 in 2016 and 6,500 in 2017.

In 2016, TSPFO developed a Beautification Strategy to classify each asset location into a category to determine the level of service required. An inventory of horticultural assets was completed along with a classification matrix and a phased approach for implementation and scheduled maintenance.

Since the focus of the last three years has been on re-establishing the tree canopy, resources have been diverted from the routine maintenance of the existing tree canopy. Tree maintenance during this period was reactive in nature and based on work order requests. Management is currently working on developing a life cycle management plan based on a seven-year rotation to ensure the health and wellbeing of these assets.

Recommendations

As part of the development of the new seven-year plan, we recommend that management establish a risk based framework, applying industry best practices, to determine priority activities, service levels and whether existing resources can appropriately sustain these activities, considering present and future City growth.

Management Action Plan

Management agrees with the recommendations.

Using a life cycle management approach and industry best standards, Forestry Operations staff are in the process of developing a seven-year street tree pruning and management plan. This plan will explore tree maintenance service levels in surrounding municipalities, recommend an appropriate service level for the City of Vaughan, and estimate resource needs required to deliver that service level (Q2 2019).

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2. *Provide Greater Oversight over Contract Administration*

In order to execute the strategy to replace the urban tree canopy, the City engaged third party contractors, through a competitive procurement process, to cut down the damaged trees, remove the stumps, supply, and replant the new trees. All replanted trees are inspected by City staff to ensure they are properly planted, mulched, staked, tied and site restored before the contractors are paid.

As part of the audit, we reviewed the contracts with the former and existing vendors as well as management's contract administration practices. The following was noted:

- The contract does not fully define expectations as it relates to the timing of the tree removal, tree planting and when certain activities, such as mulching and staking of the tree should occur. The existing contractor's practice is to plant and mulch trees on one day and return a few days or weeks later to stake and restore the site. This has created confusion, inefficiencies and potential issues with tree quality and City staff have had to inspect the same site multiple times to ensure tree planting requirements have been met.
- With City approval, the contractor may substitute trees if the type requested by the City is not available. While allowable under the existing contract, there is no process in place to capture when the contractor has made a substitution, or to verify whether a substitution was warranted, based on tree availability.
- Staff are not reconciling contractor invoices to inspection reports to ensure accurate billings.
- In 2017, several payments were made to the contractor for assets that did not pass inspection. In order to prevent holdback of the entire invoice, the payments were processed with assurance from the contractor that the deficiencies would be corrected. However, the deficiencies were not re-inspected by City staff until the end of the year when it was identified that 50% of these assets still did not pass inspection and would need to be replaced in 2018.
- We benchmarked the City's tree warranty period for newly planted trees with other municipalities. Our review indicated that the City of Vaughan's trees are warranted for one-year, while York Region, the Town of Richmond Hill and the City of Markham all have a two-year warranty.
- There are no documented procedures in place related to payment processing and invoice reconciliation.

Providing clear and concise contract language with respect to roles, responsibilities, accountabilities and outcomes, combined with enhanced oversight over contract administration will mitigate financial, operational and reputational risk.

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Recommendations

We recommend that management:

- Update the roles, responsibilities, accountabilities and outcomes language in any future contracts to be more clear and concise in terms of expectations, especially as it relates to the timing of when the various activities within the process should occur.
- Enhance oversight and controls over the tree substitution process.
- Ensure invoices are reconciled to the inspection report by agreeing the total of all species planted per inspection to the invoice, and follow-up with the contractor if any discrepancies or deficiencies are noted, prior to payment.
- Reevaluate the current billing process to ensure that payment is withheld on assets that have not passed inspection.
- Reassess the City's current warranty requirements for trees by conducting a risk based evaluation to identify planting conditions and techniques that improve tree survival, and whether there is an optimal tree warranty strategy from a risk and cost benefit perspective.
- Develop a detailed SOP framework to help simplify contract administration practices with respect to payment processing and invoice reconciliation.

Management Action Plan

Management agrees with these recommendations.

Since the audit has been completed, Forestry Operations has dedicated staff to ensuring contract compliance, as well as reconciling billing with inspection reports, and following up with the contractor if any discrepancies or deficiencies are noted, prior to payment. As part of contract compliance, staff verify that substitutions have been documented and approved prior to planting, as stated in the contract. There are no increases in price for species substitutions in 2018 (Completed).

In terms of determining an optimal tree warranty strategy, staff are committed to investigating how surrounding municipalities conduct their tree planting contracts (Q2 2019).

Pending available resources, management will develop the following Standard Operating Procedures to provide contract management guidelines for staff: (Q3 2019)

- Document Management
- Financial Management

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3. Enhance Monitoring and Oversight Over Work Order Administration

Forestry and Horticultural staff are responsible for correcting deficiencies as it relates to the planting and maintenance of their assets. TSPFO's Administration team is responsible for maintaining the work order information related to these deficiencies in the JDE system. This includes notifying Forestry and Horticulture staff of new deficiencies, creating new work orders, updating existing work orders and closing work orders.

To ensure work order requests are handled in a timely manner, the department has established self-imposed thresholds based on the urgency of the work. The Forestry Operations team is responsible for keeping track of intake and outtake of work order requests from and to the Administration team and completing the requests per the thresholds. The Administration team is also responsible for creating, updating and closing work orders for issues related to roads, parks and traffic.

According to Forestry and Horticulture Operations management, prior to the current TSPFO structure, work order generation was for Parks and Forestry Operations. Following the amalgamation of both Traffic Engineering and Roads in 2015, the work order generation increased drastically. A decision was made to host information related to tree planting contracts (planting, stumping and tree removals) in an Excel file. This transition began in 2016 for tree planting contracts. The software solution presently being used is not conducive for statistical purposes and as such, each location identified would have required six work orders to capture each function of the planting process. As a result, it would have been extremely difficult administratively to enter the over 70,000 forestry related work orders yearly for 2016 and 2017.

Year	Forestry	Parks (includes Horticulture)	Roads	Traffic Engineering	TOTAL
2012	12,305	1,588	Part of Environmental Services	Part of Engineering Services	13,893
2013	18,636	2,696			21,332
2014	14,491	1,931			*16,422
2015	39,889	1,675	9,746	220	51,530
2016	11,169	1,823	9,546	486	23,024
2017	7,706	1,720	8,319	511	18,256

*2014 forestry work orders include more than one tree, specifically during the response to the 2013/14 ice storm.

Internal Audit noted the following:

- There is no real-time monitoring of work order statuses to ensure completion thresholds are being met.
- Work order statuses are not being updated in the system on a timely basis.
- Several closed Forestry work orders are still showing as opened in the system.

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- During periods of high volumes, requests were answered without the use of the case tracking system.
- Information provided by the field and administrative staff in relation to work orders is not updated/entered into the work order system in a timely manner.
- Data integrity issues have impacted approximately 17,700 work orders. This was caused by incomplete, inconsistent or illogical data capture (e.g. missing start and/or end dates, an end date being recorded as a date prior to the start date, inconsistency with completing free form fields, etc.).
- The minimum thresholds for completing work orders were not established based on risk and may not be appropriate based on existing resources and department priorities.
- There are no documented procedures outlining the roles, responsibilities and accountability of staff involved in the work order administration process.

Recommendations

In 2014, Internal Audit conducted a Road Operations Audit and TSPFO staff acknowledged that opportunities existed to improve the effectiveness of the work order management processes. Action plans to address those recommendations are still ongoing, and upon complete implementation, will help ensure completeness and accuracy of the system data and thereby increasing management's ability to determine compliance to contracted or legislated specifications.

In addition, we recommend that management:

- Conduct a risk based evaluation of the existing work order minimum threshold completion times to determine whether the existing service levels are appropriate based on existing resources, department priorities and best practices used at other comparable municipalities.
- Develop standard operating procedures clearly identifying the roles, responsibilities and accountability of staff involved in the work order administration process.

Management Action Plan

Management agrees with these recommendations.

As TSPFO is still on a manual data entry system, numerous staff have a touch point during the work order process. There is no one individual that is responsible for work order entry due to the volume of work order generation within the department. Staff are working with available technologies to manage work orders and will continue to explore new possibilities, while awaiting the Corporate Work Order management solution and system integrations that will improve efficiency.

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Management is committing to work with the Forestry and Horticulture team along with the other divisions of TSPFO to review and update existing thresholds for each work order function within the department. We will leverage external stakeholders and other municipalities to review best practices to ensure we are consistent in delivering our service (Q2 2019).

Pending available resources, staff will develop standard operating procedures to clearly identify the roles, responsibilities and accountability of staff involved in the work order administration process. During this process, staff will document the current work flow process to assess the current inefficiencies (Q4 2019).

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4. *Improve the Development Inspection Processes for Assumption of New Forestry & Horticultural Assets*

Developers are responsible for planning and planting trees, and cultivating plants in all newly built subdivisions.

When all assets have been planted in new subdivision, Forestry staff will inspect the trees and Parks Development staff will inspect the horticultural assets. The developer is responsible for correcting deficiencies. A final inspection is performed prior to assumption of the subdivision.

The goal of the inspection process is to verify the quality and completeness of work performed by developers, and provides additional support to the Engineering Department for assuming new forestry & horticultural assets.

The following was noted:

- Horticultural assets in new subdivisions are inspected by the Parks Development Urban Designer – Landscape Architect. The primary goal of this inspection is to assess it from an aesthetic design point of view, ensuring compliance with the site plan requirements. Currently, the inspection does not take into account whether these assets were planted appropriately or to assess their current health.
- There are no formal documented procedures outlining the roles, responsibilities and accountability of staff involved in the inspection process.

When inspection processes are not functioning as intended, there is a greater risk of paying for and assuming assets that do not meet the City's specifications.

Recommendation

We recommend that management:

- Assess the health of horticultural assets and ensure any deficiencies are corrected prior to assuming a new subdivision.
- Develop and implement a formal inspection process which defines the roles, responsibilities, accountabilities for verifying the quality and completeness of work prior to assuming new forestry and horticultural assets.

Management Action Plan

Management agrees with these recommendations.

Pending available resources, management will develop and implement a formal inspection process which defines the roles, responsibilities, accountabilities for verifying the quality and completeness of work prior to assuming new forestry and horticultural assets (Q4 2019).

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5. *Improve the Private Tree Permit Inspection Process*

City By-law 185-2007 requires residents to obtain a permit if there is a need to remove privately-owned trees with a diameter of twenty centimeters or more measured at base. A Residential Private Tree Removal Application form is available on the City's website and sufficiently explains the process to residents.

After the application is received, a City Arborist will attend the site and will either approve or deny the application. Upon approval, the resident is issued a permit and is required to privately replant within 12 months of permit date. The number of trees to be replanted is determined by the number and size of tree(s) being removed using a pre-determined formula. Once the tree(s) are replanted the applicant is required to contact the City for a final inspection.

If the applicant does not wish to re-plant the required replacement trees, they may opt to pay for trees to be planted on City lands within the community. A fee for each replacement tree is added to the permit cost. Fees collected for trees are to be used for tree planting by the City.

We reviewed a sample of tree permit applications and noted the following:

- The tree permit application indicates "once the tree(s) are replanted the applicant is required to contact the City for a final inspection". However, there is no follow-up process in place if the resident fails to contact the City for the final inspection.
- There is no follow-up on open tree permit applications that are pending applicant payment and pickup to ensure the trees have not been removed without a permit.
- On a transaction basis, cash in lieu contributions are booked as revenue instead of being deposited directly to the reserve account. Twice a year, the cash in lieu funds are transferred from revenue to a reserve account. As a result, there is a risk that the reserve account balance may not always be accurate from a reporting timeliness perspective.
- Tree permit applications are not consistently reviewed by supervisory staff prior to approval or denial of a permit.

The absence of effective oversight over the tree removal application process can increase the risk of non-compliance to By-law 185-2007 and the corresponding loss of urban tree canopy.

Recommendations

We recommend that management:

- Develop and implement a formal inspection process to:
 - Verify that the applicant has replanted as per the permit requirements.

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- Follow-up on all tree permit applications where an applicant has not made the payment and picked up the permit.
- Re-evaluate the process of how cash in lieu contributions are booked to enhance the accuracy and timeliness of reporting.
- Ensure all tree permit applications are reviewed by supervisory staff prior to approval or denial of a permit.

Management Action Plan

Management agrees with these recommendations.

Management will develop a Standard Operating Procedure for the tree permit process: (Q2 2019). Additional resource needs for this program will be communicated through the budget process for FY 2020.

Management will work with Finance to ensure that cash in lieu contributions are booked directly to a reserve account dedicated to tree replacement (Q2 2019).

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6. *Establish a Greenhouse Maintenance Program*

In 2017, a Beautification Strategy was developed that set a new direction for managing the City's Horticulture assets from a localized to a city-wide strategy. The framework establishes measurable levels of service, a rank order of priority sites and will enable Horticulture staff to implement new measures such as moving to a more perennial-oriented plant profile, redeveloping shrub beds and deploying self-watering reservoir systems.

In 2016, as part of this strategy, the Horticulture team purchased two greenhouses. The use of the greenhouses allows staff the ability to propagate and expand the inventory of plants, while acting as a place to store assets that otherwise would not survive in the cold climate. The space is used by staff to prepare these assets for use in summer planters and hanging baskets and staging plant material for special events and ceremonies.

The greenhouses use propane heating to maintain a constant temperature. The propane is supplied by a third-party vendor and is replenished by the vendor based on an automated signal reading on the tank.

In December 2017, the automated signal reader failed. As a result, the vendor was not aware that the tank ran out of fuel. The resulting heating failure caused an estimated \$45,000 in asset loss.

Prior to this incident, there was no greenhouse preventative maintenance program in place to detect and prevent equipment breakdowns.

Recommendations

We recommend that management develop and implement a formal greenhouse preventative maintenance program.

Management Action Plan

Management agrees with the recommendation.

Management will develop and implement a formal greenhouse preventative maintenance program (Q4 2018).