

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 25, 2013

Item 5, Report No. 8, of the Finance and Administration Committee, which was adopted without amendment by the Council of the City of Vaughan on June 25, 2013.

5 INTERNAL AUDIT REPORT – WATER, WASTEWATER AND DRAINAGE

The Finance and Administration Committee recommends approval of the recommendation contained in the following report of the Director of Internal Audit, dated June 10, 2013:

Recommendation

The Director of Internal Audit recommends that:

1. The Internal Audit Report on Water, Wastewater and Drainage be received and approved.

Contribution to Sustainability

Internal Audit activities and subsequent reports contribute to the sustainability of the City by providing advice and assurance that controls supporting the effective delivery of services and programs are effective. Longer term sustainability needs the support of good, efficient risk mitigation strategies. Internal Audit can provide support for that sustainability by providing independent advice and assurance.

Economic Impact

There are no direct economic impacts associated with this report.

Communications Plan

Not applicable.

Purpose

To present to the Finance and Administration Committee the Internal Audit Report on Water, Wastewater and Drainage and to provide an evaluation of operational controls, as well as opportunities for improvement to help mitigate potential risks.

Background - Analysis and Options

This audit was done to evaluate the effectiveness of controls, processes and procedures in place to mitigate risks that could affect the Water, Wastewater and Drainage Division in the Public Works Department from meeting its and the City's business objectives.

The audit was requested by the Commissioner of Engineering and Public Works and the Director, Public Works.

Relationship to Vaughan Vision 2020/Strategic Plan

This report is consistent with the priorities previously set by Council and the necessary resources have been allocated and approved.

Regional Implications

Not applicable.

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Conclusion

The report concluded that the controls, processes and procedures are effective in mitigating risks that could prevent the Division from meeting its stated business objectives. The City is in compliance with the Safe Drinking Water Act 2002. Administrative controls over contract acquisition and monitoring need to be improved.

Management has agreed to review and improve contract acquisition and monitoring processes. More analysis will be done to expand the bidding pool for required services and further assessment will be done to determine if existing staff capabilities can be used to reduce the reliance on services done by external contractors.

Attachment

Internal Audit Report – Water, Wastewater and Drainage

Report prepared by:

Michael Tupchong CA, CIA, CPA, CFE
Operational and Compliance Auditor

(A copy of the attachments referred to in the foregoing have been forwarded to each Member of Council and a copy thereof is also on file in the office of the City Clerk.)

FINANCE AND ADMINISTRATION COMMITTEE – JUNE 10, 2013

INTERNAL AUDIT REPORT – WATER, WASTEWATER AND DRAINAGE

Recommendation

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Internal Audit Report – Water, Wastewater and Drainage

Report prepared by:

Michael Tupchong CA, CIA, CPA, CFE
Operational and Compliance Auditor

Respectfully submitted,

Paul Wallis CMA, CIA, CISA
Director, Internal Audit



INTERNAL AUDIT REPORT

Water, Wastewater and Drainage

April 2013

INTERNAL AUDIT REPORT

AUDIT OF WATER, WASTEWATER AND DRAINAGE

CONCLUSION AND SUMMARY

We conclude that the controls, processes and procedures are satisfactory and effective to mitigate risks that could prevent the Water, Wastewater and Drainage Division from meeting its stated core objectives. The City exceeds provincial standards for water testing as evidenced by the results of third party quality assessment reviews. The City is in compliance with the Safe Drinking Water Act 2002.

Administrative controls over contract acquisition and monitoring need to be improved.

Services for Lift and Booster Stations Maintenance and Repairs are covered by Field Purchase Orders (FPOs) and for 2012 these services totaled approximately \$214,000. Between 2000 and 2012 inclusively, approximately \$1.7 million was expensed with one contractor through the use of FPOs. Originally in the past, this work was tendered and a contract established. However, when the contract expired, the work was not re-tendered and the existing contractor's services were continued mainly under FPOs from 2002. Currently, management is reviewing lift and booster station maintenance and repair service requirements and a new contract will be tendered.

Services for Sewer Flushing, Cleaning Sanitary and Storm Sewers and Hazardous Waste Disposal were tendered in 2007 and then retendered in 2012. For 2012, and in an attempt to attract more bidders and reduce costs, the pricing structure was changed so that bids would be based on a linear metre rate as opposed to the existing hourly rate. There was only one bid; that of the existing contractor whose bid was approximately \$1 million more than their bid in 2007. Even taking into account inflation as well as equipment and labour cost increases, the bid was well over pricing expectations. The bid was disqualified because of a non-compliance with submission requirements. The existing contractor is still providing services on an extended contract.

Attracting other bidders can be a challenge for sewer related work because the City requires that the contractor also have the required license to handle hazardous waste disposal. Few have this license and, as a result, the contractor market pool is small.

Management will be re-tendering the Sewer Flushing, Cleaning Sanitary and Storm Sewers and Hazardous Waste Disposal contract based on an hourly rate for services. Work on tendering this contract is currently in progress.

Further details on the above and other issues are available in the attached detailed report.

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AUDIT OF WATER, WASTEWATER AND DRAINAGE

BACKGROUND

The Water, Wastewater and Drainage Division employ approximately 55 full-time staff.

Water is purchased from the Region of York at a cost of approximately \$31 million for 2012. The 2012 transfer to water reserve is approximately \$6.6 million to provide for future requirements of the water infrastructure. At the end of 2012 the water reserve of \$30.3 million will provide for future requirements of water infrastructure.

For **Wastewater**, \$6.8 million has been transferred to reserve resulting in a reserve balance of \$31.4 million to provide for future requirements of wastewater infrastructure.

The Region of York receives water from the City of Toronto and the Region of Peel and supplies it to the City of Vaughan Water Distribution System which used approximately 41 million cubic metres of water in 2012. Vaughan has a chloraminated system.

The Region of York also supplies groundwater through production wells to the City of Vaughan for the Kleinburg Water Distribution System which used approximately 615,000 cubic metres of water in 2012. Kleinburg has a chlorinated system.

OBJECTIVES AND SCOPE

Internal Audit worked with Water, Wastewater and Drainage management to identify and evaluate the key risks related to the division's activities. We independently tested the procedures and processes supporting the key controls that mitigated the most significant risks.

Based on our risk evaluation, we focused on controls supporting the following core objectives.

- 1) Distribute potable drinking water to all City of Vaughan residents through compliance with Provincial legislation and regulations as well as the continuous improvement of effective and efficient service in response to growth.
- 2) Maintain wastewater and drainage collection infrastructure and the control of environmental hazards through compliance with Provincial legislation and regulations as well as the continuous improvement of effective and efficient service in response to growth

The Scope covered the period from January 1, 2012 to December 31, 2012.

Auditor and Author: Michael Tupchong CA, CIA, CPA, CFE

Director: Paul Wallis CMA, CIA, CISA

INTERNAL AUDIT REPORT

AUDIT OF WATER, WASTEWATER AND DRAINAGE

DETAILED REPORT

1. Service Contracting

- a) Current Purchasing Policy requires that if annual accumulated expenses reach \$100,000, a tender document should be issued to encourage competitive bidding from contractors to enable competitive pricing and potential savings for the City.

Between 2000 and 2012 inclusive, approximately \$1.7 million (or approximately \$130,000 per year) of services was sourced from one contractor for Lift and Booster Station Inspection/Repair/Maintenance and Methane Flare Station inspection/repair through the use of multiple Field Purchase Orders (FPOs), under \$3000 each. With the exception of the years 2003, 2005 and 2006, FPO expenditures exceeded \$100,000 annually from 2002 to 2012 inclusive. In 2012 alone, the total FPOs amounted to approximately \$214,000. Purchase Orders were also issued throughout the years but were increasingly replaced by FPOs from 2007 onwards.

A sole contractor has been doing the maintenance, repair and service work on the lift and booster stations and methane flare station for over 15 years. Originally, the work was done under a tendered contract but once the contract had expired, the work was continued using a series of FPOs. This was done because the contractor was able to provide three skillsets namely, mechanical, electrical and plumbing services, which was not common for one contractor to provide. The contractor was also knowledgeable of the City's Lift and Booster Stations, and Methane Flare Station, and developed a rapport with divisional staff. Staff was also satisfied with the standard of work produced by the contractor.

The risk of issuing multiple FPOs to a sole contractor is that the Division may not necessarily be receiving the best price for the services.

At the time of the audit, the Division was doing a detailed analysis of required services so that a tender document could be prepared. Now that Water and Wastewater staff have received additional training and certification, more of the work that was previously contracted out can be done in-house. The new contract will cover the more difficult electrical / mechanical type work that either requires specific licences, such as electrical, or requires specialized training, such as pump repair.

In addition, Water, Wastewater and Drainage management began receiving threshold reports identifying services that should be considered for tendering.

- b) A tender for Sewer Flushing, Cleaning Sanitary and Storm Sewers and Hazardous Waste Disposal was issued in December 2012. Only one bid was received and it was the same contractor the City has had for a number of years. However, the contractor's bid was disqualified because all submission requirements were not followed. As a result, the existing contract was extended and a new tender document is being developed.

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We reviewed the previous tender which was issued in 2007 and compared this with the tender which was issued in 2012. In 2007, the tender was based on an hourly charge rate whereas the 2012 tender was based on the linear meter charge rate. The sole bid for the 2012 tender was for \$1.8 million. This is almost \$1 million more than the 2007 tender for basically the same type of work. Even taking into account inflation and other related factors, such as increased labour and equipment costs, the bid was well over pricing expectations.

The Division had used the Hourly Charge Rate in their previous tenders and changed the pricing structure to the Linear Meter Charge Rate for 2012 in an attempt to attract other contractors and potentially lower the cost.

Attracting other bidders can be difficult for sewer and emergency spills response related work because the City requires that the contractor have the required license to handle hazardous waste disposal. Not all contractors have this and, as a result, the pool of qualified contractors is quite small.

The risk of modifying bid criteria without knowing what the potential impact is, could result in the City incurring higher costs than anticipated. In this case, the City was fortunate that the sole bid received did not meet all the requirements and was disqualified.

Recommendation:

We recommend:

- A formal process be developed that can identify service contracts approaching the \$100,000 tendering threshold. This will provide a proactive opportunity to develop the bid package and enable testing the market for competitiveness prior to exceeding the threshold.
- The new tender should revert back to the hourly charge rate instead of the linear meter charge rate. This should result in a lower overall cost to the City and for the possibility of attracting new bidders.
- In future, an impact analysis be done prior to changing bid criteria on existing service contracts to mitigate the possibility of unexpected cost increases.

Management Action Plan:

- Aside from retendering the Sewer Flushing, Cleaning Sanitary and Storm Sewers and Hazardous Waste Disposal contract, more analysis will be done to identify other contractors that can provide the required services, and staff will work with Purchasing Services staff to invite these new companies to bid.

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- The Purchasing Department will provide information to better advise the Water, Wastewater and Drainage Division on when to begin preparing tenders. In addition, the Purchasing Department will provide training and advice to staff on service contract procurement options and procedures.
- The Water, Wastewater and Drainage Division will further assess staff capabilities to potentially reduce the extent of services required by an outside contractor. Service contracts can then be developed based on a better understanding of specific requirements.

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2. Asset Management Gap Analysis

On April 2010, an outside consultant (Prior and Prior Associates), prepared an Asset Management Gap Analysis Report for the Engineering & Public Works Commission. The gap assessment was done based on benchmarking over 100 best practices grouped under six “asset management program elements”, including:

- Processes and Practices
- Information Systems
- Data and Knowledge
- People and Organizational Issues
- Commercial Tactics
- Asset Management Plans

Although numerous strengths were listed in the report, some of the more significant gaps included:

- Risk Management driven by staff knowledge without benefit of formal assessments.
- Level of contract work is high presenting a level of risk that condition and performance information is easy to miss.
- Design and construction manuals have not been updated since 2004; new design criteria and standards for drawings are needed.
- Lack of confidence in data relating to inspection of sanitary and storm sewers.
- Using the accounting system (JD Edwards) for work order processing although it is difficult to track total costs.
- No consistent service request software; some information comes through Access Vaughan and CTS.
- Improvement in inventory management of various parts (hydrants, valves) and water meters kept at Public Works locations.

Overall, there were sizeable gap scores between divisional scores and best practice scores for, overall planning, practices and processes, data and systems.

Without an effective Maintenance Management System, the Division will have difficulty in reducing the identified weaknesses and closing the gaps to achieve better practices in planning, practices and processes, data, and systems. In addition, there is an emerging risk

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in that the City infrastructure is rapidly growing and employees with much knowledge and experience of the City infrastructure may soon retire leaving a knowledge gap.

A Maintenance Management System will contain all relevant, detailed City data which will facilitate the management of the wastewater and drainage infrastructure network.

The Division has been pursuing an automated Maintenance Management System but other priorities and the high cost of the required software has delayed implementation.

Recommendation:

It is recommended that a Maintenance Management System (MMS) strategy and work plan be revisited as a priority project as part of the City's overall Asset Management Project.

A new maintenance management system software can also benefit other areas asset classes in the Engineering and Public Works Commission, such as pavement & concrete, bridges & culverts, streetlights, traffic signals, signs & guardrails and other engineering projects.

Management Action Plan:

Phase 1 of the City-wide Asset Management Project has been awarded to GDH Consulting. Staff from the Public Works Department are on the Steering Committee of the Asset Management Project, and will make sure that a maintenance management system is noted as a requirement of the overall Asset Management Project.

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3. *Fire Hydrant Maintenance/Valve Exercising*

In 2012, two separate contractors charged \$221,000 for hydrant inspection, repair and maintenance and \$44,000 on valve exercising respectively. A list of hydrants maintained and painted with dates and location and other information is received by the Water Division monthly. Similar information is received for valves. The Division attends to hydrants and valves which need further action based on contractors' comments. Other than this, the Division does not verify the service and maintenance work done by those contractors. The staff coordinator trusts that the contractors did the work based on the lists provided to the Division.

Verifying work requires resources and has an associated cost. For this reason, it is not practical to do extensive checking and the right level of verification should be considered based on risk and cost. However, there is some risk that without doing any independent verification, as the Division may be paying for services charged but not received.

Recommendation:

We recommend that the Division perform a level of verification that will help determine what the overall risk is of being overcharged. Based on the results of the verification, the Division can either increase or decrease the level of verification until the right level of risk versus cost can be determined.

Management Action Plan

Spot checking of hydrant painting/inspection and valve turning needs to be done on a more definitive basis. Although it was easy for staff to drive by an area and spot hydrants that have been painted, there was no formal tracking of such checking. Hence, formal verification of such work could not be provided to the auditor.

Division staff will now be required to formally record when they perform spot checks for hydrant painting/inspection. In addition, Division staff will also be required to perform random spot checks on valves, and formally record such spot checks as verification of work completed under this contract.

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4. *By-Law Development and Updates*

a) Backflow By-Law

Backflow prevention action has been added to the list of emergency situations as required by the Quality Management System (QMS). However there is no back-flow prevention by-law to enforce this requirement.

Without an approved by-law for the City, there is a risk of not being able to hold contractors accountable for non-performance of backflow prevention since a penalty cannot be imposed.

b) Sewer By-Law:

The sewer by-law was last amended in 1982 and is now considered obsolete. As a result, the Public Works Department is using the Region of York by-law as it was recently updated approximately two years ago.

The maximum concentration levels for sewage is more stringent in the Region of York's by-law than the City's for a variety of compounds including, copper, lead, mercury, nickel, zinc, phosphorous, arsenic and cyanide.

Using the Region of York's by-law criteria cannot be enforced and, therefore, is ineffective to use because it cannot be enforced by the City. The risk is that substances may reside in the sewers that exceed the Region of York's by-law but fall within the City's old obsolete by-law resulting in unacceptable residual levels where no penalties can be imposed by the City.

The development and updates of these two by-laws is considered to be part of the responsibilities of the Public Works Water Engineer. This position is currently vacant and is actively being recruited for.

Recommendation:

We recommend that once the Public Works Water Engineer is recruited, work should begin on developing a backflow by-law and updating the sewer by-law.

Management Action Plan:

The development and implementation of a back-flow program for water, will be a key priority for the new Water/Wastewater Engineer.

Similarly, updating the City's current Sewer use By-law to match the recently adopted Region of York Sewer Use By-law is also a key priority for the new Water/Wastewater Engineer.

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We were still actively recruiting for this position at the time of the audit. Since the audit was completed, an offer has been made and accepted for someone to fill this position. It is expected that the new person will start around the beginning of June. As this person is coming from another City department, they have requested additional time to fill his position, prior to him starting in the Public Works Department.