

**APPENDIX 1**

**MANAGEMENT OF CONSTRUCTION CONTRACTS –  
TORONTO WATER AND SEWER EMERGENCY  
REPAIR CONTRACTS**

**July 30, 2007**

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 **Auditor General's Office**

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## **AUDIT REPORT IN BRIEF**

### **BACKGROUND**

Toronto Water has a complex network of water and sewer lines serving the residential and commercial needs of the City. There are 470,000 water service connections and 463,300 sewer service connections within the City. With twelve facilities across the City, Toronto Water inspects, maintains, operates and rehabilitates the existing water distribution, wastewater collection and storm water management systems. Repair and maintenance of water and sewer lines is jointly carried out by City staff under the Operations and Maintenance Unit and District Operations Contract Services using outside contractors.

The City has entered into agreements with outside contractors to install and carry out the repairs of existing water and sewer service connections and mains. Effective management and administration of these contracts is essential in maintaining the City's water and sewer infrastructure in a cost-effective manner that ensures safety, minimizing liabilities and risks, and preserves, to the extent possible, the longevity of the City's infrastructure. Amounts paid for emergency repairs to outside contractors for water and sewer lines for 2005 and 2006 were approximately \$10 million and \$7.2 million respectively.

In view of concerns identified in a previously issued report entitled "Contract Compliance Issues" tabled in late 2005, we included a more detailed review of construction contracts in our 2006 Audit Work Plan and again in 2007. In September 2006, we completed our first review of a construction contract related to the reconstruction of the Queensway Eastbound Lanes (Queensway contract). In view of issues identified with the management of the Queensway contract, we expanded our work plan to include additional contract compliance reviews and completed our review of the contract relating to the Structure Rehabilitation of Leaside Bridge Over Don Valley (Leaside Contract). This report is our third review of contracts administered by the City.

Two contracts identified as Contract, #04D3-300WS for new installations and emergency repairs for 2004 and 2005 (North York district), and #06TE/EY-305WS for emergency repairs for 2006 (Toronto East York and Etobicoke York districts), were selected for review due to the significant amount of funds involved and also because several concerns were received by the Auditor General's fraud and waste hotline related to this area.

The contracts for installation and repair of water and sewer services include installation of new water and sewer services and emergency repairs of existing water and sewer service connections and mains in selected districts of the City in accordance with contract drawings, City standards and specifications. The contracts were awarded to OJCR Construction Ltd. in the amounts of approximately \$2 million for each of the years 2004, 2005 and 2006. Our focus in conducting this work was to address the following questions:

1. Does management exercise adequate and effective oversight over tendering awards and emergency repair contracts?
2. Do contract documents, terms and conditions adequately protect the City's interests?
3. Are contractor payments adequately supported, authorized and do they comply with contract terms and conditions?
4. Are expenditures incurred on individual contracts adequately monitored?

#### **IN BRIEF – WHAT DID WE FIND?**

This audit, much like the earlier reviews of construction contracts, has identified a number of concerns related to how the City manages its contracts relating to the construction and repair of the City's infrastructure. Concerns identified as we progressed through this review were communicated to management for appropriate and immediate action.

The major theme of this report revolves around the following related issues:

- City-wide water and sewer emergency repairs were awarded to one contractor;
- Inadequate controls in the tender award and contract development process; and
- Poor documentation of policies and procedures, inadequate staff training resulting in inconsistent and ineffective contract management.

### **Emergency Repairs for the Entire City Awarded to One Contractor**

In 2006 City-wide water and sewer emergency repairs were awarded to a single contractor as they were the successful bidder of two separate tender calls. While there may be benefits to doing so, the award of all city emergency repairs to one contractor can pose a potential risk exposure to the City.

### **Lack of Adequate Controls in the Tender Award and Contract Development Process**

Certain controls were lacking in the contract award process. Comparative summaries of contract bid prices were not authorized and copies of key sections of bid documents such as pricing and sign-off sections were not maintained with Purchasing and Materials Management. Without pricing and sign-off sections of the bid document, we were unable to determine the appropriateness of several bid price changes noted on the bid document.

Further, certain Contract terms and conditions were not sufficiently reviewed for completeness and adequacy. Certain terms and conditions were either not clear, lacked adequate detail, were contradictory and work consistently required was excluded from the contract or under estimated. As a result, certain payments to the contractor were made based on an understanding of past practices. Further, numerous extra work orders were issued resulting in higher costs for work initially excluded from the contract.

Prices quoted in the tender appeared to be unbalanced and the actual quantities ultimately used in the contract varied significantly from the estimated quantities provided in the tender.

### **Lack of Documented Policies and Procedures and Inadequate Staff Training**

We noted a significant lack of documented policies and procedures for managing water and sewer emergency repairs and maintenance contracts. Several staff members involved in the day-to-day administration and execution of contracts appear to require additional training.

As a result of a lack of documented policies and procedures and inadequate staff training, we noted several key elements missing from the overall contract management process including:

- Lack of adequate contract monitoring and delays in obtaining approval for amounts spent in excess of total contract value. Actual expenditures on contracts we reviewed for 2004, 2005 and 2006 exceeded contracted amounts by \$480,000 (24 per cent), \$1.3 million (63 per cent) and \$3.2 million (158 per cent) respectively;
- Inadequate documentation of work performed to support payments;
- Inadequate validation and lack of due diligence in approving payments. Our review identified several potential payment errors; and
- Lack of quality control procedures to review and monitor contractor performance.

## **Other Issues Concerning Toronto Water and Sewer Emergency Repairs**

This report includes a number of other issues identified during our review as follows:

- Information technology systems used for work management require harmonization. Currently Toronto Water uses two work management systems and pays annual maintenance fees of \$330,000. These systems are not integrated with SAP, the corporate enterprise application;
- Toronto Water does not track and document whether repair work is covered under warranty;
- Lack of a regular review process for pending work orders;

### **Actions of Management**

As a result of issues identified during this review, management has indicated their intention to review payments to this contractor under all the emergency repair contracts for 2006. The contractor received \$7.2 million in payments for City related emergency repair services in 2006.

Management has also indicated that a review of manuals developed by the Technical Services Division for contract management and field services is currently underway and it is their intent to modify and adopt these manuals for use at Toronto Water. Finally, we understand that revised procedures have been developed to review and maintain historic data so that tender quantities are estimated on a more accurate basis.

## **Conclusion**

This report contains 17 recommendations. The implementation of these recommendations will improve the management and administration of Toronto Water and Sewer emergency repair contracts provide savings on City-wide contract costs and protect the City's interests in contract development, management and monitoring.

## **AUDIT OBJECTIVES, SCOPE AND METHODOLOGY**

### ***What Were the Objectives of this Audit?***

The objectives of our audit were to determine whether:

- a) Procedures were in place to adequately monitor the award and management of emergency repair contracts;
- b) Contract terms and conditions adequately protect the City's interests; and
- c) Payments made to contractors were adequately supported, authorized and complied with contract terms and conditions.

### ***How Did We Conduct this Audit?***

Our audit methodology included the following:

- review of two Toronto Water emergency repair contracts;
- review of relevant policies and procedures and current divisional practices;
- review of relevant City Council and Audit Committee reports;
- interviews with appropriate members of City staff;
- evaluation of management controls and practices;
- review of internal controls over contract progress payments;
- review of controls relating to extra work orders;
- review of contract audits in other jurisdictions both in Canada and the US; and
- other procedures deemed appropriate.



This review was focused exclusively on two contracts relating to Toronto water and sewer emergency repairs and was conducted in accordance with generally accepted government auditing standards.

## **AUDIT RESULTS**

### **Water and Sewer Emergency Repairs for the Entire City Awarded to One Contractor**

Water and Sewer emergency repairs for 2006 for the entire City were awarded to a single contractor who was the lowest bidder on two separate tender calls. Tender documents traditionally have not contained provisions restricting contractors to a single or a certain number of districts within the City. A contractor may bid for all the districts and be awarded the contract for emergency repairs of water and sewer services for the entire City. This represents a potential risk exposure to the City. The City could be exposed to lack of critical services in the event of a disaster or when the demand for work exceeds the capabilities of a single contractor to serve the entire City.

At the time of our review, there was a backlog of 42 emergency repair projects in the Toronto East area alone, with delays of over four months. Under these circumstances, emergency repairs are re-prioritized, City needs are not met on time and citizens do not receive high quality repair service. Another important consequence is that unattended repairs generally create conditions which require more time and expense when the repair is finally attended to.

Contracts contain provisions for liquidated damages whereby the City is entitled to payment by the contractor for \$500 for each day of delay. This provision has never been imposed and we were advised that due to the nature of the contract liquidated damages for each delay is difficult to ascertain and this provision is difficult to apply. There is a need to develop provisions or criteria within the contract to allow the City to make a financial claim or pay the contractor at reduced rates for jobs delayed.

**Recommendation:**

- 1. The General Manager, Toronto Water, in consultation with the Deputy City Manager and Chief Financial Officer and the City Solicitor:**
  - (a) evaluate City business continuity and disaster management risks in contracting with a single contract provider for all City water and sewer emergency repairs;**
  - (b) evaluate the viability and impact of alternate procurement solutions such as a roster of contractors, or restricting bidding contractors to a limited number of districts; and**
  - (c) develop appropriate criteria for the standardized use of contractual incentives such as alternative liquidated damages provisions when emergency repairs are delayed and include such criteria in future City water and sewer emergency contracts.**

**Controls in Contract Award Process Require Strengthening**

Our review of the Toronto Water emergency repair contract tendering process identified several weaknesses in particular with the 2004 water and sewer installation and emergency repair contract. These weaknesses include:

- a) Lack of competitive bid documentation and authorization of comparative summaries of contract bid prices. For the 2004 water and sewer emergency contract the comparative summary of bids was not authorized. We were unable to locate a copy of the originally submitted competitive bids. Instead, we were provided a fax copy of the competitive bid dated August 13, 2003, two weeks after the bid closing date. We were unable to determine the source of this document. The copy of the original bid document was not retained.

- b) Similarly, key sections of the original successful bid document submitted were not retained by Purchasing and Materials Management. A fax copy of the bid pricing section was available dated August 13, 2003, again two weeks after the bid closing date. Of particular concern was the fact that we noted several hand-written changes on the bid document related to price changes. We were unable to independently determine whether changes were made prior to or after the bid submission.

In order to ensure and maintain the integrity of the contract award process, Toronto Water, as well as Purchasing and Materials Management should ensure compliance with purchasing and materials management policies and procedures. Copies of important bid sections, such as authorizations and pricing sections should be maintained. In addition, a comparative summary of bids should be prepared, authorized and retained.

According to the Purchasing and Materials Management Division there have been improvements in the tendering and contract award process since the award of the 2004 repair and emergency contracts. Improvements include the preparation and authorization of comparative bid summary documents and maintaining copies of key sections of bid documents before the bid is transmitted to the respective division.

**Recommendation:**

- 2. The Deputy City Manager and Chief Financial Officer ensure the tendering process is complied with and a comparative summary of bids is developed and authorized. Copies of key sections including authorization and pricing sections of competitive bids should be retained by the Purchasing and Materials Management Division.**

## Unbalanced Bidding

A bid could be characterised as unbalanced where a bidder places an unreasonably high price on certain items in a unit price bid and an unreasonably low price on other items within the same bid to take advantage of payment timing and anticipated changes in quantities.

Our review of emergency repair bid prices quoted by the contractor indicated that prices of several items appeared to be unbalanced. Unbalanced bids are a significant concern when the quantities of items contained in a detailed bid document are increased after work begins on the project to reflect the need for actual quantities. For the two contracts we reviewed, the actual quantities of work performed varied significantly from the estimated quantities. Under these circumstances, as work under the contract progresses, there is a potential that the lowest bidder may not remain the lowest bidder when comparing actual contract costs to original bid amounts.

In circumstances where contract quantities are consistently estimated incorrectly and previous years' contracts have resulted in excessive extra work orders, the contractors who have worked on previous similar contracts have an advantage over other bidders. Prior history and experience with the City allows the existing contractor(s) to forecast variations in tender quantities including required extra work. The end result of such a situation is a bidding process which may be unfair to the contracting community

It is the responsibility of City staff to review bids in detail to ensure the City's interests are protected. Awarding a contract to the lowest bidder in a case where the bid may be unbalanced has the potential to expose the City to an unnecessary and unacceptable financial risk.

To address concerns related to unbalanced bids, the Auditor General's Office issued a report dated January 10, 2007, entitled "Improving the Procurement Process – Unbalanced Bids." This report included the following recommendation:

“The Deputy City Manager and Chief Financial Officer, in consultation with the City Solicitor, review the procurement process as it relates to tender bids which appear to be clearly unbalanced. Such a review to include:

- a the feasibility of including in tender documents a specific clause which prohibits the submission of bids which are clearly unbalanced; and
- b the establishment of specific criteria to be used in the determination of unbalanced bids.”

The award of contracts to a bidder submitting an unbalanced bid to the City should be addressed in the context of the recommendation contained in the January 10, 2007 report.

### **Inadequate Review of Contract Terms and Conditions Prior to Contract Award**

In order to properly maintain the City’s water and sewer infrastructure, senior management must develop accurate and complete tender specifications, ensure bids on emergency repair and maintenance contracts are adequately reviewed and ensure the City’s interests are protected.

Certain terms and conditions of tender and contract documents were not adequately reviewed for completeness and adequacy before tendering and award of the contract. Several contract terms and conditions were not clear, lacked adequate detail and were contradictory. Quantities of work required were incorrectly estimated in the tender. In some of these situations management made payments to the contractor contrary to the terms and conditions in the contract. Specific examples are as follows:

#### Payments Contrary to Contract Terms and Conditions – Undocumented Assumptions

- i) Contract # 04D3-300WS, has two sections in the pricing schedule, Section ‘A’ and Section ‘B’. Section ‘A’ rates include material and labour and are less than

Section 'B' rates. Prices quoted in Section 'B' broadly exceeded by 10 per cent to 200 times the prices quoted in Section 'A'. The contract does not describe when and how prices from these two sections should be applied to actual work performed. We noted that only new installations were paid from Section 'A'. All other installations and repairs, whether emergency or non-emergency were paid the higher Section 'B' rates. We were informed by management that there was an understanding due to past practice to pay the contractor in this manner and contracts had been issued in this way for several years dating back to pre-amalgamation. A total of \$1.5 million was paid from Section 'B' rates under this contract. The contractor was paid a total of \$5.7 million under this contract.

- ii) Payments for certain materials were made separately in addition to stated agreed upon contract prices. For example, backfill and restoration charges and the cost of piping and coupling were already included in quoted prices for the complete work but were paid separately in addition to quoted prices, again based on an understanding due to past practice to pay the contractor in this manner. Approximately \$75,000 was paid in addition to agreed upon contracted prices based on our review of 85 invoices sampled from several progress payments from the two contracts we audited.

We did not find any documented evidence in the form of authorization or any legal advice obtained by management relating to these payments. These payments in our view were contrary to the stated terms provided for in the contract.

#### Contradictory Contract Terms and Conditions

Under contract, 06TE/EY-305WS, for emergency repair services for 2006, we noted that Schedule B, Section 3, specification 2.1 states that all prices include backfill and restoration charges. Under the same schedule, specification 2.6 states that prices quoted do not include backfill material. These two specifications contradict each other.

### Incomplete Terms and Conditions and Inadequate Estimation of Work Quantities

- i) The same rates were paid for emergency and non-emergency repair work. We understand that the contract was for emergency repairs only, however, we noted several repair jobs that were non emergency jobs and were performed under these contracts. We were informed that there may be situations where the emergency contractor is required to perform non emergency repair jobs. Existing contracts do not provide separate rates for emergency and non-emergency repair work or a reduction in rates when the repair work is performed on a non emergency basis.
- ii) Sewer or water pipe trench depths were limited to a certain measurement such as 6 meters of depth in most cases. Excavations that exceeded this depth triggered the entire job to be performed as 'extra work' and resulted in payments over and above contracted rates.
- iii) Actual quantities of work varied significantly with estimates. Certain items exceeded more than 250 per cent of the estimated quantities while certain other items were never used. The estimated extra work included in bid documents for the two contracts was \$350,000 while the actual extra work paid was approximately \$2.5 million.

We understand that quantities for emergency repair service tenders are based on repair work in previous years. Prior history in certain situations may not be an indication of how many emergencies and unanticipated work will occur during the life of the current contract. In our opinion, there is a need to evaluate the cost benefits of other alternate procurement solutions for obtaining emergency services independent of fixed quantity estimates.

**Recommendations:**

- 3. The General Manager, Toronto Water, in consultation with the City Solicitor, review the content of all standard Toronto Water emergency repair contracts in order to ensure that contract provisions are clear, consistent and enforceable.**
- 4. The General Manager, Toronto Water, review payments to the contractor based on undocumented assumptions and informal agreements and where appropriate such payments be recovered.**
- 5. The General Manager, Toronto Water, direct staff that any decisions, and in particular, decisions that involve financial commitments for contract terms which appear to be ambiguous, unclear or inconsistent only be made after consultation with the City's Legal Services Division and approval by the senior management. All such consultations and approval be documented.**
- 6. The General Manager, Toronto Water, review the possibility of including criteria for emergency and non-emergency work in future contracts and obtaining separate rates for emergency and non-emergency work accordingly.**
- 7. The General Manager, Toronto Water, ensure that where possible, estimated quantities contained in emergency repair contract tenders are reasonably accurate and are representative of actual quantities required to complete the contract. In addition, The General Manager in consultation with Purchasing and Materials Management, explore other procurement solutions for obtaining emergency repair services independent of fixed quantity estimates.**



## **Lack of Documented Policies and Procedures and Inadequate Staff Training**

Policies and procedures describing the roles and responsibilities of staff for managing contracts have not been adequately documented. In addition, several staff members involved in the day-to-day administration and execution of contracts appear to require additional training. Contracts were not managed as efficiently and effectively as they might otherwise have been. We noted inconsistencies and a lack of clarity in documenting work performed by the contractor, validating and approving payments, and monitoring overall expenditures.

According to management, a project has been initiated to review existing procedures and practices in Toronto Water. A review by Toronto Water of the Capital Works Project Procurement and Administration Procedures Manual and Field Services Manual developed by Technical Services is currently underway.

### **Recommendation:**

- 8. The General Manager, Toronto Water, take steps to develop policies and procedures for managing emergency repair contracts and ensure staff is appropriately trained.**

## **Lack of Controls in Managing Contracts**

### Inadequate Controls in Processing Payments

Several errors in contractor payments were noted. These errors were communicated to management for further review and evaluation. Inconsistencies and lack of clarity in documenting work performed by the contractor and inadequate validation and approval of payments were key factors contributing to these errors.

Our review identified several potential payment errors. Management has subsequently determined that approximately \$55,000 was overpaid due to mathematical calculation errors. Payments totaling approximately \$195,000 require further management review due to lack of adequate documentation on file at the time of our audit. In addition, we also noted payments of \$100,000 related to contracts from 2001 to 2003, but paid from the 2004 contract. In these cases there was a lack of adequate documentation to support the payments. Management advised that these payments have been reviewed and were found to be fair and reasonable. Due to the lack of supporting documentation we were unable to substantiate the appropriateness of these payments.

Management has advised that it will review all payments to this contractor for 2006 emergency repairs. Total payments made to this contractor for 2006 emergency repairs totaled approximately \$7.2 million. Toronto Water has retained approximately \$220,000 under the 2006 contracts to cover any outstanding or disputed liabilities and recover any overpayments as a result of possible payment errors. We have recommended that management extend its review of payments to 2007 contract payments as well.

#### Lack of Adequate Inspector Reports

Completion of daily work records is critical to the verification of payments and any subsequent claims. Inspectors Daily Work Reports should include details of daily work performed by the contractor, material utilized, equipment on-site and detailed measurements and calculations supporting payment. Our review of the Inspectors Daily Work Reports indicated that this information is not always recorded in the Inspector's daily report. In addition, details entered for work performed are not complete and often omit significant information such as work description, measurements and certain calculations.

Based on our review of several progress payments, it appears that contractor invoices were principally used in some cases to approve and process payments. Relying entirely on contractor documents to prepare inspector reports and make contractor payments is

completely inappropriate and of no benefit to the approval process. Contractor payments should be based on documentation contained in inspector reports.

Lack of Clarity of Roles and Responsibilities for Verification of Invoices

Roles and responsibilities to validate contractor invoices were not clear among the staff in District Contract Services. For example, in one district, we noted that a contract supervisor reviews contractor invoices and authorizes that the work has been completed before forwarding them to the project coordinator. The project coordinator assumes that as the invoices have been signed-off by the contract supervisor, verification of invoice details is not necessary. The contract supervisor assumes he is only approving the work performed under the contract and that invoice details will be verified by the project coordinator. As a result, no one validates invoice details. Errors, if any, remain undetected. Payments were made that were not adequately supported and contained calculation errors.

**Recommendations:**

- 9. The General Manager, Toronto Water, review 2006 and 2007 contractor payments for emergency repairs and take steps to determine and recover overpayments made to the contractor identified as part of the review.**
- 10. The General Manager, Toronto Water, develop policies to ensure that:**
  - (a) Site Inspector's Daily Work Reports are prepared independently of contractor invoices and provide relevant details including services provided, calculations and measurements supporting payment; and**
  - (b) documentation supporting progress payments is reviewed in detail by supervisory staff.**

### Lack of Adequate Controls in Award and Payment of Extra Work

Extra work represents work not provided for in the contract but considered by the contract administrator to be essential within the intended scope of the contract including unanticipated work. Excessive extra work orders indicate inadequate planning in developing contract specifications and estimating required work. For the two contracts audited, approximately \$2.5 million was paid in extra work. The original estimated contingency amount for extra work was \$350,000. Extra work is generally performed at a premium.

Extra work was routinely performed without adequate change directives and authorization. Supporting documentation and calculations for extra work orders were often lacking. Inspector reports did not provide adequate details to distinguish time and material costs incurred on work performed under extra work order and normal work provided under the contract items. In several instances, we could not substantiate the time and material costs allocated and claimed by the contractor for extra work performed and work performed under the normal contract items under the same job.

#### **Recommendations:**

- 11. The General Manager, Toronto Water, ensure that extra work is awarded through authorized change directives and that separate inspector reports are used for recording work pertaining to extra work orders.**
- 12. The General Manager, Toronto Water, ensure that to the extent possible, all required work be included in the original contract and extra work orders be limited.**

## Monitoring Contract Expenditures

Contracts we reviewed for 2004, 2005 and 2006 exceeded the original contract amounts by \$480,000 (24 per cent), \$1.3 million (63 per cent) and \$3.2 million (158 per cent) respectively. Purchasing by-laws require different levels of approvals based on the percentage and amount spent in excess of contracted value. For example:

- Over-expenditures up to 10 per cent of the original contract amount with maximum of \$500,000 require approval from the Division Head and the Director of Materials Management;
- Over-expenditures over 10 per cent of the original contract amount and between \$250,000 and \$500,000 require approval from the Division Head, Director Materials Management and City Manager;
- Over-expenditures over 10 per cent of the original contract amount and over \$500,000 require approval from the Division Head and the appropriate City Council Standing Committee.

Purchasing by-laws for obtaining required approvals were not complied with on a timely basis. Approvals for over-expenditures were obtained after expenditures had significantly exceeded the original contract amount and final progress payment of the contracts had been processed. For example, contract # 06TE/EY-305WS had reached the maximum amount of the contract, \$2 million, in August 2006, it continued to exceed the total contracted amount and finally reached to \$5.2 million in November 2006. The authorization of changes to the original contract was not obtained until April 2007.

**Recommendation:**

- 13. The General Manager, Toronto Water, develop a process for the periodic monitoring of contract expenditures and ensure that Purchasing by-law requirements for authorizing over-expenditures are complied with. Appropriate action be taken in circumstances where non compliance of the by law is identified.**

Lack of Process to Review and Monitor Contractor Performance

Documentation of contractor performance issues is important in evaluating the quality of work performed by the contractor and is critical when considering future contract awards. Toronto Water does not consistently document, monitor and communicate contractor performance with Purchasing and Materials Management.

**Recommendation:**

- 14. The General Manager, Toronto Water, ensure contractor performance issues are consistently documented and monitored. Significant contractor performance issues that can not be resolved through the regular contract management process should be communicated to Purchasing and Materials Management for consideration in future contract award decisions.**

**Other Issues**

Lack of Optimum Use of Work Management Software

Toronto Water District Contract Services uses the Hansen System for work management. The Hansen System includes modules such as customer service, work orders, inventory control and water meter management. The system was acquired in December 2001 and

approximately \$4.5 million has been spent acquiring system software and related computers. The annual maintenance cost is approximately \$170,000.

The utilization of the system is limited. Several of the functionalities of the system, such as field entry of work performed on projects, tracking and monitoring of work order status and tracking of project costs are not used. We also noted that work order details entered in Hansen are general and do not provide adequate information related to the work required. According to management, the complexity of the system and slow wireless connectivity are key factors contributing to its underutilization.

Management has advised that the slow wireless connectivity is being addressed through installation of new hardware in the computers and this project is expected to be complete by September 2007.

#### Duplicate Work Management Systems should be Harmonized

In addition to Hansen, Toronto Water also uses another work management system called Avantis. These systems are not integrated with SAP, the corporate enterprise application. Without an interface between the financial information system and the work management systems, staff labour hours and maintenance costs must be entered into both systems. This results in inefficient use of staff resources and increases the risk of incomplete and inaccurate payroll and expenditure information.

The acquisition and maintenance of both systems is costly and includes licensing and maintenance fees. The combined annual maintenance fee for Hansen and Avantis is approximately \$330,000 (\$170,000 for Hansen and \$160,000 for Avantis).

**Recommendation:**

- 15. The General Manager, Toronto Water, expedite the review and assessment of the existing work management systems, including an assessment of the SAP Plant Maintenance Module. Following the selection of a work management system, its implementation should be expedited and the cost benefits of its integration with SAP be evaluated.**

Warranty Tracking Process Review

Procedures to determine if work requests are covered under warranty agreements do not exist. Automated work management systems such as Hansen can be used as an effective tool in monitoring repair requests and evaluating whether or not they should be covered under warranty.

**Recommendation:**

- 16. The General Manager, Toronto Water, develop procedures to ensure staff review repair requests to determine if the required work is covered under warranty.**

Lack of Periodic Review of Pending Work Orders

Procedures to conduct periodic review and evaluation of pending contractor work requests do not exist. As a process, requests for emergency repairs are forwarded by the Operations and Maintenance Section of Toronto Water to District Contract Services for assignment to outside contractors. The repair jobs forwarded to District Contract Services also include those jobs that Operations and Maintenance section sometimes is unable to attend due to lack of in-house resources available at that point of time. We noted a backlog of 42 emergency repair work requests in the Toronto East area alone over four months old, pending with the contractor. The Operations and Maintenance



Section and District Contract Services should have regular meetings to discuss ongoing progress and availability of Operations and Maintenance in-house staff to consider re-assignment of pending repair jobs. This will ensure timely completion of higher priority projects and optimum use of in-house maintenance staff.

**Recommendation:**

- 17. The General Manager, Toronto Water Division, develop a process for District Contract Services and Operations & Maintenance staff to meet on a regular basis to discuss project status, and document and assess the priority of ongoing projects for re-assignment of pending projects to in-house staff.**

## **CONCLUSION**

The objective of this review was to assess whether the Toronto Water Division has appropriate and effective controls over the management of emergency repair contracts. Our review focused on contract development and award, contract administration, processing and compliance of payments and compliance with relevant policies and procedures.

The Toronto Water Division is making progress in standardizing contract management policies and procedures. However, our review identified a number of areas requiring strengthened management controls and improved project management processes. This review also identified a number of opportunities and specific instances for recovery of excess payments.

Addressing the recommendations in this report will ensure more effective management of City resources and enhance the overall effectiveness of contract management and payment processes.