



AUDITOR GENERAL'S REPORT ACTION REQUIRED

Cost Benefits of Extended Warranties for Construction Projects Are Unknown

Date:	May 1, 2014
To:	Audit Committee
From:	Auditor General
Wards:	All
Reference Number:	

SUMMARY

The Auditor General's Audit Work Plan included a review of City construction contract warranties. This review was selected due to the significant amount of funds involved and previous Auditor General reports identifying deficiencies in construction project warranty tracking and follow-up.

This report provides four recommendations which will strengthen controls over construction contract warranties. The implementation of the four recommendations included in this report will improve warranty and performance bond tracking, and provide information related to the cost effectiveness and benefits of construction project warranties and performance bonds. Potential cost savings may be realized by reducing the warranty period on certain construction projects from two years to one year.

RECOMMENDATIONS

The Auditor General recommends that:

1. City Council request the City Manager review the costs and benefits of the standard use of a two year warranty period in construction contracts.
2. City Council request the City Manager standardize procedures for warranty administration. Policies and procedures should hold construction contract project managers responsible for tracking and monitoring construction performance bonds, warranty periods, inspections and defects requiring repair.

3. City Council request the City Manager develop warranty documentation standards and reports to improve information tracking and communication between staff.
4. City Council request the City Manager review technology currently available to improve warranty administration and communication Citywide.

Financial Impact

The implementation of recommendations in this report will improve controls over construction contract warranties. The extent of any resources required or potential cost savings resulting from implementing the recommendations in this report is not determinable at this time.

COMMENTS

The City's capital project plan includes a variety of construction activities including projects in building and renovating building and plant facilities and water, sewer and road construction projects. In 2013, the City's SAP financial system recorded approximately \$710 million in expenditures for construction services.

Key audit issues identified in this report include:

- The general use of a two-year warranty period for construction projects should be re-evaluated
- The need to standardize Citywide warranty procedures and the role of the project manager
- Warranty information is not centralized or easily accessible

The implementation of the recommendations included in this report will improve warranty and performance bond tracking, and provide information related to the cost effectiveness and benefits of construction project warranties and performance bonds. In addition, potential cost savings may be realized by reducing the warranty period on construction projects from two years to one year.

The audit report entitled "Cost Benefits of Extended Warranties for Construction Projects Are Unknown" is attached as Appendix 1. Management's response to audit recommendations included in the report is attached as Appendix 2.

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SIGNATURE

Jeff Griffiths, Auditor General

ATTACHMENTS

- Appendix 1: Cost Benefits of Extended Warranties for Construction Projects Are Unknown
- Appendix 2: Management's Response to the Auditor General's Review of Cost Benefits of Extended Warranties for Construction Projects Are Unknown

AUDITOR GENERAL'S REPORT

**Cost Benefits of Extended Warranties for
Construction Projects are Unknown**

April 2, 2014

Jeffrey Griffiths, CPA, CA, CFE
Auditor General



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EXECUTIVE SUMMARY

Review included in Auditor General's Work Plan

The Auditor General's Work Plan included a review of controls over the administration of construction contract warranties and performance bonds.

This review was selected due to the significant amount of funds involved and previous Auditor General reports identifying deficiencies in construction project warranty tracking and follow-up.

Previous Auditor General reports identifying warranty management issues

Previous Auditor General reports identifying deficiencies in construction project warranty management and administration include:

- Transportation Division Local Road Resurfacing – Contract Management Issues (2013)
- Toronto Water – Review of Construction Contracts (2013)
- Facilities and Real Estate – Maintenance and Administrative Controls Review (2005)

Deficiencies noted in TTC warranty administration

In addition we have recently issued a report entitled "Review of Toronto Transit Commission Bus Maintenance and Shops Department Phase One: Bus Maintenance and Warranty Administration." While this report did not specifically relate to warranties it did identify deficiencies in the warranty administration process.

The City's capital project plan includes a variety of construction activities including projects in building and renovating building and plant facilities and water, sewer and road construction projects.

2013 construction services expenditures approximately \$710 million

In 2013, the City's SAP financial system recorded approximately \$710 million in expenditures for construction services.

Warranties

Warranties provide protection in the event of equipment or service failures or deficiencies

Warranties are used in construction projects to reduce financial risks associated with equipment and service deficiencies or failures related to construction activities. A warranty protects against costs related to construction deficiencies in materials or services for a specific period of time.

Warranties can assist in holding contractors accountable for replacement or repair of construction deficiencies. For example, when a deficiency occurs during the warranty period for covered equipment such as an air conditioning unit or furnace, the unit is repaired or replaced at the contractor's expense.

One year warranty clause is common practice

Canadian and provincially accredited agencies including the Surety Association of Canada, Ontario Provincial Standards, Canadian Construction Documents Committee, and the Toronto surety companies we contacted recommend a one year warranty period on construction projects. The City's *General Conditions of Construction Contract* include a standard two-year warranty clause. Generally, the longer the warranty period the more expensive the contract.

Because warranty costs are not itemized in contractor bids, costs associated with warranties are not specifically identifiable.

Performance Bonds

City contractors required to obtain a performance bond from surety companies

City purchasing policies require a performance bond for capital construction projects valued over \$250,000. A performance bond is required to secure the satisfactory completion of a project upon default by the contractor.

Sureties confirmed two-year warranties result in additional costs

Surety companies adjust performance bond premiums for the second year of a warranty.

Some construction service contracts may not have included a performance bond or a two-year warranty. However, we were advised that given premiums surety companies currently charge, the City could potentially save between \$514,000 and \$786,000, if the two-year warranty generally used is changed to one year.

Key audit issues

Key audit issues identified include:

- The general use of a two-year warranty period for construction projects should be re-evaluated
- Need to standardize Citywide procedures and role of project manager
- Warranty information not centralized or easily accessible

General Use of a Two-Year Warranty Period for Construction Projects Should be Re-evaluated

With the exception of the Parks, Forestry and Recreation Division which uses a standard one year warranty, the majority of City construction projects incorporate a standard warranty period of two years from project completion.

The general use of a two-year warranty period for construction projects should be re-evaluated. Savings in construction costs may be possible in instances where a one year warranty period is sufficient.

Need to Standardize Citywide Procedures and Role of Project Manager

Warranties need to be monitored during the entire project lifecycle

City divisions designate a project manager to manage individual capital construction projects. The construction project manager is responsible for the project while work is in progress. In most construction projects, the project manager is deployed to another project once construction is complete.

Upon redeployment to another project, if the redeployed project manager fails to transfer project warranty information properly the City could unintentionally pay for project deficiencies covered by warranty.

Policies and procedures should be developed and implemented requiring project managers to be accountable for tracking warranty information including deficiencies occurring during the entire warranty period and for monitoring and overseeing warranty information upon deployment to another construction project.

Warranty Information Not Centralized or Easily Accessible

Warranty information not easily shared

Project managers and City staff responsible for maintaining projects cannot readily share construction warranty information.

Divisions unaware if warranties exist

City staff do not have a centralized warranty database nor ease of access to accurate warranty information. Consequently, for most construction projects staff cannot easily determine when or if a warranty is in force during a project's lifecycle.

Warranty tracking information is not available to identify whether a defect or repair occurs during the warranty period. As warranty work is not billed and tracked the City cannot determine whether or not payments were made to contractors that should have been covered under a warranty.

Controls are needed to ensure the ability to track and share warranty information between City staff.

Conclusion

The implementation of the four recommendations included in this report will improve warranty and performance bond tracking, and provide information related to the cost effectiveness and benefits of construction project warranties and surety bonds. Potential cost savings may be realized by reducing the warranty period on construction projects from two years to one year.

AUDIT OBJECTIVES, SCOPE AND METHODOLOGY

Audit objective and methodology

The objective of our review was to assess controls over City construction project warranties and performance bonds.

The audit methodology included:

- review of best practice warranty administration
- review of divisional construction contract warranty requirements
- review of policies and procedures for administering construction project warranties and performance bonds
- review of contract and inspection documents to determine compliance with warranty inspection requirements and warranty repairs
- review of technology resources used to manage construction warranties and performance bonds.

Audit scope

The audit covered the period from January 1, 2010 to December 31, 2012.

Compliance with generally accepted government auditing standards

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT RESULTS

A. Costs and Benefits of Construction Contract Warranties Are Unknown

A.1. City Two-Year Extended Warranty Not Standard Industry Practice

In 2013 construction services expenditures were approximately \$710 million

The City's capital project plan includes a variety of construction activities including projects in building and renovating building and plant facilities and water, sewer and road construction projects.

In 2013, the City SAP financial system recorded expenditures for construction services of approximately \$710 million.

With the exception of Parks, Forestry and Recreation projects, City contracts include a two-year warranty period

With the exception of the Parks, Forestry and Recreation Division, the majority of City construction projects incorporate a standard warranty period of two years from project completion. The City Parks, Forestry and Recreation Division uses a standard warranty period of one year in construction contracts.

Warranties in effect beyond the project completion date cover the cost of correcting defects or deficiencies identified during the two-year warranty period.

One year standard warranty clause in the construction industry

A number of accredited construction industry organizations prepare recommended standard general contract provisions. According to the Canadian Construction Documents Committee and the Surety Association of Canada, municipalities generally incorporate only one year warranties in construction contracts.

The City's "*Review of General Contract Conditions for Capital Projects*" in 2012 did not recommend revision of the two-year warranty period.

City contractors are required to obtain a performance bond

City purchasing policies require a performance bond for capital construction projects valued over \$250,000. Their use in the construction industry provides assurance that contractors fulfill their obligations.

Staff plan to track the use of performance bonds in the future

Although staff are not currently tracking the use of performance bonds, Purchasing and Materials Management (PMMD) staff indicate that they intend to track City use of performance bonds in the future through technology upgrade projects.

Based on information provided, there were approximately 554 contracts issued for construction services in 2013. This includes tenders and work assignments where PMMD was involved. PMMD staff estimate 84 of these contracts may not have had a performance bond as they were below the \$250,000 threshold.

Assuming 554 contracts of which 84 may not have had performance bonds, approximately 85% of construction service contracts could have performance bonds.

Surety industry performance bond rates are determined by many factors including warranty period

The surety industry pre-qualifies contractors' bonds based partly on the scope of contract risk assumed. Higher risk involves higher surety costs. A variety of factors determine surety bond rates, including:

- credit history
- analysis of contractor financial indicators
- total project costs
- warranty period
- contractor performance history and experience

Sureties confirmed that two-year warranties result in additional costs

According to the Surety Association of Canada and surety companies we contacted, Toronto is the only municipality with a two-year construction contract warranty requirement. All surety companies adjust their premiums for the second year of a warranty.

Premium savings for the City could range from \$514,000 to \$786,000

Some construction service contracts may not have included a performance bond or two-year warranty. We contacted a number of surety companies and were advised that given premiums currently charged by surety companies and 2013 expenditures for construction services of approximately \$710 million, the City could potentially save between \$514,000 and \$786,000 with a change from the current two-year warranty to one year.

Contractors are restricted to a specific total bonding limit

Contractors are restricted to a specific bonding limit which they cannot exceed. Because of these restrictions, contractors may have to limit the number of bid submissions they make in a given period of time. This results in limiting the City's pool of contractors when evaluating construction related bid submissions.

The City should anticipate that there may be some reduction in the number of potential contract bids and an increase in the cost to a contractor to obtain a performance bond when an extended warranty is present in a contract.

Warranty cost not specified in bid submissions

Estimated costs for warranty repairs or the cost of an extended warranty are not specifically identified in bids submitted by contractors. As a result, the cost of extended project warranties is not known.

The general use of a two-year warranty period for construction projects should be re-evaluated. Savings in construction costs may be possible in instances where a one year warranty period is sufficient.

Recommendation:

- 1. City Council request the City Manager review the costs and benefits of the standard use of a two-year warranty period in construction contracts.**

A.2. Standardize Citywide Procedures and Role of Project Manager

Citywide procedures have not been standardized

City policies and procedures related to construction contract warranties are not standard Citywide. In some divisions procedures were not formalized, do not exist or do not identify accountability for warranty administration.

Project manager should provide project continuity

According to the Canadian Construction Association one point of contact on a project ensures continuity and accountability. As the City assigns a project manager to each construction project the project manager should be accountable for tracking performance bonds, warranty information, including deficiencies occurring during the entire warranty period.

Project managers are responsible for tracking performance bonds

The City can invoke surety claims to meet contractor obligations in the event the contractor defaults and breaches contract provisions. The project manager is responsible for the management and administration of performance bonds.

The City does not have a centralized database identifying construction projects that have invoked surety provisions. Tracking and timing of surety disputes or claims can provide data to support extended warranty benefits for industry specific construction projects.

Recommendation:

- 2. City Council request the City Manager standardize procedures for warranty administration. Policies and procedures should hold construction contract project managers responsible for tracking and monitoring construction performance bonds, warranty periods, inspections and defects requiring repair.**

A.3. Warranty Information Should be Accurately Documented

Most divisions use their own tracking tools to monitor warranty dates, inspection requirements and deficiencies. At the time of our audit some divisions had not developed procedures or a tool to maintain accurate warranty information.

Accurate warranty information should be captured in a database

Accurate and reliable warranty reports are not available to allow staff to communicate warranty information to management. Accurate and reliable warranty reports would be useful in evaluating the cost effectiveness of construction warranties.

When tools exist warranty information is not always accurate

According to our review of divisional warranty tracking reports, warranty start and expiry dates were not accurate in 46 per cent of our sample. In 27 per cent of the audit sample City staff indicated that "they assume(d) no warranty issues arose or as far as they could recall no warranty issues occurred."

In these cases documentation did not exist to substantiate that inspections were conducted prior to warranty end or that follow up communication with the contractor was conducted. As a result, staff cannot routinely confirm if deficiencies and defects occur during the warranty period.

Timing and number of warranty issues is unknown

The City is not billed for warranty repairs so there is no ability to identify if and when a warranty issue arose and if the contractor under warranty provided a repair.

Current tools can track and transfer warranty information

Technology currently available in the City is capable of managing construction project warranty information. For example, the City GroupWise calendar system can track and share information between staff regarding warranty status and scheduling of inspections and repairs.

Analysis and knowledge of when and how often a warranty issue arises can provide information to determine the type and duration of warranty appropriate for a project.

Recommendations:

- 3. City Council request the City Manager develop warranty documentation standards and reports to improve information tracking and communication between staff.**
- 4. City Council request the City Manager review technology currently available to improve warranty administration and communication Citywide.**

CONCLUSION

Conclusion

Implementing the four recommendations in this report will provide more accountability in construction warranty and performance bond management and administration. Potential cost savings may be realized by reducing the warranty period on construction projects from two years to one year. Warranty management and tracking capabilities at the divisional level could be strengthened.

**Management’s Response to the Auditor General’s Review of
Cost Benefits of Extended Warranties for Construction Projects are Unknown**

Rec No.	Recommendations	Agree (X)	Disagree (X)	Management Comments: <i>(Comments are required only for recommendations where there is disagreement.)</i>	Action Plan/Time Frame
1.	City Council request the City Manager review the costs and benefits of the standard use of a two year warranty period in construction contracts.	X		<p>A warrantee period can vary with the nature of the project. As an example Parks, Forestry and Recreation currently use a one year warranty period for projects, whereas Transportation Services requires the linear infrastructure to experience at least 2 cycles of freeze, thaw prior to accepting the product in full. This is to ensure that the product we accept, fully meets the requirements of the contract.</p> <p>Most warranty issues Toronto Water experiences are related to temporary or permanent restoration deficiencies. A reduction from 2-1 year may impact on operational costs to address deficiencies of this nature.</p> <p>Management agrees that a review of the general standard is appropriate and that a one year warranty could be applicable for certain divisions/projects.</p>	<p>The City Manager, in consultation with operating divisions, will assess the feasibility and appropriateness of the City's general practice of requesting a two year warranty period for construction projects.</p> <p>Time Frame: Finalize - 4th quarter of 2015 for the overall review. Further actions required by individual divisions may come out of this review</p>

Rec No.	Recommendations	Agree (X)	Disagree (X)	Management Comments: <i>(Comments are required only for recommendations where there is disagreement.)</i>	Action Plan/Time Frame
2.	<p>City Council request the City Manager standardize procedures for warranty administration. Policies and procedures should hold construction contract project managers responsible for tracking and monitoring construction performance bonds, warranty periods, inspections and defects requiring repair.</p>	X		<p>City Divisions use a variety of internal tracking and monitoring processes.</p> <p>Transportation Services - Road Operations is currently undertaking the administration of warranties for Local Road Resurfacing projects. Further work needs to be done regarding the administration of warranties for other type of maintenance, including General Maintenance and the permanent repairs to Utility cuts.</p> <p>Facilities Management uses a spreadsheet for tracking warranties. The document requires that additional information be added to provide more detail.</p> <p>Toronto Water procedures for Warranty Monitoring and Administration are documented in the Capital Works Projects Procurement & Administration Procedures Manual Section 6.3 which is linked to the Toronto Water Project Delivery System and expect staff to follow.</p>	<p>The City Manager, in consultation with operating divisions, will undertake a review of warranty administration procedures across the City to identify opportunities for standardization of best practices.</p> <p>Time Frame: Finalize - 4th quarter of 2015 for the overall review. Some actions by individual divisions are currently underway and others may come out of this review.</p> <p>Actions now underway</p> <p><u>Transportation Services</u> Administration of warranties for Local Road Resurfacing.</p> <p><u>Facilities Management</u> FDC will complete revisions to their Warranty Tracking by the 4th quarter of 2014. FDC has a written policy and agreement with Facilities Operations on how to administer warranty items, review and completion of procedure by 3rd quarter 2014.</p>

Rec No.	Recommendations	Agree (X)	Disagree (X)	Management Comments: (Comments are required only for recommendations where there is disagreement.)	Action Plan/Time Frame
3.	City Council request the City Manager develop warranty documentation standards and reports to improve information tracking and communication between staff.	X		<p>PF&R currently uses a software application ("Riva") to track warranties.</p> <p>Transportation Services, Road Operations currently has a standard warranty document under the TS Construction Inspection Manual as Form TR103. However, the information is used for District tracking and it is not on a central system for documentation and/or electronically available to communicate between staff.</p> <p>Facilities Management has reporting standards and warranty reports and established communications with Facilities Operations and will reinforce these with other Client Divisions. Project Tracking, Portal a City Cluster B program adopted in 1st quarter of 2015, will provide better tracking.</p> <p>Toronto Water procedures for Warranty Monitoring and Administration are documented in the Capital Works Projects Procurement & Administration Procedures Manual Section 6.3 which is linked to the Toronto Water Project Delivery System and expect staff to follow.</p>	<p>As per response to recommendation 2 above, the review of warranty administration procedures across the City will include an assessment of documentation standards, management reports and possible corporate software applications.</p> <p>Time Frame: Finalize - 4th quarter of 2015 for the overall review. Further actions required by individual divisions may come out of this review</p> <p>Actions now underway</p> <p><u>PF&R</u> PF&R currently uses a software application ("Riva") to track warranties.</p> <p><u>Transportation Services</u> Document tracking is taking place. The Central Electronic system may require up to 24 months to implement, including consultation with IT in order to implement the options as part of the new Transportation Services Management system.</p> <p><u>Facilities Management</u> Reinforcing existing processes with Client Divisions.</p>

Rec No.	Recommendations	Agree (X)	Disagree (X)	Management Comments: (Comments are required only for recommendations where there is disagreement.)	Action Plan/Time Frame
4.	City Council request the City Manager review technology currently available to improve warranty administration and communication Citywide.	X		<p>Since the audit was initiated the "Riva" software has become the standard in PF&R, this software allows for the tracking of warranties and outstanding issues.</p> <p>Facilities Management has reporting standards and warranty reports and established communications with Facilities Operations and will reinforce these with other Client Divisions. Project Tracking Portal a City Cluster B program adopted in 1st quarter of 2015 will provide better tracking.</p> <p>Toronto Water's warranty administration could be built into the functional requirements of either the new Asset Management System and/or the Enterprise Work Management System.</p>	<p>As per response to recommendation 2 above, the review of warranty administration procedures across the City will include an assessment of opportunities to use existing and new technology to automate warranty administration activities on a corporate basis.</p> <p>Time Frame: Finalize - 4th quarter of 2015 for the overall review. Further actions required by individual divisions may come out of this review.</p> <p>Actions now underway</p> <p><u>PF&R</u> Since the audit was initiated the "Riva" software has become the standard in PF&R, this software allows for the tracking of warranties and outstanding issues.</p> <p><u>Transportation Services</u> Reviewing a Central Electronic system as outlined under recommendation 3.</p>