

**CITY OF HAMILTON  
INTERNAL AUDIT REPORT 2015-11  
PUBLIC WORKS – CAPITAL PROJECTS CONTRACT REVIEW**

<b>OBSERVATIONS OF EXISTING SYSTEM</b>	<b>RECOMMENDATION FOR STRENGTHENING SYSTEM</b>	<b>MANAGEMENT ACTION PLAN</b>
<p><u>Procedures and Guidelines – Liquidated Damages</u> Construction Services (CS) is responsible for the management of all construction projects undertaken by the City (e.g. roads, water mains, sewers, etc.). CS has documented the process followed in its Project Management Flow Chart and Procedures.</p> <p>The procedures do not include guidelines for claiming Liquidated Damages (LD) against a contractor.</p> <p>Without documented procedures, LD may not be claimed consistently from contractors that fail to complete contracts on time, resulting in overpayments.</p> <p>In one of the reviewed projects, the contract deliverable was 269 days overdue. The City could have recovered up to \$269,000 in LD, but the contractor was not assessed LD by the City.</p>	<p>1. That procedures be developed to provide a step by step process for the calculation and application of Liquidated Damages as they relate to contracts undertaken by the Construction Services Section including appropriate management authorization and documentation when deciding not to pursue potentially large Liquidated Damage amounts.</p>	<p>Agreed. The application of liquidated damages (LD) is a decision that the team arrives at as the project nears completion. The LD special provision sets out the upper limit of what the City can charge and staff must take into account weather, drawing inaccuracies, changed ground conditions, extra work added to the contract, Contractor cooperation and the workforce applied to the project. Construction Services will formalize and document this process. Anticipated completion date: Q2 2017.</p>

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<p><u>Procedures and Guidelines Not Current</u> Project management procedures and related flowcharts were developed in 2005 and last revised in 2010.</p> <p>Other procedures and guidelines that have not been reviewed and updated recently are Form 200* (last updated January 2011), Form 300** (last updated June 2006) and the Contract Inspector’s Manual (last update was not noted on the manual).</p> <p>These documents have not been reviewed and updated for over five years and there is no specified review frequency. Procedures that are not reviewed and updated regularly become obsolete and provide no meaningful guidance to staff.</p> <p>*Form 200 – General Conditions (of construction) **Form 300 – General Construction Requirements (includes materials and specifications) These forms contain standards for the construction of roads, sewers and watermains.</p>	<p>2. That Engineering Services ensure that its procedures and guidelines are reviewed regularly, revised and approved by management as needed so that they remain current and useful.</p>	<p>Agreed. Construction Services reviews and updates the Inspector Field Manual annually and the Project Manager Manual is currently being reviewed and updated. Construction and Design Services review Form 300 on an annual basis and an update will be issued this year. With respect to Form 200, Construction and Design Services will bring this observation forward to the Construction Working Group. Anticipated implementation date: Q2 2017.</p>

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<p><u>Change Orders</u> Work that is in addition to or differs from that specified in the contract is often referred to as a Change Order (CO). To ensure that Change Orders are reasonable and the type of work is warranted, the contractor must complete a Change Order Form and submit the appropriate supporting documentation in a manner and by a timeline specified in the City's Forms 200 and 300 (see definition on page 2). Depending on the amount, the Change Order form itself must be authorized by a manager with the appropriate signing authority.</p> <p>Two contracts were reviewed and both were problematic. One contract, with a value of \$1.3M and CO totalling \$150K, had a number of errors and oversights that rendered the internal controls of the Change Order process ineffective. These include:</p> <ul style="list-style-type: none"> <li>• Three of the four COs examined that are part of the project under review had not been approved by the Manager with the proper signing level;</li> <li>• Errors were noted in six of the seven expense calculations supporting one of the four COs; and</li> <li>• Zero of the four invoices that relate to the COs were submitted within the required 30 days after the work was completed.</li> </ul>	<p>3. That Finance return Change Orders that have not been approved by the appropriate management level to Construction Services for proper authorization and not process payment.</p> <p>4. That prior to approving COs the Project Manager responsible for the contract verify all calculations and ensure that the contractor has submitted the COs on time.</p>	<p>Agreed. These changes have already been implemented.</p> <p>Agreed. These changes have already been implemented.</p>

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<p><u>Change Orders (Cont'd)</u> The second contract had a value of \$2.4M and COs totalling \$564K. On two occasions in this contract COs totalling more than \$100,000 were divided into three smaller COs and were approved by a Manager within their lower signing authority. This circumvents internal controls as managers with larger spending limits may not have been informed of these large dollar changes to a contract in a timely manner.</p> <p>Change orders are modifications to the original purchase order contract and/or tender that was agreed to by the City and the successful proponent.</p> <p>Having effective internal controls in the change order process is critical. The city's capital budget annually is hundreds of millions of dollars. A significant portion of this annual capital budget is for construction projects.</p> <p>Ineffective internal controls over change orders unnecessarily exposes the City to construction contractors submitting low bids to become the successful proponent for contracts and then attempt to increase their billings via change orders once a contract has been secured. Having strong controls over the change order process is critical to the overall containment of costs for construction projects.</p>	<p>5. That it be communicated that signing authority limits are to be adhered to by Construction Services staff and management for all change orders.</p> <p>6. That methods be put in place to detect if signing authority limits are being circumvented. This could include management review at periodic intervals, at prescribed cumulative thresholds, or other similar measures.</p>	<p>Agreed. This will be reviewed and reinforced at staff meetings effective immediately. Anticipated implementation date: Q1 2017.</p> <p>Agreed. Currently, all progress payments are reviewed and signed by management. Periodic reviews will be undertaken through the project variance report effective immediately. Anticipated implementation date: Q1 2017.</p>

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<p><u>Cost Allocations</u> In order to obtain a true and full cost of the capital projects, relevant departmental operating costs are allocated to the capital projects. The allocation basis is the percentage of time spent by the various Engineering Services (ES) staff on different types of contracts and the type of work being performed (e.g. roads, water mains, sewers, etc.).</p> <p>While ES has developed a formalized Cost Recovery Process and Methodology, further detail about how this process should occur is needed. With the current document inconsistent cost allocations have occurred for both allocation of time and types of costs:</p> <p>Time allocation – the percentage of time spent by ES staff on various types of capital projects utilized in the allocation model is an approximation and cannot be verified for how accurately it reflects actual time spent on projects. Without detailed support for the allocation, this practice reduces the degree of accuracy of expenditures against budget.</p> <p>Costs – during the audit it was found that for one year, costs were being charged to Roads projects from a section that had nothing to do with Roads (Director-Strategic Planning in Public Works). The following year these costs were not allocated to Roads projects.</p>	<p>7. That Engineering Services and Finance update the Cost Recovery and Process Methodology to provide additional detail and guidelines for the appropriate allocation of operating costs to capital projects. This procedure needs to be approved by management, reviewed periodically and revised as necessary.</p> <p>8. That periodic reviews (once every three to five years) be performed by Engineering Services, to verify the percentage of time spent by staff on various capital projects, and that this data be used to update the allocation model.</p>	<p>Agreed. The General Manager agreed with Audit Services' recommendation. The procedure will be reviewed and updated accordingly. Anticipated completion date: Q4 2017. Lead: Pat Leishman.</p> <p>Agreed. The General Manager agreed with Audit Services' recommendation. While reviews are currently performed annually, there is an opportunity to document this process. Anticipated completion date: Q4 2017. Lead: Pat Leishman.</p>

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<p><u>Project Deficiencies</u> A list of the project deficiencies discovered during the two year warranty period is prepared by the Project Manager (PM) and the Contract Inspector (CI) in Construction Services (CS), and a copy is provided to the contractor responsible for the project.</p> <p>The following issues were noted with the Project Deficiencies process during one of the contracts that was reviewed:</p> <p>a. There is no standard form or log based on the tender document for the deficiency list produced. This increases the risk that that some aspects of the project were overlooked during the inspection process.</p> <p>b. The deficiencies noted on one of the contracts reviewed by Audit Services had not been corrected even though in one case five months had lapsed and in a second case seven months had lapsed since the site's final inspection.</p> <p>c. Final Acceptance Letters are not issued promptly. In one case the Final Acceptance Letter had not been issued five months after the final inspection was performed and no deficiencies had been identified.</p>	<p>9. That Construction Services develop standardized Project Deficiency Logs to be used by all CI and PM when performing final inspections. These logs should be retained as part of the contract file.</p> <p>10. That Construction Services follow up with the contractor when delays in correcting deficiencies exceed 90 days and evaluate the legitimacy of the delay. The Vendor Evaluation process with Procurement should be utilized if the contractor is not complying with the contract terms.</p> <p>11. That Final Acceptance Letters be issued no later than 30 days after deficiencies have been corrected.</p>	<p>Agreed. Construction Services will review and update existing forms and documents. Anticipated completion date: Q2 2017.</p> <p>Agreed. Construction Services will follow the recommended process, as required, effective immediately. Anticipated implementation date: Q1 2017.</p> <p>Agreed. Construction Services will review current practices, agree on a timeline to issue these letters and incorporate this expectation into the Project Manager Manual. Anticipated completion date: Q2 2017.</p>

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<p><u>Project Quality Assurance</u> Contract Inspectors (CIs) are issued project diaries and quantity books to track the progress and quality of the work performed as well as the quantity of the materials used by the contractor.</p> <p>CIs then use the information reported in the diaries and quantity books to prepare Material Sheets that are forwarded to the Project Manager. The Material Sheets are used by the Project Manager to validate the quantity and quality of the work before the Progress Payments are issued to the contractor.</p> <p>For one of the contracts reviewed by Audit Services, all of the Progress Payments were approved and paid without the Contract Inspector completing the diaries, quantity books and the Materials Sheets.</p> <p>There is evidence that the Contract Inspector retained a notebook to record the materials and quantities, but this information was not presented to the Project Manager for review or in a formal project diary prior to the issuance of Progress Payments for this contract.</p> <p>Progress payments were issued before appropriate evidence was provided that the work was completed, or for material quantities that were not used due to this internal control weakness in the project quality assurance process. Given the large dollar value of capital projects that occur every year, the project quality assurance process is a critical component of the cost control process.</p>	<p>12. That Construction Services management perform periodic reviews of Contract Inspectors project diaries, and quantity books to ensure that they are up to date and performance manage and discipline staff that are not compliant as appropriate per the applicable collective bargaining agreement and HR policies.</p> <p>13. That Project Managers should not approve Progress Payments without reviewing project diaries and quantity books and supporting Material Sheets, and ensuring that these support the quantities indicated on the Progress Payments. Staff that do not follow this process should be performance managed and disciplined per the applicable collective bargaining agreement and HR policies.</p>	<p>Agreed. These changes will take effect immediately. Anticipated implementation date: Q1 2017.</p> <p>Agreed. This will be reviewed and reinforced with staff effective immediately. Anticipated implementation date: Q1 2017.</p>