Item 2

For Action

Audit, Risk and Compliance: Capital Contract Reviews

Date: December 12, 2019
To: TTC Audit and Risk Management Committee
From: Head of Audit, Risk and Compliance

Summary

As part of our Corporate Compliance Program, the Audit, Risk and Compliance Department (ARC) reviews contracts to assess the adequacy of controls and adherence with key terms and conditions. Contracts are selected for review based on a number of factors, including expenditures and impact on customer service and infrastructure.

Two capital contract reviews were completed this quarter. The first assessed the status of the Easier Access III (EA III) project and likelihood of meeting the January 1, 2025 deadline in accordance with the *Accessibility for Ontarians with Disabilities Act* (AODA). The intent of the EA III project is to make the TTC barrier free by implementing changes that will make its services and facilities accessible to everyone. In October 2016, an ambitious, accelerated construction schedule with limited opportunities for further advancement was presented to the Board.

The second focused on the TTC's On-Grade Paving Rehabilitation Program (OGP), for which the 10-year capital budget (2019-2028) is approximately $115 million.
The TTC is responsible for maintaining paved surfaces for a combined total area of 690,000 sq. metres at various TTC locations including stations, yards, substations, bus loops, and employee/commuter parking facilities. Although routine repairs are completed to address patches of excessive wear, eventually major rehabilitation of paving surfaces is required to return them to a state of good repair and alleviate high maintenance costs.

Executive Management has acknowledged its need to address identified contractual risk management and cost containment control issues, as well as improve oversight of project and construction management. Management Action Plans are being prepared to address ARC's observations and identified risk/control gaps outlined in detailed management reports and memos. Steps will also be undertaken as part of a broader corporate initiative being led by TTC's Chief Financial Officer to develop a commercial management function within the TTC and implement progressive financial threshold controls to govern the approval of contract change orders. Preliminary work in these areas will be presented to the ARMC.

Recommendations

It is recommended that the TTC Audit and Risk Management Committee:

1. Receive this report for information.

Financial Summary

There are no funding implications from the adoption of the report recommendations.

The Chief Financial Officer has reviewed this report and agrees with the financial summary information.

Equity/Accessibility Matters

There are no accessibility or equity impacts associated with this report.

Decision History

The Audit, Risk and Compliance Department identified in its 2019 Flexible Audit Work Plan, approved by the Audit and Risk Management Committee (ARMC) on February 26, 2019, its intention to review select capital contracts. The department is required to provide the ARMC with an update on the status of planned assurance projects.

https://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Committee_meetings/Audit_Risk_Management/2019/Feb_26/Reports/7_An_Integrated_Strategy_%26_Flexible_Work_Plan_2019.pdf

Issue Background

The TTC has publicly committed to having an accessible transit system by 2025, and failure to do so is a significant reputational risk. At this time, none of the existing AODA accessibility standards specifically direct the TTC to have an elevator in all of its stations. However, in light of the AODA's requirements, a reasonable inference per TTC Legal is that the TTC would not be compliant if its subway stations are not fully accessible by the January 1, 2025 deadline. If the TTC was found not to be compliant, the TTC could be issued one or more orders directing it to take certain steps to complete specified work within a set time frame and/or be subject to fines and administrative penalties as high as $100K per day.

The TTC has reported annually on its ongoing progress towards making its services and facilities accessible since 2003. However, delays in meeting the accelerated 2016 schedule to make identified stations accessible has been noted recently, and the enforcement of AODA legislation and the technicalities as to what constitutes full compliance remains relatively uncertain. Human Rights legislation clearly prohibits the TTC from discriminating against people with disabilities and enforcement may require accommodations to be put in place at substantial costs. As the TTC moves towards its new Family of Services model, disability advocates may press the issue of failed compliance with AODA more aggressively.

In 2019, ARC commenced its contract reviews to assess the adequacy of contractual risk management, cost controls and compliance with key terms and conditions. However, the extent of our review was limited for those contracts issued by TTC management with the records and audit clause that prohibits auditors from gaining access to third party records for purposes of substantiating contractor claims and change orders when settled as lump sum or negotiated amounts.

Comments

The objective of our EA III, OGP and special request contract reviews was to assess contractual risk management and cost containment controls, as well as oversight of project and construction management to ensure associated costs and other risks are actively managed.

Based on the results of our audits, we noted the need for management to improve contractual risk management and cost containment controls as follows:

- Controls that ensure final bid documents are well supported and accurate need to be strengthened; and the use of formal sign-off sheets that require project managers and key subject matter experts to attest to the reasonableness of bid items, stated measurements and site condition assessments should be considered.

- Processes and clear governance controls over issued contract language should be established to ensure all internal stakeholders are continuously and holistically assessing contractual risk management.

- Improved project management performance indicators and targeted goals should be established to provide greater insight for the use and management of allowances; with particular attention being given to enhancing transparency and communication of budgeted and actual CCA rates to the Board and Executive Management.

Given our review of internal TTC documents indicates compliance with the January 1, 2025 AODA deadline to make all stations accessible is at risk, the development of corporate communications for ACAT members should be considered. Also, contingency customer service action plans for those stations not likely to be completely accessible by the deadline should be developed as part of holistic risk mitigation strategies.

Detailed reports for the review of EA III and OGP contracts were provided to Executive Management and are attached to this Report to provide further information on the results of our work.

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Signature

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Attachments

Attachment 1: Audit, Risk and Compliance: Contract Review – Easier Access III Program

Attachment 2: Audit, Risk and Compliance: Contract Review – On-Grade Paving Rehabilitation Program

Attachment 1

Toronto Transit Commission

Audit, Risk and Compliance:

Contract Review – Easier Access III Program

EXECUTIVE SUMMARY

Background

A primary stated purpose of the *Accessibility for Ontarians with Disabilities Act* (AODA) is "… *to benefit all Ontarians by, developing, implementing and enforcing accessibility standards in order to achieve accessibility for Ontarians with disabilities with respect to goods, services, facilities, accommodation, employment, buildings, structures and premises on or before January 1, 2025."* The accessibility standards that have been developed and implemented pursuant to the AODA are set out in the *Integrated Accessibility Standards Regulation* (IASR).

The Easier Access III project (EA III) focuses on making the TTC barrier free by implementing changes which will make its services and facilities accessible to everyone. The aim for EA III is to provide a single accessible path from street level to subway platforms by installing elevators and associated equipment, including automatic doors, ramps, fare gates, improved signage, wayfinding, architectural finishes and associated mechanical and electrical services, to connect buses and streetcars to subway trains. In some cases, this involves the need to build new staircases, move utilities like gas and water lines and pay for real estate to accommodate an elevator. Upgrading existing stations across an aging system to provide a single accessible path from street level to subway platforms can be exceptionally challenging.

The TTC has publicly committed to having an accessible transit system by 2025, and failure to do so is a significant reputational risk. At this time, none of the existing AODA accessibility standards specifically direct the TTC to have an elevator in all of its stations. However, in light of the AODA's requirements, a reasonable inference per TTC Legal is that the TTC would not be compliant if its subway stations are not fully accessible by the January 1, 2025 deadline.

The assessment of administrative penalties for noncompliance is set out under the IASR. In general, under the IASR's administrative penalty regime, administrative penalties could range from $500 up to $15,000 for a contravention. And in cases where both the impact and history of an organization's contravention are determined to be major, a daily penalty to a maximum of $100,000 per contravention may apply. While in actuality penalties levied could be less, if the TTC were to be found non-compliant, enforcement officers delegated under the AODA could issue one or more orders directing TTC to take certain steps or to complete certain work by a fixed date (including completion of one or more elevators). In these circumstances, failure to comply may involve substantial monetary fines/penalties not currently considered in the TTC capital budget/plan.

Audit Purpose, Objective and Scope

In order to meet the January 1, 2025 required completion date, the Construction Department reported to the Board in October 2016 that the EA III Program must average the completion of making three stations accessible per year. This was in contrast to the decade old historical average of one station per year. A number of project complexities that could potentially impact the time to complete the remaining stations were identified, including station configurations, property requirements, design resources, construction industry resources and customer disruptions. Given the project constraints noted, the construction schedule presented at that time was described as ambitious and achievable, but with limited opportunities for further advancement.

The TTC has reported annually on its ongoing progress towards making its services and facilities accessible since 2003. Slippage in the completion of making identified stations accessible has been reported in recent years. However, the enforcement of AODA legislation and the technicalities as to what constitutes full compliance remains relatively uncertain for the TTC.

Human Rights legislation prohibits the TTC from discriminating against people with disabilities and enforcement may require accommodations to be put in place at substantial cost. As the TTC moves towards its new Family of Services model, which includes encouraging Wheel-Trans riders to transition to conventional transit by re-evaluating their eligibility for specialized transit services, disability advocates may press the issue of failed compliance with AODA more aggressively. In accordance with Audit, Risk and Compliance's (ARC's) 2019 Flexible Work Plan, we reviewed the status of EA III station accessibility projects to assess legal compliance and regulatory risk(s).

Overall Conclusion

Based on our review of internal TTC documents, it is ARC's opinion that compliance with the January 1, 2025 AODA deadline to make all stations accessible is at risk. The feasibility of accelerating efforts further to meet the due date for accessibility of all stations, including the associated costs, need to be evaluated by Executive Management, as well as, other options if not all AODA requirements are achieved. Corporate communications for ACAT members and contingency customer service action plans should also be developed as part of holistic risk mitigation strategies.

DETAILED AUDIT OBSERVATIONS

Audit Observation #1:	**Compliance with the January 1, 2025 AODA deadline to make all stations included in the EA III Program accessible is at risk.**

Since introducing its accelerated schedule in 2016, significant progress of the EA III project has been made. However, comparison of this accelerated schedule to that of June 2019 indicates the estimated contract completion date for many of the stations has fallen behind anywhere from six months to two years. In addition, Management has made the decision to not include four Scarborough line stations in its EA III Program as they will be replaced by the Line 2 extension.

Management has also been reporting delays in meeting stated commitments in Annual Accessibility Plan Status Reports since 2016. In its 2019 Annual Report, planned completion for three stations has been identified for 2025. This is consistent with ARC's review of internal Engineering, Construction and Expansion (EC&E) documentation which suggests accessible paths for at least three stations are at risk of not being completed until after the January 1, 2025 AODA deadline. Specifically:

- Per the *EA III Master List* as at the end of June/19, the expected elevator "in service" dates for Warden and Islington stations are November 28/25 and December 21/25 respectively. The predicted date for Glencairn station is November 2/24, allowing for a delay of only two months to meet the AODA deadline.

- Per the *Program Status Report for EA III* dated June 30/19, the target date for all stations to be made accessible with elevators in service is identified as December 31, 2025, with a medium confidence level of being achieved. This target date is 12 months later than the AODA due date. Further, the report does not include information on nine stations scheduled to be renovated. Incomplete milestone status reporting hinders the meaningfulness and transparency of this report.

- Per the *Master Project Schedule 5666 EA III Report* dated July 31/19, the planned notification of construction contract award date for Warden station is April 19/23 and construction is scheduled to be finished three years later by April 22/26. Similarly, for Islington station, the planned notification of contract award date is May 17/23 and the construction completion date is May 20/26.

Warden and Islington Stations have multiple bus bay configurations with stairs to each bus bay. This configuration would require an elevator at each bus bay to make the station accessible, but this was deemed not financially feasible. Therefore, these two stations need to be redeveloped to provide a multi-bay bus platform. Both stations are being completed as separate projects.

Audit Observation #1 – Management Action Plan Considerations

Management should:

1.1 Evaluate the feasibility of accelerating efforts further and associated costs to meet the AODA deadline for all stations and provide updated reporting to the Board.

1.2 Assess the options available if the AODA date is not achieved in consultation with Legal, including the TTC corresponding with regulatory bodies and sharing the challenges experienced to date.

1.3 Develop corporate communications for ACAT members and contingency customer service action plans. Plans should address passenger mobility issues if delays in station renovations materialize as part of holistic risk mitigation strategies.

Audit Observation #2:	**Causes for lengthy durations of time between Substantial Performance and Contract Completion need to be explained, documented and resolved.**

Substantial Performance (SP) is achieved according to the provisions as set out in the Construction Act. EC&E typically allows for 3-6 months after SP to complete the contract. ARC's review of EC&E reports for the last eight stations completed under the EA III Program indicates that an average duration of almost 15 months lapsed between SP and contract completion, with the range being from 8 to 20 months.

The Contract Document Committee (CDC) noted in its minutes on March 13, 2019 the need for a clear definition of "completion". Agreement that lengthy durations from SP to contract completion is a project management issue that needs to be addressed was also recorded.

Prior to SP, EC&E follows a process for the handover of identified projects to various departments that will be responsible for continued maintenance and operations. Specifically, a *Certificate of Fitness for Revenue Service and Handover – Elevators* is prepared and designated signatories confirm that, within their areas of responsibility, they consider the elevators fit for service. Also, maintenance responsibility is transferred from the Construction Department to the Elevating Device Section (EDS) within the Plant Maintenance Department. In the case of two of the eight completed stations, lengthy periods of six months to over a year passed before EDS signed off acceptance to take over the maintenance of the station elevators. Explanations offered noted contractor poor performance and delays in addressing noted deficiencies as the cause.

Audit Observation #2 – Management Action Plan Consideration

Management should:

2.1 Ensure causes and explanations for lengthy durations of time passing between substantial performance and contract completion, and impacts thereof, are documented as part of project close-out to facilitate lessons learned. Strategies for decreasing the lapsed period through appropriate policy and procedural changes should be developed and communicated to Executive Management. During the design phase, emphasis should be placed on ensuring all stakeholders have identified their scope requirements to aid in minimizing the number of additional changes requested (RFQs) post substantial performance.

Attachment 2

Toronto Transit Commission

Audit, Risk and Compliance:

Contract Review – On-Grade Paving Rehabilitation Program

EXECUTIVE SUMMARY

Background

The Toronto Transit Commission (TTC) is responsible for maintaining paved surfaces for a combined total area of approximately 690,000 sq. metres at various TTC locations. Paved surfaces can become excessively cracked and uneven as a result of heavy vehicle travel, environmental conditions (i.e., freeze thaw cycles) and exposure to salt, oil and fuel runoff. Although routine repairs are completed to address patches of excessive wear, eventually major rehabilitation of paving surfaces is required to return them to a state of good repair and alleviate high maintenance costs.

Audit Purpose, Objective and Scope

The TTC's On-Grade Paving Rehabilitation Program ("Program") is comprised of the on-going assessment, design and rehabilitation of on-grade pavement surfaces at various locations within the transit system, including stations, yards, substations, bus loops, and employee/commuter parking facilities. The 10-year capital budget (2019-2028) for the Program is approximately $115 million.

Between January 2014 and April 2019, 21 contracts valued at $35.2 million were awarded under the Program. The Audit, Risk and Compliance Department (ARC) reviewed eight on-grade paving projects noted to be at varying stages of progress and involving a number of different contractors. Our audit focused on contract risk management, cost controls, and monitoring of contractors' compliance to key terms and conditions.

Overall Conclusion

Based on our review of internal TTC documents, it is ARC's opinion that improvements are needed to ensure financial risk exposure is effectively mitigated and project contingency costs are reasonably managed. Specifically:

- To reduce the TTC's exposure to excessive costs, controls that ensure bid document details and issued contract language are reasonable and accurate need to be strengthened.

- Budgeted and/or actual Contract Change Allowances greater than 10% should be reviewed and analyzed to ensure funds are being spent on unforeseeable construction costs within the intended scope of project work.

DETAILED AUDIT OBSERVATIONS

Audit Observation #1:	**Controls that ensure issued bid estimates are reasonable, bid documents are accurate, and contract terms and conditions do not inadvertently expose the TTC to excessive costs need to be strengthened.**

Of the eight selected on-grade paving contracts reviewed, two were procured as purely fixed price Contracts, and the remaining, largely as fixed price Contracts with varying select unit price elements, e.g., for the removal/disposal of impacted and hazardous soil, concrete or asphalt. Unit price items and Contracts can reduce financial exposure and are often used when work is repetitive in nature, easily identifiable and estimated quantities can be calculated.

The TTC can improve the quality of bid submissions by ensuring quantity estimates are reasonable and accurate. The estimated unit quantities and surface measurements identified in 2 of the 6 bid documents were significantly lower and inconsistent with what should have been reasonably expected given the nature of work (i.e., the disposal of impacted soils and hazardous soils respectively), which increased TTC's exposure to excessive costs. In both cases, significant contract change costs related to soil disposal were incurred due to deviations from estimated bid quantities – $265K and $825K respectively.

Further, the nature of on-grade paving rehabilitation work requires the results of completed soil investigations to support estimates of impacted and contaminated soil removal. Per TTC geotechnical and Construction staff, under certain conditions, soil reports older than 18 months may be obsolete and rejected by landfill locations. ARC noted that for 4 of the 8 contracts reviewed, three or more years had lapsed between the date of soil testing and contract award. In one case, over four years had passed and an expensive contract change to remove unexpected contaminated soil was completed.

The use of unit price contracts and approach of quoting, measuring and monitoring actual progress of units completed balances the risks between the Contractor and Owner. Risk can be further mitigated for both Owners and Contractors with the inclusion of an effective contract clause that allows price adjustments to be negotiated if actual quantities of unit rate components vary from the competitively bid estimates. This is in contrast to fixed price contracts that generally require contractors to price jobs without upfront owner estimates of identifiable quantities of work, prompting them to submit lump sum bids that include a cushion to cover any unexpected costs that may occur as compensation for their assumption of additional risk.

ARC noted in the 'Measurement and Payment' clause within the six partial unit price contracts that the language used did not protect both the TTC and the Contractor when considerable overruns of estimated bid quantities were experienced. This is because the option to negotiate did not exist and only allowed for a predefined price adjustment. The inability to negotiate reasonable pricing when actual variances are extreme increases financial risk exposure.

Per Construction Department staff, the ability to negotiate the cost of extreme variances between bid estimates and actual quantities has been reinstated. However, the variance threshold that must be reached before negotiations may be triggered is 100%. This may result in excessive costs when variances are less than 100% and this threshold is higher than benchmarked entities. The Ministry of Transportation, for example, uses a clause that triggers negotiation at stated quantity variances of 15% and a price adjustment option for underruns only if agreed upon by both parties.

Audit Observation #1 – Management Action Plan Considerations

Management should:

1.1 Ensure the rationale for using lump sum and/or unit price contracts for on-grade paving rehabilitation projects and similar projects where the nature of work can easily be divided into identifiable and quantifiable components is documented; and ensure appropriate protective measures designed to reduce financial risk are reflected in final contract language.

1.2 Ensure final bid documents and issued contracts are well supported and accurate. Consideration should be given to the use of formal sign-off sheets that require project managers and key subject matter experts to attest to the reasonableness of bid items and stated measurements. Creating a database of quantities derived from past projects and using the information as basis for comparison should be explored.

1.3 Geotechnical testing guidelines should be documented and provided to project managers to assist them in timely, risk based scenario decision making and to ensure the TTC’s compliance with upcoming Ministry of Environment excess soil regulations. Particular attention should be given to incidents where more than 18 months has lapsed between when soil tests were performed (typically done during the design phase of work) and actual removal of soil as part of construction work.

Audit Observation #2: **Strategies for reducing budgeted Contract Change Allowances (CCA) should be pursued.**

All construction contracts typically generate contract changes due to project unknowns. To help prevent project budget overruns, a construction cost allowance (CCA) in the form of a percentage of the awarded contract value is typically established to cover unplanned items such as structural concrete repairs, underground utility conflicts and other conditions that may be discovered during the construction phase. Per EC&E procedure (CDI-19), the CCA established for a given construction contract “is intended for changes to work that are unforeseeable during (the) construction phase and are considered within (the) intended scope of work. The CCA addresses a level of uncertainty, but excludes ‘major’ scope changes, claims and unforeseeable causes.”

Historically and similarly to the City of Toronto, Ministry of Transportation, and researched best practice, the TTC used to set contract change allowances at 10%. However, in 2014, the TTC’s Construction Department, in conjunction with the Materials & Procurement Department, “developed an initiative to improve Engineering Construction and Expansion’s CCA process for construction contracts. The objective is (was) to prevent returning to the Board for multiple amendment authorizations for contract changes, which for the most part, are already included in the overall project budget.” The CCA rates were set as follows:

- 22% - Modifications/rehabilitation/additions to existing facilities;
- 13% - Systems type work; and
- 8% - New work (e.g., new bus garage)

To reduce these CCA rates, it was acknowledged by Construction Department in 2014 that “risk analysis, early involvement of third parties, constructability reviews and introducing annual goals” should be pursued over the long-term. The CCA rates established at that time have remained unchanged and reduction action plans and targets with estimated completion dates have not been provided.

For example, ARC noted that a CCA rate of 22% is still being used for on-grade paving rehabilitation contracts although the actual average CCA rate for nine completed on-grade projects awarded in 2015/16 was 8.23%. For another structural paving rehabilitation project, a CCA rate of 27% was established in anticipation of issues associated with waterproofing. The actual CCA rate for this project is trending at 4.5%.

Audit Observation #2 – Management Action Plan Considerations

Management should:

2.1 Ensure adequate oversight, transparency and communication of budgeted and actual CCA rates is provided to the Board and Executive Management. Particular attention and lessons learned analysis should be given to CCA rates that exceed 10% of awarded contract values.

2.2 Improved project management performance indicators and targeted goals should be established to provide greater insight for the use and management of allowances, including annual CCA reduction targets. Consideration in the short term should be given to preparing and providing regular analysis of CCA rates to the TTC's Chief Executive Officer and Chief Financial Officer to assist in establishing a new tiered approval process.