

### **Internal Audit Activities – Quarterly Update: Q2 2017**

| Date: | September 27, 2017                      |
|-------|---|
| То:   | TTC Audit and Risk Management Committee |
| From: | (Acting) Head of Internal Audit         |

### **Summary**

During the quarter, TTC's Internal Audit Department focused on completing the following key projects to facilitate the timely communication of our findings to the Audit and Risk Management Committee (ARMC):

- An audit of TTC's controls to monitor and enforce contractual terms and to
  minimize revenue losses due to PRESTO device reliability and availability issues.
  This audit focused on fare payment devices, namely readers on buses, legacy and
  new streetcars, and on turnstiles in stations. Internal Audit also spent significant
  time reviewing faregates given these are owned by TTC.
- An audit on the use of consultant staff by two key TTC departments responsible
  for procuring contracts with consulting services firms Construction
  Management Services (CMS) and Information Technology Services (ITS). This
  audit focused on providing independent assurance to the Audit and Risk
  Management Committee that risks associated with the procurement, selection and
  monitoring of external engineering, technical and professional consultant staff are
  reasonably managed in a fair and transparent manner.

### **Financial Summary**

This report has no financial impact as the purpose is to report on TTC Internal Audit activities during Q2 2017.

### **Accessibility/Equity Matters**

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

#### **Comments**

TTC Internal Audit Department completed several key initiatives during the first quarter, and made progress on other projects. Key highlights for the quarter include the following:

#### Completed Projects

In early 2017, TTC's e-fare system—PRESTO—continued to experience
reliability issues and concerns remained that failing devices were resulting in TTC
revenue loss. Following discussions with management regarding PRESTO's plan
to deploy a new release later in the year to improve system reliability and
stability, Internal Audit performed an audit to evaluate TTC's internal processes
that support and complement device reliability and monitoring.

Applying third party management best practices, Internal Audit reviewed TTC's controls to monitor and enforce contractual terms as a means to manage risks relating to PRESTO device reliability and availability issues. We did not cover fare point-of-sales equipment or test for application errors or evaluate system functionality gaps that may be contributing to device reliability and availability issues.

Internal Audit concluded that root causes of overall device reliability and availability issues are system-related and primarily under the control of TTC's suppliers. Hence, monitoring supplier performance at critical points within TTC's decision making processes is crucial to ensuring that suppliers deliver on contractually agreed upon service levels. Further, Internal Audit noted that: Service Level Agreements need to be finalized; pressure on vendors to deliver on TTC business requirements and build TTC capabilities to secure high quality vendor performance must continue; and reactivation of TTC's PRESTO Project Steering Committee will support improved communication to internal/external stakeholders. See Attachment 1 for Internal Audit's Report – PRESTO Device Monitoring.

• Using a combination of internal TTC staff and external consultant staff provides the TTC with the flexibility to sustain project progress and to acquire specialized skills. It is an approved strategy for capital project delivery within the Engineering, Construction and Expansion (ECE) Group. Use of consultant staff within ITS is similarly considered necessary due to a historical lack of budget for increasing operational headcount.

Use of consultant staff is an increasing area of risk due to the costs involved, the duration of assignments and the receipt of integrity line complaints questioning the transparency and fairness of selection processes. The scope of this audit was limited to the key contract/program utilized by CMS and ITS to acquire external

consultant staff through third party consulting services firms for the purpose of supplementing internal TTC resources.

Internal Audit made a number of observations relating to the need: to develop procurement models that reduce risks associated with utilizing single consulting firms; to increase rigour in processes and controls around the requisition, selection and performance monitoring of consultant staff to reduce risk of perceived bias and dependency; and to review TTC's corporate policy on the use of TTC retirees as consultant staff hired by third-party consulting services firms to ensure transparent and fair decision making. See Attachment 2 for Internal Audit's Report – Use of Consultant Staff.

#### **In-Progress Projects**

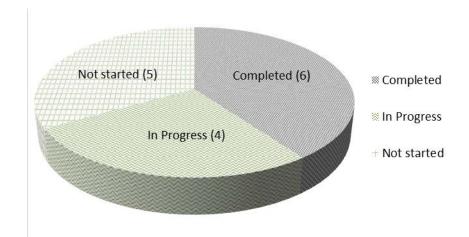
- In accordance with the 2017 Audit Work Plan, Internal Audit is completing an audit on the oversight of TTC's Video Surveillance Program and maintenance of the Closed Circuit Television (CCTV) cameras installed in TTC buses, subway trains, stations, streetcars, and buildings. TTC's use of video surveillance assists management and law enforcement in ensuring customers' safety.
- In accordance with the 2017 Audit Work Plan, Internal Audit is reviewing select contracts to provide management with independent assurance over the adequacy and effectiveness of contract management controls, including adherence to contract terms, service level monitoring, invoice processing and third party risk management. Applying select risk criteria, including the criticality of services/products procured, procurement model used, contract values and past audit coverage, we have selected a contract for the repair of linear induction motors from the Operations Group for review in Q3 2017.
- In accordance with our 2017 Audit Work Plan, Internal Audit is conducting site
  observations at various cost centres to follow-up on the status of agreed upon
  management action plans to address risks associated with tools management. This
  audit is intended to support TTC management in its efforts to deter fraud,
  strengthen fraud mitigation strategies and control frameworks, complement
  TTC's upcoming Corporate Theft Campaign, and develop a systematic Fraud
  Prevention Program.

#### Departmental Initiatives

• Internal Audit is gathering information on internal and external assurance activities across the TTC. This information is being analyzed and organized to identify key sources of management based and independent assurance activities performed to mitigate corporate and departmental risks. Internal Audit's intent is to use the results of this assurance mapping exercise to direct its assurance work to areas of need and reduce duplication of efforts in areas that are otherwise well-

controlled. Accordingly, the results of this initiative will be used in the development of our 2018 Audit Plan.

Status of 2017 Audit Work Plan as at September 2017 - Assurance Projects



| Completed  | In Progress   | Not started  |
|--|---|--|
| Workforce Planning: Bus<br>Operators (Education Session) | Video Surveillance Program  | Safety Delivery Model                              |
| Asset Management: Subway<br>Rolling Stock – T1 Hot Cars  | Fraud Deterrence:<br>Tools Management<br>(Follow-Up)                | Surface Preventable Collisions                     |
| Fraud Deterrence:<br>Lost Articles Office                | Review of Select Contract -<br>Repair of Linear Induction<br>Motors | Employee Safety:<br>Subway Track & Tunnel<br>Work* |
| Fraud Deterrence:<br>Metals Management                   | Asset Management: Subway Infrastructure*                            | Asset Management:<br>Streetcar Way Infrastructure  |
| PRESTO Device Monitoring                                 |   | Project Assurance:<br>Major Project Universe Risk  |
| Use of Consultant Staff                                  |   | Stratification & Review of Select Project(s)**     |

<sup>\*</sup> Risks will likely be addressed as part of the Asset Management – Subway Infrastructure audit

<sup>\*\*</sup> Deferred as TTC's Portfolio Management Office has developed a Project Management Framework in consultation with KPMG to set oversight expectations for projects.

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### **Attachments**

Attachment: Presto – Device Monitoring
 Attachment: Use of Consultant Staff

#### **Purpose of the Audit**

In early 2017, TTC's e-fare system–PRESTO<sup>1</sup> continued to experience reliability issues and concerns remained that failing devices were resulting in TTC revenue loss. Internal Audit included an audit of TTC's controls over PRESTO device reliability and availability in its 2017 annual audit plan.

Following discussions with management, Internal Audit determined that TTC's external audit of its financial statements combined with PRESTO's service auditors' report provided sufficient assurance over internal controls over financial reporting. Further, PRESTO was working on a new release to be deployed in July 2017 that would improve system reliability and stability. Hence, Internal Audit performed this audit to evaluate TTC's internal processes that support and complement device reliability and monitoring.

### **Background**

The implementation of PRESTO is a key strategic initiative to overhaul, automate and modernize Toronto Transit Commission's (TTC's) fare collection system. The complexity of its implementation and interdependencies with other TTC projects increases risk and the need for key stakeholders to thoroughly understand mitigation strategies and residual risks associated with critical decisions.

In November 2012, Metrolinx and TTC signed a Master Agreement—an outsourcing agreement—where Metrolinx would be the exclusive provider of fare collection services to TTC, and would in accordance with TTC business requirements, provide a series of managed services to finance, implement, operate, service, maintain and keep in a state of good repair (including applicable refreshes) PRESTO *Next Generation* for the non-exclusive use of TTC. TTC was required to participate in PRESTO as one of the requirements to receive a portion of the provincial gas tax under the *Dedicated Funding for Public Transportation Act, 2013.* 

At December 2016, all TTC vehicles and at least one entrance per subway station were PRESTO enabled and 7.4% of TTC riders used PRESTO, bringing in \$88 million in fare revenues. In April 2017, at the start of our audit fieldwork, TTC had approximately 4,700 PRESTO payment readers (readers) on buses, streetcars and in stations, and 445 faregates.

Maintenance responsibilities for readers on buses, legacy and new streetcars, and on turnstiles in stations differ from those for TTC owned faregates. Metrolinx owns the readers and is responsible for their maintenance and repair. Metrolinx subcontracted First Line Maintenance (FLM) to TTC for a period ending December 31, 2016 to accommodate certain implementation challenges. Metrolinx will resume FLM responsibilities on September 17, 2017. TTC is billing Metrolinx for monthly FLM costs incurred after January 1, 2017. Second Line Maintenance, i.e. maintenance if FLM does not resolve device issues, remained and continues to be performed by Metrolinx.

<sup>&</sup>lt;sup>1</sup> The PRESTO System provides an electronic fare service that handles fare payment using a single microchip-based fare card. PRESTO collects and delivers revenue and reporting through a central clearinghouse.

In contrast, TTC owns the faregates and has responsibility for faregate first line maintenance. The faregate supplier, Scheidt & Bachmann (S&B) is responsible for second line maintenance. In 2015, TTC exercised an option to purchase faregates directly from S&B in order to replace all subway station turnstiles with new integrated faregates. These faregates have integrated PRESTO card readers that accept taps, and tap information is ultimately forwarded to the PRESTO system for financial processing in the same manner as other PRESTO readers.

#### **Audit Objective and Scope**

Our overall audit objective was to review and evaluate whether TTC has internal processes in place to manage fare collection risks and minimize revenue losses due to PRESTO device reliability and availability issues.

Applying third party management best practices, Internal Audit reviewed TTC's controls to monitor and enforce contractual terms as a means to manage risks relating to PRESTO device reliability and availability issues. Audit scope focused on fare payment devices, namely readers on buses, legacy and new streetcars, and on turnstiles in stations. Internal Audit also spent significant time reviewing faregates given these are owned by TTC.

We did not cover fare point-of-sales equipment, nor did we evaluate fare evasion and card fraud risks, security risks, confidentiality risks, disaster recovery and business continuity risks. Further, we did not test for application errors or evaluate system functionality gaps that may be contributing to device reliability and availability issues.

#### **Overall Conclusion**

The root causes of overall device reliability and availability issues are system-related, and primarily under the direct control of TTC's suppliers. Hence, monitoring supplier performance at critical points within TTC's decision making processes is crucial to ensuring that suppliers deliver on contractually agreed upon service levels. We observed that various key controls can be strengthened, namely user acceptance testing, defect reporting and resolution, and performance monitoring.

The first faregates were deployed in April 2016 with unresolved *User Acceptance Testing* deficiencies. The schedule for faregate acceptance testing did not include multiple cycles for the supplier to fix defects and contributed to a reliability rate that was below that identified in the contract. Management recognized that a higher than normal level of defects was accepted to maintain overall schedule implementation objective. This decision was made on the understanding that the supplier would resolve issues in a reasonable period of time. However, the supplier has experienced difficulty identifying root causes and developing solutions.

Similarly, PRESTO reader deficiencies identified during user acceptance testing have not been resolved in a timely manner. Some of these defects have direct implications for device reliability and fare collection.

The Master e-fare Collection Outsourcing Agreement with Metrolinx was signed in 2012 without a comprehensive Service Level Agreement (SLA). The SLAs are yet to be finalized but are expected to be in place by the end of 2017. The absence of mutually agreed upon performance and service levels is a gap in supplier performance management control.

In the meantime, Metrolinx commenced weekly device performance reporting of PRESTO service and reader availability in May 2017. However, the measures only provide a snapshot of availability at designated times and not a measure over continual service hours as required. Also, while reader availability statistics are based on all readers, service availability calculations only reflect an expectation that there is "at least one working PRESTO card reader per vehicle", not all. Although snapshot measures are being expanded to include other hourly increments, PRESTO is not providing a basic reader device inventory report that includes minimum details such as unique serial number and location, or detailed device reliability measures. This makes it problematic for validating the accuracy of PRESTO reader device reliability measures. TTC's Farecard Team<sup>2</sup> continues to work with Metrolinx to develop meaningful availability, reliability and maintainability measures.

Similarly, TTC and its faregates supplier (S&B) were to have developed a joint approach to the calculation and reporting of performance measures as part of a formal, signed SLA. Internal Audit has concluded that performance measurement data and reporting is not yet stable enough to be relied upon. In the meantime, TTC's agreement with the supplier ensures that maintenance fees will not be released until a detailed SLA is in place; hence finalizing the SLA is a known priority.

TTC owned faregates are currently deployed with S&B's FareGo software, hosted on Metrolinx's servers as an interim solution. This FareGo version does not meet contractual specifications as automatic alerts or manual emails for "Out of Service" (OOS) faregates are not provided. Consequently, OOS faregates must be identified through manual, visual inspection. With 445 faregates deployed over a large geographic area, manual identification of faregate failure is not efficient or practical.

Further, the long term approach for integration of the PRESTO system with the faregate software has not been finalized. TTC and Metrolinx are working through their respective positions to arrive at a final decision. This decision does not have any immediate impacts on the reliability and availability of the faregates. Depending on the decision made, there may be some changes to the roles and responsibilities of TTC and Metrolinx as it pertains to the current Agreement between the parties. This could result in some changes to costs. Given the importance of this decision and its implications, it is advisable that all stakeholders are fully briefed and well versed with the complexities of the decision, so that the best solution is selected for the TTC.

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<sup>&</sup>lt;sup>2</sup> TTC's Farecard Team manages the PRESTO program. The Head of the Farecard Team reports to the Chief Customer Officer and participates along with the TTC's PRESTO Project Manager on the Joint Executive Committee (JEC), the key body of TTC and Metrolinx representatives overseeing the PRESTO Project. The JEC is co-chaired by TTC's Chief Customer Offer and PRESTO's Executive Vice President. Monthly meetings are held and decisions are made by a consensus of the members.

The Farecard Team has been reporting project progress to the Deputy Chief Executive Officer, TTC's CEO, and on a monthly basis, to the internal Project Review Board and the PRESTO-TTC Joint Executive Committee (JEC). We observed, in this instance, that the Farecard Team would benefit from re-activating the Project Steering Committee to ensure key senior leadership receive timely, on-going information to provide support and input into complex technical decisions.

Finally, various project implementation and operational complexities have made it difficult for TTC to establish a revenue baseline. A revenue baseline would provide data to calculate revenue losses, if any, caused by unreliable fare collection devices; support contractual remedies and revenue loss mitigation measures; and calculate gains from adopting electronic fare systems. Before the remaining 26 stations are fully equipped with integrated faregates, TTC has an opportunity to establish station baseline revenues using past practices of isolating legacy fares collected at a given station and calculating the revenues for an established period. Transfers through statistically sampled stations could be estimated using rider counts, and PRESTO taps could be tabulated to complete the selected station's revenue baseline.

Management Action Plans to address Internal Audit's observations and identified control gaps have been prepared. These plans will be supported by the reactivated PRESTO Project Steering Committee under new Project Sponsorship, which will enhance project governance.

A detailed discussion of Internal Audit's observations and management's action plans can be found in the attached – Presto Device Monitoring – Detailed Discussion.

Audit Observation #1: Faregates were deployed with unresolved user acceptance testing deficiencies

The first faregates were deployed in April 2016, with unresolved *User Acceptance Testing* deficiencies. Management reviewed deficiencies identified during the testing phase and determined these were not critical and should not stop the implementation. However, some new deficiencies appeared after installation that impacted overall reliability.

The schedule for faregate acceptance testing did not include multiple cycles for the supplier to fix defects and contributed to a reliability rate that was below that identified in the contract. In April 2017, TTC recorded a total of 1856 first line and second line faregate maintenance tickets. This works out to a Mean Time Between Failure rate of one failure per 3,926 transactions versus the required rate of one failure per 2,000,000 transactions

Management recognized that a higher than normal level of defects was accepted to maintain the overall schedule implementation objectives. The decision was made on the understanding that the supplier would resolve issues in a reasonable period of time. However, the supplier has experienced difficulty identifying root causes and developing solutions.

### Audit Observation #1 – MAP: To improve and strengthen controls

The Farecard team will continue to negotiate reasonable timelines for device and system user testing and acceptance. In the event devices are deployed with multiple major defects:

- A written justification will be prepared and signed by the Project Sponsor to support decisions to accelerate schedules and justify the implementation of devices with multiple major defects, outlining cost benefits supporting such decisions.
- Written commitments for timelines to correct major defects will be obtained from suppliers.

Audit Observation #2: Device deficiencies found during testing, and conveyed to suppliers, were not resolved on a timely basis

Device deficiencies found during testing, and conveyed to suppliers, were not resolved on a timely basis. A total of 340 defects found during the testing phase remained open at June 12, 2017. Some of these defects are significant and have direct implications for device reliability and fare collection. For example:

 Tests performed on the PRESTO reader monitoring tool in November 2014 found missing device maintenance events. This tool provides the data for device availability reporting.

 Tests performed during faregate design testing in February 2016 found "tailgating" (unpaid second entry) events missing in the device error log. This would result in incorrect reporting of fare evasion events.

#### Audit Observation #2 – MAP: To improve and strengthen controls

- The Farecard Team has continued work to ensure deficiencies are closed in a timely manner.
   The defect logs maintained by TTC and vendors are being reconciled and redundant items are being resolved or purged as necessary.
- The Farecard Team will track and monitor compliance to newly developed service level agreements for defect resolution and ensure this ties into payment release processes.

Audit Observation #3: TTC's faregates are currently deployed on an interim

solution i.e., a Presto-hosted FareGo system which does not provide automatic alerts for Out of Service faregates

TTC's faregates are currently deployed on an interim solution i.e., a Presto-hosted FareGo system. This FareGo version does not provide automatic alerts or manual emails for Out of Service (OOS) faregates. With 445 faregates deployed over a large geographic area, manual identification of faregate failure is neither efficient nor practical. Further, it does not meet contractual functional specifications.

OOS faregates are presently identified through manual, visual inspection. The process relies on TTC staff— line mechanics, collectors, station management, and transit enforcement inspectors—to detect and report OOS faregates. This can cause delays in faregate repair.

## Audit Observation #3 – MAP: To expedite repair of faregates with automated gates

 The Farecard Team is awaiting the completion of Ottawa's testing and the install of FareGo version 3.5, planned for October 2017.

Audit Observation #4: The detailed Service Level Agreement with the faregates vendor is not yet finalized

Faregate performance measurement data and reporting is not yet fully developed and established. In accordance with contractual terms, the faregates' supplier is required to measure and report against agreed upon performance requirements.

The detailed Service Level Agreement (SLA) is being worked on and has not yet been finalized. In the interim, the following two requirements are relevant to device availability and reliability:

- REQ-FGT-207 DEV-FGTP-310: Faregates shall have a First Tap Read Rate of 99.99%. The device shall have a Sales Availability of greater than 99.99%.
- REQ-FGT-208: Faregates shall have a Mean Cycle Between Failure (MCBF) rate of at least 2,000,000 transactions, where a single transaction is the cycle of opening and closing of the gates. MCBF starts at the start of revenue service.

Although, detailed SLAs are not yet in place, TTC's agreement with the supplier ensures that maintenance fees will not be released until SLAs are in place. Hence finalizing these is a known priority.

#### Audit Observation #4 – MAP: To improve and strengthen controls

- Multiple meetings with the faregate vendor have been held to finalize the Service Level Agreement (SLA).
- TTC's Farecard team has ensured that payment schedules for maintenance fees are tied to the
  finalization of the SLA. The SLA will cover the services provided by the vendor (e.g.
  maintenance; back office operations) and the performance levels to be achieved by the vendor
  as they relate both to the reliability of the faregates, and the support services.
- The SLA is expected to be in place by October 2017.

Audit Observation #5: The detailed Service Level Agreement with PRESTO is not yet finalized

PRESTO commenced weekly reporting of Service and Reader Availability in May 2017.

PRESTO Weekly Availability Dashboard for August 28, 2017 covers PRESTO readers on all modes, buses, streetcars and in stations, and reported a weekly average of:

- 99.68% Overall Service Availability
- 97.11% Overall Reader Availability

Although, a favorable upward trend has been noted in overall reader performance, these availability measures are not a true measure of reader availability. They are a measure of available working devices at 7am and 4pm each day. The measures do not accurately reflect reader availability over continual service hours, as required. Further, while reader availability statistics are based on all readers, service availability calculations only reflect an expectation that there is "at least one working PRESTO card reader per vehicle", not all. Finally, PRESTO is not yet providing detailed device reliability measures.

PRESTO is responsible to provide TTC with performance reporting of PRESTO services. Service Level Agreements have yet to be signed with Metrolinx to define and agree upon performance requirements.

#### Audit Observation #5 – MAP: To improve and strengthen controls

- The Weekly Device Availability Measurement Reporting is being refined and expanded to provide availability statistics at more times during service.
- PRESTO and TTC project teams are working on finalizing the service level agreement. In the meantime, the following key measures are a priority and will be created, tracked and monitored:
  - Device Defect rates for all devices
  - Aging Analysis of device defects

Audit Observation #6: Lack of an automated report that provides a listing of

all TTC's PRESTO devices with serial numbers to support TTC's validation of PRESTO's device

management services

There is no automated report that provides a listing of all TTC's PRESTO devices with serial numbers. The inability of the system to provide an up-to-date report of installed devices with their respective serial numbers needs to be addressed to meet TTC's business requirement. TTC needs this information for physical verification of devices on TTC property and to validate the accuracy of device reliability measures.

#### Audit Observation #6 – MAP: To improve and strengthen controls

 Farecard Team will work with PRESTO to obtain a basic device inventory report that will provide minimum details of physical device inventory including serial number and location.

Audit Observation #7: Project governance would benefit from re-activating the Project Steering Committee

The long-term approach for integration of the PRESTO system with the faregate software has not been finalized. The integrated faregate procurement decision changed original plans for station fare payment devices—from being mounted on mechanical turnstiles to integrated faregates— when TTC exercised an option to procure faregates in late 2014.

The initial faregates installed in stations were provided by Metrolinx as partial payment to TTC for performing cash collection and some first line maintenance functions. The arrangement was captured in a formal Memorandum of Understanding. Metrolinx agreed to fund the purchase of the card reader components in the remaining faregates that were purchased by the TTC.

To ensure that the installation of faregates would occur and enable PRESTO customers the ability to use at least one entrance to all TTC subway stations by the end of 2016, the faregates were deployed with the software that is provided with the faregates by the manufacturer, plus a limited level of Presto developed software. TTC's Farecard Team has since been collaborating with Metrolinx in evaluating options developed by the joint working group from PRESTO, TTC, Accenture and S&B. The TTC is currently waiting to obtain cost estimates required to make a final decision on the end state solution.

This decision does not have any immediate impacts on the reliability and availability of the faregates. Depending on the decision made, there may be some changes to the roles and responsibilities of TTC and PRESTO as it pertains to the current Agreement between the parties. This could result in changes to costs.

Given the importance of this decision and its implications, it is advisable that all stakeholders are fully briefed and well versed with the complexities of the decision, so that the best solution is selected for the TTC.

The Farecard Team has been reporting project progress to the Deputy Chief Executive Officer, the TTC's CEO, and on a monthly basis, to the internal Project Review Board and the PRESTO-TTC Joint Executive Committee (JEC). We observed, in this instance, that the Farecard Team would benefit from re-activating the Project Steering Committee to ensure more detailed support and consideration for complex technical decisions with key internal senior leadership.

#### Audit Observation #7 – MAP: To improve project governance:

The TTC's PRESTO Steering Committee will be reactivated. The committee will meet to establish its role and responsibilities. The Committee's mandate will include:

- Providing project and operational decision making support to the Farecard Team.
- Providing direction to the Farecard Team regarding information and communication to internal and external stakeholders.

Audit Observation #8: Before full transition of the remaining 26 stations to

PRESTO, TTC has an opportunity to establish a revenue

baseline for stations

To date, complexities such as the phased PRESTO roll-out, physically permeable fare paid zones, transfers between modes, and legacy cash and ticket fares, have made it challenging for TTC to establish a revenue baseline. However, a reasonably accurate stations revenue baseline could be established using a statistically valid sampling from select stations.

Before full transition of the remaining 26 stations to PRESTO, Internal Audit recommends that management do a cost-benefit assessment of preparing a station revenue baseline to better calculate revenue losses, if any, caused by unreliable fare collection devices, to support contractual remedies and revenue loss risk mitigation measures, and to calculate gains from adopting electronic fare systems.

#### Audit Observation #8 – MAP: To establish a revenue baseline

- A taskforce with members from the Farecard Team, Revenue Operations, Stations
  Management, Transit Enforcement Unit, Finance and Service & Strategic Planning will be
  formed to evaluate the merits of a stations revenue baseline to inform and assess impacts of
  PRESTO implementation.
- Before the final 26 stations are transitioned to PRESTO faregates, management will conduct a revenue baseline study if this team concludes that the study is cost-beneficial.

#### **Purpose of Audit**

Use of consultant staff to supplement internal resources is an increasing area of risk due to costs involved, duration of assignments and the receipt of integrity line complaints questioning transparency and fairness of the selection process. Therefore, Internal Audit identified the use of external consultant staff as an audit project in its 2017 annual audit plan.

Using a combination of internal TTC and external consultant staff provides the TTC with the flexibility to sustain project progress and to acquire specialized skills. The Board approved this approach in 2006 for capital project delivery within the Engineering, Construction and Expansion (ECE) Group, and the ratio of consultant to internal staff within the Construction Management Services section (CMS) was not expected to exceed 50:50. Use of consultant staff within Information Technology Services (ITS) has similarly been considered necessary due to a historical lack of budget for increasing operational headcount needs.

Responsibility for the selection of external consultant staff as supplemental resources to internal staff rests within the applicable requisitioning departments. The risks associated with the procurement, selection, and monitoring of external consultant staff include: over-dependency on selected consultant service provider firms; unsupported need for requisitioned skills set; biased selection of individual consultant staff; and the incurrence of additional costs due to a lack of competitive rates and/or long-term use.

#### **Background**

The Construction Management Services section (CMS) within ECE generally uses external consultant staff either for the duration of the consultant service provider's contract, or on an "as required" basis for shorter duration assignments and tasks not specifically identified in the Request for Proposal (RFP). The contracts are structured to permit the immediate release of consultant staff due to changes in requirements or performance issues.

Since 2006, the TTC has completed three RFP cycles to competitively procure construction management consultant services from a single consulting services firm. The same service provider firm has won the RFP consecutively and been awarded contracts with a cumulative upset limit of over \$120 million, including \$60M for the current five-year contract. The permitted ratio of contract to internal staff is 50:50, and the number of consultant staff provided has grown over the years, reaching a total of 148 active individuals as of July 5, 2017.

ITS management utilizes information technology placement firms to provide qualified resources on an as required basis through its Global Technical Assistance Program (GTA). The intent of the program is to supplement limited permanent ITS staff available with technical expertise and labour resources for periods ranging from 3 to 36 months.

Under the GTA-2014 program, which ended in April 2017, the cost of sourcing consultant staff from fourteen pre-approved IT placement firms over three years was approximately \$57.6M. As of August 15, 2017, a total of \$38.3M has been committed for the services of 191 consultant staff and twenty IT placement firms have been pre-approved under the GTA-2017 program,

ending March 2020. ITS also has a three year contract ending December 2019 for the provision of SAP specific technical consultant staff by three IT placement firms with a total upset limit of \$12M. ITS has procured 15 consultant staff through this program for a total of \$1.27M as at the beginning of September 2017.

CMS and ITS have both competitively procured professional service provider firms to recruit, screen and identify appropriately skilled candidates for TTC's review and selection. The performance of the selected individuals and the rates paid for services rendered are to be monitored in accordance with applicable contract terms and approved hourly rates.

#### **Audit Objective and Scope**

Our overall audit objective was to provide independent assurance to the Audit and Risk Management Committee (ARMC) that risks associated with the procurement, selection and monitoring of external engineering, technical and professional consultant staff are being reasonably managed in a fair and transparent manner, with residual risks minimized to a tolerable level.

The scope of this audit is limited to the key contract/program utilized by CMS and ITS to acquire external consultant staff through third party professional services firms for the purpose of supplementing internal TTC resources. Therefore, Internal Audit focused on CMS' Construction Management Services Contract (G85-335) and ITS' Global Technical Assistance Program.

#### **Overall Conclusion**

Using procurement models that enhance competition and reduce reliance on any one consulting services firm to meet increasing demands for a variety of professional consultant staff positions strengthens TTC's ability to supplement internal resources in a cost effective and timely manner. Upset limits for competitively procured consultant services must reflect thorough upfront workforce planning for all such services required throughout the TTC to reduce the risk of needing to re-tender contracts earlier than anticipated, which increases tendering costs and exposure to possibly higher submitted rates.

The use of a competitively procured single consulting services firm by CMS ensures competitive rates for candidates put forth in the proposal, as their rates are part of the evaluation process. However, billing rates for additional consultant staff not included in the proposal and provided on an "as required basis", or as replacements for proposed individuals, are established post award with the consulting services firm. In the absence of alternative options, management may accept non-competitive rates when specialized skill sets are urgently required to ensure project continuity.

In contrast, since 2011, ITS management has used the City's procurement process as the basis for awarding contracts under its GTA Program. For the 2014 GTA program (GTA-2014), contracts were awarded to 14 firms for the provision of technical services from April 2014 to April 2017. ITS management leveraged the City's Request for Expression of Interest (REOI) and vendor selection process again to establish a roster of 20 preferred companies for GTA-2017.

Materials and Procurement (M&P) has issued a *Master Service Agreement* to each of the 20 companies and a Purchase Order is prepared for each selected candidate based on the consultant staff's agreed-upon hourly rate and anticipated work assignment duration. In this manner, TTC has been able to tailor its requirement that proposed billing rates for each position and varying expertise level are submitted upfront as part of the *Master Service Agreement*, which is not required by the City.

The processes followed and strategies adopted by consulting services firms or professional placement agencies for recruiting/searching, screening and hiring of candidates impact the quantity and quality of external consultant staff provided to the TTC. TTC needs assurance that firms follow robust processes and associated risks are managed in accordance with reasonable employment policies and applicable legislation. Internal Audit noted the submission of a Recruitment/Deployment Plan was not a requirement of the last two construction management service proposals. However, reasonable assurance for the GTA program is derived from the City's requirement that recruitment methodologies and documentation of hiring practices be submitted as part of its REOI process for technical services.

TTC's adherence to rigorous requisition, selection and monitoring of consultant staff processes reduces the risk of perceived bias and/or dependency on particular consultant staff. Consistent adherence to ECE's established guideline for selection of consultant staff could not be verified due to noted gaps in documentation, whereas ITS' use of standardized documentation to support selection decisions was found to be consistent. Reasonable controls to ensure consultant staff billing rates are calculated and paid in accordance with applicable construction management services and GTA contract terms are in place.

Changing consultant staff assigned to an ongoing project may adversely impact its timely delivery. Hence, ECE's project and construction managers must give careful consideration to the potential release of strong-performing consultant staff at the end of an assignment. The duration of CMS consultant staff's time at the TTC ranges from less than a year to over 10 years, with approximately one quarter serving more than three years. A similar reliance on consultant staff was observed under the GTA program, where a quarter of all consultant staff as at January 2017 had worked continuously at the TTC for between 3 to 15 years.

ECE processes that ensure skills and experience of CMS consultant staff used over extended periods of time remain commensurate with the expertise required, and that billing rates of preferred individuals remain within an acceptable range given the demands of current assignments, need to be improved to demonstrate due diligence in decision making. In comparison, ITS management initiated actions mid-August 2017 to limit the duration of consultant staff assignment to a maximum of 36 months, to be followed by a mandated six month absence from TTC to reduce dependency on selected consultant staff and to align with ITS industry norms. A change in purchase order authorization requirements under GTA-2017 further prompts ITS management's scrutiny of GTA consultant staff selections and the duration of assignments.

While no contravention of corporate policy has been committed, a lack of clarity in TTC's policy governing the use of retirees as consultant staff has contributed to perceived bias in the selection process of such individuals. The total number of occurrences where TTC retirees returned as consultant staff—having been hired by third party consulting service firms utilized by

TTC and selected to fulfill requisitions—is minimal, but instances were noted in both ECE and ITS where the return of retiring employees as consultant staff was planned prior to their actual retirement date. In the absence of a more comprehensive corporate policy, transparent decision making is not ensured.

A detailed discussion of Internal Audit's observations and management's action plans (MAPs) to address identified control gaps can be found in the attached – Use of Consultant Staff – Detailed Discussion, with assignment of MAP accountability/responsibility being as follows:

| MAP Accountability/Responsibility                              | MAP#          |
|--|---------------|
| Ted Zlotnik, Head of Materials and Procurement                 | 4             |
| Mike Piemontese, Director – Project Procurement                | 1             |
| Susan Reed Tanaka, Chief Capital Officer                       |               |
| Jane Murray, Chief Project Management and Head of Construction | 2, 3, 4, 5, 6 |
| Jim Fraser, Head of Capital Programming                        |               |
| Dan Guna – Head of Information Technology Services             | 6             |
| Gemma Piemontese, Chief People Officer                         | 7             |
| Teresa Bassett-Spiers, Director – Policy Development           |               |

Audit Observation #1: (CMS)

Procurement model for construction management consultant staff uses a single consulting services firm – enhanced competition is needed

Since 2006, a single consulting services firm has been providing the Engineering, Construction and Expansion (ECE) Group with construction management consultant staff in accordance with a competitively procured contract. This procurement model has involved soliciting and evaluating competitive billing rates for select positions and candidates put forth in the proposal. However, billing rates for additional consultant staff not included in the proposal, provided on an "as required basis" or as replacements for proposed individuals, must be established with the consulting services firm post award. In the absence of alternative options, management may accept non-competitive rates when specialized skill sets are urgently required to ensure project continuity.

For the current five year contract (G85-335), it was stated in the Scope of Work Request for Proposal (RFP) documents that more than 100 consultant staff positions were being filled through the existing contract (G85-313), and that the new contract (G85-335) was intended to be a replacement of this contract. However, only 5 positions and 8 proposed candidates were requested for submission and evaluated. Similarly, for the previous contract (G85-313), only 5 positions and candidates were evaluated while it was noted in the proposal that 39 consultant staff was being used at the time. In contrast, the original five year contract (G85-213) required billing rates for 21 incumbents initially expected to be used over the duration of the contract to be submitted as part of the competitive proposal.

Internal Audit acknowledges that as the number of positions and proposed candidates required to be included in bid documents increases, so does the administrative effort and complexity of the evaluation. However, for those positions and incumbents not included in the submission and evaluation, rates established post award may result in higher costs, especially if consultant staff is used for longer terms. ECE Management acknowledges that a practical approach going forward may be to increase the number of key staff members submitted and evaluated as part of the proposal, as evaluation of over a hundred staff would be onerous.

Under the current contract (G85-335), Internal Audit noted that almost 90% of total charged hours for the first year were reported by consultant staff whose rates were established post award rather than competitively secured as part of the proposal. Specifically, the rates submitted by the successful consulting services firm for the required 5 positions and 8 proposed candidates were significantly discounted and lower than the billing rates already being charged by this firm for these individuals under the previous contract (G85-313).

TTC held firm the discounted mark-up rate for all eight proposed individuals and future incumbents of the same five positions. But the mark-up for the other 129 consultant staff working under contract (G85-313) and transferred to (G85-335) was permitted to be increased to the higher allowable mark-up under the new contract terms. ECE management asserts the higher mark-up rate was intended to increase interest from potential bidders and in line with industry standards. A contract amendment was issued in May 2016 to formalize the negotiated settlement but since no costs had been incurred under the new contract at that time, and sufficient upset limit funds are still

available to absorb the additional costs that will be incurred as a result of this change, there is no current need to seek additional dollar authority.

#### Audit Observation #1 – MAP: To enhance competition

TTC's Materials and Procurement Group should explore, in consultation with Engineering, Construction and Expansion (ECE), Legal and other key Contract Documents Committee members:

- Conducting a review of current RFP requirements and evaluation criteria to further encourage
  the entry of new service providers subject to marketplace conditions; and to reduce the risk of
  creating dependency or over-reliance on any one service provider which may negatively impact
  competition and rates charged;
- Developing new procurement models to attempt to meet increasing demands for a variety of
  engineering, technical and professional consultant staff positions in a timely manner that could
  potentially reduce risks associated with the current single consulting services firm model;
- When procuring for consultant staff required throughout a fixed duration contract, continue to solicit competitive rates for key positions and proposed incumbents where possible/practical;
- Adopting a new approach for procuring "as required" consultant staff for short duration tasks via standing contracts with multiple consulting services firms. When a consultant(s) is needed, the requirement may be submitted to multiple firms with each firm providing a candidate and a rate. The rating/selection of the consultant staff would be based on the consultant's qualifications and hourly rate, ensuring a more competitive process; and
- Enhance the current process to ensure requests to extend consulting services contracts are assessed and managed to ensure value for money.

Audit Observation #2: (CMS)

Unplanned workforce demands from other Groups and Departments for construction management services was key in precipitating the earlier than anticipated contract re-tendering

Unplanned workforce demands from other Groups and Departments for construction management services was a key factor precipitating the need to re-tender contract G85-313, as approved upset limits were reached earlier than anticipated. Originally awarded for a five year period (July 25/13 to July 24/18) with an upset limit of \$30M, a total of \$39M was incurred following amendments. In lieu of issuing an additional change order for a further substantial increase to the authorized amount, which would have been deemed as a sole/single sourcing, a competitive RFP was initiated in September 2015 to replace G85-313.

The new contract (G85-335) was awarded with an upset limit of \$60M to cover a period of five years. A contract amendment issued in May 2016 will result in additional costs being incurred as a result of mark-up rate adjustments being negotiated for the majority of consultant staff. Total

expenditures incurred for the first year of the new contract are approximately \$16.5M. If this annual level of expenditure continues, approval for additional funds or a decision to re-tender almost two years early will again need to be considered. However, ECE management estimates the cost impact of the amendment will be minor, and that the pattern of spending will drop in the second half of the contract due to the expected completion of a number of major projects by mid-2018.

Audit Observation #2 – MAP: Improved workforce planning for consultant services contracts required to reduce need for early retendering of existing contracts

Upset limits for competitively procured construction management or other professional consultant services must reflect thorough upfront workforce planning for all such services required throughout the TTC. To reduce the risk of re-tendering ECE consultant service contracts earlier than anticipated and increase transparency of other Groups and/or Departments using ECE's contracts to requisition consultant staff:

 Other Groups and Departments anticipating the need for construction management consulting services will be requested by ECE to provide estimates at the onset of the RFP preparation process. Otherwise, depending on the urgency and criticality of the needed resources, ECE and Materials & Procurement may require these other users to initiate a separate RFP to procure the needed support using a competitive procurement model that is best tailored for their industry.

Audit Observation #3: Consultant service providers' recruitment plan and (CMS) practices not evaluated as part of RFPs

The processes followed and strategies adopted by consultant service providers for recruiting, screening and hiring candidates impact the quantity and quality of the external consultant staff provided to the TTC. TTC needs to ensure this activity is robust and managed in accordance with reasonable employment policies and applicable legislation, e.g., the Human Rights Code, Equal Opportunity Employment. Internal Audit noted the submission of a Recruitment/Deployment Plan was not a requirement of the last two construction management service proposals but was for the first contract (G85-213) in 2006.

In contrast, the TTC and the City of Toronto's joint competitive procurement process to establish a roster of pre-approved IT placement firms has consistently required each respondent to describe its staffing methodology. For example, how the respondent is: ensuring its knowledge of recruitment practices is current; ensuring compliance with applicable legislation; sourcing and selecting the proposed resources; and documenting the hiring process and the conditions of employment.

Audit Observation #3 – MAP:

To improve transparency and understanding of potential consultant service providers' recruitment and screening of construction management consultant staff

Engineering, Construction and Expansion Group, in consultation with Materials and Procurement, Human Resources and Legal should consider reviewing the benefits of requiring consulting services firms to provide a staffing plan as part of their proposal. This plan could provide information on recruitment strategies, including disclosure of any referral awards program, employment standards, diversity programs, hiring/selection processes, deployment plans and a right to audit clause.

Audit Observation #4: (CMS)

Increased rigour required in the processes and controls around the requisition and selection of construction management consultant staff

Matching a potential consultant staff's skill set/experience to the requirements outlined in a requisition is currently accomplished by providing the consulting services firm with critical position requirements and interviewing the proposed candidate.

ECE has established a guideline to govern the review and selection of consultant staff under a professional services contract. However, standardized templates are not utilized to consistently document pertinent details which support the requisition and demonstrate due diligence in the selection process. Consequently, Internal Audit noted gaps in documentation to support adherence to ECE's guideline. Similarly, an ECE internal Conflict of Interest matrix currently outlines potential circumstances that may cause a conflict of interest when using consultants. However, there is no current mapping of anticipated reporting relationships/oversight when using consultant staff on a more granular level. ECE management acknowledges this may be a process improvement to consider when using consultants for longer terms.

In contrast, Internal Audit noted ITS uses standardized documentation from requisition—describing the project, scope of work, mandatory and other skills, and deliverables—through to resume evaluation, interview questions and answers, and interviewer evaluation to support its selections. Also, to increase transparency and to identify potential conflicts of interest, ITS has implemented the use of a new form, 'Conflict of Interests Declaration – Relatives Working at TTC', which must be completed by each consultant staff selected under GTA-2017 and ITS is in the process of asking consultant staff selected under GTA-2014 to also complete the new form.

## Audit Observation #4 – MAP: To improve controls around the requisition and selection of CMS consultant staff

The Engineering, Construction and Expansion Group, in consultation with Materials and Procurement, Human Resources, and Legal should consider:

- Finalizing its developed standardized requisition template to be used to document the job description, location, expected assignment duration, scope of work and hours of work anticipated for consultant positions. This will improve consistency and due diligence in adhering to ECE's selection guidelines; and
- Early identification of potential conflicts and mapping of anticipated reporting
  relationships/oversight on a granular level to reduce the risk of consultant staff being privy to
  confidential information and/or being in a position to influence the requisition, selection and rate
  approval of additional consultant staff.

Audit Observation #5: Enhanced monitoring of construction management (CMS) consultant staff performance and costs needed to

improve controls

When the strategy of utilizing a combination of both TTC staff and external consultants was approved by the Board for ECE project delivery in 2006, the ratio of construction management consultant staff to internal TTC staff was envisioned to not exceed 50:50. Costs for consultant staff are generally higher, especially when used long-term. Periodic review of the cost/benefit of this strategy would assist in the ongoing evaluation of this approach.

Currently Material and Procurement's (M&Ps) *Project Procurement – Service Guide* only requires the evaluation of the overall Consulting Firm's performance. Internal Audit noted individual construction management consultant performance reviews were completed but details were not specific to work or task assignments.

Third party payroll records for a sample of construction management consultants were reviewed. Internal Audit noted that actual billing rates charged under G85-313 and G85-335 Amendment #1 were generally calculated in accordance with the contract. The annual adjustments eligible under G85-313 and effective July 2015 were acceptable, i.e., no individual rate adjustment exceeded 5.0%.

#### Audit Observation #5 – MAP: To improve monitoring controls

The Engineering, Construction and Expansion Group, in consultation with Materials and Procurement, Legal and other members of the Contracts Document Committee should consider:

- Developing a periodic review of the ratio of consultants to TTC staff, as the costs for consultant staff are normally greater than costs for TTC employees. This review may be prior to the release of an RFP for consulting services or part of the annual budget cycle to ensure ongoing value for money is considered, including whether increased staffing strength of permanent TTC employees is permitted to staff Capital projects; and
- Reviewing M&P's *Project Procurement Service Guide* to determine if individual consultant performance reviews should be modified to capture more specific measures relating to work and task assignments to aid in future staff selection decisions.

Audit Observation #6: (CMS & ITS)

Reliance on selected consultant staff

Changing consultant staff assigned to an ongoing project may adversely impact its timely delivery. Hence, ECE's project and construction managers must give careful consideration to the potential release of consultant staff at the end of an assignment, especially of those who demonstrated strong performance and are therefore preferred for subsequent assignments as opposed to unknown consultant staff.

Internal Audit noted the duration of CMS consultant staff's time at the TTC ranges from less than a year to over 10 years, with approximately 31 (28%) having served between 3 to 10 or more years. However, the process for ensuring the skills and experience of consultant staff used over extended periods of time remain commensurate with the expertise required, and that the billing rate of the preferred individual is within an acceptable range given the demands of the latest assignment was not clear.

Internal Audit observed a similar reliance on consultant staff under the GTA program, where 34 (25%) of the 133 active GTA consultant staff as at January 1, 2017 were noted as having been at the TTC continuously for between 3 to 15 years. These periods of time were the result of cumulative requisition updates, extensions or re-hires. However, under GTA-2014, typically only one extension per requisition was approved by the ITS Director of Planning, Resources and Administration and supported by a Work Assignment Amendment Authority citing reasons for the extension (e.g., additional scope, workload increase etc.). A performance review completed within the last 6 months, with briefly-worded deliverables indicated as met and on target, was also provided as support for extending the use of the given consultant staff.

Reliance on consultant staff within ITS has been considered necessary due to a historical lack of budget for increasing operational headcount. Nonetheless, under new departmental leadership, ITS management issued an internal directive in mid-August 2017 to limit the duration of consultant staff assignments to a maximum of 36 months, to be followed by a mandated six month absence

("cooling off period") from TTC, to reduce dependency on selected consultant staff. Although this directive is effective immediately, and no renewals, extensions or new assignments will be permitted until the six months absence is complete going forward, ITS is transitioning existing contracts to ensure adherence to this new expectation by the end of 2017. It is expected that the new directive and GTA-2017 administrative structure will require project managers to onerously determine an appropriate anticipated duration for each assignment and pay closer attention to the performance of consultant staff.

Coupled with the above internal directive, a change in the administration of GTA-2017 will further prompt ITS management's scrutiny of GTA consultant staff selections. Effective May 1, 2017, there is no longer an approved upset limit allocated to each GTA service provider; instead, a Purchase Order (PO) is issued for each successful candidate in accordance with the terms of a *Master Service Agreement*. POs exceeding \$250,000 must be authorized by the Head of ITS; POs exceeding \$500,000 must also be authorized by the Director of Project Procurement, Head of Materials and Procurement and the Chief Financial Officer. Internal Audit reviewed a sample of POs issued under GTA-2017 and noted adherence to these additional authorization requirements.

#### Audit Observation #6 – MAP: To reduce reliance on consultant staff

The Engineering, Construction and Expansion Group, in consultation with Materials and Procurement, Human Resources, and Legal should consider developing a process to ensure long term use or reassignments of individual consultant staff are assessed and monitored so as to achieve value for money and minimize risk of perceived selection bias.

ITS management should enforce and monitor adherence to the ITS Department's new directive to ensure justification for any assignment extension put forth is detailed, well supported and explicitly approved by the Head of ITS.

Audit Observation #7: (CMS & ITS)

Lack of clarity in corporate policy in use of TTC retirees as consultant staff hired by third-party consulting services firms contributes to perceived bias in selection process

TTC's Corporate Policy *4.28.7 Employment* recognizes that "in exceptional circumstances, a retiree may be hired as a consultant. In this situation, the retiree would either be required to establish him/herself as a legitimate business... or the retiree may be hired as a consultant through one of the TTC's consultant contracts that are available on major projects. This will support the position that there is no longer an employer/employee relationship between the TTC and the individual retiree." Also, the corporate policy recognizes "the re-hiring of former employees through consultant contracts for major projects is generally more costly than rehiring them directly as employees. Due consideration should be given to both options to ensure the most cost effective method is selected. Staff Summary Sheet approval is required to re-hire a TTC retiree as a consultant."

In both ECE and ITS, Internal Audit observed instances of TTC retirees returning as consultant staff, having been hired by consulting services firms utilized by TTC and selected to fulfill requisitions for positions same or similar to what these individuals held prior to retirement. While the total number of occurrences is minimal, the intent to use two retirees as CMS consultant staff was anticipated in the month prior to their actual retirement leave date; and one individual was submitted by a GTA service provider and selected by TTC while still an active TTC employee. In all three cases, only a weekend separated the employee's official retirement date and their start date as consultant staff.

Internal Audit acknowledges no contravention of corporate policy has been committed by ECE or ITS. However, in the noted instances, the anticipated return of the retirees as consultant staff could be perceived as selection bias. In the absence of a more comprehensive corporate policy, transparent decision making and justification for the higher cost are not ensured.

Audit Observation #7 – MAP: Review TTC's corporate policy on the use of TTC retirees as consultant staff hired by third-party consulting services firms

Human Resources, in consultation with Materials & Procurement, Engineering, Construction and Expansion, ITS management and Legal should consider reviewing the corporate policy addressing the use of retirees as consultant staff hired by third-party consulting services firms through one of TTC's contracts to ensure transparent decision-marking.