



## STAFF REPORT INFORMATION ONLY

### Internal Audit Activities – Quarterly Update: Q3 2016

<b>Date:</b>	October 19, 2016
<b>To:</b>	TTC Audit and Risk Management Committee
<b>From:</b>	Head of Internal Audit

### Summary

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The TTC Internal Audit Department activities for the third quarter have been summarized in the attached report. The report has been divided into the following five sections:

- **Section A** Internal Audit Activity: Allocation Charts - depicts in chart format the nature of internal audit services (advisory and assurance) categorized by strategic objective
- **Section B** Assurance Audit Projects & Special Requests - summarizes internal audit work (completed and in-progress) during the quarter
- **Section C** Management Action Plans (MAPs) - summarizes the action plans put forth by management in response to key Internal Audit observations, and the status thereof (if applicable) as at the end of the quarter
- **Section D** Support Services - outlines various ongoing Internal Audit advisory roles
- **Section E** Departmental Initiatives - a new section that summarizes key Internal Audit activities and initiatives

### Financial Summary

This report has no financial impact as the purpose is to report on TTC Internal Audit activities during Q3 2016.

## Comments

During Q3 2016, Internal Audit continued with various engagements as outlined in Appendix B and D but also focused on clarifying Internal Audit's role and expectations amongst key internal and external stakeholders. These endeavours are a critical part of Internal Audit's self-assessment and will facilitate updates to the Internal Audit Charter, Resource Plan and Departmental Policies and Procedures. Most notable initiatives include:

- Candid discussions with past and present Audit and Risk Management Committee (ARMC) members and the TTC Board Chair to enhance the Department's independence and functional reporting relationship. Also, to garner input to Internal Audit's ongoing risk assessment process and preparation of the risk based 2017 Internal Audit Work Plan.
- Articulating the need to establish a formal communications protocol with the City of Toronto Auditor General's Office (AGO) that balances its requirements for access to TTC management with TTC Internal Audit's mandate to support senior management during the AGO audit process.
- Building upon existing relationships and communications with TTC executive and senior level management to ensure the Internal Audit Department's annual work plan remains dynamic and flexibility is exercised in response to emerging risks and/or requests from management to address areas of concern.
- Assessing the skills, talents and training requirements of Internal Audit staff and implementing appropriate actions to support and drive change consistent with prioritized employee engagement action items. The increasing demand of the Internal Audit Department to provide exemplary assurance and advisory services for a variety of increasingly complex audit assignments requires a higher level of audit capabilities and business acumen of all staff. Consequently, internal and external benchmarking exercises are underway in conjunction with the review of departmental job descriptions and use of automated data analytic and audit software tools to ensure the organizational structure and compensation levels are augmented as required to recruit and retain incumbents that meet these higher base standards.

Given the challenges and unique nuances facing the TTC Internal Audit Department, and the benefits to be gained from further discussion amongst key stakeholders of these and other matters, the Head of Internal Audit plans to offer an Education Session to ARMC members, as well as interested Board members in the new year. Following this forum, Internal Audit will finalize revisions to its Internal Audit Charter and other key documents and bring them forward for approval at the first scheduled ARMC Meeting in 2017.

## **Contact**

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## **Attachment**

Internal Audit Activities - Quarterly Update: Q3 2016

# Internal Audit Activities Quarterly Update

Section / Page No.

<b>INTERNAL AUDIT ACTIVITY: Allocation Charts</b>	<b>A</b>
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<b>ASSURANCE: Audit Projects &amp; Special Requests</b>	<b>B</b>
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<b>Financial Sustainability</b>	
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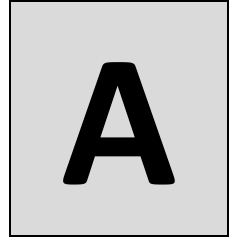
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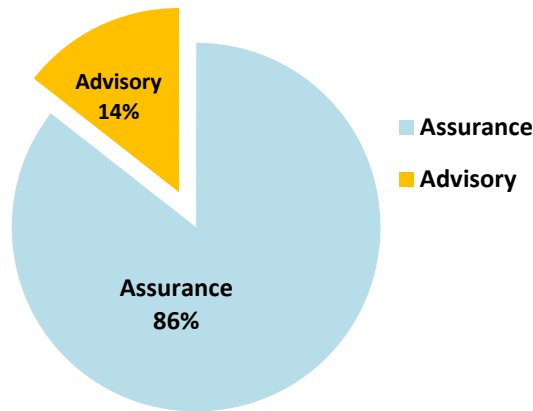
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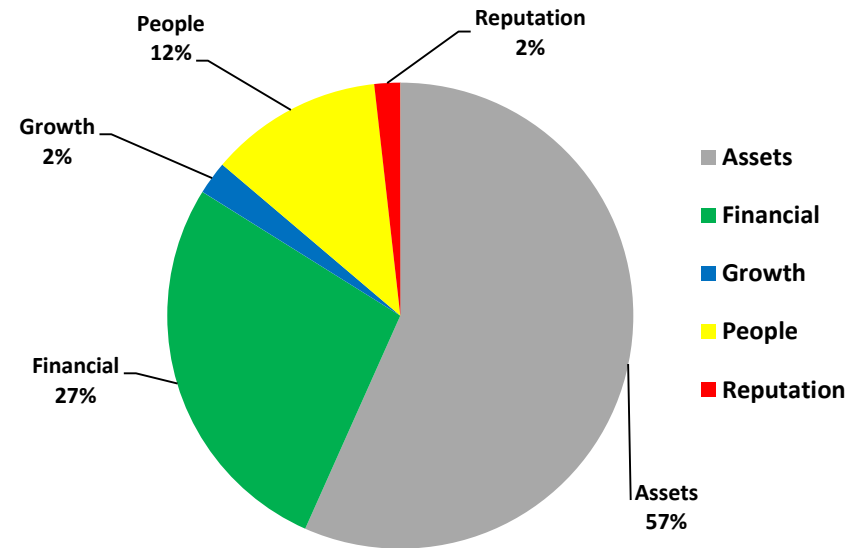


## Internal Audit Activity Allocation

### By Nature of Service



### By Strategic Objective



### Definition of Strategic Objectives

#### **Safety**

A transit system that manages its risks, that protects its customers, contractors and employees, and that minimizes its impact on the environment.

#### **Customer**

A transit system that values customers and provides services that meet or exceed customer expectations.

#### **People**

An empowered, customer-focused workforce that values teamwork, pride in a job well done, and an organization that actively develops its employees.

#### **Assets**

Effective, efficient management of assets that delivers reliable services in a state of good repair.

#### **Growth**

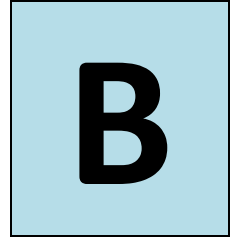
An affordable expansion program that matches capacity to demand.

#### **Financial Sustainability**

A well-run, transparent business that delivers value for money in a financially viable way.

#### **Reputation**

An organization that is transparent and accountable, well-regarded by stakeholders and peers, in which employees are proud to play a part.



# Internal Audit Activities - Quarterly Update

## ASSURANCE: Q3 2016

Strategic Objective	Audit Title	Key Risk Assessed	Status	MAP* Required Y/N	MAP* Submission ARMC Date	2016 Audit Plan Y/N Audit Project (P) Special Request (R)
Assets	Subway Delays Management	Incomplete Root Cause Analyses and Ineffective Responses	Completed	Y	October 19, 2016	Y - P
People	Skilled Trades Management	Shortage of Critical Trades	In-Progress	----	----	Y - P
Assets	Escalators Management	Lack of Asset Availability	In-Progress	----	----	N - P
Assets	Elevators Management	Lack of Asset Availability	In-Progress	----	----	N - P

**\*Management Action Plan (MAP) Required**

**YES** A formal Management Action Plan is required to address audit outcomes and areas highlighted for action and/or improvement; it is Management's responsibility to prepare a MAP to the satisfaction of the ARMC; TTC Audit will track the development of the MAP until submission to the ARMC.

**NO** No formal Management Action Plan (MAP) is required given the nature of audit work completed and/or results.



# Internal Audit Activities - Quarterly Update

## ASSURANCE: Q2 2016 (Updated)

Strategic Objective	Audit Title	Key Risk Assessed	Status	MAP* Required Y/N	MAP* Submission ARMC Date	2016 Audit Plan Y/N Audit Project (P) Special Request (R)
Financial Sustainability	Payment Controls Review – Data Analytics & Testing	Payment Processing Errors/Frauds & Inefficiencies	Completed	Y	July 20, 2016	Y - P
Financial Sustainability	Contract Management: Purchasing Card Program – Data Analytics & Testing	Inappropriate Use of Purchasing Cards	Completed	Y	July 20, 2016	Y - P
People	MTO - Driver Certification Program (DCP): Specified Inspection Procedures	Regulatory Non-Compliance	Completed	N	N/A	Y - P

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# Internal Audit Activities - Quarterly Update

## ASSURANCE: Q1 2016 (Updated)

Strategic Objective	Audit Title	Key Risk Assessed	Status	MAP* Required Y/N	MAP* Submission ARMC Date	2016 Audit Plan Y/N Audit Project (P) Special Request (R)
Safety	Transit Enforcement Unit (TEU)	Time Theft	Completed	Y	February 11, 2016	Y - P
Customer	Fare Media Sales	Incomplete Fares Processing	Completed	Y	February 11, 2016	Y - P
Customer	Business Intelligence: Key Performance Indicators (KPI's) Preliminary Review	Inappropriate Measures	Completed	N	N/A	Y - R
Financial Sustainability	Payment Controls Review	Payment Processing Errors/Frauds & Inefficiencies	Completed	Y	July 20, 2016	Y - P
Financial Sustainability	Tools Usage	Inappropriate Use & Purchasing of Tools	Completed	Y	July 20, 2016	Y - P
Financial Sustainability	Fuel Card Management	Inappropriate Use of Fuel Cards	Completed	Y	July 20, 2016	Y - R
Financial Sustainability	IPAC Paving	Contract Administration Errors & Employee/Vendor Fraud	Completed	Y	July 20, 2016	Y - R

# Internal Audit Activities - Quarterly Update

## ASSURANCE: Q1 2016 (Updated)

Strategic Objective	Audit Title	Key Risk Assessed	Status	MAP* Required Y/N	MAP* Submission ARMC Date	2016 Audit Plan Y/N Audit Project (P) Special Request (R)
Financial Sustainability	IT Disaster Recovery	Disruption of IT Services & Loss of Data Due to a Disaster	Completed	Y	July 20, 2016	Y - P
Financial Sustainability	Intria Site Visit	Collector Cash Deposit Errors	Completed	N	N/A	N - R
Growth	Union Station Second Subway Platform and Concourse Improvement Project	Project Delays & Cost Over-Runs	Completed	Y	October 19, 2016	Y - P
Growth	Leslie Barns Project: • Maintenance Facility • Connection Tracks	Project Delays & Cost Over-Runs	Completed	Y	October 19, 2016	Y - P
Growth	Leslie Barns Project: Pomerleau Per Diem Rate	Inappropriate and/or Excessive Contractor Charges	Completed	N	N/A	Y - R
Growth	TYSSE: Move Ontario Trust (MOT) Funds Review	Inappropriate and/or Excessive Charges to the Trust	Completed TYSSE Binder	N	N/A	Y - R

## Internal Audit Activities - Quarterly Update

### ASSURANCE: Q1 2016 (Updated)

Strategic Objective	Audit Title	Key Risk Assessed	Status	MAP* Required Y/N	MAP* Submission ARMC Date	2016 Audit Plan Y/N Audit Project (P) Special Request (R)
Growth	TYSSE: Audit Summary Update – 2008 to 2015	N/A – Presented for Information Only	Completed TYSSE Binder	N	N/A	N - R
Growth	TYSSE: Future Audit Considerations	N/A – Presented for Information Only	Completed TYSSE Binder	N	N/A	Y - P
Growth	TYSSE: Carillion Canada Inc. – Staff & Labour Rates	Inappropriate and/or Excessive Contractor Charges	Completed TYSSE	N	N/A	Y - R

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**Internal Audit Activities – Quarterly Update  
(Q3 2016)**

<b>ASSETS (Completed)</b>			
<b>AUDIT TITLE</b>	<b>Key Risk Assessed</b>	<b>Primary Accountability Group(s)</b>	<b>Page No.</b>
<b>Management Action Plan* (MAP) Required</b>			
Subway Delays Management	Incomplete Root Cause Analyses and Ineffective Responses	Subway Operations	6

**\*Management Action Plan (MAP) Required**

- YES** A formal Management Action Plan is required to address audit outcomes and areas highlighted for action and/or improvement; it is Management’s responsibility to prepare a MAP to the satisfaction of the ARMC; TTC Audit will track the development of the MAP until submission to the ARMC.
- NO** No formal Management Action Plan (MAP) is required given the nature of audit work completed and/or results.

**Audit Title  
Key Risk(s)  
Assessed**

**Key Audit Observations & Comments**

**Management Action Plan\* (MAP) Required**

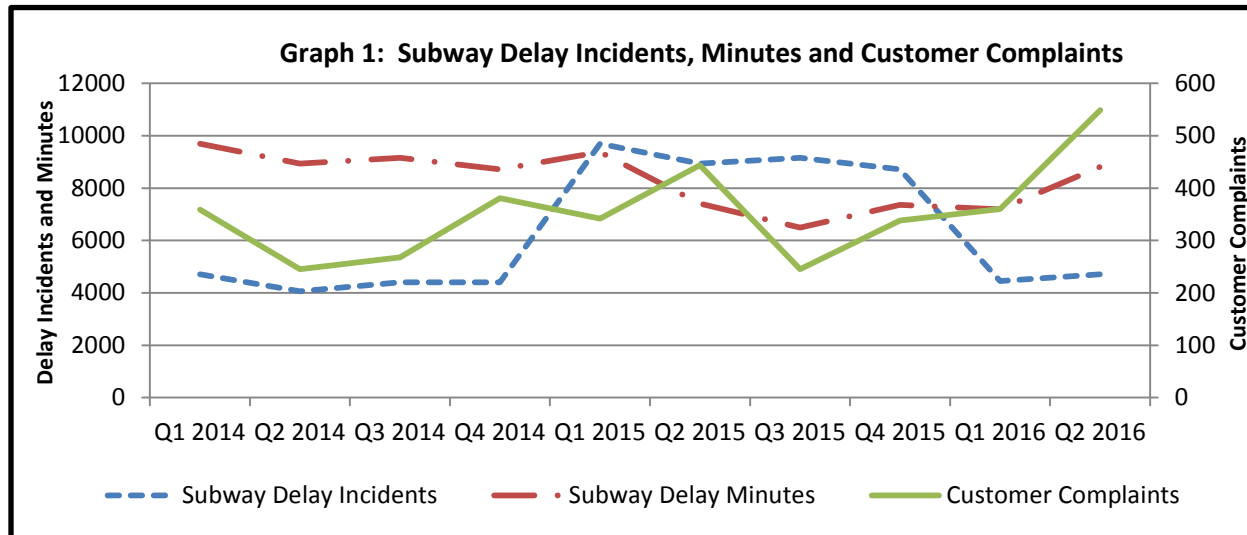
**Subway Delays Management**

Incomplete Root Cause Analyses and Ineffective Responses

**BACKGROUND**

**Subway Performance – Customer Impact & Trends:** Subway delays directly impact TTC customers and often become the focus of media attention and customer complaints. Customers’ *perception* of subway wait time, duration of trip, trip smoothness and crowding are key measures captured in TTC’s Customer Satisfaction Survey (CSS). Over Q4 2014 to Q2 2016, customer satisfaction survey ratings have improved on all aspects surveyed.

However, customer complaints received by the TTC relating to subway delays over the same period of Q4 2014 to Q2 2016 have also increased. The trend exhibited by customer complaints actually mirrors that of Total Delay Minutes – this correlation demonstrates that subway delays continue to impact the customer experience (see Graph 1).



<b>Audit Title Key Risk(s) Assessed</b>	<b>Key Audit Observations &amp; Comments</b>
	<p>TTC Management has publicly committed to an annual reduction of subway delay incidents and minutes by 10% beginning in 2014, with a cumulative reduction of 50% by the end of 2019. TTC Board members have expressed continued interest in the accuracy of the publicly reported key performance indicators (KPIs), the degree to which they are driving operational decisions and reflecting actual customer experience, as well as the thoroughness of the processes followed by management to identify and address root causes of subway delays.</p> <p><b>Audit Phases and Objectives:</b> Given the above, Internal Audit (IA) undertook this project to review subway delays management and response initiatives to gain a better understanding of the above topics. This project was conducted in two phases with Phase 1 focused upon understanding TTC's process to log and analyze subway delay incidents, reviewing the reasonableness, accuracy and completeness of the publicly reported subway service performance KPIs and select operational KPIs. Phase 2 focused on understanding the processes and initiatives Management has implemented to mitigate the top four groups of delay root causes and to identify opportunities for IA to evaluate these processes and initiatives in greater detail through future audits.</p> <p><b><u>AUDIT PROJECT - PHASE 1</u></b></p> <p><b>Subway Delay Data Population:</b> Every unplanned delay incident reported to Transit Control Centre (TCC) is logged but only those with a duration of 3 minutes or greater are assigned a "delay-minutes value". Unplanned delay incidents less than 3 minutes are labeled as "no material delay". When a train reduces speed and proceeds at less than normal speed, for example through a designated work zone, and thereby prolongs a customer's journey time, the experience is not captured or defined as a delay, thereby creating a disconnect between measured delays and actual impact on customer experience.</p> <p><b>Wayside Delay Identification and Recording Processes:</b> It is the responsibility of Wayside Supervisors within TCC to create delay incident Service Logs in the Integrated Communication System (ICS) in accordance with defined parameters. Specifically, a Delay Code is assigned to each incident to signify the type of delay reported. A brief description of the incident and its resolution, as well as, the time of key updates from TTC staff, time of scene attendance by internal and external parties, and delay duration is also noted. Each Service Log is reviewed and approved by the on-duty Transit Control Assistant Manager.</p> <p>IA observed TCC's processes for recording and approving delay incidents and found them to be consistent with documented procedures.</p> <p><b>Subway Delays Analyses:</b> Recorded subway delay information is extracted from ICS into TTC's Mainframe each night to generate a report of Delay Data that lists pertinent information for each reported delay incident. The Delay Data is utilized by Subway Transportation's Analysis and Procedures (A&amp;P) staff to produce various performance analyses, statistics and KPIs, including both publicly shared items and others reported internally to assess and drive operational decision making.</p> <p>IA successfully reconciled reported Delay Incidents and Minutes in the monthly CEO Report to Delay Data for 2014 and 2015. IA also reviewed the reasonableness of delay codes assigned based on the incident details recorded and found no issues.</p>

<b>Audit Title Key Risk(s) Assessed</b>	<b>Key Audit Observations &amp; Comments</b>
	<p><b>Subway Performance Benchmarking – Public KPIs:</b> Presently, three KPIs relating to subway service performance are reported publicly in the monthly CEO's Report. A fourth measure is updated daily on the TTC website. IA validated the accuracy of all four publicly reported KPI calculations and confirmed they were made in accordance with current TTC methodologies. However, IA noted limitations in their meaningfulness and in their correlation with actual customer experience as acknowledged by Subway Transportation Management. Specifically:</p> <ul style="list-style-type: none"> <li>• <i>Total Delay Minutes</i> (CEO Report): The total delay minutes publicly reported reflect only those incidents for which the delay time is 3 minutes or greater, with all other incidents being defined as non-material.</li> </ul> <p>Incidents <i>with</i> a minute-value assigned (i.e. incidents of 3 minutes or longer) only account for approximately 25% of Total Delay Incidents annually. As a result, minutes associated with approximately 75% of the Delay Incidents logged – deemed “not material”– are unknown. However, setting the threshold at 3 minutes appears reasonable given industry benchmarking available in Nova databases, which considers delays to be 5 minutes or more.</p> <ul style="list-style-type: none"> <li>• <i>Total Delay Incidents</i> (CEO Report): The total number of delay incidents reported <i>includes</i> incidents with no minute-value assigned and <i>excludes</i> logged delay incidents which do not impact train operations (e.g. collector related incidents; incidents which occurred in a non-platform area of the subway station).</li> <li>• <i>Trains per Hour</i> (CEO Report): This is not a Nova standard KPI but rather a “catch-all” measure used by Subway Transportation Management to reflect the cumulative impact on customers of all slow-downs and delays in the subway system. This measure is affected by the actions of TCC's Tower Controller who seeks to reduce the impact of delays.</li> <li>• <i>Punctuality/On-Time Percentage</i> (TTC Website): This is not a Nova standard KPI but rather a TTC legacy KPI calculated as the percentage of trains arriving within the designated headway plus 3 minutes of the preceding train. Since this KPI only measures the time delay associated with the “first train”, it ignores any ripple effect on subsequent trains and on customer crowding, hence the overall daily measure can be significantly inconsistent with the actual experience of customers. For example, on June 1/16, a smoldering cable at Yonge &amp; Bloor resulted in a 200-minute delay. This KPI showed a 93% achievement for this date against targets of 96% for Line 1 and 97% for Line 2, hence not reflecting the actual impact of this incident on customer commuting time and the extreme crowding conditions experienced.</li> </ul> <p><b>Subway Performance Benchmarking – Operational KPIs:</b> Subway Transportation Management utilizes numerous additional KPIs to aid performance monitoring and decision making. IA reviewed select operational KPIs and noted while they have been accurately calculated in accordance with defined TTC methodologies and are supported by Delay Data, some warrant revision as they either deviate from Nova's definition or are legacy KPIs that do not meaningfully reflect customer or operational impact.</p>

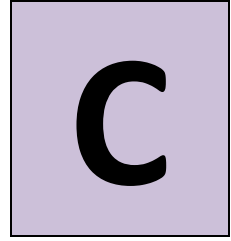


<b>Audit Title Key Risk(s) Assessed</b>	<b>Key Audit Observations &amp; Comments</b>
	<p><b>Subway Transportation KPI Initiatives:</b> Recognizing the shortcomings of its current KPIs, Subway Transportation Management is undertaking a review of its departmental KPIs and dashboards to standardize formats, templates and approach to monitoring progress with respect to delay reduction and related objectives. An internal target of the end of October 2016 has been set for this initiative. A longer term initiative is also underway relating to Enterprise Asset Management (EAM) to standardize Subway Operations data reporting for delay incident management and work order systems directly related to asset condition monitoring for the entire portfolio of assets managed by Subway Transportation Department and/or the Operations Group.</p> <p><b>Corporate KPI Initiative – Customer Journey Time Metric System:</b> The development of a Customer Journey Time Metric (CJTM) system was formally initiated in September 2014 by the Service Analysis &amp; Improvement section within the Strategy &amp; Service Planning Department to fulfill a key 2013 item documented in the TTC Five-Year Corporate Plan. The intent of the CJTM system is to enhance TTC’s capability to plan, monitor, adjust and evaluate transit services (all modes) in a systematic and objective manner that is customer centric.</p> <p>This project has been driven by the Service Planning Department and to date, a functional model of the CJTM system has already been used to refine TTC’s service schedule for buses, streetcars and the subway. The functional model is also capable of collecting and analyzing TTC data on waiting time, crowding and journey time, all of which are currently being measured based on customers’ perceptions only through the Customer Satisfaction Surveys. Preliminary analysis of CJTM “peak travel time variability” for Line 1 and Line 2 over Q1 2015 to Q2 2016 shows trends that are consistent with customer complaints of subway delays and total delay minutes.</p> <p>Operations Management regards CJTM as a planning tool, not as a metric for subway train performance and delay incident management. Similar views are held by Service Delivery Management. Operations Management is prepared to align its performance measures and indicators of asset reliability and quality of service with corporate CJTM KPIs upon determination that doing so will add value to their monitoring process and coincide with Nova best practices. Therefore, due to the number of variables that can impact journey metrics, greater understanding and agreement is required amongst key stakeholders as to which CJTM KPIs would fairly reflect or measure operational activities and drive performance decision making.</p> <p>Select members of the original project team tasked since inception with the design and preliminary application of this advanced analytical and decision support system have recently been transferred to the Information Technology Services group. This transition may impact the synergies and ability of the Team to complete the final stages of the project. Also, given the complexities and sensitivities around defining expectations and accountabilities amongst key stakeholders for responding or reconciling to customer centric KPIs, an effective communication process that encourages consensus building and buy-in needs to be established. A clearly identified and visible senior executive champion(s) with strong operational knowledge should facilitate the CJTM project at this critical stage to ensure original milestones and intent of the project will be met.</p>

<b>Audit Title Key Risk(s) Assessed</b>	<b>Key Audit Observations &amp; Comments</b>
	<p><b><u>AUDIT PROJECT - PHASE 2</u></b></p> <p><b>Detailed Root Cause Analysis and Response Initiatives for Select “Delay Causes”:</b> Based on an analysis of 2014 and 2015 Delay Data, IA identified four groupings of delay causes which consistently appeared in a list of top 20 delay codes in both years. These four delay cause groupings account for approximately 46% of the reported Total Delay Minutes annually. This same pattern was later observed for the first eight months of 2016 Delay Data subsequently obtained and analyzed in the same manner.</p> <p>IA gained a greater understanding of each of the four high impact subway delay cause groupings and the nature of various response initiatives being undertaken to address identified root causes. Minor administrative matters were noted through the testing performed and future possible audit areas were identified. Specifically:</p> <p><b><u>#1 Delay Cause Grouping – Priority One, Ill &amp; Disorderly Patrons:</u></b> Comprised of four delay codes, this grouping accounts for 25% of Total Delay Minutes annually. These uncontrollable delays caused by customers prompt TCC to dispatch various internal (e.g. Transit Enforcement Unit and Group Station Managers – both from TTC’s Service Delivery Group) and external emergency personnel (eg. Toronto Police Services, Toronto Ambulatory Services, Coroner’s Office) parties to the scene.</p> <p>TCC and the Transit Enforcement Unit (TEU) have developed detailed protocols which define their responsibilities when responding to passenger related delay incidents. However, actual response time to TCC calls is not currently measured. The TEU attempted to gain emergency vehicle status as a means of reducing travel time to scenes in November 2015 but was denied by Toronto Police Services in April 2016.</p> <p>With the exception of crowd control procedures which were presented to TTC Management in September 2016, protocols to govern the Group Station Managers (GSMs) and their Supervisors with respect to subway delays management have not yet been developed. A target of early 2017 has been set. The GSM model was implemented three years ago and a key initiative under this model is the Stations Emergency Desk (SED). The SED supports TCC to coordinate the actions taken by Stations staff in response to subway delay incidents and to liaise with TCC to manage the incidents. Work methods and operations of the SED are not yet completed.</p> <p>Subway Transportation Management is studying best practices put forth by Nova in its Incident Response and Recovery Phase 2 Study, with particular attention on improving incident response and recovery for uncontrollable delays. An internal goal to review and update departmental incident report standard operating procedures to conform to Nova best practices (i.e. “golden rules”) and new protocols has been set for the end of 2016.</p> <p>IA has determined this Delay Cause Grouping and Management’s mitigation strategies should be evaluated under a separate future audit since immediate delay incident response triggers numerous TCC and TEU protocols and actions within various departments from TTC’s Operations Group and Service Delivery Group, and protocols for the GSMs and SED are still under development.</p>

<b>Audit Title Key Risk(s) Assessed</b>	<b>Key Audit Observations &amp; Comments</b>
	<p><b><u>#2 Delay Cause Grouping – Plan B Fires/Smoke:</u></b> Based on a ranking of delay codes by delay minutes, Plan B Fires/Smoke is individually the highest ranking delay code and accounts for 10% of Total Delay Minutes annually. This code captures delay incidents caused by smoke, fire and/or burning odours at track level or within the platform area. TCC exercises great caution and currently follows a stringent “stop and stay” protocol that requires trains to stop when general reports of burning odours are reported. This is in contrast to, for example, New York’s metro system which applies the criteria of visible fire/smoke for initiating train stoppage. In 2015, 42% of all TTC Plan B Delay Minutes (1,249 minutes or the equivalent of approximately 21 hrs) were attributable to “burning odour” only.</p> <p>TTC has established a Plan B Steering Committee, including a Technical Solutions Working Group and a Right of Way (ROW) Cleanliness Working Group, to perform deep-dive data analytics of Plan B incidents. Through targeted testing, IA noted Plan B delay data manually extracted from Subway Delay Logs for further root cause analyses appears to be accurate and complete.</p> <p>The Plan B Steering Committee and the Working Groups meet separately and regularly to discuss and initiate a myriad of actions to address Plan B incidents. Areas of focus have included a review of existing roles and responsibilities, protocols and procedures and the exploration of new track-level debris cleaning equipment and tools. While the Steering Committee and the Technical Working Group are maintaining meeting minutes and tracking action items in accordance with the Plan B Terms of Reference, the ROW Cleanliness Working Group acknowledge similar administrative improvements should be made to evidence their efforts in this area.</p> <p>A key Plan B Committee initiative currently in progress is to change TTC’s “stop and stay” train protocol so that train operation is not interrupted on initial report of burning odour only. This would bring TTC’s practice more in line with other transit agencies. Securing Union and Ministry of Labour support for this procedural change is critical. Discussions with Toronto Fire Services and Ministry Labour are ongoing with the expectation that consensus should be reached by the end of 2016.</p> <p><b><u>#3 Delay Cause Grouping – Door Problems:</u></b> Delays caused by door problems are generally attributable to either faulty equipment or debris. This grouping of delay codes accounts for approximately 6-7% of Total Delay Minutes annually. The Reliability, Availability, Maintainability, Safety (RAMS) Section within Operation’s Rail Cars and Shop Department performs an extensive daily review of all incidents coded to these and certain other categories identified in the Subway Delay Logs to ensure each incident has been attributed to the correct code. If corrections are required, notification of such is sent to A&amp;P staff. Work orders are created within Rail Cars &amp; Shops to initiate repair for the faulty equipment confirmed to have caused delays.</p> <p>IA completed walk-through tests of RAMS’ subway delay code assignment analysis process and found it to be functioning as described by management, with all relevant delay incidents from the Delay Logs being included in RAMS’ analyses and any corrective code changes submitted to A&amp;P. More comprehensive and detailed testing of faulty equipment root cause analyses, as well as work order related processes and the effectiveness of corrective actions taken to reduce related delay incidents/minutes could be the subject of a future audit.</p>

<b>Audit Title Key Risk(s) Assessed</b>	<b>Key Audit Observations &amp; Comments</b>
	<p><b><u>#4 Delay Cause Grouping – Operator Errors:</u></b> Three delay codes relating to Operator errors with respect to speed control and signal violations collectively account for approximately 3-5% of Total Delay Minutes annually. The determination of whether or not a signal violation or speed control delay incident is attributable to an Operator is made by the Subway Infrastructure Department’s Signals &amp; Train Controls (STC) Group upon their daily review of the Delay Logs. Any required code changes, one agreed upon, are identified and submitted to the A&amp;P for correction by Subway Divisional Management.</p> <p>An Incident Management Database has been made available to Subway Divisional Management to capture all Operator related incidents and to assist in tracking disciplinary and counseling actions taken in response by Divisional Management. Signal violations are considered to be a safety critical error, so Operators are disciplined in accordance with an established Memorandum of Understanding (MOU) formally agreed upon by the Union (Local 113) and the TTC. As there is currently no formally documented disciplinary measures for speed control operator errors, the current adopted approach is for Route Supervisors to counsel Operators as to proper procedures.</p> <p>IA completed a walkthrough of STC’s process with respect to identifying speed control errors attributable to Operators and found the process to be functioning as described by management, and all relevant delay incidents are being included in STC’s root cause analyses, with minimum corrective code changes being submitted to A&amp;P.</p> <p>Targeted testing of a sample of signal violations and speed control errors attributed to Operators indicate disciplinary and counseling actions are being performed in a timely manner and following the procedures as explained by Subway Divisional Management. However, the process of populating the Incident Management Database with the pertinent details is deficient with record keeping gaps noted at both divisions, incomplete communication of required code changes to A&amp;P at Line 2 Division and a duplication of effort noted at the Line 1 Division where its legacy operator incident recording database is still being used.</p>



**Internal Audit Activities – Quarterly Update**  
**Management Action Plans\***  
**(Q3 2016)**

<b>ASSETS</b>					
<b>AUDIT TITLE</b>	<b>Key Risk Assessed</b>	<b>ARMC Presentation Date</b>	<b>MAP Status @ ARMC October 19/16</b>	<b>Primary Accountability Group(s)</b>	<b>Page No.</b>
<b>Q3 2016</b>					
Subway Delays Management	Incomplete Root Cause Analyses and Ineffective Responses	October 19, 2016	Submitted	Subway Operations	13

**\*Management Action Plan (MAP) Required**

**YES** A formal Management Action Plan is required to address audit outcomes and areas highlighted for action and/or improvement; it is Management’s responsibility to prepare a MAP to the satisfaction of the ARMC; TTC Audit will track the development of the MAP until submission to the ARMC.

**NO** No formal Management Action Plan (MAP) is required given the nature of audit work completed and/or results.

# Management Action Plan (MAP) - Subway Delays Management

## Risk: Incomplete Root Cause Analyses & Ineffective Reponses

(Q3 2016 - NEW)

Audit Points	Key Audit Observations	Management Action Plan	Expected Outcome	Task Accountability/ Responsibility	Target Date*
Q3 2016	<p><b>Subway Performance Benchmarking – Public KPIs:</b> Presently, three KPIs relating to subway service performance are reported publicly in the monthly CEO's Report. A fourth measure is updated daily on the TTC website. IA validated the accuracy of all four publicly reported KPI calculations and confirmed they were made in accordance with current TTC methodologies. However, IA noted limitations in their meaningfulness and in their correlation with actual customer experience as acknowledged by Subway Transportation Management.</p> <p><b>Subway Performance Benchmarking – Operational KPIs:</b> Subway Transportation Management utilizes numerous additional KPIs to aid performance monitoring and decision making. IA reviewed select operational KPIs and noted while they have been accurately calculated in accordance with defined TTC methodologies and are supported by Delay Data, some warrant revision as they either deviate from Nova's definition or are legacy KPIs that do not meaningfully reflect customer or operational impact.</p> <p><b>Subway Transportation KPI Initiatives:</b> Recognizing the shortcomings of its current KPIs, Subway Transportation Management is undertaking a review of its departmental KPIs and dashboards to standardize formats, templates and approach to monitoring progress with respect to delay reduction and related objectives. An internal target of the end of October 2016 has been set for this initiative. A longer term initiative is also underway relating to Enterprise Asset Management (EAM) to standardize Subway Operations data reporting for delay incident management and work order systems directly related to asset condition monitoring for the entire portfolio of assets managed by Subway Transportation Department and/or the Operations Group.</p>	<p><b>KPI Initiatives:</b> Subway Operations Management will formally define its commitment, expectations, timelines and deliverables with respect to completing its review of the Nova Incident Response and Recovery Phase 2 Study, as well as the revision of operational KPIs and SOPs to reflect best practices and monitor progress accordingly. Considerations will include:</p> <ul style="list-style-type: none"> <li>• Co-ordination with Service Delivery areas as they establish/update protocols and procedures for its General Station Managers and Service Emergency Desk</li> <li>• Establishing standardized KPIs for all transit modes to the extent possible, with emphasis on developing customer centric measures.</li> </ul>	Oversight and co-ordination of efforts required to effectively deliver on delay incident management response improvements and KPI initiatives.	<p><b>Operations Group</b> <i>(Acting) Chief – Mike Palmer</i></p> <p><b>Service Delivery Group</b> <i>Chief – Rick Leary</i></p>	Jan/17

# Management Action Plan (MAP) - Subway Delays Management

## Risk: Incomplete Root Cause Analyses & Ineffective Responses

(Q3 2016 - NEW)

Audit Points	Key Audit Observations	Management Action Plan	Expected Outcome	Task Accountability/ Responsibility	Target Date*
Q3 2016	<p><b>Corporate KPI Initiative – Customer Journey Time Metric System:</b> The development of a Customer Journey Time Metric (CJTM) system was formally initiated in September 2014 by the Service Analysis &amp; Improvement section within the Strategy &amp; Service Planning Department to fulfill a key 2013 item documented in the TTC Five-Year Corporate Plan. The intent of the CJTM system is to enhance TTC's capability to plan, monitor, adjust and evaluate transit services (all modes) in a systematic and objective manner that is customer centric.</p> <p>This project has been driven by the Service Planning Department and to date, a functional model of the CJTM system has already been used to refine TTC's service schedule for buses, streetcars and the subway. The functional model is also capable of collecting and analyzing TTC data on waiting time, crowding and journey time, all of which are currently being measured based on customers' perceptions only through the Customer Satisfaction Surveys. Preliminary analysis of CJTM "peak travel time variability" for Line 1 and Line 2 over Q1 2015 to Q2 2016 shows trends that are consistent with customer complaints of subway delays and total delay minutes.</p> <p>Operations Management regards CJTM as a planning tool, not as a metric for subway train performance and delay incident management. Similar views are held by Service Delivery Management. Operations Management is prepared to align its performance measures and indicators of asset reliability and quality of service with corporate CJTM KPIs upon determination that doing so will add value to their monitoring process and coincide with Nova best practices. Therefore, due to the number of variables that can impact journey metrics, greater understanding and agreement is required amongst key stakeholders as to which</p>	<p><b>Customer Journey Time Metric (CJTM):</b> An updated strategic roadmap will be developed to ensure:</p> <ul style="list-style-type: none"> <li>• The final CJTM is benchmarked against Nova best practices and other journey metrics;</li> <li>• Agreement and consensus is reached amongst key stakeholders regarding the value and interpretation of established corporate customer centric KPIs; and</li> <li>• The smooth transition of the CJTM project team from Service Planning to the Information Technology Department.</li> </ul> <p>Considerations will include:</p> <ol style="list-style-type: none"> <li>(a) Clear identification of a senior executive champion(s) for the CJTM project who possesses customer service focus and operational performance experience, able to secure commitment and buy-in of all key stakeholders;</li> <li>(b) Communication strategies that facilitate consensus building and document agreement amongst key parties as to the interpretation, expectation and responsibility for monitoring the final corporate customer metrics, KPIs and trends, and accountability for managing appropriate daily and long-term response actions;</li> <li>(c) Impact analysis and risk of failure to meet the original target completion date of December 2016 for a new suite of corporate KPI's and mitigation strategies or revised timelines thereof, if necessary</li> </ol>	<p>Progress and momentum maintained by CJTM Project Team with stakeholder buy-in and clear understanding of roles and responsibilities going forward.</p>	<p><b>Operations Group</b> <i>(Acting) Chief – Mike Palmer</i></p> <p><b>Service Delivery Group</b> <i>Chief – Rick Leary</i></p> <p><b>Corporate Services</b> <i>Head – ITS - Anthony Iannucci</i></p>	Nov/16



# Management Action Plan (MAP) - Subway Delays Management

## Risk: Incomplete Root Cause Analyses & Ineffective Responses

**(Q3 2016 - NEW)**

Audit Points	Key Audit Observations	Management Action Plan	Expected Outcome	Task Accountability/ Responsibility	Target Date*
	<p>CJTM KPIs would fairly reflect or measure operational activities and drive performance decision making.</p> <p>Select members of the original project team tasked since inception with the design and preliminary application of this advanced analytical and decision support system have recently been transferred to the Information Technology Services group. This transition may impact the synergies and ability of the Team to complete the final stages of the project. Also, given the complexities and sensitivities around defining expectations and accountabilities amongst key stakeholders for responding or reconciling to customer centric KPIs, an effective communication process that encourages consensus building and buy-in needs to be established. A clearly identified and visible senior executive champion(s) with strong operational knowledge should facilitate the CJTM project at this critical stage to ensure original milestones and intent of the project will be met.</p>				
<b>Q3 2016</b>	<p><b>Detailed Root Cause Analysis and Response Initiatives for Select “Delay Causes”:</b> Based on an analysis of 2014 and 2015 Delay Data, IA identified four groupings of delay causes which consistently appeared in a list of top 20 delay codes in both years. These four delay cause groupings account for approximately 46% of the reported Total Delay Minutes annually. This same pattern was later observed for the first eight months of 2016 Delay Data subsequently obtained and analyzed in the same manner.</p> <p>IA gained a greater understanding of each of the four high impact subway delay cause groupings and the nature of various response initiatives being undertaken to address identified root causes. Minor administrative matters were noted through the testing performed and future possible audit areas were identified.</p>	<p><b>Housekeeping Matters:</b> Subway Operations Management will implement the following administrative improvements:</p> <ul style="list-style-type: none"> <li>• Maintaining of meeting minutes for the Right of Way (ROW) Cleanliness Working Group in accordance with Plan B Committee Terms of Reference in a manner similar to that followed by the Technical Solutions Working Group.</li> <li>• Improving the process followed for populating the Incident Management Database with Operator Errors and regularly reconciling details to supporting records to ensure the completeness and accuracy of the database;</li> </ul>	Improved documentation and accuracy of Operator Error data.	<p><b>Operations Group</b> <i>(Acting) Chief – Mike Palmer</i></p>	Jan/17

# Management Action Plan (MAP) - Subway Delays Management

## Risk: Incomplete Root Cause Analyses & Ineffective Responses

**(Q3 2016 - NEW)**

Audit Points	Key Audit Observations	Management Action Plan	Expected Outcome	Task Accountability/ Responsibility	Target Date*
		<ul style="list-style-type: none"> <li>• Implementing a formal communications process and documentation trail that captures the final resolution of all agreed upon delay code changes to ensure Delay Data utilized for further root cause analysis is accurate.</li> <li>• Considering the clerical resources necessary to support the eventual deployment of the Operator Risk Management Database to subway divisions.</li> </ul>			

\*Status as reported by responsible management; not verified by Internal Audit but may be at a later date.

**Internal Audit Activities – Quarterly Update**  
**Management Action Plans\***  
**(Q3 2016)**

<b>GROWTH</b>					
<b>AUDIT TITLE</b>	<b>Key Risk Assessed</b>	<b>ARMC Presentation Date</b>	<b>MAP Status @ ARMC October 19/16</b>	<b>Primary Accountability Group(s)</b>	<b>Page No.</b>
<b>Q3 2016</b>					
Union Station Second Subway Platform and Concourse Improvement Project	Project Impact	October 19, 2016	Submitted	Engineering, Construction & Expansion Group	17
Leslie Barns Project: <ul style="list-style-type: none"> <li>• Facility</li> <li>• Connection Tracks</li> </ul>	Project Impact	October 19, 2016	Submitted	Engineering, Construction & Expansion Group	17

**\*Management Action Plan (MAP) Required**

**YES** A formal Management Action Plan is required to address audit outcomes and areas highlighted for action and/or improvement; it is Management’s responsibility to prepare a MAP to the satisfaction of the ARMC; TTC Audit will track the development of the MAP until submission to the ARMC.

**NO** No formal Management Action Plan (MAP) is required given the nature of audit work completed and/or results.

**Management Action Plan (MAP) – Growth Projects**

**Risk: Project Impact**

**(Q3 2016 – NEW)**

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
<p><b>Q1-2016</b></p>	<p><b>Union: Governance:</b> Attention and oversight was given by senior management to the Union project in conjunction with other City Pan Am/Parapan games preparations. Efforts to ensure the station was ready for use and presentable to the public during the games were emphasized.</p> <p><b>Leslie: Governance:</b> This project has been the focus of many stakeholders, including the City, local residents and TTC. In April 2012, the City issued an unprecedentedly long Notice of Approval Conditions (NOAC) identifying conditions that must be met to obtain site approval. Discussions with the City to address required items have been ongoing ever since.</p> <p>In addition to public information sessions and community events, evidence of progress meetings via Briefing Notes with TTC Board members and City staff to discuss cost, schedule, claims issues and other relevant matters was noted since May 2012. Beginning in early 2015, Project Overview and Update reports were presented to the TTC Board and/or the newly formed TTC Assets and Growth Executive Committee and the Project Review Board for discussion amongst senior management.</p> <p>Special awareness was given to any threat or risk to the completion of targets in the summer of 2015 because of the Pan Am games, and direct CEO involvement with contractor discussions beginning late March 2015 and legal support was noted.</p>	<p><b>Governance:</b> Compliance with current executive expectations through regular reporting of project status as required to Project Review Board, other executive committees and others.</p>	<p>Continued governance and transparency of issues to senior/executive through regular reporting.</p>	<p><b>Engineering Construction &amp; Expansion Group</b></p> <p><i>Chief Project Manager - Construction: Jane Murray</i></p>	<p>Completed</p>

## Management Action Plan (MAP) – Growth Projects

### Risk: Project Impact

(Q3 2016 – NEW)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Union: Substantial Performance (SP):</b> The contract was deemed substantially performed on June 15, 2015 and the holdback of approximately \$19.8 M was released, rendering the Union station platform and concourse improvement work essentially ready for use in advance of the Pan Am special event opening date. Elements of incomplete work contingent upon the closure of the games were not included in the SP calculation, with the expectation that this work and other noted deficiencies were to be finished expeditiously following the games.</p> <p>The expected total completion date is late 2016 including an estimated \$4.0 M of contract change work. The project team continues to meet with the Contractor to monitor this remaining phase of work and progress.</p>	<p><b>Substantial Performance (SP):</b> The EC&amp;E Substantial Performance Procedure calculations, for determination of substantial performance for all Contracts, currently ensures that they are completed in a fair and reasonable manner and include appropriate amounts to be withheld by TTC to encourage the contractors to perform and complete the remaining works in a timely manner.</p> <p>These requirements are now described in supplementary condition #5(SC5) which has been revised to reflect this typical requirement for all contracts and will be exhibited in future tenders.</p>	Improved contractor compliance to complete Contract work with the objective of reducing project costs and impacts to the public.	<p><b>Engineering Construction &amp; Expansion Group</b></p> <p><i>Chief Project Manager - Construction: Jane Murray</i></p>	Completed

## Management Action Plan (MAP) – Growth Projects

### Risk: Project Impact

(Q3 2016 – NEW)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Union: City of Toronto Work:</b> The City of Toronto requested TTC to coordinate and complete five pieces of work associated with its Union Station Revitalization project. As at the end of April/16, TTC records indicate almost \$28.1 million has been incurred for City scoped work for which approximately \$13.2 million has been reimbursed. Contract finalization is complete for 300mm sewer, 600mm sewer, Front Street Improvements, and Minor improvements; and Union Station Revitalization Early Works package is nearing finalization.</p> <p><b>Leslie: City of Toronto Work:</b> The scope of the Leslie Street Connection Tracks contract was expanded beyond budget to include Toronto Water requirements for extensive underground utility infrastructure upgrades and/or replacement. The estimated value of the utility work in 2012 was approximately \$55 M and was included with the understanding that there would be cost sharing between the City and TTC. Other City scope changes have included enhanced streetscaping/landscaping on Leslie Street and at three other Queen Street intersections in the vicinity.</p> <p>In late 2012, the City advised that TTC would have to bear the cost for the entire project including the infrastructure work but a cost sharing agreement with the City was put in place in 2013, and approximately \$37 K remains outstanding.</p>	<p><b>City of Toronto:</b> Develop a form or document that defines scope items and cost sharing/responsibility among third parties, public entities and TTC as applicable, at the early stage of any major project and review progressively at each stage gate and finalize prior to construction commencement.</p>	<p>Improved coordination of projects resulting in a more cost effective long term solution and administration.</p>	<p><b>Engineering Construction &amp; Expansion Group</b></p> <p><i>Head - Property, Planning and Development: P. Kraft</i></p> <p><i>Chief Project Manager - Construction: J. Murray</i></p>	End of 2017
Q1-2016	<p><b>Union: Retender:</b> The project was initially issued as contract U2-1 to four pre-qualified bidders, of which two submitted bids. The lowest bid was deemed non-compliant due to a naming error and the other bid significantly exceeded the budget. Consequently, U2-1 was cancelled, repackaged and issued again to the same four pre-qualified bidders as U2-7. While the low bid contractor was now compliant, it was approximately \$8.6 million more than their initial bid but still within estimated costs.</p>	<p><b>Retender:</b> Bid documents for Contracts with pre-qualified contractors now include detailed and specific instructions to bidders regarding the names of the prequalified Contractor to be included in the bid. Senior Contract Administrators will also remind contractors during the Site Tour or Pre-Bid meeting.</p>	<p>Reduce the likelihood of non-compliant bids and unnecessary retendering and additional project costs.</p>	<p><b>Corporate Services Group</b></p> <p><i>Director Project Procurement: M. Piemontese</i></p>	Completed

## Management Action Plan (MAP) – Growth Projects

### Risk: Project Impact

(Q3 2016 – NEW)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Leslie: Contractor Accommodations &amp; Performance:</b> During the life of this project, TTC has requested a series of recovery plans from the contractor to address delays and acceleration of work for both contracts. The contractor for WM1-1 failed an interim TTC performance review in July 2014 triggering a restriction from bidding on future TTC contracts. However, conditions were somewhat altered in October 2015.</p> <p>In December 2014, TTC Construction management conveyed the message to senior management that the Project contractor’s lack of familiarity with TTC contract documents, processes and requirements was a contributing factor to its difficulties in meeting TTC requirements. In response, TTC adopted a strategy of providing assistance designed to facilitate work progress, including frequent technical meetings with design consultants to resolve issues in a timely manner and making reasonable concessions where possible, and to address issues and inadequacies due to lack of planning, poor quality and performance by the contractor. Costs associated with these and other accommodations are being tracked for consideration during claims negotiations.</p> <p>Other key performance issues include ABYS1-1 contractor work stoppage in May 2015, refusal to correct a major track foundation elevation error to TTC’s satisfaction and continued threats to stop work, making negotiations difficult, to which TTC staff issued a Notice of Default on June 2/15, prompting work to continue. TTC also identified risk mitigation options to terminate or de-scope remaining work with related communication plans pending discussion with Legal and the CEO.</p> <p>Substantial performance of the connection tracks was achieved Jan 13/16; and for the facility and yard, partial handover was Nov 1/15, “into service” Nov 22/15, and substantial performance achieved Mar 11/16.</p>	<p><b>Contractor Accommodations and Performance:</b> TTC has completed a revised Contractor Performance Review process, guidelines and form aligned with the City of Toronto’s process.</p>	<p>New Contractor Performance Review process is a more effective way of evaluating performance of contractors and encourages performance improvements through focused areas of feedback.</p>	<p><b>Corporate Services Group</b></p> <p><i>Senior Solicitor: M. Atlas Director-Project Procurement: M. Piemontese</i></p> <p>Engineering Construction &amp; Expansion Group</p> <p><i>Chief Project Manager - Construction: J. Murray</i></p>	Completed

## Management Action Plan (MAP) – Growth Projects

### Risk: Project Impact

(Q3 2016 – NEW)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
<p><b>Q1-2016</b></p>	<p><b>Leslie: Subcontractors:</b> Per TTC contract general conditions, a contractor is responsible for the performance of all subcontractors and ensuring they are fully qualified to perform assigned work; there is no TTC process to review profiles or restrict a contractor's selection of any subcontractor for which criminal activity is known to ensure the integrity of the procurement process and/or protect the reputation of TTC.</p> <p>Following an investigation and criminal conviction of the owner of IPAC Paving, TTC permanently prohibited the awarding of any TTC contract to the said owner on Jan 31/12. In July 2014, the City alerted TTC management of the possibility that IPAC or an affiliate entity was a subcontractor for the Leslie Connection Tracks project.</p> <p>TTC management confirmed this fact of which it was already aware, but since no performance issues had been noted, no other actions were taken.</p> <p>In contrast, the City publicly suspended the IPAC affiliate company as a contractor in August 2014. TTC notified the contractor in writing on April 13, 2015 that IPAC was restricted from any further work for the TTC. Evidence suggests IPAC workers were still working on site in late August/15.</p> <p>The performance of subcontractors can also significantly impact the progress of a project. In March 2015, one major subcontractor of the WM1-1 Contract walked off-site; in November 2015 refused to work under change directives; and overall, provided unreasonably high quotations and was unwilling to negotiate, negatively affecting the contractor's ability to achieve on-time occupancy/substantial performance.</p>	<p><b>Subcontractors:</b> The General Conditions have been revised to give the TTC representative the right to require either the temporary or permanent removal from the site of any person employed in any capacity by any Contractor or Subcontractor (refer to General Conditions GC 19.7)</p>	<p>Exercising the right to remove individuals employed by contractors/sub-contractors may result in protecting the reputation of TTC and create safer working conditions.</p> <p>This measured approach to an individual versus a sub contractor/company has the added benefit of potentially reducing TTC costs associated with delays.</p>	<p><b>Corporate Services Group</b></p> <p><i>Senior Solicitor:</i> M. Atlas</p> <p><i>Procurement:</i> M. Piemontese</p> <p>Engineering Construction &amp; Expansion Group</p> <p><i>Chief Project Manager - Construction:</i> J. Murray</p>	<p>Completed</p>



**Internal Audit Activities – Quarterly Update**  
**Management Action Plans\***  
(Q3 2016)

<b>FINANCIAL SUSTAINABILITY</b>					
AUDIT TITLE	Key Risk Assessed	ARMC Presentation Date	MAP Status @ ARMC Oct 19/16	Primary Accountability Group(s)	Page No.
<b>Q3 2016</b>					
Payment Controls Review – Data Analytics & Testing	Payment Processing Errors/Frauds & Inefficiencies	July 20, 2016	Updated	Corporate Services	22
Contract Management: Purchasing Card Program – Data Analytics & Testing	Inappropriate Use of Purchasing Cards/ Misappropriation of Assets	July 20, 2016	Updated	Corporate Services	24
Payment Controls Review	Payment Processing Errors/Frauds & Inefficiencies	May 25, 2016	Updated	Corporate Services	22
Tools Usage	Inappropriate Use & Purchasing of Tools	May 25, 2016	Updated	Operations Group/ Corporate Services	25

**Internal Audit Activities – Quarterly Update**  
**Management Action Plans\***  
(Q3 2016)

<b>FINANCIAL SUSTAINABILITY</b>					
AUDIT TITLE	Key Risk Assessed	ARMC Presentation Date	MAP Status @ ARMC Oct 19/16	Primary Accountability Group(s)	Page No.
Fuel Card Management	Inappropriate Use of Fuel Cards	May 25, 2016	Updated	Operations Group/ Corporate Services	27
IPAC Paving	Contract Administration Errors & Employee/Vendor Fraud	May 25, 2016	Updated	Operations Group/ Corporate Services/ Human Resources	29
IT Disaster Recovery	Disruption of IT Services & Loss of Data Due to a Disaster	May 25, 2016	Updated	Corporate Services	30

**\*Management Action Plan (MAP) Required**

**YES** A formal Management Action Plan is required to address audit outcomes and areas highlighted for action and/or improvement; it is Management’s responsibility to prepare a MAP to the satisfaction of the ARMC; TTC Audit will track the development of the MAP until submission to the ARMC.

**NO** No formal Management Action Plan (MAP) is required given the nature of audit work completed and/or results.

## Management Action Plan (MAP) – Payment Controls Review

### Risk: Payment Processing Errors/Frauds & Inefficiencies

(Q3 2016 – Updated)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q2-2016	<p><b>Accounts Payable Processing Procedures &amp; Reports:</b> Procedures for processing invoices by the Accounts Payable (A/P) section need to be updated to reflect changes that followed the implementation of the IFS System. In addition, the development of new/revised data analytic reports will improve management’s ability to monitor A/P performance and IFS payments. Once new/revised reports are finalized, the expected frequency and procedures for their use will need to be documented and communicated to relevant staff.</p> <p><b>Data Analytics:</b> Reports for which attention needs to be focused include:</p> <ul style="list-style-type: none"> <li>• Duplicate Payments</li> <li>• Employee/Vendor Address Information</li> <li>• Lost Discounts</li> <li>• Material Returns</li> </ul>	<p><b>Data Analytics:</b> Efforts to develop/enhance data analytic reports to assist in monitoring adherence to A/P metrics and accuracy of payment processing will continue. Upon finalization of each new/revised report, the expected frequency and procedures for their use will be documented and communicated to relevant staff.</p>	Development of data analytic reports to assist in detecting purchasing irregularities and potential fraudulent transactions.	<p><b>Corporate Services Group</b></p> <p><i>Head – Finance:</i> <i>Mike Roche</i></p>	Dec 2016
Q1-2016	<p><b>Master Vendor Files:</b> Improvements to vendor master set-up processes and file clean-up will enhance controls to prevent payment errors and deter fraud.</p> <p><b>Invoice Processing:</b> Large volumes of invoices processed for payment rely on user groups and Procurement staff to manually verify prices and match details to supporting documentation to ensure adherence to contract terms. Upset limit contracts managed by user groups independent of any M&amp;P staff pose the greatest risk for payment error and/or fraud schemes as segregation of duties and critical assessment skills are inherently weak at cost centre level. This represents approximately 30K or 42% of 2015 CDN invoices processed, valued at approximately \$257 million.</p>	<p><b>Vendor master file</b> set-up processes and file clean-up measures will be undertaken to enhance controls and administrative efficiencies. Areas of focus will include:</p> <ul style="list-style-type: none"> <li>• Redundant Record Purge (M&amp;P)</li> <li>• Payment Activation (Finance)</li> <li>• Naming Conventions (M&amp;P)</li> </ul> <p><u>Q3 2016 Update:</u></p> <p>With the assistance of ITS, M&amp;P is developing an automated “Redundant Record Purge” process. Annual purges will be conducted thereafter each December.</p> <p>In conjunction with Accounts Payable, M&amp;P are developing procedures for standard naming conventions.</p>	Improved purchase order and invoice processing efficiencies, and mitigation of risk of overpayment errors/fraud due to duplicate vendor records.	<p><b>Corporate Services Group</b></p> <p><i>(Acting) Head – M&amp;P:</i> <i>Mike Piemontese</i></p> <p><i>Head – Finance:</i> <i>Mike Roche</i></p>	<p>Sept 30/16 Rev: Dec 2016</p> <p>Completed</p>

**Management Action Plan (MAP) – Payment Controls Review**

**Risk: Payment Processing Errors/Frauds & Inefficiencies**

**(Q3 2016 - Updated)**

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Process Efficiency:</b> Management's efforts to redesign processes and improve efficiencies, including actively moving vendors to e-payment options and working with Materials &amp; Procurement Receiving to secure cash discounts for early payments, should continue.</p>	<p><b>Process Efficiency:</b> Efforts to redesign processes and improve processing efficiencies will continue. Areas of focus include:</p> <ul style="list-style-type: none"> <li>• e-payment options</li> <li>• low dollar/high volume transactions – billing options</li> <li>• invoice ageing and materials returns</li> </ul>	<p>Identification of potential savings and/or dollar impact of failure to address processing inefficiencies across departments.</p>	<p><b>Corporate Services Group</b> Head – Finance: Mike Roche</p>	<p>Dec 2016</p>

\*Status as reported by responsible management; not verified by Internal Audit but may be at a later date.

## Management Action Plan (MAP) – Purchasing Card Program Review

### Risk: Inappropriate Use of Purchasing Cards/Misappropriation of Assets

(Q3 2016 – Updated)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q2-2016	<p><b>Purchasing Card Management:</b> Following Internal Audit’s review of P-Cards, management updated the guidelines governing the issuance and use of these cards. However, more emphasis needs to be placed on monitoring adherence to restrictions and ensuring the quality of explanations and related documentation submitted in support of purchased items is retained. Internal Audit also noted that the reconciliation to confirm that all 181 P-Cards have been appropriately issued is a manual, time-consuming process that is prone to error.</p>	<p><b>Purchasing Card Management:</b> Consideration will be given to automating the reconciliation process between issued Purchasing Cards and active employees, as well as, monitoring purchasing card activity to minimize inactive card fees.</p> <p><u>Q3 2016 Update:</u> M&amp;P is working with National Bank (card provider) to permanently waive inactive card fees.</p>	<p>Improved efficiency and accuracy of reconciliations and minimization of inactive card fees.</p>	<p><b>Corporate Services Group</b></p> <p><i>(Acting) Head – M&amp;P Mike Piemontese</i></p>	Dec 2016
Q2-2016	<p><b>Data Analytics – Exception Reports:</b> Internal Audit noted limitations in the P-Card reporting tools available to management. This prompted the design of new exception reports using service provider data to identify restricted or questionable card purchases and potential transaction splitting. Utilizing these new exception reports, Internal Audit selected a sample of highlighted items for follow-up. While all transactions were approved, given the restrictive or unique nature of items purchased, additional explanations, details and approvals should be documented to withstand public scrutiny and clearly serve as evidence that TTC emergency/exception criteria were met.</p>	<p><b>Data Analytics:</b> Efforts to develop/enhance data analytic reports to assist in monitoring adherence to TTC’s Purchasing Cards Program will continue. Upon finalization of each new/revised report, the expected frequency and procedures for their use will be documented and communicated to relevant staff, as well as, expanded documentation requirements when restricted purchases are made.</p>	<p>Development of data analytic reports to assist in detecting inappropriate use of corporate purchasing cards and possible cost savings.</p> <p>Materials &amp; Procurement (M&amp;P) to provide management reports to user group management to manage their cardholder employee activity, consumption and budgets.</p>	<p><b>Corporate Services Group</b></p> <p><i>(Acting) Head – M&amp;P Mike Piemontese</i></p>	Dec 2016

\*Status as reported by responsible management; not verified by Internal Audit but may be at a later date.

**Management Action Plan (MAP) – Tools Usage**

**Risk: Inappropriate Use & Purchasing of Tools**

**(Q3 2016 – Updated)**

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Tools Inventory:</b> Rigorous inventory management practices that safeguard and restrict access to consumable tools (e.g. drill bits) and small hand tools (e.g. screwdrivers), and track actual usage must be established and enforced consistently. Conducting regularly scheduled physical counts of tools maintained in distributed stores and maintenance areas, engraved with unique identifiers where feasible, assists in accounting for the existence and location of these attractive items and deterring theft. Broken tools need to be exchanged for replacements.</p>	<p><b>Tools Inventory Register:</b> Each cost center will establish an inventory register of tools and equipment that records pertinent purchasing details (e.g., acquisition date, serial number) and a TTC asset number or engraved identifier if feasible. Valuable tools will be stored in a restricted area to which access is controlled and monitored, tools will be signed in/out as appropriate, and broken tools will be exchanged for replacements.</p> <p>Regularly scheduled physical counts of tools will be conducted to validate tools inventory on hand. The tool inventory listing will be updated based on the results of the count.</p>	<p>A properly maintained tools inventory listing that accounts for the existence, availability and location of each tool, which reduces potential loss or theft of tools, which in turn reduces tools replacement costs.</p>	<p><b>Operations Group</b> <i>Head – Plant Maintenance:</i> <i>Glen Buchberger</i></p>	<p align="center">Dec 31/16</p>
Q1-2016	<p><b>Data Analytics:</b> The proactive use of vendor and/or internally developed data analytic reports designed to detect purchasing irregularities and evaluate actual usage of items needs to be mandated as standard practice by operational management. Areas of focus include reviewing excessive repetitive purchases, price variances, and purchases of “off-basket” items and items expected to be covered by employee tool allowance provisions.</p>	<p><b>Data Analytics:</b> Materials &amp; Procurement (M&amp;P) to investigate feasibility of developing a data analytic report designed to detect tool purchasing irregularities and evaluate actual usage of items will become standard practice of operational management. Areas of focus will include:</p> <ul style="list-style-type: none"> <li>• trend analysis of tools usage and purchases per cost center against cost center requirements;</li> <li>• purchases of tools covered by employee annual tool allowance;</li> <li>• repetitive tool purchases and review of reasonableness of need;</li> <li>• price inconsistencies for “on-basket” tool purchases; and</li> <li>• volume of “off-basket” purchases and opportunity for discount prices.</li> </ul> <p><u>Q3 2016 Update:</u> M&amp;P is developing systems contract procedures and usage reports; to be sent to department Heads for use in managing adherence to tool purchasing rules and monitoring consumption. Systems</p>	<p>Proactive detection and deterrence of errors, inappropriate tool purchases and tool theft, as well as, identification of potential savings.</p> <p>M&amp;P will develop a Tool Report that will be provided to the Operations group to manage their tool consumption and adherence to purchasing policies and procedures.</p>	<p><b>Corporate Services</b> <i>(Acting) Head – M&amp;P</i> <i>Mike Piemontese</i></p> <p><b>Operations Group</b> <i>Head – Plant Maintenance:</i> <i>Glen Buchberger</i></p>	<p align="center">Aug 31/16 Rev: Dec 2016</p> <p align="center">Dec 31/16</p>

**Management Action Plan (MAP) – Tools Usage**

**Risk: Inappropriate Use & Purchasing of Tools**

**(Q3 2016 – Updated)**

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
		contract procedures will include an expectation for random sampling of purchases on a monthly basis and monthly comparison of tool purchases (budget to actual; trends, location comparatives). Follow-up actions to be initiated by user groups as deemed appropriate.			
Q1-2016	<p><b>Policies and Procedures:</b> Enforcement of policies and procedures governing the purchasing of tools must be consistent for all cost centres and monitored accordingly. Guidelines for reporting questionable purchases and escalating matters for explanation, or investigation if required, need to be established and followed.</p>	<p><b>Policies and procedures</b> governing the purchasing of tools will be reiterated by M&amp;P to all cost centres and adherence consistently monitored.</p> <p>Operations group will reiterate and communicate to applicable areas permissible tool purchases, rules around tool allowances, and processes for replacement, etc. Guidelines for reporting questionable purchases and patterns to senior management and/or the TTC's Integrity Hotline for follow-up and investigation, if deemed necessary, will be established and followed.</p> <p><u>Q3 2016 Update:</u> Monthly reports will be provided by M&amp;P to user group managers and department Heads to use in managing adherence to tool purchasing rules and monitoring consumption. M&amp;P and Operations will issue a joint "red poster" announcement to reiterate procurement rules and operational processes around tool purchases, tool allowances and processes for replacing tools.</p>	Enhanced accountability and adherence to reasonable tools management expectations.	<p><b>Corporate Services</b></p> <p><i>(Acting) Head – M&amp;P Mike Piemontese</i></p> <p><b>Operations Group</b></p> <p><i>Head – Plant Maintenance: Glen Buchberger</i></p>	<p>Aug 31/16 Rev: Dec 2016</p> <p>Dec 31/16</p>

\*Status as reported by responsible management; not verified by Internal Audit but may be at a later date.

## Management Action Plan (MAP) – Fuel Card Management

### Risk: Inappropriate Use of Fuel Cards

(Q3 2016 – Updated)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>City Fuel Stations:</b> The use of City Fuel Stations with radio frequency identification technology will significantly reduce the use of TTC fuel cards, prevent inappropriate fuel card usage and reduce transaction errors and administrative inefficiencies. Target roll-out remains Q4 2016.</p>	<p><b>City Fuel Stations:</b> The justification for the operational decision of using City Fuel Sites as primary fueling stations will be documented.</p> <p>Standard operating procedures will be developed to ensure dispensing processes are consistent with City requirements and the requirement for TTC employees to comply mandated.</p>	<p>Significant reduction in the use of TTC fuel cards and elimination of the human element as transactions are automatically logged wirelessly between the City's pumps and the TTC. FOB keys will be used to dispense fuel into jerry cans and off road equipment.</p> <p>Preventive control against inappropriate fuel card usage and reduction in risk of transaction errors and administrative inefficiencies.</p>	<p><b>Operations Group</b></p> <p><i>NRV Fleet Manager: Ian Jordan</i></p>	Q1 2017
Q1-2016	<p><b>Service Level Agreement (SLA):</b> A SLA between the TTC and the City must establish applicable roles and responsibilities, expected levels of service and processes to be followed by both parties.</p>	<p><b>Service Level Agreement (SLA):</b> A TTC Service Level Agreement will be established to distinguish between TTC and City roles and responsibilities, define agreed upon performance measures and standards, and to facilitate monitoring of initial and ongoing costs.</p>	<p>Clear expectations and processes will facilitate efficient and effective fuel management of Non-Revenue Vehicles (NRV) and monitoring of costs.</p>	<p><b>Operations Group</b></p> <p><i>NRV Fleet Manager: Ian Jordan</i></p>	Q1 2017
Q1-2016	<p><b>Exceptions:</b> Fuel cards will still be required for car washes and emergency purchases at retail locations. Proactive use of available data analytics will assist user groups in monitoring adherence to exception based criteria and identifying questionable transactions and fuel usage trends.</p>	<p><b>Fuel Cards - Exceptions:</b> Fuel cards will still be required for car washes and emergency purchases at retail locations. Exception based criteria will be established and monitored. User groups will proactively use available data analytics to monitor adherence to exception criteria and to identify questionable transactions and fuel usage trends for follow-up.</p>	<p>Improved oversight of NRV Fuel Management and the City Fuel Site program via the active monitoring of TTC's adherence to defined exception based criteria for use of fuel cards.</p>	<p><b>Operations Group</b></p> <p><i>NRV Fleet Manager: Ian Jordan</i></p>	Q1 2017
Q1-2016	<p><b>Fundamental Card Control:</b> User groups must enforce the requirement that a fuel card is only to be used for the vehicle or equipment to which it is assigned, with no exceptions.</p>	<p><b>Fundamental Fuel Card Control:</b> Updated and revised Fuel Card Procedures will be communicated to user groups and managers.</p> <p><u>Q3 2016 Update:</u> M&amp;P will provide management reports to department heads and user group managers to monitor and manage their employees' consumption and budgets. Annual reviews of cost centre activity will be</p>	<p>Enhanced accountability with clear reiteration of user group responsibilities and control expectations.</p>	<p><b>Corporate Services Group</b></p> <p><i>(Acting) Head - M&amp;P: Mike Piemontese</i></p>	Dec 2016



## Management Action Plan (MAP) – Fuel Card Management

### Risk: Inappropriate Use of Fuel Cards

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
		conducted by M&P and results provided to user groups and applicable department heads. The Petrocan fuel contract will be extended one year to better understand the use and impact of WiFi at City fuel sites and going forward requirements of this contract.			

\*Status as reported by responsible management; not verified by Internal Audit but may be at a later date.

## Management Action Plan (MAP) – Plant Maintenance Contract Administration (IPAC) Follow-up Review

### Risk: Contract Administration - Errors & Employee/Vendor Fraud

(Q3 2016 – Updated)

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Segregation of Duties &amp; Automated Controls:</b> With proper segregation of duties, one individual is not able to independently requisition work, verify that work was done or goods were received, and approve the invoice for payment. Segregation of duties across departments is preferable. TTC's dependence on manual invoice authorization processes versus automated 2 way or 3 way matching systems with electronic signature controls, as recommended by PwC, increases the risk of processing errors, false billing schemes and/or management control over-ride.</p>	<p><b>Segregation of Duties &amp; Automated Controls:</b> TTC management acknowledges the benefits of automated 2-way and 3-way matching systems as outlined by PwC in its Internal Control Gap Analysis (2012) of paving contracts but considers it currently impractical for the Materials &amp; Procurement Department (M&amp;P) to administer all contracts. Similarly, costs associated with pursuing an enterprise system solution that re-engineers and streamlines financial payment business processes across departments are prohibitive.</p>	<p>Acceptance of residual risks associated with lack of action in regards to the implementation of automated matching systems and enterprise solutions will be communicated to the ARMC and senior management.</p>	<p><b>Corporate Services Group</b></p>	<p>Completed</p>
Q1-2016	<p><b>Data Analytics:</b> In the absence of automated documentation preparation, 2-way or 3-way matching controls and electronic invoice authorization processes, the proactive use of vendor and/or internally developed data analytic reports designed to detect errors, unusual transactions, spending patterns and questionable items needs to be mandated as standard practice of those with contract administration responsibilities. Areas of focus to review include the number of contract amendments and extensions, budget/scope deviations, price variances and incidents of contract non-compliance.</p>	<p><b>Data Analytics:</b> Data analytic reports designed to detect unusual transactions, spending patterns and questionable items will be developed for use by those with contract administration responsibilities. Areas of focus may include:</p> <ul style="list-style-type: none"> <li>• Number of contract amendments and extensions;</li> <li>• Budget/scope deviations;</li> <li>• Price variances and incidents of contract non-compliance.</li> </ul>	<p>Proactive detection and deterrence of errors and employee/vendor fraud, and identification of potential savings.</p>	<p><b>Corporate Services Group</b></p> <p><i>(Acting) Head - M&amp;P: Mike Piemontese</i></p>	<p>Dec 31/16</p>
Q1-2016	<p><b>Fraud Awareness Training:</b> Providing supervisory staff with oversight and authorization responsibilities and employees in "gate-keeper" roles (e.g. buyers, contract administrators, accounts payable supervisors/clerks, operational administrative assistants) with formal fraud awareness training would assist in their critical assessment of procurement documents and evaluation of supporting evidence for invoice approvals. Enforcement of policies and procedures governing contract administration within departments must be consistent and monitored accordingly. Guidelines for reporting questionable items and escalating matters for explanation, or investigation if required, need to be established and followed. Regular audits, active management oversight and holding violators accountable for conflict of interest incidents may also deter fraud.</p>	<p><b>Fraud Awareness Training:</b> Fraud awareness training and related topics may be presented to relevant groups as appropriate, contingent upon available resources.</p>	<p>Enhanced employee understanding of error/fraud red flags and processes for detecting/reporting possible wrong-doing and abuse in TTC procurement and payment processes.</p>	<p><b>CEO's Office- Human Resources</b></p>	<p>Completed</p>

\*Status as reported by responsible management; not verified by Internal Audit but may be at a later date.

## Management Action Plan (MAP) – IT Disaster Recovery

### Risk: Disruption of IT Services & Loss of Data Due to a Disaster

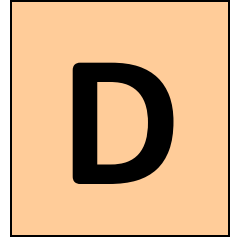
Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Disaster Recovery (DR):</b> DR is an essential element and subset of an organization’s comprehensive business continuity plan that addresses only the information technology aspects. DR focuses on recovery in the event of a true disaster scenario, and not specific or individual application, service or component level outage. Data and service are not accessible during a disaster; they must be recovered; and the speed at which they are recovered is solely dependent on the planning, infrastructure and processes that are set forth and tested.</p> <p><b>Systems Resiliency &amp; Service Continuity:</b> Except for the mainframe system, which may be recovered at an external vendor off-site location and is targeted to be de-commissioned in the future, ITS management has opted for a systems resiliency and service continuity approach in the event of a disaster as opposed to a recovery-based strategy where and when feasible. Resiliency relies on the redundancy of IT infrastructure, ie., a server, network, storage system, or an entire data centre, to automatically take over (ie., “fail over”) when one system fails and continue operating even when there has been an equipment failure, power outage or other disruption. The data is captured and mirrored (replicated) in real time at two locations so that if one location goes down, the other location is up and running with no or minimal disruption. Residual risks associated with a complete and simultaneous disruption of service at both data centres triggered by a disaster have been accepted by ITS Management on the basis that the probability of such a catastrophic event is low.</p> <p><b>Testing Plans:</b> ITS DR procedures have been prepared to recover three TTC mission critical systems: TTC’s mainframe payroll and general ledger modules; Wheel-Trans and IFS applications. It is considered best practice to test, validate and refresh DR plans to ensure a state of readiness and protection from disruption of critical services or data loss in the case of a disaster. Tests can be costly and difficult to perform but the rationale behind decisions to forego testing and deviate from testing targets must be evaluated against the risks associated with a lack of verified preparedness.</p>	<p><b>Systems Resiliency, Service Continuity and Testing Plans:</b> A presentation/report to the ARMC on the current state of affairs with respect to the TTC’s establishment and maintenance of disaster recovery and emergency management plans for IT elements will be put forth to facilitate members’ understanding. Topics will include ITS management’s rationale to:</p> <ul style="list-style-type: none"> <li>• Opt for a systems resiliency and service continuity approach as opposed to a disaster recovery-based third party vendor facility and data back-up strategy;</li> <li>• Deviate from testing targets that validate and refresh DR plans to ensure a state of readiness and ability to protect the TTC from disruption of critical services or data loss; and</li> <li>• Hire a permanent resource to lead, maintain and monitor the TTC’s DR Roadmap progress and planning for Corporate Computing and overall resilience, replication and back-up status on a regular basis.</li> </ul>	<p>Identification and evaluation of risks associated with a complete and simultaneous disruption of service at both data centres triggered by a disaster, as well as, risks associated with a lack of verified preparedness.</p> <p>Enhanced understanding by the ARMC.</p>	<p><b>Corporate Services Group</b></p> <p>Head – IT Services: Anthony Iannucci</p>	Completed

## Management Action Plan (MAP) – IT Disaster Recovery

### Risk: Disruption of IT Services & Loss of Data Due to a Disaster

Audit Points	Key Audit Observations & Comments	Management Action Plan	Expected Outcome	Accountability Responsibility	Target Date*
Q1-2016	<p><b>Enterprise Risk Management (ERM) Status:</b> DR is an essential capability for the TTC to deliver uninterrupted IT service. Failure to provide the benefits associated with DR could have broad sweeping negative impacts on TTC business operations and related activities. Management recognizes that past TTC efforts to implement and support DR capabilities via a series of unique projects have not been effective, or the benefits have not proven to be sustainable, and that continual oversight, governance and focus is required to improve this capability over time. The inability to recover from system loss has been recognized in the ERM database as a corporate risk, with unauthorized access to the TTC network and computing assets identified as a potential threat. The risk associated with the lack of a holistic, comprehensive DR plan has not yet been evaluated and included in the ERM framework.</p>	<p><b>Enterprise Risk Management (ERM) Status:</b> ITS Management will work with the ERM team to incorporate IT Disaster Recovery risks and controls into the ERM database.</p>	<p>Enhanced documentation of controls designed to mitigate IT services disruptions and data loss in the case of a disaster, and of residual risks considered to be acceptable.</p>	<p><b>Corporate Services Group</b> Head – IT Services: Anthony Iannucci</p>	Mar 31/17
Q1-2016	<p><b>DR Roadmap:</b> In 2014, a gap analysis was conducted to provide a granular comparison between the current state and future state of DR within TTC. A Roadmap document outlining actions required to achieve a sustainable DR strategy aligned with TTC business requirements and state of readiness for all DR elements necessary for service availability and recoverability was prepared. A position created and expected to be filled in 2016 will lead the project to achieve the vision as designed by ITS. Conducting comprehensive Business Impact Analyses to ensure TTC business needs and interdependencies are properly addressed is a critical first step of a holistic approach to DR planning, and the realization of incremental improvements throughout the entire lifecycle of the program will be critical to maintaining momentum for achieving the DR vision of a reliable, documented, approved and proven level of DR preparedness.</p>	<p><b>DR Roadmap:</b> Delivery of the DR Roadmap will begin with a comprehensive Business Impact Analysis and progress will be actively monitored. Improvements throughout the lifecycle of the program will be reported to maintain momentum for the DR vision of a reliable, documented, approved and proven level of DR preparedness.</p>	<p>A comprehensive Business Impact Analysis process that ensures TTC business needs and interdependencies are properly addressed.</p>	<p><b>Corporate Services Group</b> Head – IT Services: Anthony Iannucci</p>	Mar 31/18

\*Status as reported by responsible management; not verified by Internal Audit but may be at a later date.



## Internal Audit Activities - Quarterly Update

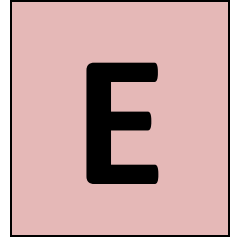
**ADVISORY: Q3 2016**

Strategic Objective	Audit Title	Status Ongoing In-Progress	Internal Audit Activities Description	2016 Audit Plan Y/N
Safety	Risk & Governance Committee (RGX)	Ongoing	Standing member of the TTC RGX Committee; attending and actively contributing to regularly scheduled meetings.	Y
Safety	Enterprise Risk Management (ERM)	Ongoing  In-Progress	Supporting TTC Management in its ongoing efforts to implement the ERM Program.  Advise TTC's Risk Management Group in the development of a streamlined approach to populate TTC's ERM database with Management Action Plans put forth in response to internal audits and audits completed by the City Toronto Auditor General Office (AGO).	Y
Customer	Customer Fare Evasion	Ongoing	Liaison with TTC's Customer Development Department to provide advice and support on customer fare evasion strategies.	N
Financial Sustainability	PRESTO System	Ongoing	Standing member of the PRESTO Audit and Assurance Committee (PAAC), representing TTC in accordance with the governance structure outlined in TTC's Master Agreement with PRESTO: <ul style="list-style-type: none"> <li>• Attend and actively contribute to regularly scheduled PAAC meetings;</li> <li>• Advise TTC's Finance Department on financial reporting risks and controls to ensure appropriate mitigation strategies are in place and external audit requirements are met; and</li> <li>• Review PRESTO 3416 report (Service Auditors' Report) and the PwC Gap Analysis report to facilitate appropriate action items in collaboration with Metrolinx staff.</li> </ul>	Y

## Internal Audit Activities - Quarterly Update

**ADVISORY: Q3 2016**

Strategic Objective	Audit Title	Status Ongoing In-Progress	Internal Audit Activities Description	2016 Audit Plan Y/N
Financial Sustainability	SAP	Ongoing	Supporting TTC Management in its ongoing efforts to implement SAP by attending the Steering Committee meetings and providing advice and assistance as needed.	N
Financial Sustainability	Employee/Vendor Misconduct/Fraud	Ongoing	Supporting TTC Management in its efforts to deter fraud, strengthen fraud mitigation strategies and control frameworks, and develop/implement a systematic Fraud Prevention Program. Current quarter initiatives include the following: <ul style="list-style-type: none"> <li>• Support M&amp;P in the creation of tool usage exception reports to identify and analyze trends in tool usage, price variances and off-basket purchases;</li> <li>• Review of Greenshield's fraud prevention/detection processes as defined in their RFP submission;</li> <li>• Support Finance with the verification of 2015 duplicate payments;</li> <li>• Review of processes/controls surrounding payroll exception reports; and</li> <li>• Regular communications with and support to the Special Investigations unit, including contract compliance and data analytics.</li> </ul>	N
Reputation	City Auditor General: TTC Audit Work	Ongoing  Ongoing	<p>Attending City Audit Committee meetings.</p> <p>Supporting TTC Management as required and deemed appropriate in response to planned audit work and ad hoc requests initiated by the City Auditor General. Activities include:</p> <p><b><i>Continuous Controls Monitoring (CCM)</i></b></p> <ul style="list-style-type: none"> <li>• Overtime &amp; Absenteeism – 2015 vs 2014</li> </ul> <p><b><i>Audits</i></b></p> <ul style="list-style-type: none"> <li>• Inventory Controls (2015/16)</li> <li>• Employee Drug and Health Benefit Claims</li> <li>• Procurement Processes and Accounts Payable</li> </ul>	Y





## Internal Audit Activities - Quarterly Update

### DEPARTMENTAL INITIATIVES: Q3 2016

Item #	Internal Audit Initiative	Description	Expected Outcome	Target Date
1	Communications & Reporting Relationship: Audit & Risk Management Committee (ARMC)	<p>Discussions with past and present ARMC members and the TTC Board Chair for purposes of reviewing the ARMC Terms of Reference document (approved Nov/15) and the need for annual confirmation of adherence to the TTC Board.</p> <p>Other topics discussed and/or to be elaborated upon during a proposed ARMC Education Session include the expectations and responsibilities of the ARMC, the role of TTC Internal Audit Department, formal reporting and communication protocol expectations, and means for enhancing the Department's independence going forward.</p>	<p>ARMC presentation and Q&amp;A forum; clarity and enhanced understanding of the role of TTC Internal Audit</p> <p>Updated ARMC "Terms of Reference"; confirmation of the ARMC's adherence thereof to the TTC Board</p>	<p>ARMC Education Session: Feb/17</p> <p>ARMC Terms of Reference: Feb/17</p>
2	Review: Internal Audit Charter	Review of the TTC Internal Audit Charter with key stakeholders and benchmarking against comparable external parties (e.g. City of Toronto Internal Audit) and professional standards (the Institute of Internal Auditors - IIA). Following the ARMC Education Session, final revisions will be made to reflect updated ARMC expectations and professional best practices.	Updated Internal Audit Charter	ARMC Meeting: Feb/17

## Internal Audit Activities - Quarterly Update

### DEPARTMENTAL INITIATIVES: Q3 2016

Item #	Internal Audit Initiative	Description	Expected Outcome	Target Date
3	Ongoing Risk Assessment & Annual Internal Audit Work Plan Development	Conducting numerous meetings with key stakeholders, including TTC Chiefs and Heads, to discuss key risks and concerns impacting their areas of responsibility. Identifying and evaluating potential audit projects against various risk factors to prioritize assurance and advisory work for the remainder of 2016 and inclusion in the 2017 Plan.	2017 Internal Audit Work Plan	ARMC Meeting: Feb/17
4	Communication Protocol: City of Toronto Auditor General's Office (AGO)	Introductory meetings with the AG and her staff to discuss past challenges, current audits and future working protocol aimed at improving working relationships, avoiding duplication of efforts, and increasing the AGO's reliance on TTC Internal Audit work.	Formal AG Communications Protocol	TBD

## Internal Audit Activities - Quarterly Update

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5	Internal Audit Staff: Skills Gap Analysis, Training Needs Assessment & Delivery, and Organizational Restructuring	<p>Conducting skills gap analyses of current Internal Audit staff and identifying immediate training needs to ensure consistency and quality of work being completed. Customized audit training being arranged with PwC and information sessions with TTC Subject Matter Experts (SMEs) on complex projects (eg. SAP, PRESTO).</p> <p>Redefining and benchmarking critical audit capabilities, skill sets and professional certification requirements going forward, and working with TTC Human Resources to address Employee Engagement Survey (EES) action items and existing challenges with recruitment and retention of seasoned internal audit staff.</p>	<p>Resource Plan &amp; Motivated Team (i.e. improved EES Score):</p> <ul style="list-style-type: none"> <li>• Updated Job Descriptions &amp; Organizational Structure</li> <li>• Customized 2-day Training (risk based/transit focus) session</li> <li>• TTC Information Sessions:                             <ul style="list-style-type: none"> <li>○ PRESTO</li> <li>○ SAP</li> <li>○ CAD/AVL</li> </ul> </li> </ul>	<p>TBD</p> <p>Oct/16</p> <p>TBD</p>
6	Data Analytic and Audit Software Tools	Exploring opportunities to use ACL software for data analytics and establishing standardized templates using the Department's MKInsight audit software	Fully utilized software to drive efficiencies and complete data analytics & improved quality and consistency of internal audit documentation.	Ongoing