

**ANNUAL COMPLIANCE
REPORT FOR 2021 -
Regulatory Monitor and
Compliance Officer –
Ottawa Light Rail Transit**



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For City of Ottawa**

SAB Vanguard Consulting Inc.

March 1, 2022

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1. Executive Summary:

In accordance with the Delegation Agreement signed between the City of Ottawa and the Minister of Transport in 2011, the City appointed the Regulatory Monitor and Compliance Officer (RMCO) in 2018 to perform regulatory compliance monitoring for the Confederation Line following revenue service inception.

In accordance with the schedule of RMCO duties and responsibilities provided by the City, as well as the multiyear Work Plan approved by City Council in September 2018, the RMCO initiated regulatory compliance monitoring activities following revenue service inception.

The following areas have been monitored by the RMCO since revenue service inception:

- 1) Training and certification of employees involved in the movement of trains and LRV's (Q4-2019);
- 2) Inspection and repair activities related to track (Q2-Q3 2020);
- 3) Inspection and repair activities related to light rail vehicles (LRV's) - (Q3-Q4 2020);
- 4) Inspection and repair activities related to the catenary (Q3-Q4 2020);
- 5) Safety Management System (Q2-Q3 2021);
- 6) Emergency Management Processes (Q3 2021 – Jan. 2022).

This document constitutes the third RMCO Annual Compliance Report which describes the specific areas (i.e. items 5 and 6) which were monitored during 2021, including the work that was undertaken to verify compliance, as well as the compliance assessment findings for each area monitored.

In summary, the 2021 RMCO monitoring activities identified a high level of regulatory compliance for OC Transpo, with some opportunity to strengthen the Oversight of contractors, as they are responsible to implement substantially consistent Programs relative to those identified in the City LRT Regulations (i.e. 'City Manager Designation' dated 12 Feb. 2021).

This Annual Compliance Report will be submitted for review at the March 30, 2022 Transit Commission meeting, and will be tabled at the April 27, 2022 City Council meeting.

2. Background:

On July 14, 2011, Ottawa City Council approved the implementation of the Ottawa Light Rail Transit (OLRT) project which is considered in law to be a federal rail transportation undertaking.

Since federal legislation was not developed for application to municipal light rail systems, the City of Ottawa was provided with the authority to regulate its light rail transit system. This was formalized with an agreement between the Minister of Transport and the City of Ottawa on October 1, 2011, known as the 'Delegation Agreement'.

In accordance with the Delegation Agreement, and By-Law No. 2015 – 301, the position of 'Light Rail Regulatory Monitor and Compliance Officer' (i.e. 'Regulatory Monitor and Compliance Officer – RMCO') was created to monitor and report on compliance with the OLRT Regulations (i.e. City LRT Regulations). Further details on the background are provided in Annex 1.

The RMCO is tasked with performing regulatory compliance monitoring post-revenue service; specific duties and responsibilities are provided in Annexes 2 and 3.

Below are some important elements relative to RMCO duties and responsibilities:

- The RMCO is responsible for regulatory compliance monitoring for the Confederation Line (i.e. does not include Trillium line, bus transit or other OC Transpo operations);
- The compliance monitoring relates primarily to City LRT Regulations and the associated Programs which relate to Safety and Security;
- The RMCO was not involved in the construction, implementation or revenue service availability activities for the Confederation Line;
- The RMCO regulatory monitoring activities started after revenue service;
- The RMCO performs monitoring on an ongoing basis and provides quarterly updates as well as annual reports;
- The RMCO has no duty or authority to assess the adequacy, sufficiency, or effectiveness of City LRT Regulations, Programs or the Confederation Line infrastructure / technology.

One of the early RMCO responsibilities consisted of developing a multi-year Work Plan for carrying out compliance monitoring relative to City LRT Regulations – this was submitted to City Council and approved on September 12, 2018.

Subsequently, following revenue service inception in September 2019, the RMCO started to perform regulatory monitoring activities which have been carried out progressively since that date.

As well, in early 2021 the RMCO monitoring process was further aligned with City LRT Regulations which were formalized, consolidated, updated and clarified through the document entitled 'City Manager Designation – Light Rail Regulations' dated 12 February 2021; a relevant excerpt is provided in Annex 4.

As mentioned above, RMCO responsibilities require the preparation of an Annual Compliance Report which describes regulatory monitoring activities undertaken as well as findings identified – this document constitutes the third Annual Compliance Report which presents monitoring activities performed in 2021 as well as the corresponding findings. It is to be noted that as a result of the Confederation Line closure during the fall of 2021, some regulatory monitoring activities described in this Report were completed in early 2022.

This Annual Compliance Report also provides information on the RMCO monitoring approach (refer to Section 3 of this Report) which is based on the formalized City LRT Regulations and monitoring experience to date, thus supplementing the information provided in the Work Plan.

With respect to expenses for the RMCO, a statement of the budget and actual 2021 expenses is provided in Annex 7.

3. Regulatory Monitoring Approach:

3.1 Summary - Process for RMCO Regulatory Monitoring:

The RMCO monitoring process is designed to perform monitoring activities in an effective manner while engaging stakeholders such that they understand the process and have the time and opportunity to provide the necessary information and resources.

This is achieved through the principles of transparency, structure and engagement (further described in this Section).

Moreover, the monitoring approach is anchored on the following elements:

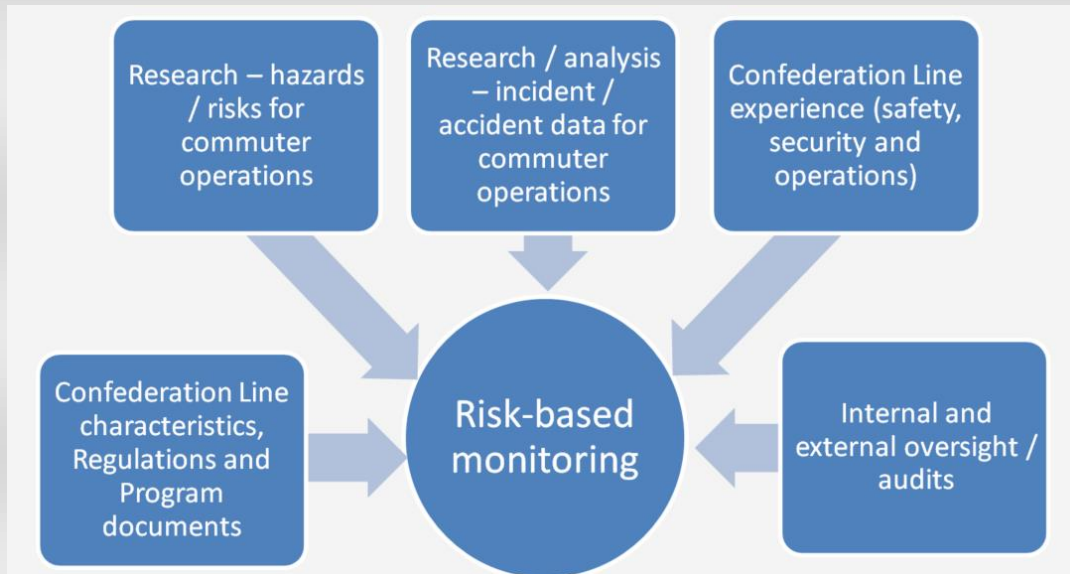
- The selection of regulatory Programs to be monitored is risk-based with several inputs / considerations which are described in Sections 3.2 and 3.3 of this Report;
- To maintain a structured and consistent approach for monitoring, specific procedures are developed for each area to be monitored, thus providing clear expectations for all stakeholders. Monitoring procedures are designed to obtain objective evidence to enable the assessment of regulatory compliance using a fact and evidence-based approach;
- As explained in Section 2 of this Report, the RMCO monitoring process was aligned with City LRT Regulations. An excerpt from the City LRT Regulations is provided in Annex 4 of this Report. The City LRT Regulations (specifically Appendix B Section 1) reaffirm the responsibility for OC Transpo to Adopt and Implement specific Programs, including providing applicable Direction, performing monitoring and maintaining Records. With respect to contractors, their obligations are based on contractual agreements as well as OC Transpo Direction – this includes the need for contractors to Adopt and Implement substantially consistent Programs relative to those identified in the City LRT Regulations. This is detailed further in Section 3.4.
- The RMCO develops and communicates monitoring plans prior to the inception of monitoring to enable stakeholders to understand expectations, to provide the requested information, and to allocate resources required for monitoring.

Further details are provided in the following Sections.

3.2 Risk-Based Monitoring:

In accordance with the multi-year Work Plan, a risk-based approach is used to select regulatory Programs / areas to be monitored using the information shown in the Figure below:

Figure 1:



This risk-based approach uses the following key inputs:

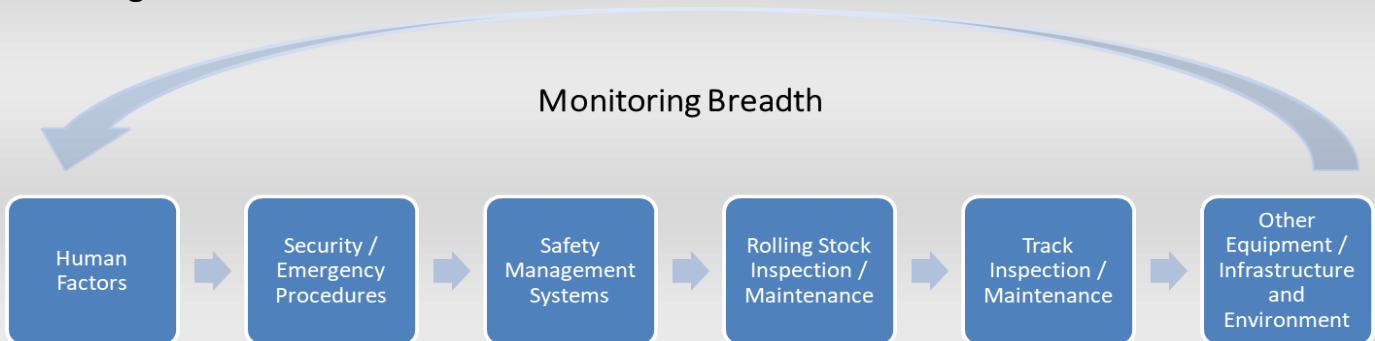
- 1) Research relative to hazards and risks for commuter operations (refer to Work Plan);
- 2) Research and analysis relative to incident / accident data for commuter operations (refer to Work Plan);
- 3) Consideration for Confederation Line characteristics (e.g. technology and infrastructure) as well as Regulations and Programs;
- 4) Consideration for Confederation Line experience (e.g. incidents / accidents, service issues etc.);
- 5) Consideration for internal and external Oversight / monitoring activities and their respective findings (e.g. RMCO monitoring, OC Transpo Oversight) as well as audits.

The consideration of multiple inputs, as outlined above, contributes to the selection of regulatory Programs / areas for monitoring which have the greatest potential impact on safety and security, thus complementing the City's efforts to achieve the highest possible level of safety and security.

3.3 Monitoring Breadth:

In accordance with the RMCO duties and responsibilities provided by the City, as outlined in Annexes 2 and 3 of this Report, Regulations are monitored on an ongoing basis using a risk-based approach. The following risk areas are considered in the selection process:

Figure 2:



In order to maintain a broad perspective in the selection of Regulations / Programs to monitor, the RMCO considers the hazard / risk areas identified in the Work Plan (refer to Annex 5 of this Report and the Figure above) to progressively monitor Regulations / Programs in each of these categories thereby achieving a broad compliance picture over time.

In light of the nature of City Regulations, it is to be noted that each risk area identified in the Figure above corresponds to specific City Programs referenced in the City LRT Regulations. Further, each risk area may contain different City Programs and associated materials which require progressive monitoring over several segments. For example, the Human Factors risk area inherently encompasses City Programs and associated materials which relate to 'Electric Light Rail Operating Rules', 'Safety Management System' (Section 4 – 'Safety Awareness'), Training and Certification, Fitness for Duty, Fatigue Management, Hours of service etc. Thus, the segment monitored during Q4 2019 relates to one such sub-category (i.e. Training and Certification), within the broader human factors category, and is therefore the first step in progressively monitoring this risk area and the associated Programs and materials.

This approach provides compliance assessment knowledge which increases incrementally as monitoring progresses, and represents a practical approach to achieving adequate monitoring breadth over time.

It is important to recognize that this progressive compliance assessment approach used by the RMCO is to be distinguished from audits in the following respects:

- Audits typically encompass both compliance monitoring as well as the identification / assessment of risks, adequacy of controls, governance etc., whereas the RMCO mandate consists primarily of monitoring compliance relative to City LRT Regulations and designated Programs;
- As stated in Section 2 and Annex 3 of this Report, the RMCO mandate does not encompass the assessment of the adequacy, sufficiency, or effectiveness of City Regulations, Programs or associated materials.

3.4 Alignment with City LRT Regulations:

As explained in Section 3.1 certain refinements were made in 2021 to the RMCO monitoring approach to further align with the City LRT Regulations dated 12 February 2021.

The City LRT Regulations (specifically Appendix B Section 1) identify specific responsibilities for OC Transpo to Adopt and Implement designated Programs - this includes the requirement to provide applicable Direction, perform Monitoring and maintain Records. With respect to contractors, their obligations are based on contractual agreements as well as OC Transpo Direction – this includes the requirement for contractors to Adopt and maintain substantially consistent Programs.

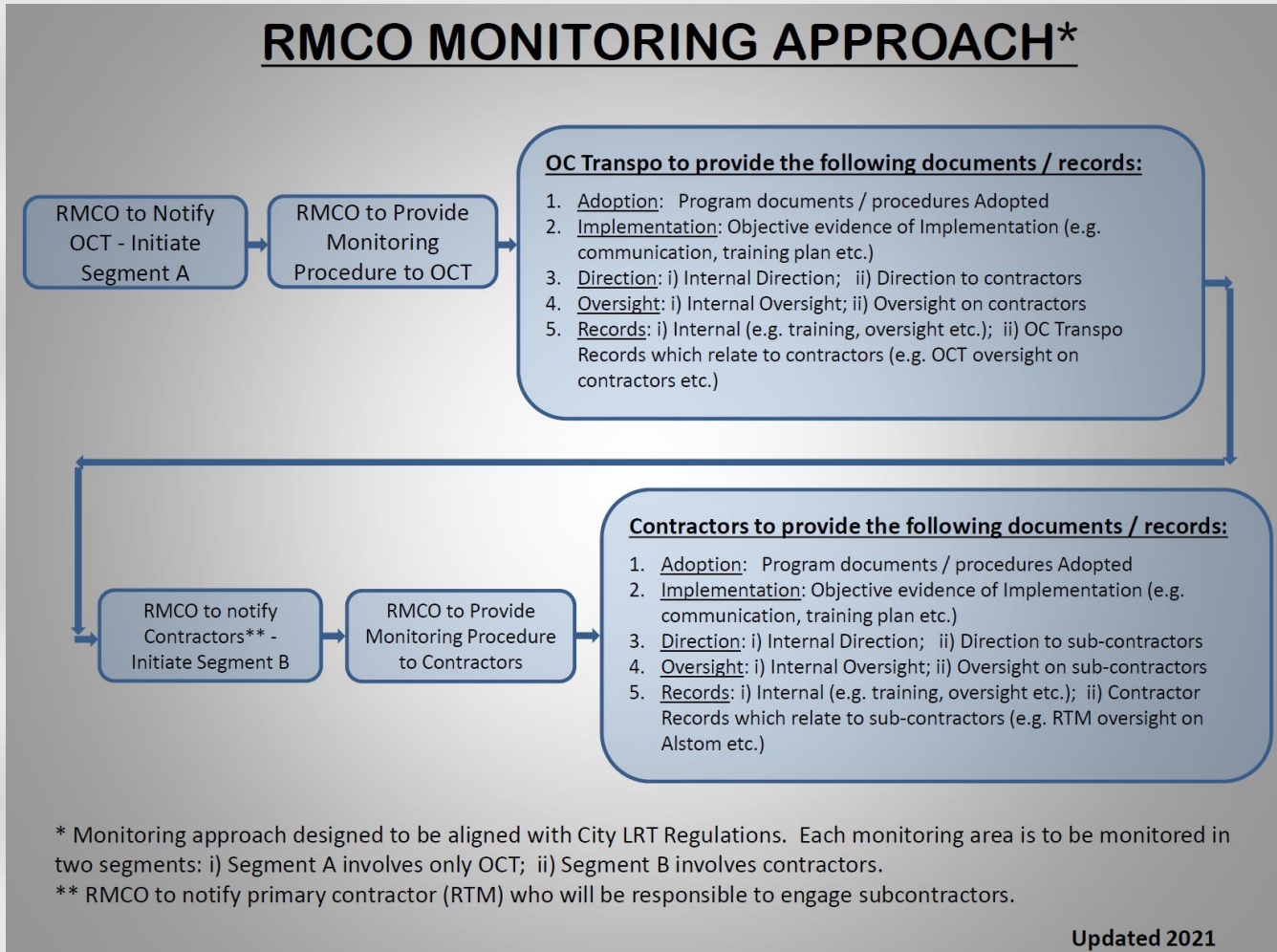
Moreover, it is important to clarify that the responsibilities identified in the LRT Regulations apply to OC Transpo, whereas contractor obligations are associated with their contractual agreements.

Considering the above, following the refinements made to City LRT Regulations, the RMCO monitoring approach was updated in 2021 to more clearly reflect the monitoring of designated Programs in two segments as follows:

- The first segment involves primarily OC Transpo for purposes of obtaining objective evidence relative to the Adoption, Implementation, Direction, Oversight and Records; this includes Direction and Oversight relative to contractors.
- The second segment engages contractors to monitor whether they have implemented the Program required by their Contracts and / or Direction from OC Transpo. This includes the verification that the primary Contractor has provided the necessary Direction and Oversight relative to their key sub-contractors.

This is shown in the Figure below.

Figure 3:

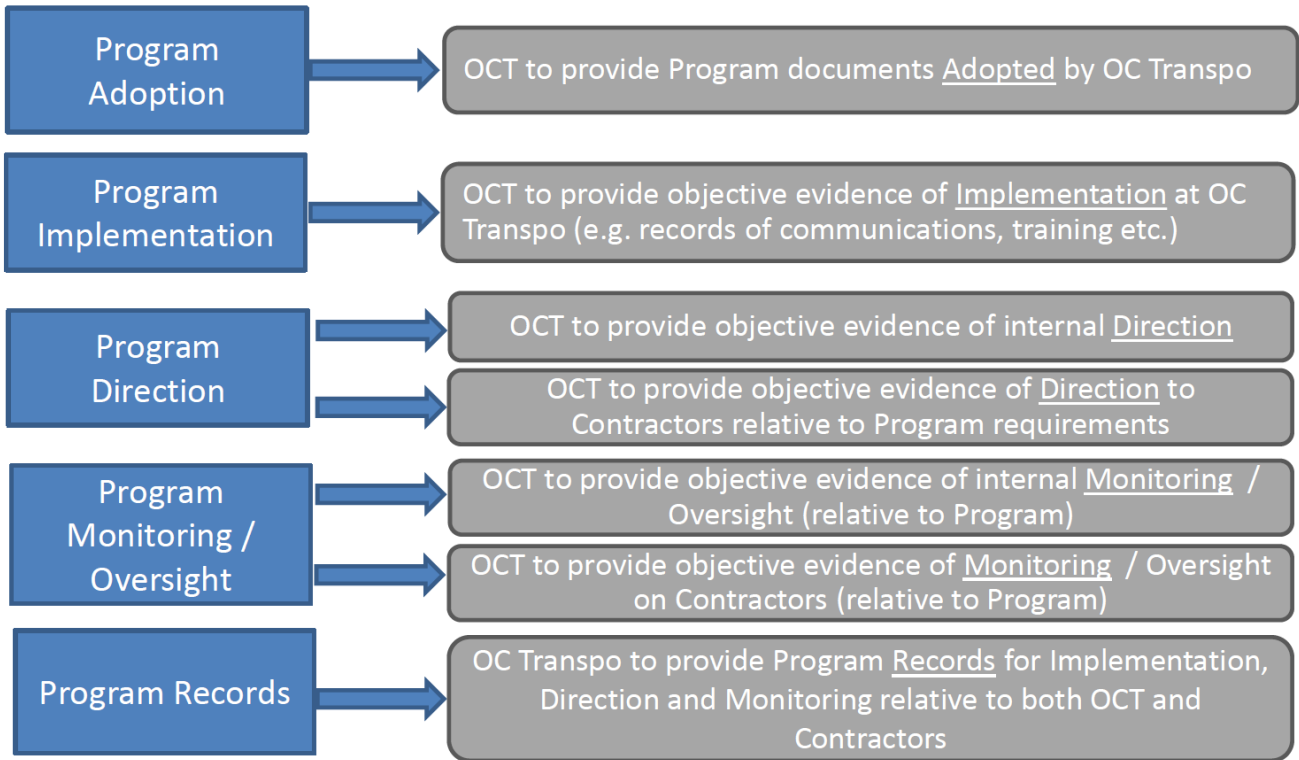


Furthermore, the reason that contractor activities are monitored is to cross check and assess whether OCT has implemented designated Programs; has provided appropriate Direction and Oversight to the contractors regarding these Programs; and that appropriate Program related Records are being kept. This inherently provides an understanding of whether contractors have fulfilled their contractual requirements and / or Direction from OC Transpo relative to such Programs.

The following Figures provide an overview of the documents and Records requested in each of the two monitoring segments used for each Program.

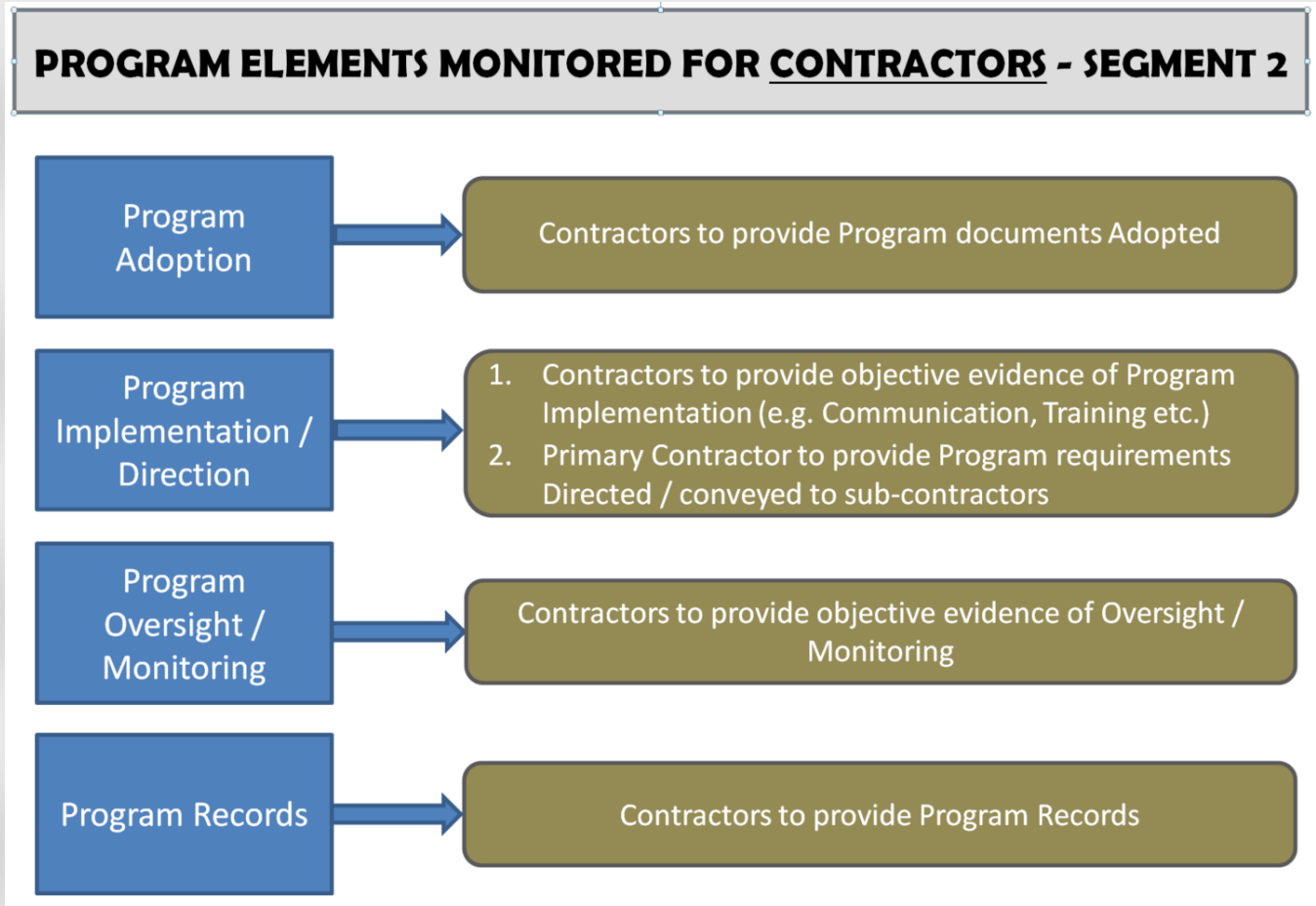
Figure 4: Segment 1 - Program Elements Monitored for OC Transpo:

PROGRAM ELEMENTS MONITORED FOR OC TRANSPO - SEGMENT 1



* Elements monitored in accordance with City Regulations (i.e. City Manager Designation - Appendix B Section 1). RMCO regulatory monitoring activities for each Program performed in two segments. The first segment involves only OC Transpo. The second segment involves Contractors.

Figure 5: Segment 2 - Program Elements Monitored for Contractors:



3.5 Monitoring Steps:

In accordance with Section 3.1, regulatory monitoring activities are performed through the general process / steps outlined below:

Figure 6:

ELEMENT	STEP	ACTIVITY	TIMELINE	RESPONSIBLE / INVOLVED
MONITORING SCHEDULE		PROVIDE MONITORING SCHEDULE TO OC TRANSP. SCHEDULE TO IDENTIFY REGULATORY PROGRAMS / AREAS (i.e. SEGMENTS) TO BE MONITORED.	Q2 AND Q3 FOR EACH YEAR	RMCO
MONITORING SEGMENTS	STEP 1	EACH REGULATORY AREA / PROGRAM TO BE MONITORED IN 2 SEGMENTS. THE FIRST SEGMENT INVOLVES OC TRANSP. THE SECOND SEGMENT INVOLVES CONTRACTORS. NOTIFICATION TO INCLUDE: 1) IDENTIFY SPECIFIC PROGRAM TO BE MONITORED. 2) PROVIDE MONITORING PROCEDURE. 3) REQUEST DOCUMENTS / RECORDS / DATA . 4) DESCRIBE RESOURCES REQUIRED FOR INTERVIEWS / MEETINGS AND FIELD OBSERVATIONS.	UPON START OF MONITORING FOR EACH SEGMENT	RMCO
	STEP 2	↓ PROVIDE RECORDS / DOCUMENTATION	WITHIN 2 WEEKS AFTER NOTIFICATION	OC TRANSPO / CONTRACTORS
	STEP 3	↓ REVIEW / ANALYSIS OF RECORDS / DOCUMENTATION	DURATION ABOUT 2 WEEKS FOLLOWING RECEIPT OF INFORMATION (STEP 2)	RMCO
	STEP 4	↓ PERFORM MONITORING ACTIVITIES INCLUDING MEETINGS, INTERVIEWS, FIELD OBSERVATIONS etc.	DURATION ABOUT 2-6 WEEKS (MAY VARY DEPENDING ON PROGRAM)	RMCO IN COORDINATION WITH OC TRANSPO / CONTRACTORS
	STEP 5	↓ ANALYSIS OF MONITORING INFORMATION GATHERED BY RMCO AND REQUEST FOR ADDITIONAL INFORMATION AS REQUIRED	DURATION ABOUT 2 WEEKS	RMCO
	STEP 6	↓ PRELIMINARY ASSESSMENT OF COMPLIANCE / CONFORMANCE BY RMCO	2 WEEKS AFTER ANALYSIS (STEP 5) AND RECEIPT OF ANY ADDITIONAL INFORMATION REQUESTED	RMCO
	STEP 7	↓ MEETING BETWEEN RMCO / OC TRANSPO / CONTRACTORS TO REVIEW PRELIMINARY FINDINGS AND DISCUSS POTENTIAL REMEDIAL ACTIONS AS REQUIRED	WITHIN 2 WEEKS FOLLOWING PRELIMINARY ASSESSMENT (STEP 6), DEPENDING ON AVAILABILITY OF STAKEHOLDERS	RMCO / OC TRANSPO / CONTRACTORS

As outlined in this Figure, prior to initiating monitoring, a schedule is provided to OC Transpo and applicable stakeholders.

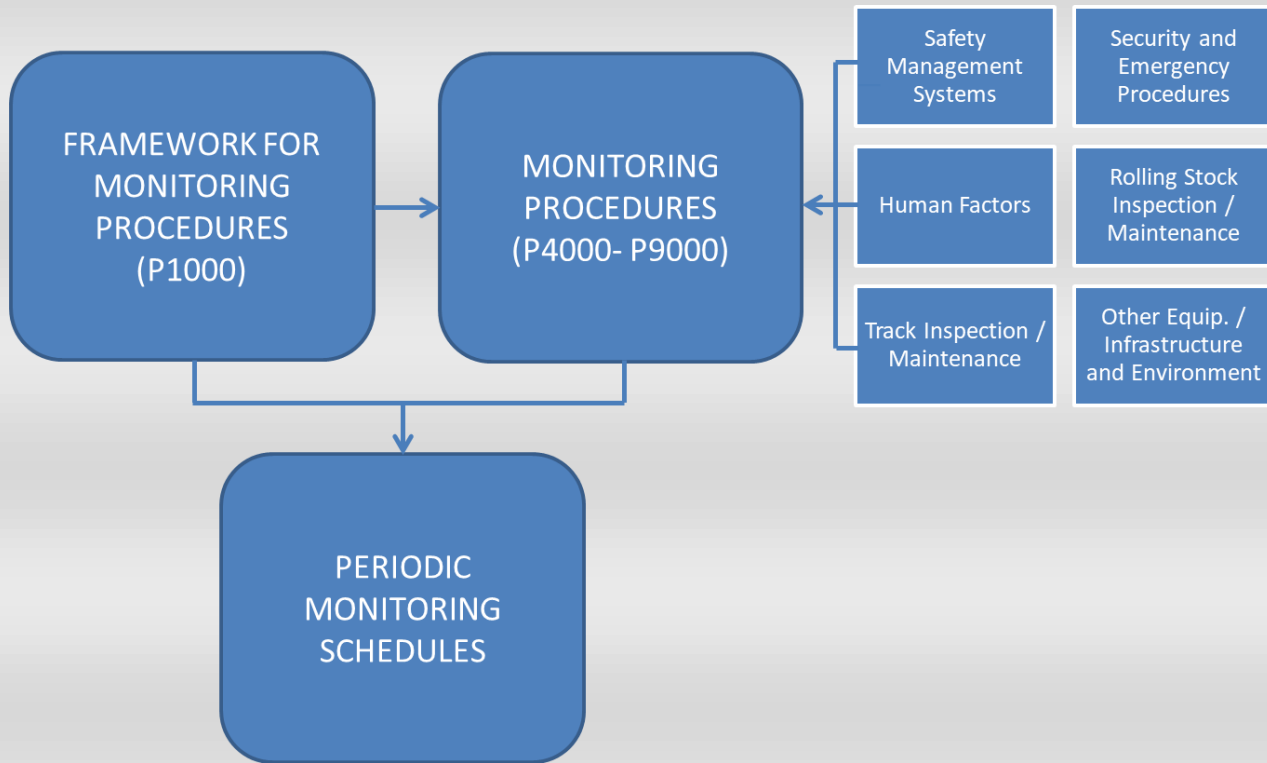
This monitoring schedule is intended to provide visibility on upcoming monitoring activities and to facilitate planning, the allocation of resources and the delivery of requested supplementary documents / data / Records in order to allow monitoring activities to be performed effectively.

In this manner, LRT Regulations and Programs are monitored progressively, to achieve adequate monitoring breadth over time, as well as coverage across the different risk areas identified in the Work Plan.

3.6 Monitoring Documentation:

With respect to the documentation used for monitoring, the Figure below outlines the document structure and nomenclature for the various documents developed to carry out monitoring activities:

Figure 7:



The document types shown in this Figure are described below:

1. The document entitled 'Framework for Monitoring Procedures – Confederation Line Regulations – P1000', outlines the documentation structure, risk-based principles and the approach used to develop monitoring procedures;
2. For each of the six areas shown at the right of the Figure, specific monitoring procedures are developed for each Program to be monitored, thus ensuring clarity, consistency and effectiveness. Each monitoring procedure has a unique number in the range of P4000 – P9000 (see Figure below), which corresponds to the Programs identified in City Regulations;
3. Periodic monitoring schedules are developed by the RMCO and communicated to stakeholders to identify regulatory Programs to be monitored as well as key associated timelines / milestones.

Moreover, monitoring procedures are grouped according to major risk areas and their corresponding LRT Regulations / Programs. Specifically, the Figure below outlines the numbering system used for monitoring procedures in accordance with each risk area:

Figure 8:

Monitoring Procedures – Numbering System		
		Procedure Series
1	Safety Management Systems	P9000
2	Security and Emergency Procedures	P8000
3	Human Factors	P7000
4	Rolling Stock Inspection / Maintenance	P6000
5	Track Inspection / Maintenance	P5000
6	Other Equipment / Infrastructure and Environment	P4000

Monitoring procedures are designed to obtain objective evidence which enables the assessment of compliance using a combination of techniques, including quantitative and qualitative methods, which encompass the following:

1. Review and analysis of Program documents and associated materials, as well as relevant Records and data;
2. Sampling of Records / data (when applicable);
3. Interviews / meetings;
4. Field observations.

4. Regulatory Monitoring Overview for 2021:

As explained in Section 3 of this Report, the selection of regulatory Programs / areas to be monitored is based on two key considerations:

- a) A risk-based approach is used through the review / consideration of key inputs identified in Section 3.2;
- b) Monitoring is distributed over the six key risk areas identified in Section 3.3 to achieve adequate coverage over time.

This approach ensures that RMCO monitoring activities are prioritized in a manner which corresponds to potential risk levels, while progressively monitoring all six key areas to achieve the full risk breadth and to provide the City with knowledge relative to regulatory compliance for all such areas and associated regulatory Programs.

In deciding which areas would be monitored in 2021, the RMCO reviewed the areas which were monitored since revenue service inception (i.e. between the fall of 2019 and the end of 2020) – this showed that four of the six risk areas were monitored as follows:

- Human factors: Training and certification of employees involved in the movement of trains and LRV's - monitored Q4 2019;
- Track inspection and repairs: monitored during Q2-Q3 2020;
- Rolling stock (i.e. LRV) inspection and repairs: monitored during Q3-Q4 2020;
- Other Equipment / Infrastructure: Catenary inspections and repairs were monitored during Q3-Q4 2020.

Thus, at the start of 2021, the key risk areas which had not been monitored by the RMCO were as follows:

- a) Safety Management System;
- b) Security and Emergency Management Processes.

It is evident that both of the above areas and their associated Programs are essential for a safe and secure operation. The first area identified above corresponds to an OCT Program entitled 'Safety Management System Plan' which is identified in Section 1.3(a) of the City LRT Regulations. The second area encompasses several Programs and associated materials which relate to security management system and emergency management – this corresponds to the Programs identified in Section 1.3 of the City LRT Regulations, such as 1.3(b) entitled 'Security Management System Plan (SeMS)' and 1.3(c) entitled 'Threat and Vulnerability Assessment System (T&VA)'.

As additional relevant information for the selection of Programs to monitor in 2021, OC Transpo's Security Management System was audited by an external company in 2020 and was in the process of being updated during 2021.

Therefore, in light of the above, the RMCO set-out to monitor the following key areas / Programs in 2021:

- a) Safety Management System
- b) Emergency Management Processes

Further, the 2021 RMCO monitoring plan for these areas encompassed OC Transpo as well as contractors.

The next Sections of this Report describe the monitoring process and findings for each of the above areas.

5. Monitoring of Safety Management System:

5.1 Monitoring Process - Safety Management System:

5.1.1 Background on Safety Management System (SMS):

Prior to describing the RMCO monitoring process for SMS, it is important to provide context on its meaning and importance.

SMS refers to a systematic approach for managing safety through policies, objectives, initiatives, risk management and safety assurance. SMS provides a systematic way to continuously identify and monitor hazards and control risks while maintaining assurance that these risk controls are effective. As well, SMS encompasses operational safety as well as occupational health and safety.

SMS is recognized as an essential requirement for safety, and has been implemented and regulated in numerous industries worldwide.

SMS is one of the designated City Programs identified in the City LRT Regulations (Appendix B Section 1.3(a)).

OC Transpo has adopted and implemented a Safety Management System (document number OCT-S230-03-PROG) which contains four key pillars, as follows:

- 1) SMS Policy and Objectives
- 2) Risk Management
- 3) Safety Assurance
- 4) Safety Awareness

Furthermore, OC Transpo has a number of documents, procedures and processes which were developed for the Implementation of SMS – these are identified in the Annexes of OC Transpo’s SMS document. This includes numerous documents such as an Oversight Plan, training and awareness material, processes to perform effective investigations, procedures for reporting occurrences, safety analysis, as well as risk assessments and remedial actions.

A review of the Project Agreement (i.e. P.A.), which constitutes the Contract between the City and RTG, shows that specific requirements for a ‘Safety Management Plan’ are detailed in Article 9 of Schedule 15-2 Part 1. It is the RMCO’s understanding that the obligations in the P.A. have been dropped down (i.e. conveyed) from RTG to RTM without modification. Therefore an SMS is one of the requirements expected from RTM.

5.1.2 Responsible Parties / Contractors:

This Section provides perspective by explaining the roles and responsibilities of the different parties involved in these monitoring segments as well as how they relate to City LRT Regulations – this is summarized below:

1) OC Transpo:

- ✓ OC Transpo is the public transit agency for the City of Ottawa;
- ✓ The City LRT Regulations (Appendix B Section 1) reaffirm specific responsibilities for OC Transpo relative to the implementation of designated Programs. This includes the Adoption, Implementation, Direction, Oversight and Records for such Programs. As well, it is required that the Direction and Oversight performed by OC Transpo encompass both the City's internal operation as well as contractors;
- ✓ City LRT Regulations state that OC Transpo should generally require contractors to Implement substantially consistent Programs;
- ✓ City LRT Regulations identify the 'Safety Management System' as one of the designated Programs (Appendix B Section 1.3(a)).

2) RTG (Rideau Transit Group) and RTM (Rideau Transit Maintenance):

- ✓ RTG is the top concessionaire contractor which signed the 30 year Project Agreement (i.e. Contract) with the City. It is the RMCO's understanding that RTG dropped down the maintenance obligations set-out in the P.A. to RTM.
- ✓ RTG is a General Partnership Firm of ACS Infrastructure Canada, SNC-Lavalin, and Ellis Don. RTM is a subcontractor to RTG.
- ✓ RTM subcontracted much of the inspection / maintenance activities for key elements of the Confederation Line such as LRV's, track and the catenary.
- ✓ The Project Agreement (Schedule 15-2 Part 1 Article 9) contains detailed requirements relative to a 'Safety Management Plan'.

In summary, the City LRT Regulations contain regulatory responsibilities which apply to OC Transpo for designated Programs, which include SMS. Moreover, although contractors are not regulated by City LRT Regulations, they are subject to responsibilities in their Contract as well as Oversight / Direction from OC Transpo.

5.1.3 Monitoring Procedure

Documents and Records Requested and Reviewed for Monitoring:

In reference to Section 3.4 of this Report, the Program documents and Records requested and reviewed during this monitoring segment are described below:

Figure 9

<u>ELEMENT</u>	<u>TYPE OF DOCUMENT / RECORD REQUESTED</u>	<u>REQUESTED FROM</u>		
		OC TRANSPO	RTM	ALSTOM
SAFETY MANAGEMENT PLAN	SMS DOCUMENT	X	X	X
PROGRAM IMPLEMENTATION	OBJECTIVE EVIDENCE OF PROGRAM IMPLEMENTATION (e.g. COMMUNICATIONS, TRAINING etc.)	X	X	X
PROGRAM DIRECTION	PROGRAM REQUIREMENTS CONVEYED INTERNALLY AND TO CONTRACTORS	X	X	X
PROGRAM OVERSIGHT / MONITORING	MONITORING RECORDS FOR INTERNAL OPERATIONS AND CONTRACTORS	X	X	X
SAFETY POLICY	2021 SAFETY POLICY	X	X	X
OBJECTIVES, INITIATIVES	2021 OBJECTIVES AND INITIATIVES	X	X	X
ACCIDENT / INCIDENT INVESTIGATION	ACCIDENT / INCIDENT INVESTIGATION REPORTS AS WELL AS THEIR RESPECTIVE REMEDIAL ACTIONS	X	X	X
RISK ASSESSMENT	RISK ASSESSMENTS PERFORMED	X	X	X

Monitoring activities involved OC Transpo, RTM and Alstom, and included the review and analysis of more than 100 documents and Records to verify the above elements. In accordance with the RMCO's regulatory monitoring mandate, documents and Records obtained from Alstom were reviewed for purposes of assessing OC Transpo's and RTM's responsibilities, rather than assessing Alstom individually as this is a subcontractor with specific contractual responsibilities.

Field Observations and Interviews:

RMCO monitoring activities included field observations and interviews for OC Transpo, RTM and Alstom. This information was used to validate information collected during monitoring and to gather additional objective evidence which supports the assessment of Program responsibilities.

5.2 Monitoring Findings - Safety Management System:

5.2.1 Findings for OC Transpo - SMS:

As indicated in Section 5.1, as well as the information provided below, OC Transpo has implemented a substantive Safety Management System (document number OCT-S230-03-PROG) as well as number of related documents, procedures and processes to support an effective SMS.

In excess of 100 documents and Records were provided to the RMCO by OC Transpo, including:

- SMS manual (OCT-S230-03-PROG)
- Training material, lesson plans and specific training Records
- Communication and awareness material
- Standard Operating Procedures for key SMS elements such as investigations and reporting of occurrences, as well as specific Records of occurrences
- An Oversight Plan with specific schedules detailing annual monitoring activities, as well as specific monitoring Records
- Risk assessment templates and specific risk assessment Records completed, including the associated risk reduction actions
- Safety performance tracking protocols, including aggregate and individual Records.

As well, the Appendices in OC Transpo's SMS manual reference a number procedures and processes covering the following areas:

- Process for accountability
- Process with respect to Safety Policy
- Process for ensuring compliance with Regulations, Rules and other instruments
- Process for managing railway occurrences
- Process for identifying safety concerns
- Risk assessment process
- Process for implementing remedial actions
- Process for establishing targets and developing initiatives
- Process for reporting contraventions and safety hazards
- Process for managing knowledge
- Process with respect to scheduling
- Training matrix of safety training required for different types of employees.

Although the RMCO’s mandate is focused on regulatory monitoring for purposes of assessing compliance relative to City LRT Regulations, which does not include assessing the adequacy, sufficiency or effectiveness of City Programs, it is evident from the above information that OC Transpo has a substantive SMS.

Thus, the RMCO’s regulatory monitoring activities focused on assessing OC Transpo’s regulatory responsibilities relative to this Program, which include the following key aspects identified in the City LRT Regulations:

- Adoption
- Implementation
- Direction (both internal and to contractors)
- Oversight / Monitoring (both internal and to contractors)
- Records

As indicated above, LRT Regulations stipulate specific responsibilities for OC Transpo relative to contractors, including Oversight and Direction, and the requirement for contractors to implement “substantially consistent programs to the extent applicable to their work”.

On the basis of the RMCO’s monitoring activities, the regulatory compliance findings for OC Transpo are summarized in the Tables below:

Table 1: Monitoring Findings for OC Transpo - SMS:

ITEM	REFERENCE	ELEMENT	OC TRANSP	NOTES
1A	PROGRAM ADOPTION	SMS MANUAL DEVELOPED / ADOPTED	COMPLIANT	SMS PROGRAM DOCUMENT PROVIDED OCT-S230-03-PROG
1B		SMS MANUAL CONTENT COMPLETE AND CURRENT	COMPLIANT	SMS PROGRAM DOCUMENT IS SUBSTANTIVE AND CURRENT (DATED 2021)
2A	PROGRAM IMPLEMENTATION (DOCUMENTS / PROCEDURES)	COMMUNICATION DOCUMENTS	COMPLIANT	SMS COMMUNICATION DOCUMENTS PROVIDED
2B		TRAINING DOCUMENTATION	COMPLIANT	SMS TRAINING DOCUMENTS PROVIDED
2C		SAFETY POLICY AVAILABLE 2021	COMPLIANT	2021 SAFETY POLICY INTEGRATED IN SMS PROGRAM DOCUMENT
2D		OBJECTIVES AVAILABLE FOR 2021	COMPLIANT	2021 OBJECTIVES INTEGRATED IN SECTION 1.3 OF SMS PROGRAM DOCUMENT
2E		INITIATIVES DEVELOPED FOR 2021	COMPLIANT	2021 INITIATIVES INTEGRATED IN SECTION 1.3 OF SMS PROGRAM DOCUMENT
2F		INVESTIGATIONS PROCESS / DOCUMENTS	COMPLIANT	INVESTIGATION PROCEDURE AND TEMPLATE PROVIDED
2G		RISK ASSESSMENTS PROCESS / DOCUMENTS	COMPLIANT	RISK ASSESSMENT PROCESS AND TEMPLATE PROVIDED
3A	PROGRAM DIRECTION	INTERNAL DIRECTION PROVIDED	COMPLIANT	INTERNAL DIRECTION DOCUMENTS PROVIDED
3B		DIRECTION TO CONTRACTORS PROVIDED	COMPLIANT	DIRECTION PROVIDED TO CONTRACTOR THROUGH P.A. AND REGULATORY WORKING GROUP

COMPLIANCE SCALE:

COMPLIANT	Compliant: means that monitoring activities identified compliant results in accordance with regulatory requirements.
MOSTLY COMPLIANT	Mostly Compliant means that monitoring activities identified predominantly compliant results, with some minor exceptions.
PARTIALLY COMPLIANT	Partially Compliant: means that monitoring activities identified mixed results, with some compliant areas, as well as non-compliant areas.
NOT COMPLIANT	Not Compliant: means that monitoring activities identified mostly non-compliant results or fully non-compliant results.

Table 2 - Monitoring Findings for OC Transpo – SMS (cont'd):

4A	PROGRAM OVERSIGHT	MONITORING PLAN / PROCESS AVAILABLE	COMPLIANT	MONITORING PROCESS INTEGRATED IN SECTION 3 OF SMS PROGRAM DOCUMENT. ADDITIONAL PROCESSES AND TEMPLATES PROVIDED
4B		OVERSIGHT - SAFETY AND OPERATIONS	COMPLIANT	OPERATIONAL MONITORING PROCESS IN PLACE
4C		OVERSIGHT - MONITOR SMS PROGRAM COMPLIANCE	MOSTLY COMPLIANT	OCT OVERSIGHT PLAN IS SUBSTANTIVE. IT WAS ENHANCED EARLY 2021 AND ENCOMPASSES OC TRANSP AND CONTRACTORS. OCT OVERSIGHT PLAN CAN BE FURTHER STRENGTHENED BY FORMALIZING THE MONITORING OF SMS PROGRAM REQUIREMENTS FOR CONTRACTORS SUCH AS ANNUAL UPDATES, OBJECTIVES / INITIATIVES, COMMUNICATION / TRAINING, INVESTIGATIONS, RISK ASSESSMENTS, OVERSIGHT, RECORDS ETC.
5A	PROGRAM RECORDS	TRAINING RECORDS	COMPLIANT	TRAINING RECORDS PROVIDED
5B		INVESTIGATION RECORDS	COMPLIANT	INVESTIGATION REPORTS / RECORDS PROVIDED
5C		RISK ASSESSMENT RECORDS	COMPLIANT	RISK ASSESSMENT DOCUMENTS / RECORDS PROVIDED
5D		OVERSIGHT RECORDS	COMPLIANT	OVERSIGHT / MONITORING RECORDS PROVIDED.

The above Tables demonstrate strong compliance results for OC Transpo relative to the SMS program – this is summarized below:

- 18 SMS elements monitored:
 - 17 elements compliant
 - 1 element mostly compliant

The area of Oversight / monitoring is identified as ‘mostly compliant’ for the following reasons:

- OC Transpo enhanced their Oversight Plan in the first quarter of 2021 which includes detailed schedules of monitoring to be performed. This enhancement is consistent with OC Transpo’s SMS which contains Section 3.3 entitled ‘Continuous Improvement’;
- OC Transpo provided Records which confirm that they are monitoring certain aspects of the contractor SMS, such as occurrence investigations and remedial actions;
- However, there were several gaps identified in the contractor SMS (refer to next Section) which indicate that OC Transpo can strengthen their Oversight Plan by monitoring key aspects of the Contractor SMS such as:
 - ✓ Does the contractor have an updated Safety Management Plan?
 - ✓ Does the contractor Safety Management Plan meet the City’s requirements (e.g. Project Agreement)?
 - ✓ Is there objective evidence that the contractor’s SMS has been implemented?
 - ✓ Is there objective evidence that key SMS processes, such as risk assessment, have been implemented and are being performed in accordance with requirements established for contractors?

It is to be noted that the above Finding was discussed with OC Transpo subsequent to this monitoring segment – as such OC Transpo has already taken actions to enhance their 2022 Oversight Plan relative to contractors for this Program.

5.2.2 SMS Monitoring Findings for RTM:

The findings for RTM are summarized in the Tables below:

Table 3 - Monitoring Findings for RTM - SMS:

ITEM	REFERENCE	ELEMENT	RTM	NOTES (Refer to P.A. Schedule 2 Part 1 Article 9)
1A	PROGRAM ADOPTION	SMS MANUAL DEVELOPED / ADOPTED	CONFORMANT	DOCUMENT PROVIDED.
1B		SMS MANUAL CONTENT COMPLETE (VS OC TRANSP), UPDATED AND CURRENT	PARTIALLY CONFORMANT	RTM SMS DATED 2018. ARTICLE 9.2 OF P.A. SCHED. 2 REQUIRES ANNUAL REVIEW. RTM ADVISED THAT SMS UPDATES ARE IN PROGRESS.
2A	PROGRAM IMPLEMENTATION (DOCUMENTS / PROCEDURES)	COMMUNICATION DOCUMENTS	CONFORMANT	DOCUMENTS PROVIDED
2B		TRAINING DOCUMENTATION	CONFORMANT	DOCUMENTS PROVIDED
2C		SAFETY POLICY AVAILABLE 2021	CONFORMANT	DOCUMENT PROVIDED
2D		OBJECTIVES AVAILABLE FOR 2021	MOSTLY CONFORMANT	OBJECTIVES AVAILABLE, BUT TO BE EXPANDED TO ENCOMPASS OPERATIONAL SAFETY (I.E. IN ADDITION TO OCCUPATIONAL HEALTH AND SAFETY).
2E		INITIATIVES DEVELOPED FOR 2021	MOSTLY CONFORMANT	INITIATIVES AVAILABLE, BUT NEED TO BE EXPANDED TO COVER OPERATIONAL SAFETY (IN ADDITION TO OCCUPATIONAL HEALTH AND SAFETY).
2F		INVESTIGATIONS PROCESS / DOCUMENTS	CONFORMANT	DOCUMENTS PROVIDED
2G		RISK ASSESSMENTS PROCESS / DOCUMENTS	CONFORMANT	DOCUMENTS PROVIDED
3A	PROGRAM DIRECTION	INTERNAL DIRECTION PROVIDED	CONFORMANT	OBJECTIVE EVIDENCE VALIDATED WITH SUBCONTRACTOR
3B		DIRECTION TO CONTRACTORS PROVIDED	CONFORMANT	OBJECTIVE EVIDENCE VALIDATED WITH SUBCONTRACTOR

CONFORMANCE SCALE:

CONFORMANT	Conformant: means that monitoring activities identified conformant results in accordance with P.A. and related documents.
MOSTLY CONFORMANT	Mostly Conformant: means that monitoring activities identified predominantly conformant results, with some minor exceptions.
PARTIALLY CONFORMANT	Partially Conformant: means that monitoring activities identified mixed results, with some conformant areas, as well as non-compliant areas
NOT CONFORMANT	Not Conformant: means that monitoring activities identified mostly non-conformant results or fully non-conformant results.

Table 4 - Monitoring Findings for RTM - SMS (cont'd):

4A	PROGRAM OVERSIGHT	MONITORING PLAN / PROCESS AVAILABLE	MOSTLY CONFORMANT	RTM 'QMS' AVAILABLE. 'SAFETY INTERACTION PROGRAM' RECENTLY IMPLEMENTED (2021) - NEEDS TO BE EXPANDED TO ENCOMPASS OPERATIONAL COMPLIANCE AND CRITICAL ACTIVITIES (CURRENTLY 'NO NAME NO BLAME' FOR BEHAVIORAL CHANGE).
4B		OVERSIGHT - SAFETY AND OPERATIONS	MOSTLY CONFORMANT	SEE ABOVE
4C		OVERSIGHT - MONITOR SMS PROGRAM COMPLIANCE	MOSTLY CONFORMANT	RTM PROVIDED REPORT CONFIRMING SMS AUDIT PERFORMED ON ALSTOM. HOWEVER ALSTOM SMS MISSING KEY ELEMENTS AND NEEDS TO BE ALIGNED WITH RTM REQUIREMENTS. NEED FOR STRUCTURED ONGOING MONITORING RELATIVE TO SMS (AS WELL AS SAFETY / OPERATIONS. SEE ABOVE).
5A	PROGRAM RECORDS	TRAINING RECORDS	CONFORMANT	RECORDS PROVIDED
5B		INVESTIGATION RECORDS	CONFORMANT	RECORDS PROVIDED
5C		RISK ASSESSMENT RECORDS	PARTIALLY CONFORMANT	RTM AND ALSTOM RISK ASSESSMENTS FOCUSED ALMOST EXCLUSIVELY ON OCCUPATIONAL HEALTH. UNTIL RECENTLY, MINIMAL EVIDENCE OF OPERATIONAL SAFETY RELATED RISK ASSESSMENT RECORDS IN ACCORDANCE WITH RTM RISK TRIGGERS. RTM PROVIDED DRAFT RISK REGISTER AND CONFIRMED THAT THIS IS AN AREA BEING DEVELOPED WHICH WILL COVER RAIL SAFETY / RISKS.
5D		OVERSIGHT RECORDS	MOSTLY CONFORMANT	ONE SMS AUDIT REPORT PROVIDED. SEE SECTION ON OVERSIGHT WHICH WILL GENERATE RELEVANT RECORDS.

As stated in Section 5.1.3, RMCO monitoring activities encompassed Alstom for purposes of reviewing SMS implementation at the subcontractor level, since this is a function of Direction and Oversight provided by RTM and OC Transpo.

In summary the monitoring activities identified the following for RTM relative to SMS:

- 18 elements monitored:
 - 10 conformant *
 - 6 mostly conformant
 - 2 partially conformant

Some key areas of opportunity identified are listed below:

- 1) RTM's Safety Management Plan was not updated since 2018 (needs to be updated annually);
- 2) Alstom's Safety Management Plan requires additions and alignment to be consistent with RTM's SMS and Direction provided by OC Transpo and RTM;
- 3) Objectives and Initiatives, for both RTM and Alstom, are focused almost exclusively on occupational health and safety, but need to encompass operational safety more broadly (e.g. accidents / incidents, rules compliance during LRV movements in MSF etc.);
- 4) Oversight / Direction needs to be strengthened to focus on key operational issues such as LRV movements in MSF, LRV critical connections etc. This will inherently address some of the above findings;
- 5) Risk assessments, for both RTM and Alstom, need to be expanded to cover operational safety and risk management; these are currently primarily focused on occupational health and safety. RTM has initiated the development of a risk register which is a positive step.

* The term 'conformant' is used rather than 'compliant' for RTM since their requirements are based on their Contract (i.e. Project Agreement) and Direction from OC Transpo, rather than City LRT Regulations.

6. Monitoring of Emergency Management Processes:

6.1 Monitoring Process - Emergency Management Processes:

6.1.1 Background on Emergency Management Processes:

The following information provides context on the meaning and significance of Emergency Management Processes (EMP).

Emergency management planning is important because this provides procedures and preparation for handling sudden or unexpected situations. EMP enables the effective response to emergencies with the following objectives:

- Prevent fatalities and injuries;
- Reduce damage to property and equipment;
- Protect the environment and the community;
- Enable for the safe and expedient resumption of normal operations.

OC Transpo's 'Transit Services' Emergency Management Plan' is a key document which states that its intent is to *“support the City of Ottawa by ensuring that systems are in place that will ensure Transit's capacity to respond to City emergencies in an efficient and effective manner”*.

In this context, the 'Transit Services Emergency Management Plan' uses the following principles:

- *“Takes an all-hazard approach and is always in effect as elements can be employed on a flexible and scalable basis to provide effective mitigation and response efforts in the Ottawa area;*
- *Is a function-based Plan that addresses how Transit will fulfil its responsibilities in an emergency, namely the Transportation of People, as identified in the City of Ottawa's Emergency Management Plan; and,*
- *Is a dynamic document and any changes to the departmental service delivery model will be reflected within the regular maintenance regime.”*

Further, to support effective emergency response the City uses the Incident Command System (ICS), an established emergency management process used worldwide. This enables the effective engagement / coordination of internal and external stakeholders, including governmental agencies, fire services, and police.

As well, OC Transpo has a number of specific work instructions which have been developed to respond effectively to emergency scenarios such as fire and smoke incidents, external factors such as bomb threats, and events which may require train evacuations.

A review of the Project Agreement (i.e. P.A.), which constitutes the Contract between the City and RTG, shows that specific requirements for an Emergency Response Plan are detailed in Article 11 of Schedule 15-2 Part 1. It is the RMCO's understanding that the maintenance obligations in the P.A. have been dropped down (i.e. conveyed) from RTG to RTM without modification. Therefore an Emergency Response Plan is one of the requirements expected from RTM.

As a further point, this monitoring activity does not cover the 'Security Management System' Program, which is a designated Program identified in the City LRT Regulations, because this will be monitored separately by the RMCO.

6.1.2 Responsible Parties / Contractors:

Please refer to Section 5.1.2 of this Report which describes the responsible parties and contractors involved in this monitoring segment.

6.1.3 Monitoring Procedure

Please refer to Section 5.1.3 of this Report which describes the monitoring procedure as well as the types of documents and Records requested / reviewed.

6.2 Monitoring Findings - Emergency Management Processes:

6.2.1 Monitoring Findings for OC Transpo - EMP:

The regulatory compliance Findings for OC Transpo are summarized in the Table below:

Table 5 – Monitoring Findings for OC Transpo - EMP:

ITEM	REGULATORY REFERENCE	ELEMENT	OC TRANSPO	NOTES
1A	PROGRAM DEVELOPMENT / ADOPTION	PROGRAM DEVELOPMENT / ADOPTION	COMPLIANT	SEVERAL DOCUMENTS ADOPTED: i) EMERGENCY MANAGEMENT PLAN; ii) TVA iii) SeMS; iv) SMS; v) WORK INSTRUCTIONS vi) FIRE SAFETY PLANS etc.
2A	PROGRAM IMPLEMENTATION	COMMUNICATION / TRAINING	COMPLIANT	SEVERAL SPECIFIC WORK INSTRUCTIONS DEVELOPED. TRAINING DELIVERED.
2C		DRILLS / READINESS PLAN	COMPLIANT	DRILLS PERFORMED INTERNALLY AND WITH CONTRACTORS.
3A	PROGRAM DIRECTION	INTERNAL DIRECTION PROVIDED	COMPLIANT	INTERNAL DIRECTION PROVIDED THROUGH COMMUNICATION, INSTRUCTIONS AND TRAINING.
3B		DIRECTION TO CONTRACTORS PROVIDED	COMPLIANT	PROJECT AGREEMENT SCHED. 15.2 PART 1 ARTICLE 11 INCLUDES SPECIFIC REQUIREMENTS FOR EMERGENCY RESPONSE PLAN. DRAFT EMP SUBMITTED BY RTG IN 2016.
4A	PROGRAM OVERSIGHT / MONITORING	INTERNAL OVERSIGHT	COMPLIANT	EVALUATIONS OF DRILLS, INCIDENT RESPONSE, DEBRIEFS etc. MONITORING OF OCT EMP TRAINING DELIVERY.
4B		OVERSIGHT - CONTRACTORS	MOSTLY COMPLIANT	1) OBJECTIVE EVIDENCE PROVIDED OF REVIEWS OF DRILLS, INCIDENTS, DEBRIEFS etc. 2) OC TRANPO OVERSIGHT PLAN CAN BE ENHANCED WITH SPECIFIC MONITORING OF CONTRACTOR EMP (I.E. DOES CONTRACTOR HAVE AN EMP? IS IT IMPLEMENTED ? ETC.)
5A	PROGRAM RECORDS	IMPLEMENTATION RECORDS (TRAINING)	COMPLIANT	TRAINING RECORDS PROVIDED.
5B		READINESS RECORDS (DRILLS)	COMPLIANT	RECORDS OF DRILLS AND READINESS ACTIVITIES PROVIDED
5C		MONITORING / OVERSIGHT RECORDS (INTERNAL AND CONTRACTORS MONITORING)	COMPLIANT	EVIDENCE OF REVIEWS OF DRILLS, INCIDENTS, DEBRIEFS. ENCOMPASSING INTERNAL OCT OPERATIONS AS WELL AS CONTRACTORS.

Please refer to Section 5.2.1 for a description of the compliance scale.

The above Table shows strong compliance results for OC Transpo with 9 of the 10 elements monitored being compliant and 1 mostly compliant.

The area of Oversight / Monitoring is identified as ‘mostly compliant’ for OC Transpo for the following reasons:

- Records were provided which confirm that OC Transpo is monitoring several aspects of the contractor EMP, such as drills and evacuations;
- However, there were several gaps identified with the contractor’s Emergency Response Plan (see Section below) which indicate that OC Transpo can strengthen their Oversight / Monitoring activities to cover key requirements for contractors, such as:
 - ✓ Does the contractor have an Emergency Response Plan (ERP)?
 - ✓ Is the contractor ERP consistent with the City requirements identified in the P.A.?
 - ✓ Has the contractor implemented its ERP?
 - ✓ Has the contractor provided adequate Direction to its subcontractors relative the ERP?

It is to be noted that the above Finding was discussed with OC Transpo subsequent to this monitoring segment – as such OC Transpo has already taken actions to enhance their 2022 Oversight Plan relative to contractors for the ERP.

6.2.2 Monitoring Findings for RTM – Emergency Management Processes:

The Findings for RTM are summarized in the Table below:

Table 6 - Monitoring Findings for RTM - EMP:

ITEM	PROGRAM ELEMENT	RTM	NOTES
1A	PROGRAM DEVELOPMENT / ADOPTION DEVELOPMENT / ADOPTION	PARTIALLY CONFORMANT	FIRE SAFETY PLAN IMPLEMENTED. YCC EMERGENCY RESPONSE PLAN DEVELOPED DEC. 2021 AND IS BEING IMPLEMENTED IN JAN. 2022. RTM ERP BEING EXPANDED TO INCLUDE P.A. REQUIREMENTS.
2A	PROGRAM IMPLEMENTATION IMPLEMENTATION - COMMUNICATION / TRAINING	MOSTLY CONFORMANT	EMP TRAINING MATERIAL AVAILABLE BUT NEEDS TO BE STRENGTHENED WITH KEY INFORMATION SUCH AS EVACUATION ROUTES, ASSEMBLY POINTS ETC.
2C	IMPLEMENTATION DRILLS / READINESS PLAN	CONFORMANT	READINESS ACTIVITIES IN PLACE
3A	PROGRAM DIRECTION DIRECTION - INTERNAL	MOSTLY CONFORMANT	SOME EMP INTERNAL COMMUNICATION AVAILABLE BUT CAN BE STRENGTHENED.
3B	DIRECTION - SUBCONTRACTORS	PARTIALLY CONFORMANT	CONTRACTOR ORIENTATION TRAINING PROVIDES LIMITED DIRECTION TO SUCH EMPLOYEES. RTM FORMALIZING PROCESS TO PROVIDE DIRECTION TO THEIR CONTRACTORS
4A	PROGRAM OVERSIGHT / MONITORING OVERSIGHT - INTERNAL	CONFORMANT	SEVERAL TYPES OF INSPECTIONS AND VERIFICATIONS PROVIDED FOR FIRE SAFETY PLAN
4B	OVERSIGHT - SUBCONTRACTORS	MOSTLY CONFORMANT	FIRE SAFETY PLAN INSPECTIONS / VERIFICATIONS ENCOMPASS CONTRACTORS. EMP OVERSIGHT CAN BE STRENGTHENED FOLLOWING FORMALIZATION OF DIRECTION (ABOVE).
5A	PROGRAM RECORDS RECORDS - IMPLEMENTATION (TRAINING)	CONFORMANT	TRAINING RECORDS PROVIDED
5B	RECORDS - IMPLEMENTATION READINESS	CONFORMANT	RECORDS OF DRILLS PROVIDED.
5C	RECORDS - MONITORING / OVERSIGHT	MOSTLY CONFORMANT	EMP MONITORING / OVERSIGHT RECORDS TO FOLLOW FORMALIZATION OF DIRECTION (ABOVE).

Please refer to Section 5.2.2 for a description of the conformance scale

In summary the monitoring activities identified the following for RTM relative to EMP:

- 10 elements monitored:
 - 4 conformant *
 - 4 mostly conformant
 - 2 partially conformant

Some key areas of opportunity for RTM are identified below:

- Certain aspects of emergency response planning are in place, such as a ‘Fire Safety Plan’ specific to the MSF. However, a formal Emergency Response Plan was not available at the time the monitoring started (although this is a specific requirement in Project Agreement);
- RTM recently developed a “YCC Emergency Response Plan” – this was finalized in January 2022 and is in the process of being implemented. Moreover, this Plan needs to be expanded to meet the requirements of the P.A..
- Direction / Oversight to contractors is provided through orientation training of such employees. RTM is currently reviewing their processes to ensure that applicable EMP requirements are conveyed to their subcontractors.
- Training material needs to be strengthened with key information such as evacuation routes, assembly points etc.

* Similarly to Section 5.2.2, we note the use of the term ‘conformant’ rather than ‘compliant’ for RTM since their requirements are based on their Contract (i.e. Project Agreement) and Direction from OC Transpo, rather than City LRT Regulations.

7. Remedial Actions :

As explained in Section 3 of this Report, the RMCO monitoring process involves the ongoing review of findings with stakeholders for two key reasons:

- Provide an opportunity for stakeholders to provide objective evidence which contributes to the accuracy and completeness of preliminary findings;
- Provides the ability to develop remedial actions expediently.

At this point, it is important to note that the RMCO's mandate does not encompass the resolution of remedial actions with contractors since the City (i.e. OC Transpo) is responsible to engage its contractors to review findings, request remedial actions and follow-up on their resolution.

In line with the above, the RMCO continues to work closely with OC Transpo to provide detailed information on findings, and to engage contractors in an effort to clarify findings and obtain appropriate remedial actions which address findings. The remedial actions requested by the City are generally aligned with the contractual obligations of RTM and Alstom.

Further, in an effort to support structured and timely follow-up, a Table of remedial actions is updated and reviewed periodically with stakeholders – this is presented in Annex 5. This Table identifies findings, the corresponding remedial actions, the target close date as well as the status.

Remedial actions were the subject of several meetings between the RMCO, OC Transpo and RTM in 2021, and such meetings will continue moving forward. The intent is to continue reviewing remedial actions with stakeholders periodically to expedite the resolution of Findings with appropriate remedial actions, and to selectively monitor their progress and implementation.

It is to be noted that the Table in Annex 5 provides remedial actions for contractors only - remedial actions relative to OC Transpo have been covered in Sections 5 and 6 of this report.

8. Monitoring Focus in 2022:

In accordance with the risk-based approach outlined in Section 3 of this Report, as well as City LRT Regulations, the RMCO will develop monitoring plans to identify areas to be monitored in 2022.

The risk-based selection process will review the risk inputs identified in Section 3.2, but will also consider areas which have not been monitored thus far, thereby supporting adequate monitoring breadth and providing an increasing picture of compliance spanning the six key risk areas identified in Section 3.3.

A monitoring plan will be developed and communicated early during the second quarter of 2022 to provide visibility on the areas to be monitored, as well as the corresponding timelines.

During 2022, the RMCO will continue to perform regulatory monitoring using a structured approach as described in Section 3 of this Report.

Context / Disclaimers

This Report, including any enclosures, attachments and annexes, has been prepared for the exclusive use of the City of Ottawa solely for the purpose for which it is provided under the Terms of the Contract executed March 2nd, 2018 between SAB Vanguard Consulting Inc. and the City of Ottawa, as well as the supplemental information in Annexes 2 and 3 of this Report.

Any use, decisions or actions taken as a result of this work shall be the responsibility of the parties directly involved in the decisions or actions.

ANNEXES

ANNEX 1

OTTAWA LIGHT RAIL TRANSIT (OLRT) – REGULATORY BACKGROUND

This Annex provides background information on the Ottawa Light Rail Transit (OLRT) project which is considered in law to be a federal rail transportation undertaking:

On July 14th, 2011, Ottawa City Council approved the implementation plan for the Ottawa Light Rail Transit (OLRT) project which is considered in law to be a federal rail transportation undertaking.

Since Federal legislation was not developed for application to municipal light rail systems, the City of Ottawa was provided with the authority to regulate its light rail transit system. This was formalized with a **Delegation Agreement** between the Minister of Transport and the City of Ottawa on October 1st, 2011, which provides authority to the City to regulate any matters covered by Part III and IV of the *Canada Transportation Act* as well as the *Railway Safety Act*. This delegated authority applies only to the Confederation Line and does not extend to other OC Transpo operations (i.e. Trillium Line, Bus, Para).

In accordance with the Delegation Agreement, and By-Law No. 2015 – 301, the position of 'Light Rail Regulatory Monitor and Compliance Officer' (i.e. 'Regulatory Monitor and Compliance Officer – RMCO', or 'Compliance Officer') was created to monitor and report on compliance with the Ottawa Light Rail Transit (OLRT) Regulations (i.e. City LRT Regulations); the duties and responsibilities of this position are shown in Annex 2. The Compliance Officer is independent of the Transportation Services department and reports directly to the City Manager and City Council.

The Compliance Officer is tasked with specific responsibilities as follows:

1. Development of a **multi-year Work Plan** for monitoring compliance relative to City LRT Regulations as they relate to the safety and security of the system;
2. Perform ongoing compliance monitoring in accordance with the RMCO mandate and Work Plan;
3. Prepare **Annual Compliance Reports** that describe the specific areas of the regulatory framework that were reviewed during the past year; report on the work that was undertaken to verify compliance in these areas; identify areas where compliance with City LRT Regulations has been fully achieved; and report on areas where compliance has not been fully achieved;
4. **Quarterly monitoring** and reporting of any potential regulatory compliance gaps to the City Manager, in order for City staff to correct any compliance deficiencies.

ANNEX 2

RMCO (REGULATORY MONITOR AND COMPLIANCE OFFICER)- DUTIES AND RESPONSIBILITIES

The following schedule was prepared by the City of Ottawa to describe the duties and responsibilities of the RMCO. It is part of the Contract signed between the City of Ottawa and SAB Vanguard Consulting Inc. on March 2nd, 2018.

SCHEDULE "A"

STATEMENT OF DUTIES AND RESPONSIBILITIES

The Light Rail Regulatory Monitor and Compliance Officer (“Compliance Officer”) is responsible for reviewing, investigating, monitoring and reporting on compliance with the Ottawa Light Rail Transit (OLRT) regulations.

The Compliance Officer will be independent of the Transportation Services Department and will report directly to the City Manager and City Council.

The Compliance Officer will be responsible for the development of a multi-year workplan for monitoring compliance with the OLRT regulations as it relates to the safety and security of the system. The workplan will detail the strategy for the selection of regulations, rules, and procedures to be monitored, the overall methodology to undertake monitoring and reporting, the specific regulatory areas to be monitored, and the timeframes for undertaking the work. The multi-year workplan will be submitted to both the Transit Commission and Ottawa City Council. Prior to developing the multi-year workplan, the Compliance Officer will be required to review and understand the City’s comprehensive regulatory framework.

The role is expected to involve monitoring regulatory compliance through site visits, interviews with City staff and contractors, and review of relevant documentation, records, and performance reporting. These tasks are expected to include but not be limited to:

- Reviewing regulations, policies and procedures;
- Conducting interviews and meetings with field staff and senior management;
- Conducting field observations of operations, maintenance and/or safety management activities;
- Reviewing technical submissions;
- Analyzing data and performance records;
- Assessing compliance with regulations;
- Providing timely and accurate advice to staff to consider improvements to the regulations and/or to the implementation and enforcement of regulations when required; and,
- Monitoring implementation of staff recommended improvements, developments and new initiatives in respect to the OLRT Regulations.

The Compliance Officer will prepare an Annual Compliance Report that will describe the specific areas of the regulatory framework that were reviewed during the past year; report on the work that was undertaken to verify compliance in these areas; identify areas where compliance with Regulations has been fully achieved; and report on areas where compliance has not been fully achieved. The Annual Compliance Report will also include any revisions to the multi-year workplan.

After preparing a draft of the report and taking input from the City Manager and affected persons as determined necessary, the Annual Compliance Report will be submitted annually to the City's Transit Commission and City Council. The City Manager will prepare a Management Response Companion Report that will be considered by Transit Commission and Council alongside the Annual Compliance Report.

The Compliance Officer will also be responsible for quarterly monitoring and reporting of any potential regulatory compliance gaps to the City Manager, in order for City staff to correct any compliance deficiencies.

ANNEX 3

RMCO (REGULATORY MONITOR AND COMPLIANCE OFFICER)- SUPPLEMENTAL INFORMATION RELATIVE TO SCOPE / RESPONSIBILITIES

In accordance with the Delegation Agreement referenced in Annex 1, and the report submitted to City Council on September 23rd, 2015, the duties and responsibilities of the RMCO are described in Annex 2.

In addition, the following information is provided to further clarify the scope and responsibilities of the RMCO:

- The RMCO is responsible for regulatory compliance monitoring for the Confederation Line after revenue service.
- This mandate covers the Confederation Line exclusively and any expansions or extensions to this transit system or other light rail systems. This mandate does **not** cover commuter rail operations such as the Capital / Trillium railway, bus transit operations, or Para Transpo operations.
- The RMCO regulatory compliance monitoring primarily relates to City LRT Regulations adopted by the City through bylaw or by other means, including standards and requirements imposed by Contract. Specifically, the basis for RMCO regulatory monitoring is the 'City Manager Designation' dated 12 February 2021 (refer to Annex 4 of this Report).
- The RMCO was **not** involved in the construction, implementation, independent safety certification or revenue service availability activities for the Confederation Line.
- The RMCO has no duty or authority to assess the adequacy, sufficiency, or effectiveness of the City LRT Regulations, Programs or Confederation Line components / technology.
- RMCO activities consist of performing regulatory compliance monitoring rather than audits. This implies that the assessment of risks, controls, governance, etc. are **not** part of the RMCO monitoring scope.
- The RMCO monitors compliance relative to City LRT Regulations / Programs on a progressive basis according to monitoring schedules and provides quarterly updates to the City Manager as well as Annual Compliance Reports to City Council and the Transit Commission. This provides a progressive assessment of compliance.
- The development and follow-up for remedial actions required as a result of RMCO monitoring findings are the responsibility of the City. This applies to findings relative to the City's departments (e.g. OC Transpo) as well as contractors.

ANNEX 4

EXCERPTS FROM CITY LRT REGULATIONS– APPENDIX B OF ‘CITY MANAGER DESIGNATION’ DATED FEB. 12, 2021

The following excerpt from the ‘City Manager Designation’ is provided because of its relevance to the regulatory monitoring activities performed by the RMCO.

APPENDIX B – MASTER LIST OF LRT REGULATIONS

UPDATED AS OF: February 11, 2021

Introduction: The City’s delegated self –regulatory regime is based fundamentally on:

- (a) City imposed obligations on various City Departments to adopt and manage specified programs, plans, procedures and practices in relation to LRT Railways, currently Line 1 - Confederation Line (collectively “**Programs**”); and
- (b) the City’s reliance on various oversight mechanisms, procedures and practices that the City has adopted to manage or direct those persons who are responsible for complying with the requirements of these Programs.

1. OC Transpo Programs

1.1 LRT Regulation: OC Transpo shall generally follow and apply Good Industry Practice in:

- (a) approving, adopting, confirming, or otherwise implementing, and overseeing the administration of, the Programs described in paragraph 1.3 below (the “**OCT Programs**”);
- (b) providing the necessary oversight and direction to OC Transpo employees, Contractors and other persons over whom it has lawful authority to ensure timely compliance with the requirements of the OCT Programs; and
- (c) monitoring, maintaining records, providing access to records and responding to enquiries from the RMCO and reporting to the City Manager, in relation to the compliance with the OCT Programs by those who are responsible for compliance;

For the purposes of subparagraph (b) above, to the extent relevant, OC Transpo should generally require applicable Contractors (and their applicable Subcontractors) to:

- (i) adopt and maintain in place plans, programs, procedures and practices that are substantially consistent with the OCT Programs to the extent applicable to the Contractor’s scope of required work in relation to the LRT Railway; and
- (ii) maintain and provide access to records to, and to respond to enquiries from, the RMCO, OCT Director and/or the City Manager in relation to compliance with the foregoing plans, programs, procedures and practices.

1.2 Reference Information: The OCT Programs, and the Supplementary Documents that provide additional background reference and guidance information relevant to the OCT Programs, are available from the OCT Director (or designate) on a demonstrated, as needed basis.

1.3 OCT Programs: include the:

- (a) Safety Management System Plan (SMS)
- (b) Security Management System Plan (SeMS)
- (c) Threat and Vulnerability Assessment System (T&VA)
- (d) Standard Operating Procedures (SOP)
- (e) LRT Operating Rules and Procedures
- (f) Maintenance and Rehabilitation Plan
- (g) Light Rail Vehicles – Maintenance Plan
- (h) Rates and Terms of Service
- (i) Accident and Safety Incidents – Reporting Requirements
- (j) Mobility Requirements (aligned with TC requirements); and
- (k) Other Programs - that the City Manager may direct OC Transpo to adopt from time to time.

Note: *for clarity, the Federal Government has retained primary regulatory authority and responsibility over mobility matters in relation to LRT Railways. Accordingly, as per (j) above OCT has adopted a program and practice that requires compliance with these federal requirements.*

ANNEX 5

RISK-BASED APPROACH FOR MONITORING

Risk-Based Selection of Areas / Regulations to Monitor:

As described in Section 3 of this Report, a number of factors are considered in the risk-based selection of Regulations / Programs to be monitored - this is summarized below:

- 1) Research relative to hazards and risks for commuter operations (refer to Work Plan);
- 2) Research and analysis relative to incident / accident data for commuter operations (refer to Work Plan);
- 3) Consideration for Confederation Line characteristics (e.g. technology and infrastructure) as well as Regulations and Program documents;
- 4) Consideration for Confederation Line experience (e.g. incidents / accidents, service issues etc.);
- 5) Consideration for internal and external oversight activities (e.g. RMCO monitoring, OC Transpo oversight) as well as audits.

This approach is dynamic since key inputs such as those identified in items 4 and 5 (above) are reviewed periodically to better understand risk and to make appropriate selections for Programs to monitor. In this manner, such inputs are considered in the ongoing risk-based selection of Programs to be monitored.

Overview of Potential Hazards / Risks:

Safety and security risks can result from multiple sources (hazards), each with their respective potential probability (i.e. likelihood) and consequence (i.e. severity).

The multi-year Work Plan presented research performed on potential hazards and accident / incident causes for commuter operations. This enabled the identification of the following broad hazard / risk categories:

- Human Factors
- Security Management System and Emergency Procedures
- Safety Management System
- Rolling stock inspection / maintenance (i.e. light rail vehicles)
- Track inspection / maintenance
- Other equipment / infrastructure, environmental and other.

ANNEX 6 - REMEDIAL ACTIONS STATUS

RMCO MONITORING - SUMMARY OF MONITORING FINDINGS AND REMEDIAL ACTIONS STATUS

- Notes:** 1) RMCO monitoring scope is focused on assessing compliance relative to City LRT Regulations.
 2) Contractors are required to implement Programs in accordance with their Contractual Agreements and Direction from OC Transpo.
 3) The Table below provides RMCO monitoring Findings for Contractors since revenue service inception, corresponding remedial actions and status.
 4) Please refer to the legend (below Table) for further explanations.

Finding #	Monitoring Period	Finding Description	Relevant Regulatory Document(s)	Remedial Action - Update (Based on Latest Information Provided by RTM)	Status / Next Steps (1 March 2022)
<u>1</u>	Q4 2019	2019B Human Factors - Training: RTM / Alstom to strengthen process for managing training actions for employees absent for extended periods of time	1) Electric Light Rail Operating Rules (OTRC-S100-00-RUL) Section 1.5; 2) Safety Management System (OCT-S230-03-PROG) Section 4.	The following documents were updated: - HRM-SV-OTT-MAN-001 Training Competency Plan Rev D updated to capture this requirement - HRM-SV-OTT-MAN-001 Training Competency Plan Rev D copy provided to RTM as evidence - HRM-SV-OTT-MAN-001 Training Competency Plan Rev D executed and fully deployed. Item can be closed at the discretion of RMCO	<u>CLOSED</u>
<u>2</u>	Q1-Q2 2020	2020A Track Inspections (Segment 1/2, Finding A1) : Alstom missing high temperature inspection criteria for mainline (needs to be added consistent with Maintenance and Rehabilitation Plan).	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 (Section 16.2).	<u>DEC. 15 / 2021</u> : Received updated document OTT-GWY-MTN30-WMS-004 Version D dated Dec. 13, 2021. Contains criteria for mainline inspections relative to high temperatures. <u>JAN. 14 / 2022</u> : Received signed / approved document OTT-GWY-MTN30-WMS-004 Version D dated Dec. 13, 2021.	<u>CLOSED</u>
<u>3</u>	Q1-Q2 2020	2020B Track Inspections (Segment 1/2, Finding A1): Missing time frame for rapid temperature change relative to mainline inspections (consistent with Maintenance and Rehabilitation Plan)	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 (Section 16.2) and Supplemental document "OLRT Maintenance and Rehabilitation - Confederation Line Track Inspection Rules (RTM-ENG-RUL-132)" Section 5.2.6.	<u>DEC. 15 / 2021</u> : Received updated document OTT-GWY-MTN30-WMS-004 Version D dated Dec 13, 2021. Contains criteria for mainline inspections following rapid temperature changes. <u>JAN. 14 / 2022</u> : Received signed / approved document OTT-GWY-MTN30-WMS-004 Version D dated Dec. 13, 2021.	<u>CLOSED</u>
<u>4</u>	Q1-Q2 2020	2020C Track Inspections (Segment 1/2, Finding A1) : Alstom to add combined rail wear criteria (consistent with Maintenance and Rehabilitation Plan and other documents).	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 (Section 16.2) and Supplemental document "OLRT Maintenance and Rehabilitation - Confederation Line Track Inspection Rules (RTM-ENG-RUL-132)" Section 11.5.	<u>DEC. 15 / 2021</u> : Received updated documents OTT-GWY-MTN10-WMS-002, 3, 4, 15 and 16 which contain combined rail wear criteria .	<u>CLOSED</u>
<u>5</u>	Q1-Q2 2020	2020D Track Inspections (Segment 1/2, Finding A1) : Alstom to review their documents to achieve consistency with RTM document (RTM-ENG-RUL- 132).	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 (Section 16.2) and Supplemental document "OLRT Maintenance and Rehabilitation - Confederation Line Track Inspection Rules (RTM-ENG-RUL-132)".	<u>DEC. 15 / 2021</u> : Received updated documents OTT-GWY-MTN10-WMS-002, 3, 4, 15 and 16 which address the issues identified in items 2020A, B and C.	<u>CLOSED</u>
<u>6</u>	Q1-Q2 2020	2020E Track Inspections (Segment 1/2, Finding B2): RTM / Alstom to strengthen information systems to flag planned inspections which are not completed on time.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Sections 14, 16.2.	Actions Taken: - Daily Ops meetings in effect for infra; - Daily Ops meetings evidence extract sent to RTM; - Infra KPIs discussed and shared during daily meetings. Evidence of topics and KPIs/extract shared with RTM	<u>CLOSED</u>
<u>7</u>	Q1-Q2 2020	2020F Track Inspections (Segment 1/2, Finding C3) : Alstom to develop / implement process for supervisor oversight .	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Sections 4, 12, 16.2.	Actions Taken: - 3P audits are in effect - 3P audit schedule launched - 3P audits and schedule extracts provided to RTM	<u>CLOSED</u>
<u>8</u>	Q1-Q2 2020	2020G Track Inspections (Segment 1/2, Findings D1-D8): RTM / Alstom to develop process to strengthen execution of inspections . This action will be supported with action 2020E.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 and Supplemental document "OLRT Maintenance and Rehabilitation - Confederation Line Track Inspection Rules (RTM-ENG-RUL-132)".	Actions Taken: Daily maintenance review meeting implemented to highlight deferred maintenance. Defect / Concession Management process (OTT-GNR-ENG10-PRO-001 created to detail execution of inspections.	<u>CLOSED</u>
<u>9</u>	Q1-Q2 2020	2020H Track Repairs (Segment 1/2, Finding D10): RTM / Alstom to develop process to strengthen timeliness of repairs .	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 and Supplemental document OLRT Maintenance and Rehabilitation - Confederation Line Track Inspection Rules (RTM-ENG-RUL-132).	Actions Taken: Defect / Concession Management process (OTT-GNR-ENG10-PRO-001 created to detail required reviews of defects and associated priorities and repair timescales. Daily and weekly review meetings implemented to review status of open defects.	<u>CLOSED</u>
<u>10</u>	Q3-Q4 2020	2020I (Segment 3/4, Finding A2) - LRV Scheduled Inspections . RTM / Alstom to determine common criteria for excess mileage and disposition.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 16.1 and Light Rail Vehicle Safety and Inspection Rules (RTM-ENG-RUL-172) Section 8.	<u>DEC. 15 / 2021</u> : Update from RTM reads as follows: - RTM to update the Maintenance & Rehabilitation Plan to reflect that RTM defers to the subcontractor responsible for the vehicle maintenance team and asks that they follow OEM manual for recommended tolerances for the vehicle. <u>23/2/2022</u> : Reviewed by OC Transpo with the following clarification "The tolerance is 5% for the 5K, 10K, 25k and 50K exams. It is 10% tolerance for all of the higher mileage exams like the 100K. If the tolerance is exceeded, the LRV is not to go into revenue service or enter the mainline."	<u>CLOSED</u>
<u>11</u>	Q3-Q4 2020	2020J (Segment 3/4, Finding A3) - LRV Extreme Weather Provisions . RTM / Alstom to determine appropriate measures for extreme weather.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 16.1 and Light Rail Vehicle Safety and Inspection Rules (RTM-ENG-RUL-172) Section 8.	Process implemented with RTM and the City.	<u>CLOSED</u>

<u>12</u>	Q3-Q4 2020	2020K (Segment 3/4, Finding A4) - Catenary Extreme Weather Provisions. RTM / Alstom to determine appropriate measures for extreme weather.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 16.3	Process implemented with RTM and the City.	CLOSED
<u>13</u>	Q3-Q4 2020	2020L (Segment 3/4, Finding C1) - Training Delivery for Power Technicians. Alstom to develop process to ensure PT's have received prescribed training when they work.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 9	Train-the-trainer course conducted and enhanced tracking implemented.	CLOSED
<u>14</u>	Q3-Q4 2020	2020M (Segment 3/4, Finding C2) - Training Delivery for Maintenance Vehicle Technicians. Alstom to develop process to ensure MVT's have received prescribed training when they work.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 9	Procedure defined: HRM-SV-OTT-MAN-001 Training and Competency Plan. Training matrix updated.	CLOSED
<u>15</u>	Q3-Q4 2020	2020N (Segment 3/4, Finding D1) - LRV Scheduled Inspections. Alstom to develop and implement process to ensure that LRV's obtain scheduled inspections within prescribed mileages / tolerances, and that appropriate dispositions are taken when such is exceeded.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 16.1 and Light Rail Vehicle Safety and Inspection Rules (RTM-ENG-RUL-172) Section 8.	Updates from RTM reads as follows: - 14/12/2021: RTM continues to wait for a response from Alstom. The new deadline is 14/1/2022 - 11/1/2022: RTM and Alstom will be meeting to discuss the Defect and Concession Management Plan	STATUS 2020N: OPEN
<u>16</u>	Q3-Q4 2020	2020 O (Segment 3/4, Finding D3) - Catenary Scheduled Inspections. Alstom to develop and implement process to ensure that Catenary scheduled inspections are performed within prescribed time frames.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 12 and 16.3	Update from RTM reads as follows: - 16/11/2021- The task is overdue. RTM will update the M&R Plan in Q1 2022 to reflect OCS inspections at 6 Month intervals. New deadline is 14/03/2022. - 25/2/2022: Reviewed by OC Transpo with the following clarification "Alstom Asset Management Plan 2021: indicates that Maintenance for OCS will be performed every 2 months, 6 months and annual. The OCS Maintenance Manual (MVA Power Inc.): Flexible Catenary is to be inspected 2 times per year in Autumn and Spring	CLOSED
<u>17</u>	Q3-Q4 2020	2020P (Segment 3/4, Finding D4) - Catenary Work Orders. Catenary Work Orders for 6M and 1Y have been expanded to be consistent with 1M and 3M documents. Such documents need to be implemented.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 12 and 16.3	The task lists for 6M and 1Y have been updated.	CLOSED
<u>18</u>	Q3-Q4 2020	2020Q (Segment 3/4, Finding D5) - LRV Repairs / Records. Alstom to review process for LRV Repairs and Records to ensure completeness and consistency.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 16.1 and Light Rail Vehicle Safety and Inspection Rules (RTM-ENG-RUL-172) Section 8, 10.	Enhanced monitoring of repairs implemented.	CLOSED
<u>19</u>	Q3-Q4 2020	2020R (Segment 3/4, Finding D6) - Catenary Repairs / Records. Alstom to review process for Catenary Repairs and Records to ensure completeness and consistency.	Ottawa Light Rail Transit Maintenance and Rehabilitation Plan - RTM-MC-PLN-042 Section 12 and 16.3	Update from RTM reads as follows: - 16/11/2021- The task is overdue. Alstom to update process to ensure work orders are documented for defect raised. New deadline is 14/03/2022. -12/01/2022 - Alstom will develop a toolbox talk for technicians to document defects observed during PM's.	STATUS 2020R: OPEN
<u>20</u>	Q2-Q3 2021	2021-1B SMS Program Manual Updates and Alignment with OCT Manual	Safety Management System (OCT-S230-03-PROG) Section 1.2.	Part 1 - RTM: - Dec. 15/ 21 Update: - RTM Committed to "update the Safety Management Plan which would further describe how RTM will achieve safety compliance by the end of 2021 (RTM-SMS-MAN-704_Safety Management System_Rev 0)	CLOSED
				Part 2 - Alstom: - Dec. 15/ 21 Update: - Alstom to update their Project Railway Safety Management Plan (RSA-SV-OTT-MAN-001) to align with RTM's document. RTM sent updated SMS to Alstom 16/11/2021 with instructions to update railway safety mag plan. - 03/02/2022 - All SMS documents are being tracked (by RTM) through the return to service plan	STATUS 2021-1B Part 2 (Alstom SMS Manual Update) = OPEN. RTM reported that task is 25% Complete
<u>21</u>	Q2-Q3 2021	2021-2D Objectives and Initiatives	Safety Management System (OCT-S230-03-PROG) Section 1.3.	Part 1 - RTM: -Dec. 15/ 21 Update: - RTM SMS identifies 2 rail safety metrics for 2022: EROR Rule Violations -5% from 2020 & Rail-Related Incidents -5% from 2020. Part 2 - Alstom: 15/02/2022 - Received Alstom Quality Railway Safety Ecodesign	CLOSED
					STATUS 2021-2D Part 2 (Alstom SMS Objectives / Initiatives) = OPEN (under review).

22	Q2-Q3 2021	2021-2G Risk Assessment Process	Safety Management System (OCT-S230-03-PROG) Section 2.4.	<p>Part 1 - RTM: -Dec. 15/ 21: "SMS Implementation Plan that forms part of the RTS plan, RTMs Hazard Identification and Risk Assessment procedure is due to be completed on 01/15/2022. - RTM updating their Hazard Identification and Risk Assessment procedure, this will be communicated to Alstom with the expectation that their internal risk assessment procedure and documentation align with RTM"</p> <p>Part 2 - Alstom: -Dec. 15/ 21 Update: - Alstom risk assessment update pending Direction from RTM 01/15/2022. -Feb. 15, 2022 reads "New deadline 14/03/2022".</p>	<p>CLOSED</p> <p>STATUS 2021-2G Part 2 (Alstom Risk Assessment Process) = OPEN.</p>
23	Q2-Q3 2021	2021-4A / 4B / 4C Oversight / Monitoring Plan / Process	Safety Management System (OCT-S230-03-PROG) Section 3.	<p>Part 1 - RTM: -Dec. 15/ 21 Update: - As per the SMS implementation Plan that forms part of the RTS plan, ... RTM's Safety Assurance Procedure that will address the ongoing monitoring of Alstom's SMS program, that forms part of the RTS plan, is due to be completed on 01/15/2022. Alstom will be required to create a Safety Assurance document once RTM produces theirs. -03/02/2022 - RTM's Hazard Identification and Risk Assessment procedure is being tracked through the return to service plan. Deadline is 28/2/2022</p> <p>Part 2 - Alstom: - Dec. 15/ 21 Update: - Alstom oversight / monitoring process update pending Direction from RTM 01/15/2022. - Jan 14, 2022 reads: "New Deadline is 28/2/2022"</p>	<p>STATUS 2021-4A/B/C Part 1 (RTM Oversight / Monitoring Process) = OPEN.</p> <p>STATUS 2021-4A/B/C Part 2 (Alstom Oversight / Monitoring Process) = OPEN.</p>
24	Q2-Q3 2021	2021-5C Risk Assessment Records	Safety Management System (OCT-S230-03-PROG) Section 1.2.	<p>Part 1 - RTM: - Dec. 15/ 21 Update: - As per the SMS Implementation Plan that forms part of the RTS plan, RTMs Hazard Identification and Risk Assessment procedure is due to be completed on 01/15/2022. New Deadline is 15/1/2022. -Update Jan 14, 2022 reads: "New Deadline is 31/1/2022" - Update Feb. 3, 2022 reads "RTM is actively encouraging and reviewing risk assessments". As well, 2 Risk assessment records were provided by RTM and Alstom.</p> <p>Part 2 - Alstom: - Dec. 15/ 21 Update: - Alstom risk assessment records contingent upon updates to their risk assessment process as per 2021- 2G. - Jan 14, 2022 reads: "New Deadline is 31/1/2022" . - Feb. 3, 2022 - see above.</p>	<p>CLOSED</p> <p>CLOSED</p>
25	Q2-Q3 2021	2021-5D Oversight Records	Safety Management System (OCT-S230-03-PROG).	<p>Part 1 - RTM: - Dec. 15/ 21 Update: - Once RTM has updated their Hazard Identification and Risk Assessment procedure, this will be communicated to Alstom with the expectation that their internal risk assessment procedure and documentation align with RTMs. New Deadline is 15/1/2022. 15/2/2022 - Reopen based on RMCO comments of 7/2/2022. Response should be based on monitoring activities based on finding 2021-4A / 4B/ 4C.</p> <p>Part 2 - Alstom: - Dec. 15/ 21 Update: - Alstom oversight records contingent upon updates to their oversight plan as per RMCO comments of Nov. 23. - 15/2/2022 - see above</p>	<p>STATUS 2021-5D Part 1 (RTM Oversight Records) = OPEN.</p> <p>STATUS 2021-5D Part 2 (Alstom Oversight Records) = OPEN.</p>

Legend for Table:

- a) Column entitled "Finding #" corresponds to sequential number of RMCO monitoring Finding following revenue service.
- b) Column entitled "Relevant Regulatory Document" corresponds to applicable Program documents identified in City LRT Regulations.
 In addition to the Program documents there may be related ancillary and supplemental materials.
- c) The rows / cells in this Table which are 'greyed out' indicate that the Finding is closed.
- d) Status of Findings resolution on Feb. 7, 2022: i) 25 Findings total; ii) 18 Findings closed; iii) 7 Findings in progress with partial remedial actions provided.

ANNEX 7**SUMMARY OF BUDGET AND EXPENSES - 2021**
RMCO (REGULATORY MONITOR AND COMPLIANCE OFFICER)

BUDGET				
BUDGET	DAYS BUDGETED	AMOUNT BUDGET (NO TAX)	TAXES	TOTAL
RMCO LABOUR*	120	\$ 180,000	\$ 23,400	\$ 203,400
RMCO EXPENSES		\$ 25,200	\$ 3,276	\$ 28,476
RMCO TOTAL		\$ 205,200	\$ 26,676	\$ 231,876

* Budget based on 2018 Contract between City of Ottawa and RMCO (SAB Vanguard Consulting Inc.)

2021 ACTUALS				
	DAYS ACTUAL (2021)	AMOUNT ACTUAL (NO TAX)	TAXES	TOTAL 2021
RMCO LABOUR	93	\$ 139,500.00	\$18,135.00	\$157,635.00
RMCO EXPENSES		\$ 392.50	\$ 51.03	\$ 443.53
RMCO TOTAL		\$ 139,892.50	\$18,186.03	\$158,078.53
VARIANCE	27	\$ 65,307.50	\$ 8,489.98	\$ 73,797.48