SCHEDULE 3 PART 1 TECHNICAL SUBMISSION REQUIREMENTS

A. TECHNICAL SUBMISSION – GENERAL

(1) The Proponent is advised to prepare its Technical Submission, which shall demonstrate the Proponent's understanding of the scope of the Works and the Proponent's ability to carry out the Works in accordance with the Project Agreement.

(2) In preparing its Technical Submission, the Proponent is encouraged to cite lessons learned by the Proponent and its Proponent Team Members on relevant past projects.

(3) The drawings, technical reports, plans and other information submitted as part of the Proponent's Technical Submission must address the scope of the Works and demonstrate that the Proponent:

(a) understands the scope of the Project;

(b) has the ability, resources and approach to deliver the Works in accordance with the Project Agreement;

(c) will deliver the Works in accordance with the intent of the reference concept design drawings provided in the Background Information and Output Specifications;

(d) will meet or exceed the quality, durability and aesthetic requirements set out in the Project Agreement; and

(e) understands the Project risks to be borne by Project Co and has a plan to address such risks.

(4) The Proponent is advised to use drawings, with cross-references to the Proponent's Technical Submission to direct the reader to relevant information in the drawing set.

(5) The maximum permitted pages for each component of the Technical Submission, indicated in the title to each Technical Submission component below, is exclusive of maps, drawings, sketches, renderings, specifications, calculations, and images which the Proponent may be required to or choose to include with such component.

(6) Each Proponent shall prepare and submit a Technical Submission consisting of the following components:

1.0 General Technical Submission
- 1.1 Project Management Plan -
  - 1.1.1 General Approach
- 1.2 Integrated Management System
- 1.3 Environmental Management Plan
- 1.4 Construction Communications and Stakeholder Engagement
- 1.5 Works Schedule PBS-1
- 1.6 Risk Management Plan
  - 1.6.1 Overall Approach to Risk Management
  - 1.6.2 Initial Risk Assessment and Planning
  - 1.6.3 Risk Register
- 1.7 Systems Integration Management Plan (SIMP)
- 1.8 Early Works Agreement (optional)

2.0 Design Submission
- 2.1 Civil and Guideway Design Submission
- 2.2 Utilities, Geotechnical, Drainage and Stormwater Management, Urban Design and Landscape Architecture
- 2.3 Systems Design Submission
- 2.4 Station Design Submission
- 2.5 New Walkley Yard Design Submission

2.6 New Vehicle Fleet Design Submission
2.7 Airport Link
2.8 System Safety and Security Certification
2.9 Dow's Lake Tunnel Design Submission

3.0 Construction Submission
3.1 Emergency Response Plan
3.2 Traffic and Transit Management Plan and Construction Access Management Plan
3.3 Construction Plan
3.4 Testing & Commissioning Plan
3.5 Health and Safety Certification
3.6 Mobility Matters Lane – Appendix A

4.0 Maintenance and Rehabilitation Submission
4.1 Maintenance & Rehabilitation Approach to Part 1 of Schedule 15-3 of the Project Agreement
4.2 Maintenance & Rehabilitation: Approach to Appendix A (Maintenance Performance Requirements) to Schedule 15-3 of the Project Agreement
4.3 Maintenance & Rehabilitation: Approach to Appendix B (Asset Preservation) to Schedule 15-3 of the Project Agreement
4.4 Maintenance & Rehabilitation: Approach to Appendix C (Expiry Date Requirements) to Schedule 15-3 and Schedule 23 – Expiry Transition Procedure of the Project Agreement

Appendix A – Mobility Matters Lanes

B. TECHNICAL SUBMISSION REQUIREMENTS

1.0 General Technical Submission	
1.1 Project Management Plan (maximum of 30 pages, excluding curriculum vitae)	
1.1.1	General Approach – Project Management Plan
	(1) The Proponent shall submit its approach to its team organization, structure and processes, communications and engagement, and integration of team members, including; (i) the Proponent's approach for developing and maintaining a successful partnership and managing the interfaces with the Sponsor for the purpose of supporting the Sponsor in achieving its vision, mission and core values; (ii) the Proponent's approach to maximizing integration of the activities of the Proponent Team Members during the Project Term to achieve an efficient and highly-functional completed Project; (iii) the Proponent's approach to the design development process including working in collaboration with user groups, stakeholders, the Sponsor's technical advisors and work by others; (iv) the Proponent shall ensure that the applicable stakeholders and Government Authorities' requirements are incorporated into design work to be reviewed through the Schedule 10 – Review Procedure; (v) the Proponent's approach to design and construction staging and how the staging matches into the draft Proposed Works Schedule and draft Interim Works Schedule; (vi) an organization chart clearly indicating the Proponent's team structure including all management staff and their reporting relationships for all Project activities, as well as relationships with subcontractors, through the Construction and Maintenance phases; (vii) a description of the Proponent's approach to managing the resources of the Proponent, as Project Co (for example, full time or part time, and whether they are located at a Project site office or other offices); (viii) the Proponent's approach for integrating and co-ordinating the activities of the Project Co Representative and Sponsor; (ix) a description of the Proponent's approach to internal decision-making and internal reporting mechanisms; and (x) a list of Key Individuals as detailed in Schedule 9 of this Project Agreement, to include a curriculum vitae for each Key Individual highlighting each individual's experience and including information about his or her role, participation and duration of involvement in other similar projects as well as prior working involvement with the other consortium partners. Each curriculum vitae shall be no more than three pages. (2) Intentionally Deleted (a) Intentionally Deleted (i) Intentionally Deleted (ii) Intentionally Deleted

(iii) Intentionally Deleted

(iv) Intentionally Deleted

(v) Intentionally Deleted

(vi) Intentionally Deleted

(vii) Intentionally Deleted

(3) Coordination with Maintenance Contractors and other Third Parties

(a) The Proponent shall describe its project management strategy for assuming responsibility for the Existing Trillium Line and Existing Vehicle Fleet on commencement of the Trillium Line Shut-Down.

(b) The Proponent shall describe its project management strategy for the coordination of design, construction and maintenance with ongoing operations across the VIA/Ellwood and CN/Walkley diamonds.

(c) The Proponent shall describe its project management strategy for adhering to the City's Third Party agreements with CP, VIA, CN, NRC and the OMCIAA.

(4) Permits, Licences, Approvals and Agreements Strategy

(a) The Proponent shall submit:

(i) a detailed description of its planned approach to obtain all Permits, Licences, Approvals and Agreements in a timely way that ensures compliance with the Project Agreement and the successful achievement of Substantial Completion; and

(ii) a detailed description of any additional required Permits, Licences, Approvals and Agreements not contained within to Schedule 32 – City Permits, Licences, Approvals and Agreements to the Project Agreement.

(5) Drawing Control during Construction

(a) The Proponent shall submit a detailed description of its strategy for control of the Issued for Construction Drawings through the construction period including making changes to the design during Construction Activities and ensuring engineering review of the new design and compliance with the Output Specifications. The Proponent's description shall address:

(i) changes to the design and to shop drawings;

(ii) modifications to the design by Variations;

(iii) compliance with the tolerances of the Works in the field based on the Output Specifications;

(iv) collection and preparation of Record Drawings;

(v) obtaining and recording as-built information and preparation of As-Built Drawings; and

(vi) how the Sponsor and the Proponent's Design Team are each involved in the review and acceptance of any deviations for the Issued for Construction Drawings.

1.2	**Integrated Management System (maximum of 30 pages)**
	(1) Integrated Management System – General (a) The Proponent shall submit a description of its planned approach to planning and delivering the Integrated Management System ("IMS") that covers all activities, products and services related to the design and construction of the Project prior to the execution of those activities, products and services. The Proponent's description shall demonstrate that the Proponent will satisfy the requirements of ISO 9001 and the requirements set out in Schedule 11 – Integrated Management System Requirements and other quality management requirements of the Project Agreement. (b) The Proponent's description of its IMS in accordance with Section 1.2(a) shall include: (i) the Proponent's general approach to IMS and its IMS and philosophy; (ii) the Proponent's process for updating its IMS and other related documentation; (iii) Intentionally Deleted (iv) a description of training and education and other measures that the Proponent will use to ensure that the Proponent will be compliant and competent with all management plans and the Output Specifications; (v) a description of resources, roles, responsibilities, authority and reporting structured with the Proponent and the Proponent Team Members with respect to the performance of tasks associated with quality; and (vi) a description of the IMS for the Construction Phase and the Maintenance Phase of the Project. (2) Management Plan Documentation (a) Design Management Plan (i) The Proponent shall submit its planned approach to deliver the Design Management Plan that details its compliance as required by the Project Agreement (Schedule 11- Integrated Management System Requirements). (b) Construction Management Plan (i) The Proponent shall submit its planned approach to deliver the Construction Management Plan that details its compliance as required by the Project Agreement (Schedule 11- Integrated Management System Requirements). (c) Construction Safety Management Plan (i) The Proponent shall submit its planned approach to deliver the Construction Safety Management Plan that details its compliance as required by the Project Agreement (Schedule 11- Integrated Management System Requirements). (d) Maintenance and Rehabilitation Management Plan (i) The Proponent shall submit its planned approach to deliver the Maintenance and Rehabilitation Management Plan that details its compliance as required by the Project Agreement (Schedule 11- Integrated Management System

	Requirements). (e) Maintenance and Rehabilitation Safety Management Plan (i) The Proponent shall submit its planned approach to deliver the Maintenance and Rehabilitation Safety Management Plan that details its compliance as required by the Project Agreement (Schedule 11- Integrated Management System Requirements). (f) Testing and Inspection (g) The Proponent shall submit their approach to inspection and testing for all on-site and off-site inspection and test activities for the Works that would be included in the Construction Management Plan ("CMP"), in accordance with the requirements of Schedule 11 – Integrated Management System Requirements. This inspection and testing approach shall include: (i) a description of the inspection, testing and monitoring activity; (ii) a description of the frequency of inspections, tests and monitoring; (iii) reference to standards, codes, specifications, and acceptance criteria; (iv) a list of reports and checklists required; (v) quality assurance review and witness and hold points; (vi) a description of the frequency of geotechnical instrumentation monitoring and adherence to acceptance criteria; (i) a description of the Proponent's strategy to address the testing requirement of Part 4 of Schedule 17 Environmental Obligations ; and (ii) a description of the Proponent's strategy to address the requirements of Schedule 11 – Integrated Management System Requirements.
1.3	**Environmental Management Plan (maximum of 20 pages, excluding (1)(l))**
	(1) The Proponent shall submit a draft Environmental Management Plan that clearly demonstrates the Proponent's approach to meeting the requirements of Schedule 17 – Environmental Obligations, and shall include, as a minimum, the following: (a) Demonstrate understanding, commitment, capability and approach to comply with the requirements of the Environmental Assessments, and other requirements under Environmental Laws. (b) Provide a narrative on the approach in developing and meeting the requirements of an Environmental Awareness and Education Plan and all other environmental plans and reports as outlined in Schedule 17 of the Project Agreement. (c) Intentionally Deleted (d) Define and describe processes for monitoring and reporting on environmental obligations with a description of the pertinent environmental processes to be undertaken by the Proponent during all phases of the Project, including processes leading to

	securing all required Project Co Permits, Licenses, Approvals and Authorizations relating to environmental matters. (e) Describe the Proponent's strategy for the management, remediation and/or removal of existing contamination as described in, or inferable from, the Environmental Reports. Describe also how discovered contamination fits within this strategy. As part of the strategy, describe the risk-based framework for the management of contamination and describe how remedial action plans for specific sites will fit within this overall framework. (f) Describe the Proponent's strategy for the management of excavated and imported materials during the Project. This strategy should reflect Schedule 17 requirements and include an outline of the material classification system, material tracking system and cumulative reporting approach. Describe the Proponent's strategy to maximize beneficial re-use of excavated materials, and the central role of the Proponent's QP and the QP of the off-site receiving sites in achieving this objective. (g) Describe the Proponent's strategy for assessing and mitigating noise and vibration impacts during the Project Term. As part of the strategy, specifically describe the approach for protecting sensitive receivers. (h) Identification of key environmental considerations affecting design and construction and mitigation measures to ensure compliance with the Project Agreement. (i) Intentionally Deleted (j) Describe the approach to the coordination/integration of the environmental strategy with the Project Sustainability Plan. (k) Describe the approach to the coordination/integration with the Integrated Management System defined in Project Agreement Schedule 11 – Integrated Management System Requirements in particular the approach to environmental monitoring and reporting, including the process for incident reporting and tracking, external and internal audits, the management of Non-Conformances, corrective actions, preventative actions and opportunities for improvement, document management. (l) Identify resources, roles, responsibilities, authority, and reporting structure within the environmental team, including the Environmental Manager, Permits and Approvals Coordinator, Environmental Compliance Officer, Environmental Inspectors and Environmental Specialists, and others that will be engaged in performing tasks associated with environmental matters.
1.4	**Construction Communications and Stakeholder Engagement (maximum of 10 pages)**
	(1) Intentionally Deleted (2) Intentionally Deleted (3) Intentionally Deleted (4) The Proponent shall address the Communications and Stakeholder Engagement Obligations as set out in or otherwise referenced in Schedule 18 of the Project Agreement, and shall provide: (a) A narrative that highlights the anticipated working relationships within the Proponent team for communications and stakeholder engagement, to include: (i) A description of the how key Proponent Team Members and or subject matter experts will be integrated into the communications and stakeholder management plan, including generic roles and internal reporting mechanisms for the

	range of technical specialties and public relations themes expected within the Project; (ii) A description of how the Proponent team will interface with the Sponsor team, as well as internal and external stakeholders, at various stages of the Project, including design, construction, testing & commissioning, and maintenance. This should clearly demonstrate how the Proponent team will carry out its role as a strong and responsive project partner; (b) A framework for key elements of the Proponent's responsibilities, as identified in Schedule 18 - Communications and Stakeholder Engagement Obligations, setting out how the Proponent intends to implement communications-related activities and fulfill responsibilities including, at a minimum, the following: (i) Participating with the City in the development of the Communications & Stakeholder Engagement Plan and annual updates, (ii) Supporting with stakeholder events and outreach meetings; (iii) Dealing with issues that may arise at different stages of the Project including: (A) changes in design or construction approaches (B) communication of unplanned construction-related traffic and transit impacts (C) complaints during construction, (D) work on private property, and (E) media requests. (c) A description of how the Proponent team plans to link its risk management plan with the communications and engagement strategy; and (d) The City will lead on a number of communications and stakeholder engagement activities, including developing and hosting a Project website and providing updates to Stakeholders. The Proponent shall provide a description of the Proponent's ability to support the Sponsor's responsibilities and adding creativity within print, web and social media, in particular as it relates to photo and video documentation of construction progress in an effort to assist the Sponsors with generating excitement for the Project from stakeholders. Include any relevant examples from similar projects undertaken by the Proponent team.
1.5	**Works Schedule PBS-1 (maximum of 10 pages excluding PBS-1)**
	(1) The Proponent shall submit a PBS-1 Works Schedule in accordance with the requirements of the Project Agreement, including (but not limited to): a written narrative which describes the Proponent's PBS-1 Proposed Works Schedule. The Proponent shall: (a) Provide a printed copy of the PBS-1 Works Schedule in accordance with Schedule 12 – Works Scheduling Requirements. (b) PBS-1 submission shall not include any cost loading information associated with the activities as part of the technical submission. (c) Describe the critical path and critical path activities,

	(d) Describe Proponents approach to managing design submissions (e) Describe the Proponent's approach to meeting the project timelines. (2) The PBS-1 Works Schedule is to include the following: (a) Identification of the Secondary Works Milestone "NRC Commencement of Shutdown" (b) Identification of the Secondary Works Milestone "NRC Completion of Shutdown" (c) Identification of the resultant 6-month period during which the NRC would not be permitted to move freight to their facility. (d) The 6-month period identified by Section 1.1.1(1)(a), 1.1.1(1)(b), and 1.1.1(1)(c) will be communicated to the NRC and will be added as a contractual requirement in the Project Agreement. (e) Identification of a 9-month period during which the OMCIAA will be required to cease operations at their Loading Dock. This 9-month period will be communicated to the OMCIAA and will be added as a contractual requirement in the Project Agreement. (f) A detailed schedule of design and construction as it relates to the Airport Station to facilitate early co-ordination with the OMCIAA. Key dates and timeframes for information sharing, design review and stakeholder input should be included. (g) Identification of important design and construction dates related to City provided project components such as, Systems Integration tasks, public art and the fare control system.
1.6	**Risk Management Plan (maximum of 10 pages – excluding Risk Register)**
1.6.1	**Overall Approach to Risk Management**
	(1) The Proponent shall provide a detailed narrative that outlines the Proponent's risk management approach and methodologies. The Proponent shall address, but not be limited to, the following: (a) How risks will be identified, assessed, responded to, and monitored throughout the Project. (b) Categories and definitions to be used in support of qualitative analysis of risks. (c) Tools and techniques to be used for quantitative analysis of risks. (d) How contingency and/or mitigation plans will be developed, implemented, and monitored. (e) How the Proponent's Risk Management process will be integrated with Proponent Team Members, and how that process will interact with Schedule 11and ISO 9001: 2015.
1.6.2	**Initial Risk Assessment and Planning**
	(1) The Proponent shall provide a detailed narrative that outlines the Proponent's understanding of the risks and challenges specific to the Project. The Proponent shall identify and describe, features of the Proponent's approach to design and construction that the Proponent considers unique and/or innovative relative to reducing or eliminating Project risk.

1.6.3	**Risk Register (no page limit)**
	(1) The Proponent shall provide a detailed risk register that identifies: (a) Project risk items. (b) Probability/likelihood of such risks manifesting themselves on the Project. (c) Potential severity of impact to Project objectives should such risks occur. (d) Triggering events or root causes. (e) Ability to predict or control occurrence. (f) Timeline horizon (i.e. near-term, mid-term, or long-term). (g) Response strategy and mitigation plans for managing each risk. (h) Residual risk assessment after implementation of response and/or a mitigation plan. (i) Regularity of reassessment (i.e. monthly, quarterly, annually; or after a particular Project event or milestone).
1.7	**Systems Integration Management Plan (SIMP) (maximum of 30 pages)**
	(1) The Proponent shall provide a SIMP which includes: (a) A high-level description of how the systems will be integrated along the alignment with the stations and infrastructure and how the system will be integrated with Stage 1, including updates to the head-end management platform at the TOCC/BCC, and (b) A preliminary schedule of normal Systems Integration activity including high-level dependency task durations of City Parties where work done is being done by others.
1.8	**Early Works Agreement**
	2.0 If the Proponent chooses to proceed with the portion of the Works (the "**Early Works**") described in Appendix 1 of Schedule 12 to this RFP, the Proponent shall provide the Early Works Agreement in accordance with Section 9.2(4) of the Main Body to this RFP.

2.0 DESIGN SUBMISSION	
2.1	**Civil and Guideway Design Submission (maximum of 50 pages)**
	(1) The Proponent shall address the guideway design as set out in or otherwise referenced in Schedule 15-2 of the Project Agreement, and shall provide a narrative statement describing the alignment design that includes: (a) A geometric design brief that outlines horizontal and vertical alignment envelope criteria and lists the features of all alignment segments to confirm that the geometric criteria of the Output Specifications have been met. (b) A description of the rationale for the approach alignment into the Stations. (c) A description of the rationale for and preliminary details of transitions between the various guideway types. (d) A description of how the track and guideway will be designed to remain free of snow, ice build-up and vegetation that could impact operation of the system. (e) A description of how the Vehicle dynamic envelope will be accounted for in the design of all guideway elements. (f) A description of how system elements will be accommodated within the guideway. (g) A description of how the alignment is being designed to protect for future electrification and double-tracking. (h) Confirmation that the alignment can be designed within the Lands provided. (i) Provide alignment drawings including: (i) key plan and legend; (ii) continuous plans at no less than 1:1000 scale, showing the alignments with curve data and locations of key features such as special track sections, turnouts, embankment grading and other key features; (iii) profiles at no less than 5H:1V and no less than 1:200 vertical scales; (iv) schematic representations of the guideway types in plan and profile; (v) typical guideway sections for each guideway type including drainage provisions; and (vi) typical sections at major change intervals. (j) Provide a structural approach describing the preliminary structures design for new bridge structures and demonstrating how the designs will conform to the Output Specifications. The structural design approach shall include: (i) A preliminary design brief outlining the design approach and design criteria to be used for new bridge structures, with particular attention to structural designs, foundation designs, wing wall/retaining wall designs; and (ii) A description of the proposed construction or erection strategy to be used for new bridge structures. (k) Provide structural drawings including:

(i) A set of general arrangement drawing of each bridge structure, showing the horizontal and vertical geometry, deck cross-section, type of structure, structure depth, horizontal and vertical clearance to all roads, rails and existing facilities, span arrangements, and preliminary column locations;

(ii) Intentionally Deleted.

(iii) Intentionally Deleted.

(l) Provide a separate aesthetic design report for all bridges with aesthetic design level one (high aesthetic design classification). The aesthetic design report shall:

(i) Intentionally deleted;

(ii) Include drawings of bridge alternatives together with background information and a 3-D computer rendering of the proposed structure viewed at prospective angles; and

(iii) Document the architect or the designer's consideration of the following aesthetic design principles, as defined in the MTO Aesthetic Guidelines for Bridges, and how each of the aesthetic design principles were successfully addressed in the preliminary bridge design:

(A) Functional clarity;

(B) Economy and simplicity;

(C) Scale and proportion;

(D) Harmony and visual balance;

(E) Contrast and complexity;

(F) Enduring visual quality, with a focus on surface finishes; and

(G) Integration with context.

(m) Provide a structural approach describing how the existing structures will be upgraded and maintained to conform to the Output Specifications. The approach shall include a narrative on each Existing Structure and the Proponent's proposed approach to upgrades, lifecycle and maintenance.

(n) Provide a roadway approach describing the preliminary roadway design and demonstrating how the designs will conform to the Output Specifications. The roadway design approach shall include:

(i) A preliminary design brief outlining the design approach and design criteria to be used for all new roadways.

(ii) A description of the proposed approach to municipal roadway alteration and restoration.

	(iii) Provide roadway drawings including: (A) A set of geometry and general layout drawings at a scale of 1:500 of the roadways; (B) A set of grading and drainage drawings at a scale of 1:500 of the roadways; and (C) Roadway components of the guideway and municipal road alterations and restoration associated with the guideway at a scale of 1:500. (o) Provide a trackwork approach describing the preliminary designs for track structure/rail fastening systems and special trackwork demonstrating how the designs will conform to the Output Specifications. The approach shall include the following: (i) A description of design methods, standards used and supporting design criteria; (ii) A description of the approach to installation; (iii) A description of special trackwork design; (iv) A description of the design of the proposed track structure/rail fastening systems including the interaction with the elevated guideway and existing bridge components as they relate to the expansion of track and structure; (v) A description of all infrastructure installed in support of the signalling and communications equipment ; and (vi) A description and drawing of the proposed end of track device and an explanation indicating that it is suitable for use. (p) Provide trackwork drawings-scale 1:100 including: (i) Preliminary drawings of special trackwork geometry, guardrails, and restraining rails; (ii) Preliminary drawings of all proposed track structure/rail fastening systems and their associated assemblies; and (iii) Preliminary drawings for the signals and communications infrastructure.
2.2	**Utilities, Geotechnical, Drainage and Stormwater Management, Urban Design and Landscape Architecture (maximum of 45 pages)**
	(1) The Proponent shall provide its approach to address the Utilities, Geotechnical, Drainage, Urban Design, Landscape Architecture at an appropriate level of detail, as set out in or otherwise referenced in Schedule 15-2 of the Project Agreement, and is to include the following: (a) Utilities: (i) The Proponent shall submit a narrative that provides a description of the approach to: (A) Identification of existing Utilities; (B) Utility relocation, including protection, including third party fibre optic telecom relocations; (C) Communication and coordination with Utility Companies including articulating an understanding of

operational constraints;

(D) Communication and coordination with the City, other stakeholders Utility Companies, businesses and property owners;

(E) Management of service interruption to property owners;

(F) Early identification and mitigation of impacts to critical Utilities;

(G) Obtaining Utility Permits and Approvals; and

(H) Supplying Utility services to the Project Infrastructure and facilities.

(b) Geotechnical/Geo-Environmental

(i) The Proponent shall submit a plan that provides a description demonstrating a clear understanding of key geotechnical issues and challenges. The plan shall include, at a minimum:

(A) A narrative that provides a description demonstrating a clear understanding of key geotechnical issues and challenges to include:

(I) An interpretation of the geotechnical conditions used in the design development including geotechnical profiles and a summary of geotechnical properties and design parameters

(II) A summary of the identified geotechnical conditions, constraints, concerns and outstanding issues. An outline of any additional geotechnical investigations, laboratory testing and analyses proposed to address identified geotechnical/geo-environmental issues, including issue related to sensitive clays and contaminated soils;

(III) A summary of any re-use of existing geotechnical structures such as existing foundations and retaining structures

(IV) Intentionally deleted;

(V) Identification of any geotechnical concerns related to construction adjacent to any existing structures and utilities, including the design of temporary excavation support, geotechnical instrumentation and monitoring approach and mitigation to protect those facilities; and

(VI) Intentionally Deleted.

(ii) A preliminary hydrogeological impact assessment and associated risk assessment which includes:

(A) A narrative and drawings describing, for the Construction Period:

(I) The anticipated groundwater control and effluent treatment/discharge strategy for subsurface excavations describing analysis methods, permitting requirements, anticipated inflows into all subsurface excavations, anticipated magnitude and extent of groundwater drawdown outside of project excavations, anticipated impacts of groundwater drawdown in terms of potential for groundwater lowering induced settlement of compressible soils within the zone of groundwater drawdown, risk for migration of contaminated groundwater to project excavations, shale swelling due to groundwater drawdown, impacts to water supply wells, impacts to ecological features, and mitigation measures to control groundwater inflow and/or detrimental impacts of anticipated

groundwater drawdown; and

(B) A narrative and drawings depicting, for the permanent condition:

(I) The anticipated groundwater control strategy for subsurface excavations, including the waterproofing systems and anticipated inflows into both the drained and undrained Structures, permitting requirements, and a presentation of the anticipated long-term groundwater drawdown outside of project structures and related impacts.

(iii) Intentional deleted.

(iv) The proposed strategy and approach to monitoring the infrastructure located within and outside the Lands, including:

(A) a narrative and drawings indicating the overall approach to the Geotechnical Instrumentation and Monitoring Plan (GIMP);

(B) proposed types and locations of geotechnical instrumentation; proposed data collection method(s);

(C) reading frequency for each type of instrument;

(D) a description of the Response Action Plan for developing Review Level Scenarios, Alert Level Scenarios, and Action level Scenarios and proposed approach for developing contingency plans when limits are exceeded;

(E) Intentionally deleted;

(F) Intentionally deleted;

(G) Intentionally deleted;

(H) Intentionally deleted; and

(I) Intentionally deleted.

(v) Drawings at a minimum scale of 1:500 that depict the following:

(A) Borehole location plan of existing and new boreholes;

(B) Geotechnical stratigraphic profiles showing soil and rock types and test results;

(C) Additional geotechnical investigation plan;

(D) Intentionally deleted;

(E) Intentionally deleted;

(F) Intentionally deleted;

(G) Geotechnical and hydrogeological instrumentation and monitoring plan;

(H) Intentionally deleted;

(I) Intentionally deleted; and

(J) Effluent conveyance plan showing treatment and discharge locations.

(c) Drainage and Stormwater Management

(i) The Proponent shall provide its approach to the design proposal associated with all drainage elements, including new

elements and modifications to existing elements. At a minimum the proposal will demonstrate the following:

(A) The design standard and criteria that will be adopted for each of the different drainage elements, including quantity, quality, erosion control and water balance;

(B) Approach to drainage and stormwater management design including data requirements for the design and decision-making, identifying any additional data that will continue to be collected and how it will be used to support the design process;

(C) Hydrologic and hydraulic models and procedures to be used, including their rationale and applicability to the Project;

(D) A description of key drainage and stormwater management issues at the different locations, including a plan and approach of how they are to be addressed in design. These include, but are not limited to, issues regarding storm water runoff, groundwater and fisheries, spills, flooding, and other environmental impacts;

(E) A description of potential issues and approach in meeting requirements from Stakeholders; and

(F) A description of how drainage runoff will be collected and directed away from the guideway.

(d) Urban Design and Landscape Architecture

(i) The Proponent shall provide a narrative on the approach to developing the Urban Design and Landscape Plan, as required by the Project Agreement. The Urban Design and Landscape Plan shall include at a minimum:

(A) An overall landscape drawing for each Station scale 1:250, demonstrating the following, but not limited to:

(I) The integration of the station and related site development into the adjacent context;

(II) Identification of pedestrian and cycling connections;

(III) Integration of all streetscape elements identified in the landscape design criteria; and

(IV) All other elements required for the successful implementation of each Project station.

(ii) Landscape drawings that cover the entire Alignment and any associated works.

(iii) Landscape drawings showing all MUPs required by the Project Agreement.

(iv) The typical enlargements (plan or section), at an appropriate scale to fully illustrate the construction requirements, including the following, but not limited to:

(A) Detailed drawing at appropriate scale to indicate grading, layout, plaza paving patterns, site furnishings, seating walls, light standards, site furniture, bicycle racks, signage, plant material and spacing, and miscellaneous works to complete the exterior site works.

(v) Visualizations (renderings, manufacturer's cut-sheets, or precedent images) displaying the distinctive character of the Project, including, but not limited to:

(A) Design proposal of a cohesive family of furnishings, including, but not limited to benches, railings, pedestrian lighting, bicycle racks, trash receptacles and miscellaneous street furniture as required.

	(vi) The Proponent's approach to integrating City-supplied public art.
2.3	**Systems Design Submission (maximum of 40 pages)**
	(1) The Proponent shall address the Systems design as set out in or otherwise referenced in Schedule 15-2 of the Project Agreement, including, but not limited to, the following: (a) How the following integrate into the systems design processes, through a narrative, the use of block diagrams or flowcharts to illustrate the process interfaces: (i) Design methodology; including narrative and lessons learned. This will also include a description of the SEMP, the project-wide processes, specific documentation and deliverables during the project and coordination with systems assurance, quality, and safety; (ii) System Interface management, including a narrative of the process and the control of information to all disciplines and multi-discipline checking; (iii) Verification and validation strategy, including narrative and process flow chart describing testing regime; (iv) Configuration control methodology, including a narrative of how software and hardware configuration status is managed throughout the project lifecycle and how the proposed equipment proposed will be managed to operate safely for the operational life; (v) A narrative on the management of the systems assurance process, how this will affect the design process and how reliability, availability, maintainability and safety are addressed throughout the project lifecycle; (vi) Climatic performance, including methodology and strategy of how design of Systems address the climatic challenges, including examples of systems operating in similar environments. Methodology of dealing with extremes of weather during testing of components and sub-components; and (vii) A narrative of integration methodology: How the systems are connected together and evaluated as part of the integration process and supporting process flow charts and lessons learned from other project integrations. (b) Communication Systems (i) An overall Communications Systems block diagram detailing the key subsystems within the Trillium Line Extension, including: (A) TOCC and BCC; (B) BAS/BMS; (C) CTS; (D) PA/PIDS; (E) IAC; (F) CCTV;

	(G) SCADA (H) Telephone and Intercom Systems; and (I) Voice/Data Radio Communications (ii) Description of the communications system and functionality required in stations and the TOCC; (iii) Methodology of how system safety and security are maintained; (iv) Methods of providing an 'open-data' link to provide information on system scheduling and announcements; and (v) A description of how Project Co will support the City in integrating the head-end communications systems at the TOCC. (c) Signalling & Train Control System (i) A narrative of the proposed Signalling and Train Control Solution and how the it addresses Schedule 15-2, Part 3, section 10 (ii) A narrative that outlines the Proponent's plans to retrofit the Existing Trillium Line vehicle fleet with new train control equipment. (iii) A description of the new head-end management/dispatch system and implementation concept within the existing operational theatre and computer equipment rooms at TOCC and BCC. (d) Intentionally Deleted (i) Intentionally Deleted. (ii) Intentionally Deleted.
2.4	**Station Design Submission (maximum of 40 pages)**
	(1) The Proponent shall address the Station design, as set out in or otherwise referenced in Project Agreement Schedule 15-2, and shall include the following: (a) Architectural Written Narrative: (i) The Proponent shall provide a written design response which shall address the concept proposed for the Stations, their interface with the guideway, and the functional relationships between station elements, demonstrating the following: (A) Representative schematic diagrams and narrative that show passenger flow is efficient, direct, accessible, and designed with CPTED principles throughout the entire station from street entrance to platform. Diagrams should show the approach for entrance configuration, connecting tunnels, concourses and mezzanines to ensure the most intuitive station design for passengers. (B) Overall approach to integration of the station entrances into the surrounding urban context with a focus on

pedestrian and cycling connections and orientation of entrances with respect to dominate passenger flow and circulation routes.

(C) The aesthetic nature of the design for all stations, including the integration of wayfinding, signage and landscaping.

(D) Intentionally Deleted

(E) General approach to life safety code requirements and the impact of these code requirements on station design.

(F) Approach to future expansion of the station platforms on the Airport Link including consideration of future vertical circulation and impacts on passenger flows such that future costs are minimized.

(G) Approach to continuity of Station designs across the entire system and relationship of key passenger elements with the Confederation Line. Proponents are advised that their submission, as it relates to any works located on federal lands, may be used by the City as part of its submittal for or in connection with the NCC FLUDTA.

(H) Approach to building envelope and weather protection. Describe how the station designs will mitigate the impact of varying climatic conditions to provide maximum passenger comfort and roof coverage to provide protection to vertical circulation equipment. Narrative should include approach to radiant on-demand heating and windscreens.

(I) Approach to building envelope to ensure all fare control equipment is protected from weather and precipitation.

(J) Approach to BRT Station designs including approach to fare control at BRT/LRT Interface.

(K) Intentionally Deleted

(L) Accessibility Analysis

(I) Provide a description of the proposed design complies with CSA B651, Ontario Building Code, City of Ottawa Accessibility Design Guidelines, AODA requirements and Good Industry Practice.

(M) Approach to how Accessibility requirements will be met with respect to the Vehicle-Platform interface with both the Existing and New Trillium Line Fleet.

(N) Provide a preliminary Code analysis for each type of Station, identifying the following:

(I) Required occupancy separation and rating;

(II) Platform sizing calculations demonstrating the sizing provided in the design satisfies code and level of service minimums; and

(III) Calculations, drawings, or modeling supporting the design of the circulation elements satisfy the code minimum egress capacities and evacuation times.

(b) Architectural Drawings for each station:

(i) Site Plan scale 1:400;

(ii) Intentionally Deleted;

(iii) Floor plans scale 1:200, showing all rooms/areas numbered. Include the following:

(A) All existing and new walls and partitions;

(B) Doors, windows, sidelights;

(C) Structural grid lines and references cross-referenced on all drawings;

(D) All fixed station furniture, and equipment;

(E) Location of all systems to ensure integration, avoidance of conflict, functionality and net area requirements;

(F) Plans detailing Station platform width, slope, inter-car barrier and Vehicle door locations;

(G) Entrance connection(s) to existing buildings and strategies for the protection of connections to future buildings; and

(H) Floor plans and building sections of each entrance integrated into a Third Party Facility indicating all permanent and temporary easements required to construct the entrance within the Third Party Facility scale 1:200.

(iv) Building Sections scale 1:200 through entire building.

(v) Exterior Building Elevations scale 1:200:

(A) All building elevations including all hidden or partial elevations with a legend describing the extent of all glazing and cladding materials; and

(B) Intentionally Deleted

(c) Architectural Renderings:

(i) Minimum of two exterior perspectives per new station, and Bayview inclusive of pedestrian bridge, in full colour describing the developed exterior with context:

(A) Exterior perspective view at eye level showing at main entrance to station; and

(B) Exterior perspective view from bird eye level showing the total extent of the station.

(ii) Minimum of one interior perspective per new station and Bayview in full colour taken at eye level of the station platform level, the submission shall include perspectives varying in location, and shall not be the same view of every station.

(iii) Minimum of one interior perspective view taken at eye level of the station platform level for a typical existing station.

(d) Structural Design:

(i) Written Narrative:

(A) Provide a written narrative of the proposed structural system. Demonstrate how each component will comply with the structural requirements in the Output Specifications. Include design criteria and references to the applicable standards.

(B) Provide a structural design brief, and drawings or sketches as appropriate. Describe the main structural elements in a preliminary manner including, but not limited, to the following:

(I) Foundations, floor, roof and structural framing systems, including materials and spans;

(II) Lateral load resisting system;

(III) Design dead and live loads for all areas;

(IV) Design or specification measures to meet serviceability criteria; and

(V) Column spacing and layout.

(C) For stations which will be modified and retained, provide a written narrative describing the structural adequacy of the existing structure. Verify that the existing structure meets current OBC requirements, and describe the strengthening measures proposed.

(D) Provide a written narrative of the lateral load resisting system, and its capability to resist live loads and seismic loads.

(ii) Structural drawings including:

(A) Structural framing, foundation and details for Trinity pedestrian bridge at Bayview Station to sufficiently describe the intended systems and integration with the architectural and other systems at an appropriate scale to communicate the design intent.

(e) Mechanical Design:

(i) Written Narrative:

(A) Provide a written narrative for the mechanical systems demonstrating how they will meet the requirements as set out in the Output Specifications;

(B) Provide BAS description and description of sensor layout;

(C) General design approach to mechanical systems including HVAC, plumbing and drainage systems, equipment selection, etc. with specific references to the Output Specifications requirements; and

(D) Provide drawings and diagrams that fully illustrate how the mechanical systems, including HVAC, fire protection, plumbing and drainage will meet the requirements as set out in the Output Specifications.

(ii) Intentionally Deleted:

(A) Intentionally Deleted;

(B) Intentionally Deleted:

(I) Intentionally Deleted

(II) Intentionally Deleted;

(III) Intentionally Deleted;

(IV) Intentionally Deleted

(f) Electrical Design:

(i) Written Narrative:

(A) Provide a written narrative and design summary including drawings and diagrams that fully illustrate how the electrical systems will meet the requirements set out in the Output Specifications

(B) General design approach to electrical systems including redundancy and emergency power, equipment

	selection, etc. with specific references to the Output Specification requirements. (C) General design approach to provision of Lighting (Interior & Exterior), CCTV, PA, advertising, signage, fare collection, PIDS, pumps etc. (ii) Electrical drawings, schematics, product cuts and diagrams: (A) Intentionally Deleted. (B) Intentionally Deleted. (C) Single line diagram, preliminary sizing of equipment and feeders to provide a clear understanding of the electrical distribution, emergency and critical power systems along with the expected station electrical demand load. (D) At Airport Station, Fire life safety system block diagram including description of functionality and operation.
2.5	**New Walkley Yard Design Submission (maximum of 30 pages)**
	(1) The Proponent shall address the New Walkley Yard design as set out in or otherwise referenced in Project Agreement Schedule 15-2, and shall include the following: (a) The functional layout of the yard, site layout, parking, access, security, maintenance and administration buildings and a description of the work flow processes utilized to minimize train movements related to pull-outs, pull-ins, handoff and cleaning and maintenance of Vehicles. (b) Description of the daily servicing and inspection of revenue vehicles. (c) Yard train control, and the location and manner in which Trains will be transferred from Yard Control to Mainline Control. (d) The layout and functional arrangement of City spaces within the New Walkley Yard and a description of the handover process between Project Co and the City's operators. (e) Design Approach: (i) Through narrative and design drawings, address the design concept proposed for the MSF, its interface with the main line, and the functional flow of the site and its industrial processes; (ii) A description and narrative, along with schematic drawings, showing the location and facilities within the MSF where train consists will be transferred between Project Co and Operators and how the facility design will optimize the handover process; and (iii) A proposed LEED® check-list and a narrative of the Proponent's intended approach to ensure the MSF Administration Building is LEED® Certified or better. (f) General Architectural Description: (i) General architectural design description of all buildings within the MSF, including reference to the following: (ii) Description of the overall facility design, functional and technical requirements;

(iii) Design drawing indicating all spaces with the MSF that will be occupied by "City Staff "and the functional relationships;

(iv) Materials and Finishes: Design description of building image, including selection and use of materials/finishes in the building elevations; and

(v) Life Cycle Analysis: A written narrative describing life cycle approach to all building components, systems and major pieces of equipment including but not limited to:

(A) Building envelope and exterior finishes;

(B) Interior finishes;

(C) Mechanical & electrical equipment; and

(D) Industrial equipment.

(g) Code Analysis

(i) Provide a Life Safety and Accessibility code analysis.

(h) Environmental Considerations

(i) A written narrative describing the noise and vibration and light trespass mitigation techniques that are proposed for the MSF in relation to the surrounding neighbourhoods. Noise impacts to be considered include vehicle movements.

(i) Net and Gross Floor Area Summary

(i) Provide a final floor area summary chart indicating individual space requirements identified in the Output Specifications and the Proponent-proposed measured areas by element and individual space including final building gross areas on a floor by floor basis and total building gross area.

(j) Architectural drawings including:

(i) Context Plan scale 1:1000;

(ii) Site Plan scale 1:400;

(A) Floor plans scale 1:100, showing all rooms/areas numbered.

(k) MSF Detailed Drawings

(i) Exterior Building Elevations – scale 1:100, including the extent of all glazing and cladding materials.

(ii) Elevations to be fully rendered, in colour.

(iii) Building Sections scale 1:100 through entire building indicating relative location of grade. Building sections to be taken through the main shop space, and any other special conditions, particularly pit areas.

(iv) Building Perspectives – 4 exterior perspectives in full colour describing the developed exterior with context:

(A) Exterior perspective view at eye level taken from Albion Road (looking south);

(B) Exterior perspective view at eye level taken from the main line (looking east);

(C) Exterior perspective view taken from the approximate upper floor elevation of the residential properties to the

	north of the site (looking south); and (D) Exterior perspective aerial view taken from the Albion Road in the general location of the Sawmill Creek bridge (looking towards the southwest). (l) Structural Design (i) A written narrative of the proposed structural framing system, lateral resisting system, and foundation design. (m) Mechanical Design (i) General design approach to mechanical systems including HVAC, plumbing and drainage systems, equipment selection, etc.; and (ii) Intentionally Deleted. (n) Electrical Design (i) Written Narrative (A) General design approach to electrical systems including redundancy and emergency power (particularly as it applies to the YCC), and equipment selection; (B) General design approach to provision of CCTV, PA, data/communications systems, etc.; and (C) Proposed tie-in of the fire detection system to OC Transpo TOCC at 875 Belfast Road. (ii) Electrical drawings including: (A) Single line diagram, preliminary sizing of equipment and feeders to provide a clear understanding of the electrical distribution, emergency and critical power systems along with the expected electrical demand load and (B) Emergency backup generator(s) detail, location and capacity. (o) Shop Equipment (i) Proposed shop equipment list for the MSF Facility. (p) Security & Communications (i) Drawings and narrative to show proposed perimeter security system, proposed access points and any other security systems planned for the facility.
2.6	**Vehicle Fleet Design Submission (maximum of 30 pages)**
	(1) New Vehicle Fleet (a) Interior AODA/ADA Compliance for new vehicle fleet (i) Provide a written narrative describing the interior layout of the new vehicles including details of the aisle width, seating

	and standee density, vehicle passenger capacity, PEI locations, and announcement screen visibility. (b) Intentionally Deleted (i) Intentionally Deleted. (c) Stanchion and Hand Holds (i) Provide a written narrative and interior layout describing the new vehicles stanchions, straps and hand holds for all passengers considering a vehicle load of 3.3 passengers per square metre. (d) Integrations with On Board Equipment (i) Provide a written narrative describing Project Co.'s experience and proposed approach for integrating the train control and communications systems into the new vehicle. (ii) Describe any impacts this integration may have on the new vehicle layout and how this equipment will be accommodated on the new vehicle. (2) Existing Vehicle Fleet (a) Integrations with On Board Equipment (i) Provide a written narrative describing Project Co.'s experience and proposed approach for integrating the train control and communications systems into the existing vehicle. (ii) Describe any impacts this integration may have on the existing vehicle layout and how this equipment will be accommodated on the existing vehicle. (b) Existing Vehicle Capital Works prior to Revenue Service. (i) Provide a written narrative describing any additional capital works planned for the existing vehicles prior to Revenue Service. (3) Mixed Vehicle Fleet (a) Mixed Vehicle Approach (i) Provide a written narrative describing Project Co.'s approach to a mixed vehicle fleet, focusing on passenger experience and passenger safety, as well as pushing and towing rescue operations. (ii) Provide a written narrative describing Project Co.'s approach to a mixed vehicle fleet, focusing on civil infrastructure compatibility. (iii) Provide a written narrative describing Project Co.'s approach to the commissioning requirements for the mixed fleet. Include tests to be performed, the duration of each test and the safety certification process for the new and existing vehicles.

2.7	**Airport Link (No limit)**
	(1) The Proponent shall submit its approach to the Airport Link design at an appropriate level of detail as set out in or otherwise referenced in the Project Agreement and Schedule 15, and shall include the following: (a) The Proponent is to package the design drawing submission requirements listed above into a separate "Airport Link Drawing Submission". This information is duplicate to the information listed is sections 2.1-2.4, The Airport Link Drawings Submission will be subject to the following: (i) The Proponent shall submit the Airport Link Drawing Submission which will be a single Design Package. (ii) Airport Link Drawing Submission package need not include items 2.5, 2.6, 2.8, and 2.9 listed above. (iii) Once selection of the Preferred Proponent's has been announced, that Proponent's "Airport Link Drawing Submission" may be used by the City and the OMCIAA for NCC ACPDR Review. The Preferred Proponent may be asked to present their design or support a presentation by the OMCIAA or the City prior to Commercial Close. (iv) Once selection of the Preferred Proponents has been announced, certain portions of the Preferred Proponent's "Airport Link Drawing Submission" may be extracted through Schedule 13 - Project Co Proposal Extracts and used by the OMCIAA to further develop their design for the Airport Station Concourse.
2.8	**System Safety and Security Certification (Maximum Pages 15)**
	(1) Provide a narrative detailing how safety and systems assurance will be systematically managed throughout design, construction and maintenance and the process that will be used to develop the system safety case and safety management system. (2) Describe the methodology that will be used to evaluate and develop system assurance requirements including the identification and mitigation of hazards associated with the proposed design. (3) Provide a narrative detailing how the design of the system will be optimized in terms of safety, operations, reliability, availability, maintainability and life cycle cost, service dependability, failsafe design and failure management of the system operation. (4) Provide a narrative detailing how systems assurance requirements outlined during the design phase will be implemented throughout the Maintenance Term. (5) The above narratives shall consider and address the following key issues: (a) Safety certification, security certification , independent verification and management of safety and security for the construction and operation; (b) Configuration control; (c) application of controls throughout the concession period; (d) Integration;

	(e) Details of the processes and schedule used to connect all systems and prove functionality and safe operation; (f) Post construction pre-revenue certification; (g) details of the process of independent reviews on system safety critical items; (h) Safety auditing during operational service; (i) Schedule of regular audit and controls; and (j) Reporting of key metrics to the City.
2.9	**Dow's Lake Tunnel Design Submission (maximum of 10 pages)**
	(1) Design Submission (1) The Proponent shall address the Dow's Lake Tunnel design at an appropriate level of detail, as set out in or otherwise referenced in Schedule 15-2 of the Project Agreement, and shall include the following: (a) Overall approach to expansion joint water infiltration measures required in the Dow's Lake Tunnel. Overall approach shall be described in narrative format and with working drawings including plans, profiles, sections and details as necessary to clearly convey the Proponent's proposed approach. (b) Overall approach to drainage system upgrades and maintenance required in the Dow's Lake Tunnel. Overall approach shall be described in narrative format and with working drawings including plans, profiles, sections and details as necessary to clearly convey the Proponent's proposed approach to design, construction, monitoring and maintenance of stormwater drainage within the Dow's Lake Tunnel. (c) Overall approach to upgrading the Dow's Lake Tunnel to NFPA130 standards including upgrades and / or replacement of tunnel ventilation and pump house building. Overall approach shall be described in narrative format and with working drawings including plans, profiles, sections and details as necessary to clearly convey the Proponent's proposed approach. (d) Overall approach to the structural rehabilitation of the existing Tunnel defects. Overall approach shall be described in narrative format and with working drawings including plans, profiles, sections and details as necessary to clearly convey the Proponent's proposed approach.

3.0 CONSTRUCTION SUBMISSION	
3.1	**Emergency Response Plan (maximum of 20 pages)**
	(1) The Proponent shall submit an Emergency Response Plan that both describes the Proponent's proposed approach during the construction period to protecting the travelling public and minimizing public disruption, and fulfills the requirements of the Output Specifications. The Proponent's Emergency Response Plan shall include (but not be limited to): (a) the Proponent's approach for responding, as Project Co, to emergencies involving: (i) provincial or municipal highways that may be impacted in the event of an emergency occurring within the Lands; (ii) the existing O-Train system; (iii) the OMCIAA; and (iv) public roadways adjacent to the Lands under the jurisdiction of the city of Ottawa. (b) a description of all potential emergency situations considered by the Proponent, including (but not limited to): (i) risk analysis for all identified emergencies; (ii) mitigation measures for all identified risks; and (iii) detailed response procedures for all identified emergencies. (c) the Proponent's approach to coordinating and communicating with various parties in the event of an emergency, including, but not limited to: (i) Intentionally Deleted (ii) OMCIAA; (iii) the City of Ottawa; (iv) emergency service providers; and (v) any other affected stakeholders in the event of an emergency. (d) The Proponent's strategy to restore all infrastructure affected by an emergency. (e) Any preparatory activities that are proposed to be undertaken by the Proponent, as Project Co. (f) Any other strategies proposed by the Proponent in order to protect the travelling public and minimize public disruption in the event of an emergency situation occurring within the Lands.
3.2	**Traffic and Transit Management Plan and Construction Access Management Plan (maximum of 40 pages)**
	(1) The Proponent shall submit a draft of the Traffic and Transit Management Plan as required by the Output Specifications. The Proponent's draft Traffic and Transit Management Plan shall outline the Proponent's approach and methodology to achieving the requirements of the

	Output Specifications, while providing specific details regarding major traffic/transit impacts, including the planned schedule of those impacts. (2) Intentionally deleted: (a) Intentionally deleted; (b) Intentionally deleted; (c) Intentionally deleted; (d) Intentionally deleted; (e) Intentionally deleted (f) Intentionally deleted; (g) Intentionally deleted; (h) Intentionally deleted; (i) Intentionally deleted; (j) Intentionally deleted; (k) Intentionally deleted. (3) The Proponent shall submit a draft of the Construction Access Management Plan as required by the Output Specifications.
3.3	**Construction Plan (maximum of 40 pages, excludes staging drawings)**
	(1) The Proponent shall submit a Construction Management Plan specific to the Project which describes the Proponent's approach and methodology to achieving the requirements of the Project Agreement, including its approach to scheduling, materials management, procurement, resource management (labour and equipment), Subcontractor management, coordination, reporting and internal governance, and integration of design and Construction Activities. (a) The Proponent's Construction Management Plan shall address the following items (including staging drawings to effectively illustrate proposed methodology): (i) key Construction Activities impacting the existing Trillium Line and strategies to manage work both within and adjacent

	to the active existing Trillium Line; (ii) key Construction Activities impacting the OMCIAA; (iii) protection of and relocation of Utility Infrastructure; and (iv) Coordination with VIA, NRC, CN, Utility Companies, Carleton University, third party vendors, and additional contractors. (2) The Proponent shall submit a description of its planned approach to the design and construction staging and how the staging matches into the draft Proposed Works Schedule, the draft Interim Works Schedule and Traffic and Transit Management Plan. The Proponent's description shall include a description of the following: (a) the staging of the Project with specific reference to the ability of the Proponent to maintain traffic operations on all provincial and municipal highways and all adjacent municipal roads, as well as full scheduled rail services.
3.4	**System Testing and Commissioning Plan (maximum of 25 pages)**
	(1) The Proponent shall submit their approach to Testing and Commissioning, detailing how the testing and commissioning activities and handover of the Works will be undertaken prior to Substantial Completion. The approach must be in accordance with the requirements of the Project Agreement (Schedule 14 – Testing and Commissioning). The Proponent's Testing and Commissioning approach shall: (a) Illustrate the testing and commissioning, and handover timeframes including the duration of the testing and commissioning by Project segment. (b) Illustrate the testing and commissioning interfaces and responsibility split as it relates to the Communication System and head-end management platform at the TOCC and BCC; (c) Illustrate the involvement of the System Testing and Commissioning Coordinator in the design and construction process. (d) Illustrate the involvement of the design team in the testing and commissioning process including the final rail systems verification and validation process that would otherwise be necessary to achieve safety and security certification. (e) Identify the scope and type of Minor Deficiencies that may be deferred beyond Substantial Completion, and the process and timelines to expeditiously correct the identified deficiencies. (f) Provide an overview of the detailed tests and test methodologies associated with the testing and commissioning. (g) Define the approach and understanding of training and Trial Running requirements. (h) Detail the process to be followed leading to the request to the Independent Certifier for the issuance of the Substantial Completion Certificate as well as the process leading to the resolution of issues where retesting and re-inspection is necessary. (2) The Proponent shall provide a narrative demonstrating an understanding of and compliance with Project Agreement Schedule 15-2, Part 1, Article 3 – Operational Performance Requirements and other operations-related criteria. The narrative shall describe:

	(a) Operating plan. (b) Travel Times, Dwell Times, and Fleet requirements. (c) Validation of operational capabilities and passenger capacity requirements. (d) Capability to support a reliable 12 minute headway. (e) Terminal operation and capacity limitations including single track capacity limitations and reflecting all associated track and special trackwork configurations. (f) South Keys movement capabilities and Airport Link operation. (g) Demonstration of an understanding of the simulation requirements and specified parameters Including (i) Dwell Times (ii) Application of suboptimal performance factors for realistic operations
3.5	**Health and Safety Certification (no page limit)**
	(1) Provide evidence of COR Certification in good standing, current to the Submission Deadline, for each construction Prime Team Member put forward in the Proponent's Prequalification Submission in response to the RFQ issued for the Project, or to the extent that such party does not have COR Certification, evidence of OHSAS 18001 or ISO 45001 Accreditation in good standing, current to the Submission Deadline, together with evidence that such party has made an application to IHSA for its COR Certification. (2) Provide a WSIB clearance certificate, or, if a WSIB clearance certificate is not available, equivalent documentation from another jurisdiction, current to the Submission Deadline for each construction Prime Team Member put forward in the Proponent's Prequalification Submission in response to the RFQ issued for the Project. (3) A CAD-7, or, if a CAD-7 is not available, equivalent documentation from another jurisdiction, current to the Submission Deadline for each construction Prime Team Member put forward in the Proponent's Prequalification Submission in response to the RFQ issued for the Project. (4) A current Workplace Injury Summary Report ("WISR") or, if a WISR is not available, equivalent documentation from another jurisdiction current to the Submission Deadline for each construction Prime Team Member put forward in the Proponent's Prequalification Submission in response to the RFQ issued for the Project.
3.6	**Mobility Matters Lanes – Appendix A(maximum of 5 pages)**

	(1) Lane Closure Target Letters and Traffic and Transit Mobility Management Plan (a) The TTMP shall support the Aggregate Target Lane Closure. (b) The Proponent shall provide a narrative explaining the variance between the Aggregate Target Lane Closure provided in the draft Lane Closure Target Letter and the TTMP. (c) The Proponent shall provide a narrative indicating primary features included in the Proponent's TTMP and Aggregate Target Lane Closure and illustrate the measures incorporated into the Proponent's approach. The Proponent shall also provide a written statement of how Project Co will manage construction to ensure the measures in the Proponent's design realise their full potential.

4.0 MAINTENANCE AND REHABILITATION SUBMISSION	
4.1	**Maintenance & Rehabilitation Approach to Part 1 of Schedule 15-3 of the Project Agreement (maximum of 30 pages)**
	(1) Describe the Proponent's overall approach to Maintenance and Rehabilitation Services including the process of planning for mobilizing, managing, implementing and achieving the requirements and obligations set out in Part 1 of Schedule 15-3 – Maintenance and Rehabilitation Requirements of the Project Agreement, including as a minimum: (a) a description that demonstrates how the Maintenance and Rehabilitation Services are to be executed in a timely, diligent, safe and professional manner; (b) a description that demonstrates the Proponent's understanding of Good Industry Practice as it applies to this Project; (c) a description that demonstrates how the Proponent will maintain a mixed vehicle fleet; (d) a description that demonstrates how the design and detailing of the Passenger Facilities, Guideway, Structures, and New Walkley Yard will be integrated with Project Term scheduled lifecycle programs and the need for future Maintenance and Rehabilitation Services activities, that ensures the longevity of the Trillium Line; (e) a description that demonstrates how the construction methodologies and the construction quality plan for the System Infrastructure will interface with the Lifecycle programs to be implemented in conjunction with the Maintenance and Rehabilitation Services plan and how that interaction will be accomplished; (f) details of the organizations and service providers involved in delivery of Maintenance and Rehabilitation Services, including, (i) roles and responsibilities; (ii) approximate number of staff to be deployed – including differentiation between direct employees and sub-contractors required; (iii) roles and responsibilities of key personnel and their availabilities for the Project; and (iv) how key staff will be managed to provide required coverage 24 hours per day and 7 days per week; (g) the approach to mobilization of the Maintenance and Rehabilitation Services for the System Infrastructure before the Revenue Service Commencement and for further certainty Existing System Infrastructure transferred after Financial Close, including details of the Proponent's approach to safety, quality and environmental compliance, communications, recruitment, training and addressing any other issues identified by the Proponent. (2) Provide a description of the approach of the Maintenance Director to problems encountered, solutions identified and strategies implemented, based on their experience on comparable transit projects, for: (a) day-to-day maintenance of rail transit according to pre-established performance specifications;

	(b) transit and rail systems where the maintenance and operations are delivered by legally-separate entities; (c) maintenance resourcing, including labour, equipment, material, facilities, suppliers and subcontractors; (d) rehabilitation over a long-term contract to achieve performance specifications; (e) developing and implementing asset management strategies; (f) lifecycle asset management requirements, and maintenance details for the design and construction phase of projects; (g) work safety programs; (h) maintenance-related quality management; (i) maintenance-related safety management; (j) maintenance-related emergency response protocol (k) Ontario and Canadian specifications, standards and practices, or equivalent; and (l) coordination and communication with the City Persons, Key Individuals, Stakeholders, Passengers and public.
4.2	**Maintenance & Rehabilitation Approach to Appendix A (Maintenance Performance Requirements) to Schedule 15-3 of the Project Agreement (maximum of 30 pages)**
	(1) Describe the Proponent's overall approach to Maintenance and Rehabilitation Services, including a description of the Proponent's approach to managing, implementing and achieving the requirements and obligations set out in Appendix A to Schedule 15-3 – Maintenance and Rehabilitation Requirements of the Project Agreement, including, (a) Early interaction of the Maintenance and Rehabilitation Services team with the design and detailing of System Infrastructure that will minimize the need for future maintenance and rehabilitation activities and facilitate efficient maintenance and lifecycle replacement of the System Infrastructure; (b) how the System Infrastructure will be maintained with minimal impact on the operations of Operator and Other Contractors throughout the Maintenance Period; (c) how the Proponent's mobilization before Substantial Completion will meet Project Co.'s obligations in Appendix A to Schedule 15-3 – Maintenance and Rehabilitation Requirements of the Project Agreement, including Project Co.'s obligations to coordinate

with the Operator, Other Contractors, VIA, CN Rail, and CP Rail;

(d) a preliminary Maintenance and Rehabilitation Plan that addresses, at a minimum:

(i) planning and scheduling Maintenance and Rehabilitation Services, including, the scope, activities and processes associated with each of,

(A) custodial maintenance;

(B) planned preventive maintenance;

(C) corrective maintenance;

(D) interior/exterior landscaping and snow and ice removal where relevant, and

(E) mitigation of Payment Mechanism deductions and managing KPI expectations

(e) a description of the Proponent's approach to maintenance planning, implementing, recording, reporting and submittals;

(f) a description of the Proponent's approach to achieving compliance with the Proponent's submitted plans and schedules; and

(g) a description of the Proponent's approach to meeting the performance requirements and performance criteria set out in Attachment 2 through to Attachment 16 to Appendix A of Schedule 15-3 – Maintenance and Rehabilitation Requirements of the Project Agreement.

(2) Provide a description of the Proponent's approach to limiting the impact of Maintenance and Rehabilitation Services on Passengers, the public and System Users, including the Proponent's approach to:

(a) minimizing circumstances where operations of the System and adjacent facilities are impeded;

(b) specific traffic management approaches and strategies for working around closures of track sections, Stations, adjacent or crossing roadways, and other facilities;

(c) the scope, activities, and processes associated with recruitment, training, certification, competence management, performance management, organization and human resource management; and

(d) Intentionally deleted.

(3) Provide a description of the Proponent's approach to data management, covering as a minimum the different elements of the System Infrastructure, data collection, data recording, data storage, data reporting and access to data in order to ensure:

(a) delivery of the Maintenance and Rehabilitation Services;

(b) ongoing coordination and communication with Stakeholders;

(c) the scope, activities, and processes associated with the Help Desk Plan, including,

(i) management of resourcing, failures, defects, deficiencies, non-compliances, Events, Rectification Times, Remedial Periods, and Response Times; and

(ii) preliminary proposals for decision-support tools for categorization and prioritization of Help Desk calls;

(d) the scope, activities, and processes associated with management of safety and management of security;

(e) the scope, activities, and processes associated with Records and the Maintenance Management System, including the Performance Reporting System to be used by the Proponent.

(f) the scope, activities, and processes associated with the following during the Maintenance Period:

(i) quality management;

(ii) environmental obligations;

(iii) testing and commissioning;

(iv) traffic management; and

(v) Fixed Facilities management.

(4) Provide a description of the Proponent's proposed approach to interacting and interfacing with the following entities during the Maintenance Period:

(a) Operator, including the scope, activities, and processes associated with LRT Rules and Standard Operating Procedures, training, booking process, hand-off of Vehicles, and reporting and monitoring performance;

(b) Capital Railway, including a detailed description of Project Co.'s understanding of the reporting requirements of federally controlled railroads;

(c) City Persons;

(d) Utility Companies;

(e) VIA;

(f) CN Rail;

	(g) Carleton University; (h) OMCIAA; (i) NRC; (j) provider of Fare Collection System; (k) MTO; and (l) NCC.
4.3	**Maintenance & Rehabilitation Approach to Appendix B (Asset Preservation) to Schedule 15-3 of the Project Agreement (maximum of 25 pages (excluding lifecycle work schedule))**
	(1) Describe the Proponent's overall approach to the asset management and preservation requirements that includes a description of the process of planning for mobilizing, managing, implementing and achieving the requirements and obligations set out in Appendix B of Schedule 15-3 – Maintenance and Rehabilitation Requirements of the Project Agreement, including a preliminary Asset Management Plan that addresses as a minimum: (a) planning and scheduling asset management activities, including the scope, activities and processes associated with each of: (i) inspecting assets; (ii) rating the condition of assets; (iii) recording the condition of assets in an inventory of assets; (iv) monitoring changes in the condition of assets over time; (v) approach to asset obsolescence throughout the Project Term (vi) decision-making, prioritization, project management and scheduling for work arising from the condition of assets, including additional inspections, non-destructive testing, technical evaluation, simulation, asset performance modeling, monitoring, replacement, treatment, remediation, or rehabilitation; (vii) implementation of consistent and sustainable standards as detailed in ISO 55000:2014 (viii) reporting on asset condition, changes in asset condition over time, and work arising from the condition of an asset to include for setting strategy target levels and timescales for improving and sustaining each component of the asset inventory ; (ix) define any required interfaces with the City, Stakeholders and or third party organisations; and (x) meeting the Performance Criteria in accordance with Appendix B of Schedule 15-3 – Maintenance and Rehabilitation

	Requirements of the Project Agreement. (b) the scope, activities and processes associated with Asset classes and inventory; (c) the scope, activities, and processes associated with Record Drawings; (d) the scope, activities, and processes associated with Records and the Asset Management Plan, including, (i) the Asset condition data and inventory information systems to be used by the Proponent; (ii) the Proponent's approach to data management, covering as a minimum the different elements of the System Infrastructure, data collection, data recording, data storage, data reporting and access to data in order to ensure ongoing coordination and communication with the Operator, the City Persons, and Stakeholders; (iii) the Proponent's approach to Major Maintenance Shutdown Periods, including the scope, activities and processes associated with asset management requiring the Major Maintenance Shutdown Periods; (iv) the Proponent's approach to ensuring compliance with all regulatory testing and inspections; and (v) procurement and supply chain activities to ensure value for money throughout the Project Term (2) Provide a lifecycle replacement/refurbishment work schedule which clearly identifies the asset life, strategy and replacement schedule for the System Infrastructure which will require replacement, refreshment, and/or refurbishment, during the Maintenance Period as part of the Asset Management Plan. The lifecycle replacement/refurbishment schedule must be consistent with the schedule of Lifecycle Payments submitted by the Proponent. (3) Intentionally deleted
4.4	**Maintenance & Rehabilitation: Approach to Appendix C (Expiry Date Requirements) to Schedule 15-3 and Schedule 23 – Expiry Transition Procedure of the Project Agreement (maximum of 5 pages)**
	(4) Describe the Proponent's approach to the requirements of Appendix C to Schedule 15-3 and Schedule 23 – Expiry Transition Procedure of the Project Agreement that includes a description of the process of planning for, managing, implementing and achieving the Remaining Service Life at Expiry Date including, (a) a preliminary Handover Maintenance Plan that addresses as a minimum the requirements contained within Appendix C of Schedule 15-3 of the Project Agreement; and (b) the requirements set out in Schedule 23 – Expiry Transition Procedure of the Project Agreement.

APPENDIX A

MOBILITY MATTERS LANES

(1) Requirement of Traffic and Transit Mobility Management Plan

(a) Traffic and Transit Management Plan – Lanes

(i) Summary

(A) Each Proponent shall create a TTMP during the development of their Proposal upon which the Reference Lane Closures and Aggregate Target Lane Closure shall be based.

(2) Submittals – LANES

(a) Each Proponent shall submit the following with its Proposal:

(i) Draft Lane Closure Target Letter as required by the Project Agreement, based on the TTMP and including the Aggregate Target Lane Closure together with the Proponent's TTMP appended to the Lane Closure Target Letter.

(ii) Narrative indicating primary features included in the Proponent's TTMP and illustrating the measures incorporated into the Proponent's design. Provide a written statement of how Project Co will manage construction to ensure the measures in the Proponent's design realize their full potential.

(iii) Description and reports of any software or calculations used. Narrative describing differences between results of TTMP and Aggregate Target Lane Closure.