TRILLIUM LINE EXTENSION PROJECT

TECHNICAL EVALUATION | CONSENSUS WORKSHEET

PROPONENT:	TEA	**FINAL GRADE:**	84.03%
DATE:	Start: 26 September 2018, 10:15am End: 26 September 2018, 4:05pm	**FINAL SCORE:**	420.15

		Maximum Points	Consensus Grade	Strengths and Weaknesses
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	**15**	85%	
				Strengths: Past partnerships with the City, and past experience working at the Airport. Provided several examples that demonstrate relevant experience. Emphasis on public and worker safety. Proposing a strong team of key individuals, with rail experience and previous experience in Stage 1 (WSP – lead designer for Stage 1, Tomlinson). Early use of the M&R team is clearly identified and structured. Proposing experienced Colas staff. Tomlinson and Colas have self-performing ability. Good understanding of the project. Covered all aspects that were asked for in detail. Intend to contract Rail Term for rail traffic control during shutdown. **Weaknesses:** Some of the key individuals do not meet the years of experience requirements and the previous experience on projects of similar nature, e.g. Utility Manager, Environmental Manager and Safety and Security Manager. Consensus: 85%
1.2	**Integrated Management System (maximum of 30 pages)**	**20**	82%	
				Strengths: The training program, including preventive actions, is well structure, with full philosophy of training defined for all workers. Provides a good definition of communication strategy and lines of communication. The decision making process includes lessons learned. Management Team is involved in the IMS approach. IMS Director has performed this role and implemented this system in a previous rail project. **Weaknesses:** Station Communications equipment should be grouped in with the station design: currently shown as two separate design packages. No apparent cross-reference to the SIMP. Consensus: 82%
1.3	**Environmental Management Plan (maximum of 20 pages, excluding (1)(l))**	**15**	82%	
				Strengths: Good understanding of project-specific contamination issues tied to the risk assessment. Demonstrated familiarity with Environmental Reports and local conditions and provided specific list of areas with high potential for contamination. Proposal suggests specific sensitive receivers (MSF, Dow's Lake and Walkley Station). Provide specific measures at VIA grade separation and Hunt Club to limit Leda clay excavation. **Weaknesses:** Environmental Specialists are not part of the initial core team, and there is no detail provided as to when their engagement commences. No mention to past experience with permitting. Limited detail on mitigation strategies for noise and vibration, during the design stage. Consensus: 82%
1.4	**Construction Communications and Stakeholder Engagement (maximum of 10 pages)**	**5**	85%	
				Strengths: Good example of partners working together in past projects and lessons learned (specifically Bank Street reconstruction project) Good examples of community involvement and crisis communication. Key Individual has good past experience. **Weaknesses:** Limited project-specific ideas in respect to the Communications Strategy. Consensus: 85%
1.5	**Works Schedule PBS-1 (maximum of 10 pages excluding PBS-1)**	**30**	83%	
				Strengths The schedule has a good critical path, reflects PA constraints, and addresses all the criterion that allow monitoring of the schedule. Schedule control techniques and tracking/reporting methods are very good. Defines a clear risk mitigation strategy. Provides a clear definition of the engagement timing of the M&R Manager. Provides very good explanation of Airport and NRC constraints. **Weaknesses** Limited detail provided on safety certification and Alstom retrofit. Consensus: 83%

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1.6	**Risk Management Plan (maximum of 10 pages – excluding Risk Register)**	**5**	85%	
				Strengths Preliminary risk assessment demonstrates a good understanding of the key project risks, includes good categorization of the risks, and draws on previous project experience. Good summary of project constraints. Very good proposed risk mitigations including use of self-supplied material resulting in better control of the supply chain. Provided a contingency plan. **Weaknesses** N/A Consensus: 85%
1.7	**Systems Integration Management Plan (SIMP) (maximum of 30 pages)**	**15**	85%	
				Strengths Addressed all aspects required under a high level description while providing an overall good level of detail, including a detailed listing of tests with City participation. Provided a good conflict resolution process and a very good ICD matrix (thorough and detailed). **Weaknesses** Incorrectly states that core switches and RTU switches are issued by the City. Consensus: 85%
1.8	**Early Works Agreement**	**NOT SCORED**		

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2.0 DESIGN SUBMISSION				
2.1	**Civil and Guideway Design Submission (maximum of 50 pages)**	**25**	**85%**	
				Strengths: Very good quality of the design package overall. Clear and detailed drawings that articulate premium project solutions. Includes exceedances that provide value to the City: - Rideau River Bridge is designed as a full replacement with a Level 1 aesthetics and the design addresses conflicts with the MUP. - Lester Rail bridge is design for freight loading and gradient, and therefore eliminates the requirement for an at grade crossing - Bowesville cross-over and Limebank storage track have been provided, although these are not required by PSOS. **Weaknesses:** Brookfield siding is non-conformant and may impact the design for the VIA grade separation (Ellwood), as well as operational impacts (results in a pinch point due to a shorter siding). NRC spur connection as designed will require rework in the NRC Yard. Consensus: 85%
2.2	**Utilities, Geotechnical, Drainage and Stormwater Management, Urban Design and Landscape Architecture (maximum of 45 pages)**	**25**	**82%**	
				Strengths Clear and comprehensive Urban Design and Landscaping package, demonstrating detailed MUP design, and snow storage areas. Geotechnical package shows very detailed project-specific understanding of geo and hydro geo conditions with a clear plan forward. Utilities Design demonstrates good understanding of the TC EC-10 and municipal requirements, and provides a detailed breakdown of utility types. Offered pre and post construction CCTV. Provides specific detail regarding water works at Leitrim and Airport. **Weaknesses** No specific design criteria described for the Stormwater Management design, i.e. only cursory descriptions and limited detail on how the stormwater will be managed. Limited detail on Public Art. Consensus: 82%
2.3	**Systems Design Submission (maximum of 40 pages)**	**25**	**85%**	
				Strengths Signalling design is robust and well described, providing a full detailed narrative on all the functionalities and features of the signalling system, and allows for a backup solution for freight rail.

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				Integration is flagged as risk issue, and there is a defined plan to mitigate. Interface management is addressed comprehensively. **Weaknesses** N/A Consensus: 85%
2.4	**Station Design Submission (maximum of 40 pages)**	**30**	**69%**	
				Strengths Good design provided for Carling station. Overall good level of mechanical and electrical design. **Weaknesses** Design of Uplands, Bowesville and Leitrim ramps is non-conformant with passenger flow requirements. Walkley Station has no street presence, and has a non-intuitive stair connection / passenger flow around the back of the fare gate building. The lack of weather protection across all stations is non-conformant with PSOS. Inadequate massing and scaling of the station designs, i.e. layout/scale of the station pavilions is not coordinated with the ancillary buildings. No detail provided on vehicle platform interface at stations. Consensus: 69%
2.5	**New Walkley Yard Design Submission (maximum of 30 pages)**	**20**	**85%**	
				Strengths Overall quality of design package is good and provides comprehensive detail. Very good yard layout and front entrance arrangement. The design includes a good target for LEED certification (6-point buffer). Mechanical and electrical details are comprehensive and the facility functions are well coordinated and consolidated. **Weaknesses** Redundant track access to mainline is unobservable. Narrative includes only limited information on materials and finishes, namely in respect to lifecycle. Fencing, crash barriers and bollards are not addressed in the narrative. Consensus: 85%
2.6	**Vehicle Fleet Design Submission (maximum of 30 pages)**	**20**	**80%**	
				Strengths Demonstrates very good understanding of the required work and has very good project experience in similar scope of work (First Group has proven relevant past experience in overall integration of vehicle on-board systems). Provided a detailed list of planned modifications to the existing vehicle fleet. The use of system engineering processes to manage the work provides confidence in the ability to execute the work. **Weaknesses** Limited detail on how to address the differing vehicle platform heights for the mixed vehicle fleet. Consensus: 80%
2.7	**Airport Link (No limit)**	**NOT SCORED**		
2.8	**System Safety and Security Certification (Maximum Pages 15)**	**10**	**80%**	
				Strengths Good description of the program, describing processes requiring approval and sign-off. Safety described as a significant priority, with strong key individuals proposed on the team. **Weaknesses** Narrative could have been further enhanced with project-specific details. Consensus: 80%
2.9	**Dow's Lake Tunnel Design Submission (maximum of 10 pages)**	**10**	**85%**	
				Strengths Design package is well developed. Provides a detail plan to rehabilitate the expansion joints and crack sealing, and replacement of pumps and heat tracing.

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				Provision for four new reversible axial fans for TVS. Proposes to demolish and replace sections of the base slab as required. Substantial expansion to pump house to accommodate new fans. **Weaknesses** Design did not specifically address the outfall to Dow's Lake. Consensus: 85%

		Maximum Points	Consensus Grade	Strengths and Weaknesses
3.0	**CONSTRUCTION SUBMISSION**			
3.1	**Emergency Response Plan (maximum of 20 pages)**	**10**	**90%**	
				Strengths Very good response with detail regarding personnel and activities, and acknowledging project-specific high risk areas. Includes a comprehensive risk register. Describes specific emergency response actions at the Airport. All incidents are reported to the City of Ottawa. Includes job hazard analysis. **Weaknesses** N/A Consensus: 90%
3.2	**Traffic and Transit Management Plan and Construction Access Management Plan (maximum of 40 pages)**	**25**	**85%**	
				Strengths Very good project specific information with good visual support detailing the traffic management activities. Describes mitigation of construction impact on traffic. Lists construction accesses for each site along with foreseen impacts and proposed mitigation. **Weaknesses** Lack of detail on the daily monitoring requirements. No information regarding community impacts. No haul routes identified. The statement "no impact to transit" is not substantiated and is limited to the lane closures. Consensus: 85%
3.3	**Construction Plan (maximum of 40 pages, excludes staging drawings)**	**40**	**95%**	
				Strengths Very good understanding of project scope; demonstrated ability and resources to deliver the project. Very good description of the strategies proposed for managing construction adjacent to active rail lines. Good staging solutions developed to avoid issues related to utility conflicts and traffic impact. Propose a Ground Disturbance Permit Program, which defines an internal process for approval of excavation activities. Includes a list of secondary impacts and related mitigation tasks. Tomlinson's ability to self-supply relevant materials such as concrete, asphalt and aggregate provides more confidence in the project delivery. Proposes to split supply and install contracts which allows more control. Includes a girder erection plan at the Airport. Includes a commitment to high quality design used for tendering. The team retains a large existing reserve of labour and equipment. Commitment to addressing constructability issues early in the design development. Narrative acknowledges the required coordination with Capital Rail. Provides good detail on Ellwood and CN diamonds working with VIA. The Technical Director and Construction Manager have worked together in past projects. **Weaknesses** N/A Consensus: 95%
3.4	**System Testing and Commissioning Plan (maximum of 25 pages)**	**25**	**85%**	
				Strengths Good section by section delineation of City and Project Co responsibilities, and good understanding of the trial running activities. Demonstrated good understanding of steps required to achieve substantial completion, and provided a logic diagram/flow chart detailing the path to substantial completion through the Independent Certifier. Provide a breakdown and further detail of the various tests. T&C coordinator is identified from Financial Close. Propose a software tool for tracking minor deficiencies. Detailed consideration of performance factors (passengers, operations, weather), and a good understanding of timing requirements.

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				Weaknesses N/A Consensus: 85%
3.5	**Health and Safety Certification (no page limit)**	**NOT SCORED**		
3.6	**Mobility Matters Lanes (maximum of 5 pages)**	**5**	**80%**	
				Strengths Strong detailed narrative describing location by location of road closures, broken down by road section and closure timing. **Weaknesses** No cost details included (hours were included). Consensus: 80%

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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)**	**40**	**89%**	
				Strengths Strong key individuals proposed, with direct experience in similar projects. Several (6) senior level maintenance staff assigned to the project from the commencement date. Direct experience on rail wayside infrastructure and vehicle systems. Applying strategies and techniques of previous projects to project-specific situations and challenges, including work safety programs. Describes a process that considers the M&R team's interpretation of the performance specifications, and contribution to the design, ensuring key elements are considered to achieve the required performance metrics. Addresses the importance of transferring the existing system infrastructure after Financial Close. Clear strategy for taking over and maintaining the VIA diamond. **Weaknesses** N/A Consensus: 89%
4.2	**Maintenance & Rehabilitation Approach to Appendix A (Maintenance Performance Requirements) to Schedule 15-3 of the Project Agreement (maximum of 30 pages)**	**40**	**80%**	
				Strengths Maintenance company is providing a Facility Management Guide which will include input to the design and construction, from the start of the project. Provides a list of Transport Canada regulatory filings, demonstrating an understanding of the standards that need to be met, and setting a baseline for how a specific part of the track should be kept in service. Detailed breakdown of mobilization for the different phases, including the shutdown period. **Weaknesses** Limited detail regarding the interface with authorities (CN, Airport, NRC and fare collection). Consensus: 80%
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))**	**35**	**85%**	
				Strengths Use of the Shutdown Period to undertake improvements to the LINT fleet to ensure reliability of the fleet. Built in Capital Rail's Inspection and Safety rules into the CMMS, as well as Stadler and LINT maintenance plans. Good examples provided for decision making prioritization on the condition of assets, e.g. - Thermal imaging - Benchmarking - Magnetoscopes - Updating Preventative Maintenance Plans to increase performance - Failure analysis and root cause analysis Using FRACAS to look at how obsolescence will affect the fleet. Condition reports to expand or extend the balance of life of components or subsystems. Acknowledgement of Capital Rail's Bridge safety management plan and BCI ratings. **Weaknesses** N/A Consensus: 85%

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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)**	**10**		
				Strengths Detailed org chart and flow chart indicating team's understanding of the required positions at the end of the maintenance and rehabilitation period, to support handover. Good list of supporting information to be given to the City at handover. Good understanding of Appendix C of Schedule 15-2 and PA Schedule 23. **Weaknesses** N/A Consensus: 85%