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SCHEDULE 15-1
TECHNICAL DEFINITIONS AND REFERENCE DOCUMENTS

ARTICLE 1 DEFINITIONS

The Parties acknowledge that in so far as Schedule 15-3 – Maintenance Specification makes reference to standards or requirements within the Expanded Design and Construction Specifications in respect of the Stage 2 System and/or the Belfast MSF Expansion Works, any defined terms used within such specifications shall be understood by reference to the meanings defined therein, notwithstanding that such definitions may be different to the defined terms set out below.

Access Points (AP) means radio transceivers connected to the CBTC Network that allow network communications between trains and wayside CBTC equipment.

Action Levels means an instrumentation monitoring level unique to specific geotechnical instruments which, upon reaching, requires an action.

Advisory Temporary Signing Plan is a sub-plan of the TTMP and has the meaning given in Schedule 15-2, Part 7.

Alignment Envelope is as defined in Schedule 15-2, Part 1, Section 1.7.

Ancillary Facilities means those facilities, buildings, or structures adjacent to or directly linked to OLRT stations. They can also be standalone facilities or structures located within or adjacent to the OLRT right of way. They include the following elements:

(a) Pedestrian overpass or underpass structures;

(b) Passenger shelter structures;

(c) Structures containing mechanical, electrical, communications or other service equipment;

(d) TPSS Buildings;

(e) Signal equipment enclosures;

(f) Parking areas;

(g) Entrances;

(h) PPUDO;

(i) Bus terminals;

(j) Bus layby areas; and

(k) Bus Operations support building.

Annual Preventive Maintenance Plan means at any time during the Maintenance Term, that component of the Maintenance and Rehabilitation Plan describing the Preventive Maintenance for the then current or immediately following Contract Year, as the context requires.

Applicable Codes means all federal, provincial, and municipal statutes, regulations, acts, by-laws.

Asset Management Plan means a plan which identifies the replacement schedule for the OLRT System components based on their expected Design Life, which plan forms part of the Maintenance and Rehabilitation Plan.

Authorities Having Jurisdiction has the meaning given in NFPA 130.

Automatic Train Control (ATC) means a vital system for controlling train movement.

Automatic Train Control Zone Controller means a microprocessor based system which tracks train location, signal and switch positions and which provide Movement Authority limits to trains.

Automatic Train Operation means a non-vital overlay for controlling train speed and operation within the limits allowed by the ATP system. Automatic Train Operation provides automatic station stopping, door opening and closing and automatic operation between stations.

Automatic Train Operation Mode means an LRV Train operation mode in which CBTC Automatic Train Operation capabilities are enabled on top of Automatic Train Protection.

Automatic Train Protection means a vital system for enforcing safe train movement and speeds.

Automatic Train Protection Only Mode means a mode of LRV train operation in which only CBTC ATP functions are enabled.

Automatic Train Supervision means a non-vital system providing supervisory commands to adjust train speeds and station dwell times and to request interlocking systems to set up and cancel routes.

Backup Control Centre (BCC) means an emergency control center facility providing a remote location complete with the basic functioning systems to dispatch, monitor, and control operations of the OLRT in case the TOCC at 875 Belfast is unavailable.

Barrier-Free means a feature of a building and its related facilities whereby it can be approached entered and accessed by persons who are physically, mentally or sensory challenged.

Base Kilometres has the meaning given to it in Schedule 15-3.

Baseline Vehicle Kilometers means the scheduled annual Revenue Service Vehicle Kilometers set out for each Service Level in the Operations Service Plan as of Financial Close.

Booking means the schedule of work assignments for Drivers established by the City, several times a year (beginning of January, end of April, end of June, beginning of September) in accordance with the Operations Service Plan.

Bridge means a structure that provides a Roadway or walkway for the passage of vehicles, pedestrians or cyclists (or other similar forms of transportation) across an obstruction, gap or facility that is greater than 6 metres in span.

Bus Rapid Transit Service Management Plan has the meaning provided in Schedule 10 – Review Procedure.

Central Instrument House means a wayside control room housing all the controls for an interlocking or group of interlockings.

Change means:

(a) a request by the City for a Non Maintenance Repair;

(b) a request by the City or Project Co for a variation, whether by addition, amendment, substitution, omission or otherwise, to any of the Maintenance and Rehabilitation Requirements; and

(c) does not include a request by the City relating to any matter arising out of a Maintenance Emergency.

City means the bus and light rail transit system run by the City of Ottawa.

City Central Area is as defined in the City of Ottawa Transportation Master Plan

City Change means a Change requested by the City in accordance with Schedule 15-3.

City Change Certificate has the meaning given to it in Schedule 15-3.

City Direction has the meaning given to it in Schedule 15-3.

Closed Circuit Television means a video transmission system monitoring a location, recording images and presenting the images to a central location.

Communication Based Train Control means a system of tracking train movement and safely controlling that movement based upon communications between trains and wayside controllers.

Communications System is as defined in Schedule 15-2 Part 4 Article 1 – Introduction.

Comparable LRT Safety Standards means operating rules, standard operating procedures and standard Safety practices based on best practices for such rules, procedures and practices used under similar operating conditions in comparable LRT systems.

Compensating Construction has the meaning given to that term in the OBC.

Constant Failure Rate means the constant failure rate specified by Project Co.

Construction Monitoring Zone has the meaning given in Part 1 Article 20 – Protection of Existing Adjacent Structures.

Corrective Maintenance means the repair of failed E&M and/or Vehicles or the repair of any portion of the Fixed Facilities to restore normal operating condition to a state in accordance with the Standard and includes the repair or replacement of a failed system or subsystem through actions such as:

(a) investigation, localization and isolation of faults (troubleshooting);

(b) disassembly, reassembly, repair or replacement of the affected part or parts;

(c) retesting of the repaired system or subsystem; and

(d) correcting Defects.

Corrective Maintenance Plan means the plan establishing the general policies, procedures and methodology which Project Co shall apply to perform Corrective Maintenance, including without limitation to identify and analyze existing and anticipated Deficiencies, including inspection and testing, and which shall be employed by Project Co to affect the Repairs and Correction of Deficiencies when they occur during the Maintenance Term.

Cost Recovery means total actual net cost to Project Co based on an open book system.

Coupling Mode means a mode of LRV train operation in which the CBTC system allows a Train or LRV to close in on another LRV or Train to couple the two together.

Culvert means a drainage structure designed to allow the passage of surface water, livestock or pedestrians under a Roadway, railway or roadside entrance.

Current Level of Service means the level of service operated by OC Transpo and STO, as of September 4, 2011.

Custodial Maintenance means all forms of custodial maintenance and all activities, standards and obligations related to custodial maintenance for the System which are set out in Schedule 15-3, but excluding City Custodial Maintenance with respect to City Custodial Maintenance Areas.

Custodial Maintenance Areas means those areas and elements of the System included in Schedule 15-3 and identified therein as the responsibility of Project Co with respect to Custodial Maintenance, and for further certainty, includes Vehicles, the Maintenance and Storage Facilities, the Alignment, the Tracks and, to the extent identified in Schedule 15-3, the Stations.

Cycling Traffic Planning Study has the meaning given in Schedule 10 – Review Procedure.

Daily Maintenance Report has the meaning given to it in Schedule 15-3.

Defect means the condition of any part of the work which does not meet the contract document requirements; cause a train or a portion of the Work to cease operating or operate in a degraded mode; or inflicts damage or harm on any other portion of a train or the Work.

Deficiency means any condition which exists with respect to any aspect of the System and which requires Maintenance, including without limitation any failure of the System to meet the Standard, other than a Non Maintenance Repair.

Design Criteria means established parameters used during design.

Design Life is defined as either of the following:

(a) In Schedule 15-2, Design Life has the meaning given to that term in CAN/CSA-S6-06; or

(b) In Schedule 15-3, Design Life means the interval during which a Constant Failure Rate will occur with respect to a component, subsystem or system.

Developer's Guide has the meaning given in Part 1 Article 19 – Future Adjacent Construction Requirements.

Disposed, Disposed of or Disposal means disposal as identified in the "Waste and Excess Materials Management for Maintenance (MTO)" operational specification.

Ditch means an open drainage facility constructed to carry water to an outlet.

Drained Structure (Tunnel) means a Structure (or Tunnel) partly or fully below the groundwater table where a drainage system is provided to permanently prevent the build-up of hydrostatic pressure around the Structure (or Tunnel).

Driver means a City employee who has been trained and certified by an OLRT Trainer to operate on the OLRT.

Driver Training means a program of Driver Training a City employee must attend prior to becoming a certified OLRT Driver. The program is provided by an OLRT Trainer.

Dwell Time means the amount of time a Train resides at a Station.

Epidemic Defect shall be deemed to have occurred at any time during the Maintenance Term when the Failure Rate within a Population of a component, subsystem or system exceeds the Constant Failure Rate by 10% measured over the time period in which the constant Failure rate is expressed but, for the avoidance of doubt, an Epidemic Defect shall exclude any Defect which arises:

(c) as a result of the failure by the Operator to operate the System in accordance with the Operation Requirements;

(d) out of the replacement or repair of any component, subsystem or system where such replacement or repair is the responsibility of the Operator or the City;

(e) out of the replacement or repair of any component, subsystem or system by the Maintenance Contractor where such replacement or repair is a product of the Design Life and Constant Failure Rate of the applicable component, subsystem or system; and/or

(f) any Defect which occurs after the expiration of the Design Life of such component, subsystem or system.

For the purposes hereof, the "**Population**" of a component, subsystem or system means the total number of identical line replaceable units (as identified in the Response) of a distinct type and function, whether the line replaceable unit consists of individual components, subassemblies or unit assemblies, incorporated in the fleet of vehicles provided as part of the Project.

Electromagnetic Compatibility and Test Plan has the meaning given in Schedule 10 – Review Procedure.

Electromagnetic Compatibility Control Plan has the meaning given in Schedule 10 – Review Procedure.

Emergency Costs has the meaning given to it in Schedule 15-3.

Emergency Response Plan has the meaning given in Schedule 10 – Review Procedure.

Emergency Response Standard Operating Procedures means the mandatory standard operating procedures for response to an Emergency, being part of the Standard Operating Procedures established for the System.

Emergency Traffic Plan has the meaning given in Schedule 15-2, Part 7.

Employee Security Standard means the security clearance and identification procedures and requirements mandated by the hiring policies, practices and standards of the City's Human Resources Department, as may be amended from time to time

Entry and Exit Points means the point where the VIA Rail corridor intersects with the tracks which lead to and from the Belfast MSF, and where Moodie Drive intersects with the tracks which lead to the Moodie MSF.

Erosion and Sediment Control Plan has the meaning given in Schedule 10 – Review Procedure.

Essential Services Code is as defined in the OBC and in addition shall include all components and elements, including but not limited to the building envelope, mechanical systems, communication systems, and electrical systems to maintain uninterrupted function during and after an event.

Existing Adjacent Structures means Adjacent Structures and other structures that are susceptible to ground movements caused by construction activities.

Failure means an event primarily due to Design inadequacy for the duty cycle or stress level, a quality defect, or an inability to survive the operational environment. A Constant Failure Rate is therefore an indication that the Design criteria are consistent with the Operation Requirements and Specifications and that the quality standard as provided in the Response is appropriate to the required Design Life.

Failure Rate means the probability of Failure in a given time interval.

Federal Lands mean all lands owned and managed by all federal government departments.

Federally Mandated Stations means those stations within the project that are subject to Federal Land Use Agreement letters.

Foundation means a structure that transfers loads to the earth.

Ground Movement means the movement of ground directly or indirectly caused by construction activities. Ground Movement may manifest itself in such ways as surface settlement, ground settlement, the movement of retained excavation systems, the movement of slopes, and the ground vibrations arising from construction activities.

Handover Maintenance means the testing, disassembly, refurbishment, rebuilding and/or repair of any components of the System to be completed by Project Co within the last sixty (60) months of the Maintenance Term and prior to the expiry of the Maintenance Term in accordance with the requirements contained in Schedule 15-3.

Handover Maintenance Period means the last 60 calendar months of the Maintenance Term.

Handover Maintenance Plan means the documented plan for the performance of the Handover Maintenance in compliance with the requirements of Schedule 15-3.

Handover Maintenance Work Plan has the meaning given to it in Schedule 15-3.

Immediate or **Immediately** means the initiation of an activity as soon as possible after Detection or being Made Aware and no later than 2 hours from the time of Detection or being Made Aware, save in respect of Schedule 15-3 Appendix A Attachments 3 to 10 (inclusive), where "Immediate" or "Immediately" has the meaning given to it in Article 7.0 of Appendix A to Schedule 15-3. If more than one activity requires immediate action at the same time, Project Co shall give priority to the highest degree of Hazard.

Implementation Plan is a sub-plan of the TTMP and has the meaning given in Schedule 15-2, Part 7.

Incident Management Plan is a sub-plan of the TTMP and has the meaning given in Schedule 15-2, Part 7.

Initiating Notice has the meaning given to it in Schedule 15-3.

Inter-modal Transfer Facility means the movement, or transfer, of passengers from one mode of transportation such as bus transit to another mode of transportation such as the OLRT.

Interruption Period has the meaning given to it in Schedule 15-3.

ISO 9001:2008 means the quality management system so designated and established by the International Organization for Standardization.

Landscape Plan means a plan that specifies the hard and soft landscape material.

Light Rail Vehicles means a form of urban rail public transportation that generally has a lower capacity and lower speed than heavy rail and metro systems, but higher capacity and higher speed than traditional street-running tram systems. The term is typically used to refer to rail systems with rapid transit-style features that usually use electric rail cars operating mostly in private rights-of-way. LRVs are typically powered by a pantograph collecting power from an overhead catenary.

LRT Rules means the documented rules which Project Co shall establish in consultation with the City, taking into account Comparable LRT Safety Standards and implement to govern (i) the movement of Trains and other non-passenger vehicles within the System and (ii) the conduct and coordination of Maintenance work and other activities on the Tracks, signalling systems within the System, and electrical equipment and systems forming part of the E&M, as approved and amended from time to time by the City, identifying the mandatory rules to be followed by the City and Project Co (including personnel employed in the performance of Operations and Maintenance), including in response to conditions, events, or Deficiencies which cause interruption to or interference with the Operation of the System.

LRT Systems means communications, Traction Power and distribution, stray current, EMI, intrusion detection, and all other required and necessary elements, components and appurtenances to ensure the safe operation of the OLRT System.

Maintain means to perform the Maintenance, as required in accordance with the Project Agreement including the Maintenance and Rehabilitation Requirements, and "**Maintained**" shall have a corresponding meaning.

Maintenance means Preventive Maintenance, Corrective Maintenance, Custodial Maintenance and Handover Maintenance.

Maintenance and Rehabilitation Plan means the documented plan for the performance of the Maintenance Services, provided to the City and with respect to which the City has no material objection at the time of the Final Design Submittal as contemplated in the RFP, which shall thereupon be attached as Appendix A Attachment 1, as revised from time to time in accordance with the Project Agreement.

Maintenance and Rehabilitation Services means Maintenance to be provided by Project Co to the City in accordance with Schedule 15-3 and the other terms of the Project Agreement and shall also include the supply, operation and maintenance of any vehicle and or equipment used to provide Maintenance.

Maintenance and Storage Facility means each of the maintenance, operation and storage facilities for the Vehicles and System and includes the Maintenance Buildings, Operations Crew Facilities, Storage Yards and Vehicle Storage facilities.

Maintenance Change Instruction has the meaning given to it in Schedule 15-3.

Maintenance Change Report has the meaning given to it in Schedule 15-3.

Maintenance Dispute has the meaning given to it in Schedule 15-3

Maintenance Dispute Resolution Procedure has the meaning given to it in Schedule 15-3.

Maintenance Emergency means any Emergency which is caused by, or which arises as a result of:

(a) Project Co's performance of, or failure to perform, the Maintenance Services;

(b) a Defect or Deficiency of the Fixed Equipment, Vehicles or Fixed Facilities;

(c) any act or omission of Project Co or any Employee or officer, agent or contractor of Project Co; or

(d) except to the extent that such Emergency is not caused by or does not arise as a result of any of subparagraphs (a), (b) and (c) above, and except to the extent that such Emergency is caused by or arises as a result of a Force Majeure.

Maintenance Spare Vehicle(s) means the number of Vehicles, as determined by Project Co, required to provide the necessary spare Vehicle capacity to allow Project Co to conduct Maintenance Services on the Vehicle Fleet such that the Vehicle Maintenance Service Standards, as identified in Schedule 15-3 are met.

Maintenance Management System has the meaning given to it in Schedule 15-3.

Maintenance Responsibility Table means the table set out in Schedule 15-3.

Major Maintenance Works means any Preventive, Corrective, and Handover Maintenance, including rehabilitation or life cycle replacement of components of the System and based upon the work being completed in accordance with the applicable sub plans of the Maintenance and Rehabilitation Plan, Handover Maintenance Plan, and Good Industry Practice, that cannot be completed while meeting the standards as provided in Schedule 15-3 Appendix A, Article 2.1 – Maintenance and Performance Standards, in whole or in part, within the time available during Off Peak Periods or outside of Revenue Service Hours.

Major Service Change means any Service Level Increase, Service Level Decrease, or other modification to the Operations Service Plan which requires Project Co to increase or decrease the size of its peak in-service vehicle fleet.

Manual Release Mode means a latched mode of train operation for moving trains at restricted speeds when communications with the wayside CBTC systems has failed.

Major Maintenance Shutdown Period means any period of time during the Maintenance Term during which Project Co is permitted to partially or fully shut down the System during Revenue Service Hours without deductions under the Payment Mechanism, compliance with Section 1.5 of Schedule 15-3, in order to carry out major maintenance works.

Major Municipal Roads means a City freeway, Arterial Roadway or Major Collector Road as defined in the City of Ottawa Transportation Master Plan (2008). For the purposes of the OLRT Project, Queen Street shall be considered a Major Municipal Roadway.

Medium Service Change means any modification or set of modifications to the Operations Service Plan which is not a Major Service Change, but results in Revenue Service Vehicle Kilometers in any Contract Year exceeding the Baseline Vehicle Kilometers for that Service Level by greater than 120%.

Minor Municipal Roads means a Collector Road or Local Road as defined in the City of Ottawa Master Transportation Plan (2008).

Minor Service Change means any modification or set of modifications to the Operating Service Plan which is not a Major Service Change or a Medium Service Change.

Monthly Activity Report has the meaning given to it in Schedule 15-3.

Movement Authority means the limit of train movement allowed to a train by the ATC Zone Controller.

New Municipal Infrastructure at any time means Infrastructure constructed by Project Co on the Municipal Reconveyed Lands as part of the carrying out of the Initial Works and includes any Municipal Infrastructure that has been altered, upgrade or augmented at that time by the carrying out of Initial Works, but excluding Infrastructure and other property of Railway Companies and Utility Companies, the limits whereof relative to the Lands as set forth in the Design and Construction Specifications.

Noise Control Plan has the meaning given in Schedule 10 – Review Procedure.

Non Maintenance Emergency means an Emergency that is not a Maintenance Emergency.

Non-Revenue Vehicles means vehicles that are used by staff in the performance of maintenance and operational duties on the OLRT and its related facilities.

Off Peak Period means any period of time during Revenue Service Hours which is not a Peak Period.

OLRT Controller means a City employee that will be assigned to the TOCC and will be responsible for all dispatching functions for the OLRT.

OLRT Controller Training means a program of OLRT Controller Training a City employee must attend prior to becoming a certified OLRT Controller. The program is provided by a Project Co Trainer.

OLRT Trainer means a City employee or contractor who has been trained and certified to instruct OC Transpo employees in certain classifications who are assigned to or have any duties and responsibilities on the OLRT. These classifications include but are not limited to Driver, Station Attendant, Fare Collectors, Public Information, and security personnel.

Onboard Computer means a Communications Based Train Control computer located on a rail vehicle that calculates train location and enforces Movement Authorities and Speed Restrictions based on communication with wayside CBTC systems and its own Track Database.

Open Data is defined in Schedule 15-2 Part 4 Article 6.

Operating Scenario means the ridership service scenarios to be used by Project Co to design and construct the System as outlined in Schedule 15-2 Part 1.

Operations Crew Facility means the spaces within each MSF occupied and used by the City for purposes of the operation of the System, including dispatching of Drivers and Trains, lunch rooms and locker rooms, training centre, and reception area for Drivers and supervisors.

Operations Service Plan means the operations schedule as outlined in Schedule 15-3, and includes Train movements in support of Revenue Service.

Out-of-Service Vehicle(s) means a Vehicle or Vehicles which are unavailable for Revenue Service for reasons unrelated to the Maintenance Services and beyond Project Co's control; for example a Vehicle removed from service due to a collision beyond Project Co's control.

Overhead Catenary or **Overhead Catenary System** means a system that distributes DC power from the Traction Power System to the Vehicle via a pantograph on the Vehicle. The OCS consists of a conductive messenger wire suspending a contact wire between poles and/or attachments along the OLRT to provide the DC propulsion power requirements of the Vehicle to the train consist maintaining continuous contact between the pantograph and the contact wire.

Passenger Pick Up and Drop-off means a designated pick-up and drop-off area for passengers from private vehicles adjacent to an OLRT Station or a Transit Centre.

Pavement means all structural elements or layers above the subgrade of a road, including granular driving surfaces and shoulders.

Peak Period means the AM and PM periods each weekday as defined in the Operations Service Plan or otherwise determined by the City in its Discretion by written notice to Project Co.

Pedestrian Access Plan means a plan that outlines and shows the pedestrian flow, directions, route, volumes to and from and around all facilities, Guideway and Stations.

Pedestrian and Cyclist Movement Study means a study that addresses all the elements for pedestrian and cyclist requirements.

Performance Improvement Notice has the meaning given to it in Schedule 15-3.

Permanent Lining has the meaning given to that term in Part 3 Article 2.

Permit to Take Water required for any taking of more than a total of 50,000 litres of water in a day under the *Ontario Water Resources Act*.

Platform means that portion of the Station directly adjacent to the tracks where trains stop to load and unload passengers. There are two basic types of platform configuration: centre loading which has the platform located between each set of tracks, and side loading, which has the platforms located on the outside of each set of tracks. Both platform types are in use on the OLRT system.

Pre Handover Inspections has the meaning given to it in Schedule 15-3.

Preventive Maintenance means any action that is performed at scheduled intervals in accordance with the Maintenance and Rehabilitation Plan or as otherwise required to maintain the System at a constant level of performance to comply with the Maintenance and Rehabilitation Requirements and ensuring that the Maintenance of the System is sufficient to permit the Operation of the System in accordance with the Operation Requirements and Specifications (and, for further certainty, to meet or exceed the Maintenance Service Requirements), including the detection and correction of deviations from normal operation before a major system or subsystem failure occurs, periodic inspections and testing, condition monitoring, critical item replacement, lubrication, adjustment, cleaning and calibration.

Preventive Maintenance Plan means the plan establishing the Preventive Maintenance which Project Co is required to perform, which plan forms part of the Maintenance and Rehabilitation Plan.

Project Co Driver means a Project Co employee or contractor who is trained and certified to operate a revenue service vehicle without passengers on the OLRT.

Project Co Driver Training means a program of Driver Training a Project Co employee or contractor must attend prior to being allowed to operate an out of service revenue vehicle anywhere on the alignment or the MSF. The program is provided by a Project Co Trainer.

Project Co Trainer means a Project Co employee or contractor who is assigned the task of instructing and certifying a Project Co employee, Contractor or an OLRT employee in a specific classification.

Quality Performance Criteria means the qualitative standards of service and the performance criteria set out in Schedule 15-3.

Radio System Supplier means the City corporate radio nominated manufacturer determined by an external radio contract issued by the City. The radio supplier shall have the responsibility for

citywide supply, maintenance, installation, testing and licensing for all public services radio systems specified and procured by Project Co. The radio supplier shall enter into third party agreements with Project Co to ensure OLRT radio performance is in accordance with the PSOS requirements for the concession period.

Record Drawings means the final completed as constructed drawings in electronic (CADD) and hard copy format of all structures that was built.

Reference Concept means the plans, drawings, reports and other information prepared during the preliminary design for the OLRT Project and which reside in the Project Data Room.

Reference Documents means the references, codes, standards, specifications, guidelines, policies, reports, publications, manuals, bulletins and other such documents listed throughout the Output Specifications and summarized in Schedule 15-1.

Reliability Acceptance Test means the requirements (as defined and described in the RFP) to be satisfied following the expiry of the second anniversary of the Revenue Service Availability Date provided for in the Project Scope and the Design and Construction Performance Requirements.

Remedial Action Notice has the meaning given to it in Schedule 15-3.

Replacement Parts has the meaning given to it in Schedule 15-3.

Retaining Wall means a structure that holds back soils and is not a wingwall connected to a Bridge or Culvert.

Revenue Service means the carriage of paying Passengers on the System.

Revenue Service Fleet means, at any given time, the System Vehicle Fleet excluding the Maintenance Spare Vehicles.

Revenue Service Hours means the hours during which Revenue Service is provided on the System as set out in Schedule 15-3.

Revenue Service Vehicle Kilometres means the distance travelled by Vehicles while in Revenue Service, measured in kilometres.

Revision Notice Period has the meaning given to it in Schedule 15-3.

Risk Assessment Plan is a sub-plan of the TTMP and has the meaning given in Schedule 15-2, Part 7.

Roadway means the driving surfaces of the highway, including the travelled lanes, shoulders and shoulder rounding.

Safety and Security Certification means the process of verifying compliance with a set of formal safety and security requirements. The requirements are defined by the OLRT Safety and Security Certification Plan, OLRT Design Criteria and Technical Specifications and applicable

codes and industry standards. Specifically, certifiable elements need to be identified, verification activities need to be performed and documented, and Certificates of Conformance need to be signed and issued by the responsible parties.

Safety Audit means an inspection by the City of the System, the books and records and/or procedures of Project Co relating to the Safety Standards, and includes an inspection of the Safety Management System and the Safety Case.

Safety Case means the documented demonstration by Project Co, as approved and audited by the General Manager of the City and filed with the General Manager of the City, that the System complies with the Safety Standards, in accordance with the Safety Standards to be established by Project Co for the Maintenance Term.

Safety Management System means the Safety protocol (including without limitation the activities, resources, procedures, methodologies, responsibilities and organizational structure) which Project Co shall establish in consultation with the City, taking into account the Design and Construction Specifications and is implemented to ensure the Safety of the System and compliance with the Safety Standards, and which is authorized by the General Manager of the City and filed with the General Manager of the City, adherence to which Safety protocol shall be mandatory in all Operations and Maintenance activities, and which shall without limitation include the LRT Rules and the Standard Operating Procedures.

Safety Standards means all mandatory Safety standards for the System, being the requirements of Law relating to health and Safety matters respecting the Design, Construction, Maintenance and Operation of the System, including all such Safety standards established by Project Co, in conjunction with the City, taking into account Comparable LRT Safety Standards, the Safety Case, and all Safety standards established by the Design and Construction Performance Requirements.

Security means surveillance and protection of persons and property by direct or remote means.

Security Management System means the Security protocol (including without limitation the activities, resources, procedures, methodologies, responsibilities and organizational structure) which Project Co shall establish in consultation with the City, taking into account the Design and Construction Specifications and the initial Threat and Vulnerability Assessment, and implement to ensure the Security of the System and compliance with the Safety Standards, and which is authorized by the General Manager of the City and filed with the General Manager of the City, adherence to which Security protocol shall be mandatory in all Operations and Maintenance activities, and which shall without limitation include the LRT Rules and the Standard Operating Procedures.

Security Standard means all mandatory Security standards for the System, being the requirements of Law relating to Public and System Security matters respecting the Design, Construction, Maintenance and Operation of the System, including all such Security standards established by Project Co, in consultation with the City, taking into account all Security standards established by the Design and Construction Specifications and the initial Threat and Vulnerability Assessment (TVA), as approved and amended from time to time by the City,

identifying the mandatory Security Standards to be followed by the City and Project Co (including personnel employed in the performance of Operations and Maintenance), including in response to conditions, events, or Deficiencies which cause interruption to or interference with the Operation of the System.

Service Level means the sets of operational parameters set out by the City in the Operations Service Plan and labeled as Service Levels 1 to 9, describing the system capacity (PPHPD), headways, consist sizes, hours of operation, and other key parameters to be attained by the System in each case, which Project Co's provision of the Maintenance Services must accommodate, and the term also includes any additional or modified operational parameters which may be developed and agreed by the City and Project Co from time to time.

Service Level Decrease means a requirement by the City for Project Co to provide a Service Level with a lesser system capacity (PPHPD) as compared to the then-prevailing Service Level.

Service Level Increase means a requirement by the City for Project Co to provide a Service Level with a greater system capacity (PPHPD) as compared to the then-prevailing Service Level.

Service Proven Control System means a Control System that is compliant with the following characteristics:

(a) The major control system equipment and associated sub systems (including, but not limited to, Train Control, CTS,TOCC, YCC, BCC, PIDS, PA, SCADA, PBX, CCTV and fire life safety have been integrated and used in a comparable LRT system currently in Revenue Service, and

(b) The system has been operating in Revenue Service for a minimum of one year, and

(c) has been operated in similar climatic conditions and service conditions to those specified for the OLRT project, and

(d) Authority data is available confirming that the system and sub-systems have attained an availability of 99.99%.

Service Proven Vehicle means a Vehicle that is substantially compliant with the following characteristics:

(a) the major vehicle sub systems (including trucks, braking systems, propulsion systems, articulation joints), have been integrated in a comparable LRV currently in revenue service; and

(b) a minimum of 10 of these vehicles have been in Revenue Service for a minimum of two years; and

(c) have been operated in similar climatic conditions and service conditions to those specified for the OLRT project; and

(d) have authority data confirming that the Vehicle has attained a minimum "in-service" MDBF of 50,000 km. Failures are defined as malfunctions that cause Revenue Service delays of 4 minutes or more.

Shell means the roof slab, exterior walls and invert slab of an underground box structure, including any beams integral with the slabs and walls.

the Standard means a standard of Maintenance which complies with all of the standards and terms set out in Article 2 – Maintenance and Performance Standards.

Standard Operating Procedures means the standard operating procedures which Project Co shall establish in consultation with the City, taking into account the Design and Construction Specifications, Maintenance Services, Operation of the System, and Best Industry Practice, as approved and amended from time to time by the City, identifying the mandatory procedures to be followed by the City and Project Co (including personnel employed in the performance of Operations and Maintenance), including in response to conditions, events, or Deficiencies which cause interruption to or interference with the Operation of the System. The Standard Operating Procedures shall incorporate as required the provisions of the Safety Management System, Security Management System, LRT Rules, and regulations governing the Operation and Maintenance of the System.

Station means a Facility where Trains and or buses stop to pick up or drop off customers. The Station primarily consists of Platform areas for Passenger loading/unloading, fare control equipment, and Passenger information. Other related components include; service rooms, stairs, ramps, escalators, elevators, advertising, public art, and Train and bus Operator support Facilities, customer amenities, etc. On the Ottawa system, Confederation Line stations are classified, and are not mutually exclusive as follows:

(e) **At Grade Station**: A Station at which the platform is at grade, above grade, below grade, and meets the criteria for an open station as defined in NFPA 130

(f) **Transfer Station**: Station with the incorporation of Facilities to support the transfer of Passengers between modes of transportation or between the O-Train Lines within a Fare Paid Zone.

(g) **Underground Station**: An enclosed Station as defined by NFPA 130 in which the platform is constructed fully underground or enclosed within a building.

(h) **Terminal Station**: A Station that is located at the terminus of a line.

(i) **Line Station:** Station that is located along the alignment providing service in both directions of the line.

Storage Yard means the outdoor areas located within a Maintenance and Storage Facility, not including the Maintenance Buildings or the Operations Crew Facilities, but including the open space, parking areas, Track area, storage of Maintenance of Right-of-Way equipment and

supplies (unless incorporated within Maintenance Building), outdoor storage (ties, Track, poles, etc.) and Vehicle Storage.

Stormwater Management means the management of the quantity and quality of that portion of rain and snowmelt that does not soak into the ground or is intercepted by vegetation (surface runoff).

Stormwater Management Plan means the means through which the management of surface runoff from developed areas is addressed.

Structure means any building, Bridge, Tunnel, structural Culvert, Retaining Wall.

Subsystem Reliability Criteria means the subsystem reliability criteria set out in Part 4 of Schedule 15-3 (Design and Construction Requirements) to the Project Agreement.

Surplus Vehicle Fleet means, following a Service Level Decrease, any vehicles which are in excess of:

(a) the fleet size required to provide Peak Period service;

(a) the number of vehicle required to maintain Project Co's spare vehicle ratio; and

(b) the quantity of Non-Revenue Vehicles called for by Project Co's maintenance plans.

Sustainability Plan has the meaning given in Schedule 17 – Environmental Obligations.

System Vehicle Fleet means the Total Vehicle Fleet plus any additional Vehicles acquired by the City in accordance with the Vehicle Option.

Total Vehicle Fleet means the total number of Vehicles that Project Co is required to provide under the Project Agreement, and includes the number of Scheduled Revenue Service Vehicles, and Maintenance Spare Vehicle(s)

Total Vehicle Kilometers means the total distance travelled by Vehicles outside of the Entry and Exit Points, after having crossed from the MSFs over the Entry and Exit Points and prior to crossing back over the Entry and Exit Points when returning to the MSFs, measured in kilometres. For clarity, this distance includes Revenue Service Vehicle Kilometres, as well as additional distance travelled by vehicles for purposes of entering into or exiting from service, or training of operators.

Track Database means a database containing all station, switch, curve and end of track locations, all grades, and all civil and temporary speed restriction zones, and all work zones and all speed limits through these zones and over all switches in either position. The Track Database is used by the Onboard Computer to calculate a safe speed profile and station stopping braking profiles.

Track Protections means a verbal protection provided by a Project Co employee or an OLRT Controller assigned to the TOCC. Track protections are issued to employees or contractors who will be on the right of way.

Traction Power or **Traction Power System** means an electrical network of power conversion substations receiving MV electrical power from the Utility, transforming the power to a lower usable voltage, and converting the power from AC to DC power to supply the Train consists operating along the OLRT.

Traffic and Transit Management Communications Plan is a sub-plan of the TTMP and has the meaning given in Schedule 15-2, Part 7.

Traffic and Transit Management Plan or **TTMP** means the manner that transit and traffic will be managed during construction activities and the method traffic management model used to for determining the magnitude of the impacts to traffic and mobility of associated with lane and/or intersection reconfigurations or closures, and the measures applied to address them.

Traffic Control Device(s) is a term used to describe any person, sign, signal, marking or device placed upon, over or adjacent to a roadway by or at the direction of a Relevant Authority or their designate, for the purpose of regulating, warning, guiding or informing a vehicle operator or pedestrian of an existing condition or hazard.

Traffic Control Persons means a person duly trained and authorized to direct traffic at a Work zone through the use of the Traffic Control Sign (STOP/SLOW Paddle).

Traffic Control Plan is a detailed plan for the control of traffic, including vehicular, cycling and pedestrian movements, required to allow Project Co to fulfill all conditions of the contract, taking into account the organized, systematic safe conduct of the Project, which includes detours, staging sequences, Work, public and emergency vehicle access and egress, public access and separation from hazardous areas, temporary barriers, removal of old pavement markings and signage, modification to curbside use, and the selection of appropriate traffic operation layouts and devices necessary for traffic control.

Traffic Protection Plan is a plan required by the OHSA and its regulations for the protection of workers in a Work zone.

Train means a 2-car consist of Vehicles.

Train Control or **Train Control System** means a safety critical computer based control system for Vehicle identification, Vehicle location control and monitoring, maintaining safe headway between vehicles, Vehicle speed control, maintaining safe brake rates, Vehicle route selection and fleet management, interlocking control and power consumption optimization.

Train Structures means any structures (excluding Tunnels) that support any form of Train loading including but not limited to grade-supported slabs, elevated Train supports, foundations supporting Train loads, retaining walls supporting Train surcharges and other similar Structures.

Train The Trainer means the training program conducted by a Project Co employee(s) or contractor(s) that trains and certifies a City employee to serve as an OLRT Trainer.

Transit Centre means a facility and a stopping point for buses and other types of transit service where passengers using one type of transit service can transfer to another. For example, bus passengers can transfer to the OLRT at this location if the Transit Centre is combined with an OLRT Station.

Transit Management Plan is a sub-plan of the TTMP and has the meaning given in Schedule 15-2, Part 7.

Transit Operations Control Centre or **TOCC** is the communications control center responsible for all dispatching, supervision, and monitoring of all functions within the OLRT System.

Transit Priority Lanes is as defined by the City of Ottawa.

Tree Mitigation Plan means a plan to audit, monitor, protect, and preserve trees to comply with City regulations.

Trial Running means a twelve (12) consecutive day period that may commence upon the successful completion of testing and commissioning. Upon successful completion of trial running, the integrated system will be ready for revenue service.

Trigger Level means an instrumentation monitoring level unique to specific geotechnical instruments which, upon reaching, requires a review and verification of the instrumentation data.

Tunnel has the meaning given in Schedule 15-2, Part 3 Article 1 – Introduction.

Undrained Structure (Tunnel) means a Structure, or Tunnel, partly or fully below the groundwater table that is designed and constructed to allow the groundwater level to return to normal levels after construction.

Urban Design Elements means the elements of items covered in the Landscape Plan.

Vehicle Location System means an Onboard CBTC system to read tachometer pulses and wayside passive transponders for the purpose of determining vehicle location.

Vital Microprocessor Interlocking System means a vital microprocessor based system for controlling switches and signals at an interlocking. This system may also be known as a Computer Based Interlocking (CBI) controller.

Yard Control Centre means a facility within an MSF established to monitor and control yard and shop operations of train movements, video observation of maintenance functions, intrusion control, IAC security, and BMS system monitoring from one location.

Zone of Influence means the area within the subsurface and surface boundaries where Ground Movement arising from Project Co construction activities is expected to occur.

ARTICLE 2 ACRONYMS

The Parties acknowledge that in so far as Schedule 15-3 – Maintenance Specification makes reference to standards or requirements within the Expanded Design and Construction Specifications in respect of the Stage 2 System and/or the Belfast MSF Expansion Works, any acronyms used within such specifications shall be understood by reference to the acronyms as defined therein, notwithstanding that such definitions may be different to those applicable to the acronyms set out below.

AABC means Associated Air Balance.

AAMA means American Architectural Manufacturers Association.

AAR means Association of American Railroads.

AASHTO means American Association of State Highway and Transportation Officials.

ABS means Acrylonitrile Butadiene Styrene.

ACGIH means American Conference of Governmental Industrial Hygienists.

ACI means American Concrete Institute.

ADA means *Americans with Disabilities Act*.

AER means Approval Exemption Regulation.

AESS means Architecturally Exposed Structural Steel.

AFBMA means Anti Friction Bearing Manufacturer's Association.

AGMA means American Gear Manufacturers Association.

AHU means Air Handling Unit.

AIC means Amp Interrupting Capacity.

AISC means American Institute of Steel Construction.

AISI means American Iron and Steel Institute.

ALCTV means Automotive Lifts – Safety Requirements for Construction, Testing and Validation.

ALI means Automotive Lift Institute.

AMCA means Air Movement and Control Association.

AMS means Aerospace Material Specifications.

ANSI means American National Standards Institute.

AODA means *Accessibility for Ontarians with Disabilities Act*.

AP means Access Point.

APC means Automatic Passenger Counting.

APTA means American Public Transportation Association.

AREMA means American Railway Engineering Maintenance-of-Way Association.

ARI means Air-conditioning and Refrigeration Institute.

ASCE means American Society of Civil Engineers.

ASHRAE means American Society of Heating, Refrigerating and Air-Conditioning Engineers.

ASJ means All Service Jacket.

ASME means American Society of Mechanical Engineers.

ASPE means American Society of Plumbing Engineers.

ASSE means American Society of Safety Engineers.

ASTM means American Standards for Testing and Materials.

ATC means Automatic Train Control.

ATO means Automatic Train Operation.

ATOR means Above Top of Rail.

ATP means Automatic Train Protection.

ATS means Automatic Train Supervision or Automatic Transfer Switch.

AWG means American Wire Gauge.

AWI means Architectural Woodworking Institute.

AWMAC means Architectural Woodwork Manufacturers Association of Canada.

AWS means American Welding Society.

AWS BRH means American Welding Society Brazing Handbook.

AWS WHB means American Welding Society Welding Handbook.

AWWA means American Water Works Association.

BAS means Building Automatic System.

BCC means Back-up Control Centre.

BMS means Building Management System.

BRT means Bus Rapid Transit.

BSS means British Standards Society.

BWA means Balance Weight Assembly.

CADD means computer aided design drafting.

CBC means Canadian Broadcasting Corporation.

CBI means Computer Based Interlocking.

CBTC means Communication Based Train Control.

CCIP means Cement and Concrete Industry Publications.

CCOHS means Canadian Centre for Occupational Health and Safety.

CCTV means Closed Circuit Television System.

CDED means Contract Design Estimating and Documentation.

CEAA means Canadian Environmental Assessment Agency.

CEC means Canadian Electrical Code.

CFC means Chlorofluorocarbon.

CFR means Code of Federal Regulations.

CGC means Canadian Gypsum Company.

CGSB means Canadian General Standards Board.

CGVD means Canadian Geodetic Vertical Datum.

CHBDC means Canadian Highway Bridge Design Code. **[**(CHBDC) CAN/CSA S6-06.**]**

CIAR means Construction Impact Assessment Report.

CIH means Central Instrument Houses.

CISC means Canadian Institute of Steel Construction.

CISCA means Ceilings and Interior Systems Construction Association.

CMAA means Crane Manufacturers Association of America.

CNC means Computerized Numeric Control.

CNLA means Canadian Nursery Landscape Association.

COMAP means City of Ottawa Municipal Accessibility Plan.

CPCI means Canadian Precast/Prestressed Concrete Institute.

CPMA means Color Pigments Manufacturers Association, Inc.

CPR means Cardiopulmonary Resuscitation or Canadian Pacific Railway.

CPTED means Crime Prevention through Environmental Design.

CPVC means chlorinated polyvinyl chloride.

CQ means Commercial Quality.

CRAC means Computer Room Air Conditioning.

CRCA means Canadian Roofing Contractors Association.

CRTC means Canada Radio-Television and Telecommunications Commission Regulations.

CSA means Canadian Standards Association.

CSO means combined sewer overflow.

CSRS means Canadian Spatial Reference System.

CSSBI means Canadian Sheet Steel Building Institute.

CSST means combined sewage storage tunnel.

CTS means Communications Transmission System.

CWB means Canadian Welding Bureau.

CWR means continuous welded rail.

DAQ means Delivered Audio Quality.

DFF means Direct Fixation Fastener.

DFO means Fisheries and Oceans Canada.

DOT means U.S. Department of Transportation.

DOTT means Downtown Ottawa Transit Tunnel.

DOUDS means Downtown Ottawa Urban Design Strategy.

DSD means Decision Sight Distance.

DWA means Designated Waiting Area.

DX means Direct Expansion.

E&M means Electrical and Mechanical.

EA means Environmental Assessment.

EGFP means equipment ground fault protection.

EHU means Electro Hydraulic Unit.

EIA means U.S. Energy Information Administration.

EIFS means Exterior Insulation Finishing System.

EMC means Electromagnetic Compatibility.

EMI means electromagnetic interference.

EMO means Emergency Management Ontario.

EMS means Emergency Medical Services.

EPDM means ethylene propylene diene monomer.

ERP means Emergency Response Plan.

ESA means Electrical Standards Association or Electrical Safety Authority.

ETL means extract, transform, load.

FAI means First Article Inspection.

FAT means Factory Acceptance Testing

FBCU means Friction Brake Control Unit.

FCC means U.S. Federal Communications Commission.

FEA means Finite Element Analysis.

FHWA means Federal Highway Administration.

FIFO means First In, First Out.

FLS means fire life safety.

FLSSC means Fire Life Safety and Security Committee.

FLUA means Federal Land Use Approval.

FMEA means Failure Mode and Effects Analysis.

FMECA means Failure Mode, Effect, and Criticality Analysis.

FMS means Facility Management System.

FRA means Federal Railroad Administration.

FRP means fibre reinforced plastic.

FSK means Foil-Scrim-Kraft.

FTA means Federal Transit Administration.

FTMS means Freeway Traffic Management System.

GANA means Glass Association of North America.

GBC means Green Building Council.

GFI means Ground Fault Interrupter.

GFRP means glass fibre reinforced polymer.

GUI means Graphic User Interface.

HCFC means hydrochlorofluorocarbon.

HCL means Horizontal Control Line.

HDMI means High-Definition Multimedia Interface.

HFC means hydrofluorocarbon.

HMI means Hoist Manufacturers Institute or Human Machine Interface

HOL means Hydro Ottawa Limited.

HPPL means High Performance Photo Luminescent.

HSCB means High Speed Circuit Breaker.

HSLA means High Strength, Low Alloy.

HTM means Hazard Tracking Matrix.

HVAC means Heating, Ventilation and Air Conditioning.

IAC means Intrusion Access Control.

IAQ means Indoor Air Quality.

IBC means International Building Code.

ICEA means Insulated Cable Engineers Association.

IEC means International Electrotechnical Commission.

IEEE means Institute of Electrical and Electronics Engineers.

IESNA means Illuminating Engineering Society of North America.

IGBT means insulated gate bipolar transistor.

IGMAC means Insulating Glass Manufacturer's Association of Canada.

ILI means Indiana Limestone Institute of America, Inc.

IP means internet protocol.

ISD means Intersection Sight Distance.

ISFP means City of Ottawa Integrated Street Furniture Policy and Design Guidelines.

ISO means International Standards Organization.

ITA means International Tunnelling Association.

LAN means Local Area Network.

LED means light emitting diode.

LEED means Leadership in Energy and Environmental Design.

LKI means Landmark Kilometre Inventory.

LLEPM means Low Location **[**or level – in vehicles**]** Exit Path Marking.

LOS means Level of Service.

LRT means Light Rail Transit.

LRU means Line Replaceable Unit

LRV means Light Rail Vehicle.

LV means low voltage.

LVC means length of vertical curve.

LVPS means Low Voltage Power Supply.

M&R means maintenance and rehabilitation.

MCBCF means Mean Cycles Between Component Failure.

MCC means Motor Control Centre.

MCR means Main Communications Room.

MDE means Maximum Design Earthquake.

MERV means Minimum Efficiency Reporting Value.

MHIA means Materials Handling Industry of America.

MIL means U.S Military Standard.

MNECB means Model National Energy Code for Buildings.

MNR means Ontario Ministry of Natural Resources.

MOE means Ontario Ministry of the Environment.

MOL means Ministry of Labour.

MPA means mid-point anchor.

MPI means Magnetic Particle Inspection.

MSE means Mechanically Stabilized Earth.

MSF means Maintenance and Storage Facility.

MSHA means Mine Safety and Health Administration.

MTBF means Mean Time Between Failures.

MTM means Modified Transverse Mercator.

MTO means Ontario Ministry of Transportation.

MTTR means Mean Time To Repair.

MUP means Multi-Use Pathway.

MUTCD means Manual for Uniform Traffic Control Device.

MV means medium voltage

MVB means Multifunctional Vehicle Bus.

NAC means National Arts Centre.

NAD means North American Datum.

NB means northbound.

NBC means National Building Code of Canada.

NC means Noise Level Criteria.

NCC means National Capital Commission.

NCMA means National Concrete Masonry Association.

NEBB means National Environmental Balancing Bureau.

NEC means National Electrical Code.

NECA means National Electrical Contractors Association.

NEMA means National Electrical Manufacturer's Association.

NESC means National Electrical and Safety Code.

NETA means InterNational Electrical Testing Association.

NFC means National Fire Code.

NFCC means National Fire Code of Canada.

NFPA means National Fire Protection Association.

NFRC means National Fenestration Rating Council.

NGD means negative grounding device.

NHI means National Highway Institute.

NMS means Network Management System.

NPA means National Particleboard Association.

NPCC means National Plumbing Code of Canada.

NPS means nominal pipe size.

NRCA means National Roofing Contractors Association.

NRCan means National Resources Canada.

NSF means National Sanitation Foundation.

NVR means Network Video Recorder.

OBC means Ontario Building Code.

OBCN means On Board Communications Network.

OCDR means Overhead Coiling Door.

OCP means Ottawa Cycling Plan.

OCS means Overhead Catenary System.

ODE means Operating Design Earthquake.

OEC means Ontario Electrical Code.

OESC means Ontario Electrical Safety Code.

OFC means Ontario Fire Code.

OHSA means the *Occupational Health and Safety Act* (Ontario).

OLRT means Ottawa Light Rail Transit.

OM&R means Operation, Maintenance and Repair.

OMNR means Ontario Ministry of Natural Resources.

ONVIF means Open Network Video Interface Forum.

OP means Ottawa Official Plan.

OPCA means Ontario Painting Contractors Association.

OPP means Ontario Provincial Police.

OPS means Ontario Provincial Standard.

OPSD means Ontario Provincial Standard Drawings.

OPSS means Ontario Provincial Standard Specifications.

OR means Ottawa Road.

OSIM means Ontario Structure Inspection Manual.

OSIMS means Ontario Structure Inspection Management Systems.

OSTC means Ottawa Seniors Transportation Committee.

OTM means Ontario Traffic Manual.

OWS means Operation Work Station or oil water separator.

PA means Public Address.

PBX means Private Branch Exchange.

PC means personal computer.

PCB means polychlorinated biphenyl.

PCC means Precast Concrete.

PDI means Plumbing and Drainage Institute.

PEI means Passenger Emergency Intercom.

PEO means Professional Engineers of Ontario.

PERP means Ontario Provincial Emergency Response Plan.

PGFP means personal ground fault protection.

PHA means Preliminary Hazard Analysis.

PHL means Preliminary Hazard List.

PIDS means Passenger Information Display Systems.

PIN means Property Identification Number.

PIV means Peak Inverse Voltage.

PLC means Programmable Logic Controller.

PPHPD means passenger per hour per direction.

PPUDO means passenger pick up and drop off area.

PRP means Property Request Plan.

PSR means Public Safety Radio.

PTAC means Pedestrian and Transit Advisory Committee.

PTI means Post-Tensioning Institute.

PTTW means Permit to Take Water.

PTU means Portable Test Unit.

PTZ means Pan Tilt Zoom.

PVB means polyvinyl butyral.

PVC means polyvinyl chloride.

PVDF means polyvinylidene fluoride.

PVMS means Portable Variable Message Sign.

PWGSC means Public Works and Government Services Canada.

QC means Quality Control.

QMP means Quality Management Plan.

RAM means reliability, availability and maintainability.

RAMS means reliability, availability, maintainability and safety.

RCAC means Roads and Cycling Advisory Committee.

RETC means Rapid Excavation and Tunneling Conference.

RFID means Radio Frequency Identification.

RH means relative humidity.

RMS means root mean square.

ROW means right-of-way.

RP means Regional Priority.

RSA means Rideau Street Alignment.

RSS means Retained Soil System.

RTU means remote terminal units.

RVCA means Rideau Valley Conservation Authority.

RWIG means Retaining Wall Inspection Guidelines.

SAT means Site Acceptance Testing

SAE means Society of Automotive Engineers.

SB means southbound.

SCADA means Supervisory Control and Data Acquisition.

SCAT means Simple Catenary Auto Tension System.

SCFT means Simple Catenary Fixed Termination System.

SCIL means Safety Critical Items List.

SCR means Silicon Controlled Rectifier.

SEM means Sequential Excavation Method.

SHL means System Hazard List.

SIA means Security Industry Association.

SINAD means Signal to Noise and Distortion ratio.

SLS means Serviceability Limit State.

SMACNA means Sheet Metal and Air-conditioning Contractors' National Association.

SMP means Safety Management Plan.

SOP means standard operating practice.

SPCC means Spill Prevention Control and Countermeasures.

SRA means Safety Risk Assessment

SSCP means Safety and Security Certification Plan.

SSCRT means Safety and Security Certification Review Team.

SSD means Stopping Sight Distance.

SSHL means Subsystem Hazard List.

SSPC means Society for Protective Coatings.

STO means Société de transport de l'Outaouais.

SWGR means switch gear.

SWM means stormwater management.

SWMP means Stormwater Management Practice.

T&DI means Transportation and Development Institute.

TAC means Transportation Association of Canada.

TBM means Tunnel Boring Machine.

TC means Transport Canada.

TCD means Traffic Control Device.

TCP means Traffic Control Plan or Traffic Control Person or Transmission Control Protocol.

TCRP means Transit Cooperative Research Program.

TCU means Traction Control Unit.

TDS means Train Display Screen.

TFT means Trolley Fixed Termination System or thin-filmed transistor.

TIAC means Thermal Insulation Association of Canada.

TLV means Threshold Limit Value.

TOCC means Transit Operations Control Centre.

TOD means Ottawa Transit-Oriented Development Guidelines.

TOR means Top of Rail.

TPRU means Traction Power Rectifier Unit.

TPSS means Traction Power Substation.

TSS means total suspended solids.

TTMP means Traffic and Transit Management Plan.

TVA means Threat and Vulnerability Analysis.

UAD means Urban Arterial Divided.

UAU means Urban Arterial Undivided.

UCC means Utility Coordinating Committee

UCU means Urban Collector Undivided.

UHF means Ultra High Frequency.

UL means Underwriter's Laboratories, Inc.

ULC means Underwriter's Laboratories of Canada.

ULS means Ultimate Limit State

ULU means Urban Local Undivided.

UNESCO means United Nations Educational, Scientific and Cultural Organization.

UPS means uninterruptible power supply.

UTS means Ultimate Tensile Strength.

UVA means Ultraviolet Light Absorbers.

VAV means Variable Air Volume.

VCU means Vehicle Control Unit.

VFD means Variable-Frequency Drive.

VLS means Vehicle Location System.

VMIS means Vital Microprocessor Interlocking System.

VMS means Vehicle Monitoring System or variable message sign.

VMU means Vehicle Monitoring Unit.

VOC means volatile organic compound.

VoIP means Voice over Internet Protocol.

WAN means Wide Area Network.

WSD means Working Stress Design.

WTB means Wire Train Bus.

YCC means Yard Control Centre.

ARTICLE 3 REFERENCE DOCUMENTS

The Parties acknowledge that in so far as Schedule 15-3 – Maintenance Specification makes reference to standards or requirements within the Expanded Design and Construction Specifications in respect of the Stage 2 System and/or the Belfast MSF Expansion Works, any reference documents specified within such specifications shall be understood by reference to the reference documents referred to therein, notwithstanding that such reference documents may be different to the reference documents set out below.

Reference Documents in Schedule 15	Description of Reference Documents
14 CFR 25.853	Code of Federal Regulations, Title 14: Aeronautics and Space; Part 25.853 – Compartment Interiors
29 CFR 1910.19	Code of Federal Regulations, Title 29: Labor; Part 1910.19 – Special Provisions for Air Contaminants
40 CFR 82	Code of Federal Regulations, Title 40: Protection of Environment; Part 82 – Protection of Stratosphere Ozone
49 CFR 223	Code of Federal Regulations, Title 49: Transportation; Part 223 – Safety Glazing Standards - Locomotives, Passenger Cars and Cabooses
49 CFR Part 238	Code of Federal Regulations, Title 49: Transportation; Part 238 – Passenger Equipment Safety Standards
AAMA 611	AAMA 611 Voluntary Specification for Anodized Architectural Aluminum
AAMA 620	AAMA 620 Voluntary Specification for High Performance Organic Coatings on Coil Coated Architectural Aluminum
AAMA Aluminum Curtain Wall Design Guide Manual (CW-DG-1-96)	American Architectural Manufacturers Association (AAMA)
AAR M-101	AAR M-101 Carbon Steel Axles
AAR Manual of Standards and Recommended Practices	Association of American Railroads (AAR)
AAR RP-585	AAR RP-585 Wiring and Cable Specification
AAR S-501	AAR S-501 Specification for Wire and Cables
AASHTO Guide for the Design of Pavement	American Association of State Highway and

Reference Documents in Schedule 15	Description of Reference Documents
Structures	Transportation Officials (AASHTO), 1993
AASHTO Guide Specifications for Design and Construction of Segmental Concrete Bridges	
AASHTO Guide Specifications for Horizontally Curved Highway Bridges	
AASHTO Guide Specifications for Strength Evaluation of Existing Steel and Concrete Bridges	
AASHTO Guide Specifications for Structural Design of Sound Barriers	
AASHTO Guide Specifications – Thermal Effects in Concrete Bridge Structures	
AASHTO Manual for Condition Evaluation of Bridges	
ACI 201.2R	ACI 201.2R Guide to Durable Concrete
ACI 358.1	ACI 358.1 Analysis and Design of Reinforced and Prestressed – Concrete Guideway Structures
ACI 360R	ACI 360R Design of Slabs on Grade
ACI 365	ACI 365 Service Life Prediction
ACI Publication 201.2R	ACI Publication 201.2R Guide to Durable Concrete
ACI Publication 222R	ACI Publication 222R Protection of Metals in Concrete Against Corrosion
ACI Publication 506.2	ACI Publication 506.2 Below Grade Shotcrete Used as Permanent Support
ACI Publication SP-77	ACI Publication SP-77 Sulphate Resistance of Concrete
Accessibility for Ontarians with Disabilities Act (AODA)	
AESS Supplement	Modern Steel Construction, May 2003
AISC Code of Standard Practice for Steel Buildings and Bridges	American Institute of Steel Construction (AISC), March 2005
AISC Design Guide Series 9	AISC Design Guide Series 9 – Torsional Analysis of Structural Steel Members
AISI/ASTM A167	AISI/ASTM A167 Stainless and Heat-Resisting

Reference Documents in Schedule 15	Description of Reference Documents
	Chromium-Nickel Steel Plate, Sheet, and Strip
Alberta Transportation Highway Geometric Design Guide	Alberta Transportation Highway Geometric Design Guide, January 2004
Americans with Disabilities Act (ADA)	
AMCA Standard 210	Air Movement and Control Association International (AMCA) Standard 210, "Laboratory Methods of Testing Fans for Rating Purposes"
AMCA Standard 300	AMCA Standard 300, "Test Code for Sound Rating Air Moving Devices"
AMCA Standard 301	AMCA Standard 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data"
AMCA Standard 500-L	AMCA Standard 500-L Laboratory Methods of Testing Louvers for Rating
AMS 5050 E	AMS 5050 E Steel Tubing, Seamless, 0.15 Carbon, Maximum, Annealed
ANSI/ALI ALCTV-2006	ANSI/ALI ALCTV-2006 Safety Requirements for the Installation and Service of Automotive Lifts
ANSI/ASCE/T&DI 21	ANSI/ASCE/T&DI 21 Automated People Mover Standards – Parts 1-4
ANSI/ASHRAE 135	ANSI/ASHRAE 135 BACnet A Data Communication Protocol for Building Automation and Control Networks
ANSI/AWWA C105	ANSI/AWWA C105 Polyethylene Encasement for Ductile-Iron Pipe Systems
ANSI/IEEE 515.1	ANSI/IEEE 515.1 Testing, Design, Installation, and Maintenance of Electrical Resistance Heat Tracing for Commercial Applications
ANSI/IESNA RP-22	ANSI/IESNA RP-22 Tunnel Lighting
ANSI/SIA A92	ANSI/SIA A92 Elevating and Vehicle Lift Devices
ANSI B1.20.1	ANSI B1.20.1 Pipe Threads, General Purpose (Inch)
ANSI C34.2	ANSI C34.2 Semiconductor Power Rectifiers
ANSI C37	ANSI C37 Low Voltage Power Circuit Breaker
ANSI C57	ANSI C57 Power Transformers

Reference Documents in Schedule 15	Description of Reference Documents
ANSI Z26.1	ANSI Z26.1 Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways
ANSI Z97.1	ANSI Z97.1 Safety Glazing Materials Used in Buildings
ANSI Z358.1	ANSI Z358.1 Emergency Eyewash and Shower Equipment
An Urban Design Strategy for Sussex Dr., Rideau St. and Colonel By	
APTA Guidelines for the Design of Rapid Transit Facilities	American Public Transportation Association, 1981
APTA Heavy Duty Escalator Design Guideline	American Public Transportation Association (APTA)
APTA Manual for the Development of System Safety Program Plans for Commuter Railroads	American Public Transportation Association; Commuter Rail Safety Management Program, May 2006
APTA RP-E-002	APTA RP-E-002 Wiring of Passenger Equipment
APTA RP-E-004	APTA RP-E-004 Gap and Creepage Distance
APTA RP-E-007	APTA RP-E-007 Storage Batteries and Battery Compartments
APTA RP-E-009	APTA RP-E-009
APTA RP-M-001	APTA RP-M-001 Air Connections, Location and Configuration of, for Passenger Cars Equipped with AAR Long Shank Tight Lock or Similar Long Shank Type Couplers
APTA RP-M-009	APTA RP-M-009 New Truck Design
APTA SS-C&S-004	APTA SS-C&S-004 Austenitic Stainless Steel for Railroad Passenger Equipment
APTA SS-C&S-015	APTA SS-C&S-015 Aluminum and Aluminum Alloys for Passenger Equipment Car Body Construction
APTA SS-E-005	APTA SS-E-005 Grounding and Bonding
APTA SS-E-013	APTA SS-E-013 Emergency Lighting System Design for Passenger Cars
APTA SS-M-015-06	APTA SS-M-015-06 Wheel Flange Angle for Passenger Equipment

Reference Documents in Schedule 15	Description of Reference Documents
APTA SS-PS-004	APTA SS-PS-004 Low-Location Exit Path Marking
AREMA Communications and Signal Manual	AREMA
AREMA Manual For Railway Engineering, Volume 2, Chapter 28, Temporary Structure for Construction	AREMA
ASCE Guidelines for Tunnel Lining Design,	ASCE Technical Committee on Tunnel Lining Design, edited by T. O'Rourke, 1984
ASHRAE 52.2	ASHRAE 52.2 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
ASHRAE 55	ASHRAE 55 – Thermal Environmental Conditions for Human Occupancy, 2010 Edition.
ASHRAE 62.1	ASHRAE 62.1 – Ventilation for Acceptable Indoor Air Quality
ASHRAE 90.1	ASHRAE 90.1 – Energy Standard for Buildings Except Low-Rise Residential Buildings – permitted for construction after December 31, 2011
ASHRAE 189.1	ASHRAE 189.1 – Design of High-Performance, Green Buildings
ASHRAE Handbook	HVAC Applications, Division 13, "Enclosed Vehicular Facilities", 2007
ASME/ANSI B16.3	ASME/ANSI B16.3 Malleable Iron Threaded Fittings
ASME/ANSI B16.5	ASME/ANSI B16.5 Pipe Flanges and Flanged Fittings
ASME/ANSI B16.22	ASME/ANSI B16.22 Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
ASME A17.1	ASME A17.1 Safety Code for Elevators and Escalators
ASME A112.19.2 / CSA B45.1	ASME A112.19.2 / CSA B45.1 Ceramic Plumbing Fixtures
ASME B30.2	ASME B30.2 Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)

Reference Documents in Schedule 15	Description of Reference Documents
ASME B30.10	ASME B30.10 Hooks
ASME 30.11	ASME 30.11 Monorails and Underhung Cranes
ASME B30.16	ASME B30.16 Overhead Joists (Underhung)
ASME B31.1	ASME B31.1 Power Piping
ASME B31.5	ASME B31.5 Refrigeration Piping and Heat Transfer Components
ASME RT-1	ASME RT-1 Safety Standard for Structural Requirements for Light Rail Vehicles
ASSE 1052	ASSE 1052 Performance Requirements for Hose Connection Backflow Preventers
ASTM A1	ASTM A1 Carbon Steel Tee Rails
ASTM A6	ASTM A6 General Requirements for Rolled Structural Steel Bars, Plates, Shapes and Sheet Pilings
ASTM A53	ASTM A53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A82 / A82M	ASTM A82 / A82M Steel Wire, Plain for Concrete Reinforcement
ASTM A105	ASTM A105 Carbon Steel Forgings for Piping Applications
ASTM A106	ASTM A106 Seamless Carbon Steel Pipe for High-Temperature Service
ASTM A123	ASTM A123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153M-03e	ASTM A153M-00 Zinc Coating (Hot Dip) on Iron and Steel Hardware
ASTM A167	ASTM A167 Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A185	ASTM A185 Steel Welded Wire Reinforcement, Plain, for Concrete
ASTM A193	ASTM A193 Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
ASTM A197	ASTM A197 Cupola Malleable Iron
ASTM A234	ASTM A234 Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High

Reference Documents in Schedule 15	Description of Reference Documents
	Temperature Service
ASTM A240	ASTM A240 Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications
ASTM A269	ASTM A269 Seamless and Welded Austenitic Stainless steel Tubing for General Service
ASTM A276-04	ASTM A276-04 Stainless Steel Bars and Shapes
ASTM A307	ASTM A307 Carbon Steel Bolts and Studs
ASTM A325M	ASTM A325M Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A416/416M-06	ASTM A416/416M-06 Steel Strand, Uncoated Seven-Wire for Prestressed Concrete
ASTM A421/421M-05	ASTM A421/421M-05 Uncoated Stress-Relieved Steel Wire for Prestressed Concrete
ASTM A496/A496M	ASTM A496/A496M Steel Wire, Deformed for Concrete Reinforcement
ASTM A497/A497M	ASTM A497/A497M Steel Welded Wire Reinforcement, Deformed, for Concrete
ASTM A515	ASTM A515 Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service
ASTM A516	ASTM A516 Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower Temperature Service
ASTM A563	ASTM A563 Carbon and Alloy Steel Nuts
ASTM A568	ASTM A568 General Requirements for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled
ASTM A588	ASTM A588 High-Strength Low-Alloy Structural Steel
ASTM A606	ASTM A606 Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance
ASTM A653/A653M	ASTM A653/A653M Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

Reference Documents in Schedule 15	Description of Reference Documents
ASTM A666	ASTM A666 Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar
ASTM A775/A775M	ASTM A775/A775M Epoxy Coated Reinforcing Steel Bars
ASTM B33	ASTM B33 Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM B209	ASTM B209 Aluminum and Aluminum Alloy Sheet and Plate
ASTM B221	ASTM B221 Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wires, Profiles and Tubes
ASTM B280	ASTM B280 Seamless Copper Tube for Air Conditioning and Refrigeration Field Service
ASTM B584	ASTM B584 Copper Alloy Sand Castings for General Applications
ASTM C67	ASTM C67 Sampling and Testing Brick and Structural Clay Tile
ASTM C260	ASTM C260 Air-Entraining Admixtures for Concrete
ASTM C452-75	ASTM C452-75 Potential Expansion of Portland-Cement Mortars Exposed to Sulfate
ASTM C494/C494M	ASTM C494/C494M Standard Specification for Chemical Admixtures for Concrete
ASTM C507-95a	ASTM C507-95a Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe
ASTM C534	ASTM C534 Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form
ASTM C542	ASTM C542 Lock-Strip Gaskets
ASTM C547	ASTM C547 Mineral Fiber Pipe Insulation
ASTM C553	ASTM C553 Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
ASTM C568	ASTM C568 Limestone Dimension Stone
ASTM C612	ASTM C612 Mineral Fiber Block and Board Thermal Insulation
ASTM C615	ASTM C615 Granite Dimension Stone

Reference Documents in Schedule 15	Description of Reference Documents
ASTM C716	ASTM C716 Installing Lock-Strip Gaskets and Infill Glazing Materials
ASTM C864	ASTM C864 Dense Elastomeric Compression Seal Gaskets, Setting Blocks and Spacers
ASTM C881/C881M	ASTM C881/C881M Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C936	ASTM C936 Solid Concrete Interlocking Paving Units
ASTM C1017/C1017M	ASTM C1017/C1017M Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1026	ASTM C1026 Measuring the Resistance of Ceramic Tile to Freeze-Thaw Cycling
ASTM C1036	ASTM C1036 Flat Glass
ASTM C1048	ASTM C1048 Heat-Treated Flat Glass—Kind HS, Kind FT Coated and Uncoated Glass
ASTM C1059/C1059M	ASTM C1059/C1059M Latex Agents for Bonding Fresh to Hardened Concrete
ASTM C1166	ASTM C1166 Lock-Strip Gaskets
ASTM C1172	ASTM C1172 Laminated Architectural Flat Glass
ASTM C1184	ASTM C1184 Structural Silicone Sealants
ASTM C1242	ASTM C1242 Selection, Design and Installation of Dimension Stone Attachment Systems
ASTM D395	ASTM D395 Rubber Property – Compression Set
ASTM D422-63	ASTM D422-63 Particle-Size Analysis of Soils
ASTM D516	ASTM D516 Sulfate Ion in Water
ASTM D695	ASTM D695 Compressive Properties of Rigid Plastics
ASTM D790	ASTM D790 Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D2240	ASTM D2240 Rubber Property – Durometer Hardness
ASTM D2850-95	ASTM D2850-95 Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

Reference Documents in Schedule 15	Description of Reference Documents
ASTM D2922	ASTM D2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D3222	ASTM D3222 Unmodified Poly(Vinylidene Fluoride) (PVDF) Molding Extrusion and Coating Materials
ASTM D3675	ASTM D3675 Surface Flammability of Flexible Cellular Materials Using a Radiant Heat Energy Source
ASTM D4976	ASTM D4976 Polyethylene Plastics Molding and Extrusion Materials
ASTM D5856-95	ASTM D5856-95 Water in Petroleum Products and Bituminous Materials by Distillation
ASTM E84	ASTM E84 Surface Burning Characteristics of Building Materials
ASTM E90	ASTM E90 Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
ASTM E119	ASTM E119 Fire Tests of Building Construction and Materials
ASTM E162	ASTM E162 Surface Flammability of Materials Using a Radiant Heat Energy Source
ASTM E283-04	ASTM E283-04 Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
ASTM E330	ASTM E330 Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls
ASTM E331	ASTM E331 Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference
ASTM E648	ASTM E648 Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
ASTM E662	ASTM E662 Specific Optical Density of Smoke Generated by Solid Material
ASTM E1332	ASTM E1332 Rating Outdoor-Indoor Sound Attenuation

Reference Documents in Schedule 15	Description of Reference Documents
ASTM F436	ASTM F436 Standard Specification for Hardened Steel Washers
ASTM F519	ASTM F519 Mechanical Hydrogen Embrittlement Evaluation of Plating/Coating Processes and Service Environments
ASTM F593	ASTM F593 Stainless Steel Bolts, Hex Cap Screws and Studs
ASTM F738M	ASTM F738M Stainless Steel Metric Bolts, Screws, and Studs
ASTM F836M	ASTM F836M Style 1 Stainless Steel Metric Nuts
ASTM G51	ASTM G51 Measuring pH of Soil for Use in Corrosion Testing
ASTM G57	ASTM G57 Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method
AWMAC	Quality Standards for Architectural Woodwork
AWS A5.0	AWS A5.0 Filter Metal Procurement Guidelines
AWS BRH	AWS BRH American Welding Society Brazing Handbook
AWS C1.1	AWS C1.1 Resistance Welding
AWS D1.1	AWS D1.1 Structural Welding Code – Steel
AWS D1.2	AWS D1.2 Structural Welding Code – Aluminum
AWS D1.3	AWS D1.3 Structural Welding Code – Sheet Steel
AWS D1.6	AWS D1.6 Structural Welding Code – Stainless Steel
AWS D14.1	AWS D14.1 Welding of Industrial and Mill Cranes and Other Material Handling Equipment
AWS D15.1	AWS D15.1 Railroad Welding Specification – Cars and Locomotives
AWS WHB	AWS WHB American Welding Society Welding Handbook
Bayview/Somerset Area Secondary Plan	
BSS-7239	BSS-7239 Test Method for Toxic Gas

Reference Documents in Schedule 15	Description of Reference Documents
	Generation by Materials on Combustion
Canada's Capital Core Area Sector Plan	
Canadian Transportation Agency	Code of Practice, Passenger Terminal Accessibility
Canadian Transportation Agency	Code of Practice, Passenger Rail Car Accessibility and Terms and Conditions of Carriage by Rail of Persons with Disabilities
Canadian Transportation Agency	Code of Practice, Removing Communication Barriers for Travelers with Disabilities
Canadian Transportation Agency	Code of Practice, Intercity Bus
CAN/CGSB 1.181	CAN/CGSB 1.181 Ready-Mixed Organic Zinc-Rich Coating
CAN/CGSB 12.1-M	CAN/CGSB 12.1-M, Tempered or Laminated Safety Glass
CAN/CGSB 12.11-M	CAN/CGSB 12.11-M Wired Safety Glass
CAN/CGSB 12.20-M	CAN/CGSB 12.20-M Structural Design of Glass for Buildings
CAN/CGSB 12.3-M	CAN/CGSB 12.3-M Flat, Clear Float Glass
CAN/CGSB 12.8-M	CAN/CGSB 12.8-M Insulating Glass Units
CAN/CGSB 75.1-M	CAN/CGSB 75.1-M Tile, Ceramic
CAN/CGSB 85.100	CAN/CGSB 85.100 Painting
CAN/CGSB-109.4	CAN/CGSB-109.4-2000, Passenger Information Symbols Standard
CAN/CSA A5	CAN/CSA A5 Portland Cement
CAN/CSA A16	CAN/CSA A16 Design of Steel Structures
CAN/CSA A23.1	CAN/CSA A23.1 Concrete Materials and Methods of Concrete Construction
CAN/CSA A23.2	CAN/CSA A23.2 Methods of Testing for Concrete
CAN/CSA A23.3	CAN/CSA A23.3 Design of Concrete Structures
CAN/CSA A23.4	CAN/CSA A23.4 Precast Concrete - Materials and Construction
CAN/CSA A23.5	CAN/CSA A23.5 Supplementary Cementing Materials

Reference Documents in Schedule 15	Description of Reference Documents
CAN/CSA A165	CAN/CSA A165 Concrete Masonry Units
CAN/CSA A179	CAN/CSA A179 Mortar and Grout for Unit Masonry
CAN/CSA A251	CAN/CSA A251 Qualification Code for Architectural and Structural Precast Concrete
CAN/CSA A370	CAN/CSA A370 Connectors for Masonry
CAN/CSA A371	CAN/CSA A371 Masonry Construction for Buildings
CAN/CSA A440	CAN/CSA A440 Window, Door, and Skylight Installation
CAN/CSA A3000	CAN/CSA A3000 Cementitious Materials Compendium
CAN/CSA B44	CAN/CSA B44 Safety Code for Elevators
CAN/CSA B45	CAN/CSA B45 Plumbing Fixtures
CAN/CSA B52	CAN/CSA B52 Mechanical Refrigeration Code
CAN/CSA B139	CAN/CSA B139 Installation Code for Oil Burning Equipment
CAN/CSA B167-96	CAN/CSA B167-96 Maintenance and Inspection of Overhead Cranes, Gantry Cranes, Monorails, Hoists and Trolleys
CAN/CSA B651-04	CAN/CSA B651-04 Accessible Design for the Built Environment
CAN/CSA C22.1-09	CAN/CSA C22.1-09 Canadian Electrical Code, Part I – Safety Standard for Electrical Installations
CAN/CSA C22.2-09	CAN/CSA C22.2-09 Canadian Electrical Code, Part II – General Requirements
CAN/CSA C22.2 No. 94	CAN/CSA C22.2 No. 94 Electrical Enclosures
CAN/CSA C22.3 No. 1 & 8	CAN/CSA C22.3 No. 1 & 8 Overhead Systems
CAN/CSA C22.3 No. 4	CAN/CSA C22.3 No. 4-1974(R1995) Control of Electromechanical Corrosion of Underground Metallic Structures
CAN/CSA C390-10	CAN/CSA C390-10 Energy Efficiency Test Methods for Three-Phase Induction Motors
CAN/CSA G30.5	CAN/CSA G30.5 Welded Steel Wire Fabric for Concrete Reinforcement

Reference Documents in Schedule 15	Description of Reference Documents
CAN/CSA G30.18	CAN/CSA G30.18 Grade 400W, Billet-steel Bars, Deformed
CAN/CSA G40.20	CAN/CSA G40.20 General Requirements for Rolled or Welded Structural Quality Steel
CAN/CSA G40.21	CAN/CSA G40.21 Structural Quality Steels
CAN/CSA-G164-M	CAN/CSA-G164-M Hot Dip Galvanizing of Irregularly Shaped Articles
CAN/CSA O86	CAN/CSA O86 Engineering Design in Wood
CAN/CSA Q396	CAN/CSA Q396 Software Quality Assurance Standards
CAN/CSA Q632-90	CAN/CSA Q632-90 Reliability and Maintainability Management Guidelines
CAN/CSA S6	CAN/CSA S6 Canadian Highway Bridge Design Code (CHBDC)
CAN/CSA S16	CAN/CSA S16 Limit States Design of Steel Structures
CAN/CSA S136-M	CAN/CSA S136-M Design of Cold-Formed Steel Structural Members
CAN/CSA S304.1	CAN/CSA S304.1 Design of Masonry Structures
CAN/CSA S413	CAN/CSA S413 Parking Structures
CAN/CSA S478	CAN/CSA S478 Guideline on Durability in Buildings
CAN/CSA S448.1	CAN/CSA S448.1 Repair of Reinforced Concrete in Buildings and Parking Structures
CAN/CSA W47.1	CAN/CSA W47.1 Certification for Companies for Fusion Welding of Steel Structures
CAN/CSA W59	CAN/CSA W59 Welded Steel Construction (Metal Arc Welding)
CAN/CSA W186-M	CAN/CSA W186-M Welding of Reinforcing Bars in Reinforced Concrete Construction
CAN/CSA Z259.1	CAN/CSA Z259.1 Fall-Arresting Safety Belts and Lanyards for the Construction and Mining Industries
CAN/CSA Z259.2-M	CAN/CSA Z259.2-M Fall-Arresting Devices, Personal Lowering Devices and Life Lines
CAN/CSA Z259.3-M	CAN/CSA Z259.3-M Lineman's Body Belt and

Reference Documents in Schedule 15	Description of Reference Documents
	Lineman's Safety Strap
CAN/CSA Z462	CAN/CSA Z462 Workplace Electrical Safety
CAN/ULC-S701	CAN/ULC-S701 Thermal Insulation, Polystyrene, Boards and Pipe Covering
CAN3 S157-M	CAN3 S157-M Strength Design in Aluminum
Canadian Electrical Code	Canadian Electrical Code (CEC), 21st Edition
Canadian Foundation Engineering Manual	Canadian Foundation Engineering Manual, 3rd & 4th Editions
Canadian Motor Vehicle Safety Regulations, Technical Standard 108	
Canadian Portland Cement Association's Simplified Design Procedure	
Canadian Standards for Nursery Stock	Most recent addition
CGC Steel Framed Drywall Systems, 09250-1 E	CGC Steel Framed Drywall Systems, 09250-1 E
CISC Guide for the Design of Crane-Supporting Steel Structures	Canadian Institute of Steel Construction (CISC)
City of Ottawa Area Traffic Management Principles and Guidelines	
City of Ottawa Data Handbook	
City of Ottawa Emergency Management Plan	
City of Ottawa Green Space Master Plan	
City of Ottawa Integrated Street Furniture Policy and Design Guidelines	City of Ottawa Integrated Street Furniture Policy and Design Guidelines, August 2009 (ISFP)
City of Ottawa Interior Planning Standards	City of Ottawa, Real Property and Assets Management, July 2002
City of Ottawa Municipal Accessibility Plan (COMAP) Accessibility and Design Guidelines for the Visually Impaired	City of Ottawa Municipal Accessibility Plan (COMAP) Accessibility and Design Guidelines for the Visually Impaired
City of Ottawa Operational Policy, Procedures and Guidelines	
City of Ottawa Right of Way Lighting Policy	
City of Ottawa Road Corridor Planning & Design Guidelines, Urban & Village Collectors / Rural Arterials & Collectors	City of Ottawa Road Corridor Planning & Design Guidelines, Urban & Village Collectors / Rural Arterials & Collectors, October 2008

Reference Documents in Schedule 15	Description of Reference Documents
City of Ottawa Sewer Design Guidelines	City of Ottawa Sewer Design Guidelines (November 2004)
City of Ottawa Sewer Use By-law No. 2003-514	
City of Ottawa Slope Stability Guidelines for Development Applications	
City of Ottawa Standard Tender Documents for Unit Price Contracts, Volume 1 and 2	
City of Ottawa Traffic and Parking By-Laws	
City of Ottawa Transit Technology Choice Report	
City of Ottawa Urban and Rural Truck Routes	
City of Ottawa Water Design Guidelines	
CMAA No. 70	CMAA No. 70 Top Running Bridge and Gantry Type Multiple Girder Electric Overhead Traveling Cranes
CMAA No.74	CMAA No.74 Top Running and Under Running Single Girder Electric Traveling Cranes Utilizing Under Running Trolley Hoist
CN Guidelines for Design of Railway Structures	CN, 2006
CPCI Design Manual Precast Prestressed Concrete	
CRCA Specifications Manual	Canadian Roofing Contractors Association (CRCA)
CSSBI 101 M	CSSBI 101 M Zinc Coated Structural Quality Steel Sheet for Steel
DOT-FTA-MA-26-5005-00-01 Hazard Analysis Guidelines for Transit Projects	U.S. Department of Transportation, Federal Transit Administration (January 2000)
DOT, "Recommended Emergency Preparedness Guidelines for Rail Transit Systems"	Department of Transportation (DOT), "Recommended Emergency Preparedness Guidelines for Rail Transit Systems"
Downtown Ottawa Urban Design Strategy	Downtown Ottawa Urban Design Strategy (DOUDS)
Drainage Act	*Drainage Act, 1990* (Ontario)

Reference Documents in Schedule 15	Description of Reference Documents
Electricity Act	*Electricity Act, 1998*
Elevating Devices Act and Ontario Regulation 229/81	
Elevators and Fixed Conveyance Act	
EN 13272	EN 13272 Railway applications – Electrical Lighting for Rolling Stock in Public Transport Systems
EN 50121-1	EN 50121-1 Railway Applications – Electromagnetic Compatibility – Part 1: General
EN 50121-2	EN 50121-2 Railway Applications – Electromagnetic Compatibility – Part 2: Emissions of the Whole Railway System to the Outside World
EN 50121-3-1	EN 50121-3-1 Railway Applications, EMC – Rolling Stock – Train and Complete Vehicle
EN 50121-3-2	EN 50121-3-2 Railway Applications, EMC – Rolling Stock – Apparatus
EN 50121-4	EN 50121-4 Railway Applications, EMC – Emission and Immunity of the Signaling and Telecommunications Apparatus
EN 50121-5	EN 50121-5 Railway Applications, EMC – Emissions and Immunity of Fixed Power Supply Installations and Apparatus
EN 50126	EN 50126 Railway Applications – The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS)
EN 50128	EN 50128 Railway Applications – Communication, Signalling, and Processing Systems - Software for Railway Control and Protection Systems
EN 50129	EN 50129 Railway Applications – Communication, Signalling and Processing Systems - Safety Related Electronic for Signalling
EN 50155	EN 50155 Railway Applications – Electronic Equipment Used on Rolling Stock

Reference Documents in Schedule 15	Description of Reference Documents
EN 50159-2	EN 50159-2 Railway Applications – Communication, Signalling and Processing Systems – Part 2: Safety Related Communication in Open Transmission Systems
EN 50162	EN 50162 Protection Against Corrosion By DC Track Stray Currents
Federal Highway Administration (FHWA) FHWA-NHI-00-043	Federal Highway Administration (FHWA) FHWA-NHI-00-043 Mechanically stabilized earth walls and reinforced soil slopes design & construction guidelines
Federal Highway Administration (FHWA) Post Tensioning Tendon Installation and Grouting Manual	
Fisheries Act	*Fisheries Act, 1985*
FM 1-28	FM 1-28 Design Wind Loads
FM 4450	FM 4450 Approval Standards for Class 1 Insulated Steel Roof Decks
FM 4470	FM 4470 Approval Standard for Class 1 Roof Covers
GANA Glazing Manual	Glass Association of North America (GANA)
GANA Laminated Glazing Reference Manual	GANA
Geometric Design Guide for Canadian Roads	Geometric Design Guide for Canadian Roads (TAC, 1999)
Geometric Design Standards for Ontario Highways	Geometric Design Standards for Ontario Highways (MTO)
Green Energy Act, 2009	
Guideline for Professional Engineers Providing Geotechnical Engineering Services, published by Professional Engineers of Ontario (PEO)	GUIDELINE, Professional Engineers Providing Geotechnical Engineering Services, Revised 11/15/98
HMI 100	HMI 100 Electrical Wire Rope Hoists
IEC/ISO 27000	IEC/ISO 27000 Information Security Management Systems Standards
IEC 1000-5-2	IEC 1000-5-2 EMC Cabling Guidelines
IEC 15288	IEC 15288 Systems Engineering
IEC 60077-1	IEC 60077-1 Railway Applications – Electric

Reference Documents in Schedule 15	Description of Reference Documents
	Equipment for Rolling Stock - Part 1: General Service Conditions and General Rules
IEC 60077-3	IEC 60077-3 Railway Applications – Electric Equipment for Rolling Stock. Electrotechnical Components. Rules for D.C. Circuit-Breakers
IEC 60322	IEC 60322 Railway Applications – Electric Equipment for Rolling Stock – Rules for Power Resistors of Open Construction
IEC 60349-2	IEC 60349-2 Electric Traction – Rotating Electrical Machines for rail and Road Vehicles – Part 2: Electronic Converter-fed Alternating Current Motors
IEC 60529	IEC 60529 Degrees of Protection Provided by Enclosures (IP Code)
IEC 60623	IEC 60623 Secondary Cells and Batteries Containing Alkaline or Other Non-acid Electrolytes – Vented Nickel-cadmium Prismatic Rechargeable Single Cells
IEC 61000-2008	IEC 61000-2008 Electromagnetic Compatibility (EMC), Testing and Measurement Techniques
IEC 61071	IEC 61071 Capacitors for Power Electronics
IEC 61133	IEC 61133 Railway Applications – Rolling Stock – Testing of Rolling Stock on Completion of Construction and Before Entry Into Service
IEC 61287-1	IEC 61287-1 Railway Applications – Power Convertors Installed on Board Rolling Stock – Part 1: Characteristics and Test Methods
IEC 61508	IEC 61508 Functional Safety of Electrical/ Electronic/Programmable Electronic Safety-related Systems
IEEE 11	IEEE 11 Rotating Electric Machinery for Rail and Road Vehicles
IEEE 16	IEEE 16 Electrical and Electronic Control Apparatus on Rail Vehicles
IEEE 80	IEEE 80 Safety in AC Substation Grounding
IEEE 383	IEEE 383 Qualifying Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations

Reference Documents in Schedule 15	Description of Reference Documents
IEEE 497	IEEE 497 Accident Monitoring Instrumentation for Nuclear Power Generating Stations
IEEE 519	IEEE 519 Harmonic Limits
IEEE 1473	IEEE 1473 Communications Protocol Aboard Passenger Trains
IEEE 1474.1	IEEE 1474.1 Communications-Based Train Control (CBTC) Performance and Functional Requirements
IEEE 1474.2	IEEE 1474.2 Functioning of and Interfaces Among Propulsion, Friction Brake and Train-borne Master Control on Rail Rapid Transit Vehicles
IEEE 1474.3	IEEE 1474.3 Recommended Practice for Communications-Based Train Control (CBTC) System Design and Functional Allocations
IEEE 1477	IEEE 1477 Passenger Information System for Rail Transit Vehicles
IEEE 1482	IEEE 1482 Rail Transit Vehicle Event Recorders
IEEE 1483	IEEE 1483 Verification of Vital Functions in Processor-Based Systems Used in Rail Transit Control
IEEE 1584	IEEE 1584 Guide for Performing Arc-Flash Hazard Calculations
IEEE 1635.2	IEEE 1635.2 Draft Guide for the Ventilation and Thermal Management of Batteries for Stationary Applications
IEEE C37-13	IEEE C37-13 Low-Voltage AC Power Circuit Breakers Used in Enclosures
IEEE C37-14	IEEE C37-14 Low-Voltage DC Power Circuit Breakers Used in Enclosures
IEEE C95.1	IEEE C95.1 Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 3 to 300 GHz
IEEE C95.6	IEEE C95.6 Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0 to 3 kHz
IESNA Lighting Handbook	Illuminating Engineering Society of North America (IESNA), Lighting Handbook

Reference Documents in Schedule 15	Description of Reference Documents
IESNA TM-11-2006	IESNA TM-11-2006 Technical Memorandum on Light Trespass
ISO 2631	ISO 2631 Mechanical Vibration and Shock
ISO 9000 Series	ISO 9000 Series – Quality Management
ISO 14224	ISO 14224 Petroleum, Petrochemical and Natural Gas Industries – Collection and Exchange of Reliability and Maintenance Data for Equipment
ITA Fire Guidelines	
Lebreton Flats South Development	
MHIA: MH 30.1	MHIA: MH 30.1 Specification for Dock Leveling Devices
MIL-STD-882	MIL-STD-882 System Safety
Model National Energy Code for Buildings	Model National Energy Code for Buildings (MNECB), 1997
MOE Design Guidelines for Drinking-Water Systems	Ontario Ministry of the Environment (MOE), 2008
MOE Design Guidelines for Sewage Works	MOE, 2008
MOE Stormwater Management Planning and Design Guidelines	MOE, 2003
MTO/DFO/OMNR Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings	MTO/DFO/OMNR
MTO/DFO/OMNR Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings – User Field Guide	MTO/DFO/OMNR
MTO/MOE Memorandum of Understanding on Permits-To-Take-Water	MTO/MOE, 2007
MTO/MOE Protocol for the Management of Excess Materials in Road Construction and Maintenance	MTO/MOE, 1994
MTO Aesthetic Guidelines for Bridges	MTO, 2004
MTO Bailey Bridge Manual	MTO, 1990
MTO Cathodic Protection Manual for Concrete Bridges	MTO, 1993

Reference Documents in Schedule 15	Description of Reference Documents
MTO Class Environmental Assessment for Provincial Transportation Facilities	MTO, 2000
MTO Concrete Culvert Design and Detailing Manual	MTO, 1988
MTO Construction Manual	MTO
MTO Drainage Management Manual	MTO, 1997
MTO Electrical Engineering Manual	MTO
MTO Environmental Guide for Contaminated Property Identification and Management	MTO, 2006
MTO Environmental Guidelines for Structural Steel Coating	MTO, 1996
MTO Environmental Protection Requirements for Transportation Planning and Highway Design, Construction, Operation and Maintenance	MTO, 2006
MTO Formwork and Falsework Manual	MTO, 1997
MTO Geometric Design Standards for Ontario Highways Manual	MTO
MTO Gravity Pipe Design Guidelines for Circular Culverts and Storm Sewers	MTO, 2007
MTO Guide for Preparing Hydrology Reports for Water Crossings	MTO
MTO Guide to the Design of Post-Tensioned Decks	MTO, 1997
MTO Highway Drainage Design Standards	MTO, 2008
MTO Integral Abutment Bridge	MTO, 1996
MTO King's Highway Guide Signing Policy Manual	MTO
MTO Lab Testing Manual	MTO, 2006
MTO Ontario Heritage Bridge Guidelines for Provincially Owned Bridges	MTO, 2008
MTO Ontario Structure Inspection Manual (OSIM)	MTO, 2008
MTO Ontario Structures Inspection	MTO

Reference Documents in Schedule 15	Description of Reference Documents
Management Systems (OSIMS) User's Guide	
MTO Overcoating – Technical Assessment of Existing Coatings of Steel Bridges for Overcoating	MTO
MTO Pavement Design and Rehabilitation Manual (SDO-09-01)	MTO, 1990
MTO Performance of Integral Abutment Bridges Report	MTO, 2000
MTO Pile Load and Extraction Tests	MTO
MTO Pre-stressed Concrete Manual for Quality Assurance of Bridges During Construction	MTO
MTO RSS Guidelines	MTO, 2007
MTO Seismic Design Guidelines	MTO
MTO Semi-Integral Abutment Bridges Manual	MTO
MTO Sign Support Manual	MTO
MTO Structural Manual	MTO
MTO Structural Steel Coating Manual	MTO
MTO Structural Rehabilitation Manual	MTO, 2004
NACE Standard SP0169	NACE Standard SP0169 Control of External Corrosion on Underground and Submerged Metallic Piping Systems
National Capital Act, 1985	U.S., 1985
National Electrical and Safety Code (NESC)	
NBC 2010	National Building Code of Canada (NBC 2010)
NCC Pathway for Canada's Capital Region Strategic Plan	
NCMA Segmental Retaining Wall Design Manual	
NFPA 10	NFPA 10 Portable Fire Extinguishers
NFPA 13	NFPA 13 Installation of Sprinkler Systems
NFPA 14	NFPA 14 Installation of Standpipe, Private Hydrants, and Hose Systems

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NFPA 20	NFPA 20 Installation of Stationary Pumps
NFPA 24	NFPA 24 Installation of Private Fire Service Mains and Their Appurtenances
NFPA 70	NFPA 70 National Electrical Code
NFPA 80	NFPA 80 Fire Doors and Other Opening Protectives
NFPA 90A	NFPA 90A Installation of Air-conditioning and Ventilation Systems
NFPA 91	NFPA 91 Exhaust System for Air-Conveying of Vapours, Gases, Mist, and Noncombustible Particulate Solids
NFPA 92A	NFPA 92A Recommended Practice for Smoke-Control Systems;
NFPA 99	NFPA 99 Health Care Facilities Code
NFPA 101	NFPA 101 Life Safety Code
NFPA 110	NFPA 110 Emergency and Standby Power Systems
NFPA 130	NFPA 130 Fixed Guideway Transit and Passenger Rail Systems
NFPA 204	NFPA 204 Smoke and Heat Venting
NFPA 502	NFPA 502 Road Tunnels, Bridges and Other Limited Access Highways
NFPA 1963	NFPA 1963 Fire Hose Connections
NFPA 2001	NFPA 2001 Clean Agent Fire Extinguishing Systems
NFRC 100	NFRC 100 Procedure for Determining Fenestration Product U-factors
NRCA Roofing Manual: Steep-slope Roof Systems	National Roofing Contractors Association (NRCA), 2009
NSF 61	NSF 61 Drinking Water System Components
Occupational Health and Safety Act	*Occupational Health and Safety Act* (OHSA)
OC Transpo Operating Policy and Procedures	
Old Ottawa East Community Design Plan	
Ontario Barrier-Free Design Guide	Ontario Barrier-Free Design Guide – Ontario

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	Safety Codes Council
Ontario Building Code	Ontario Building Code (OBC 2006)
Ontario Electrical Safety Code	Ontario Electrical Safety Code (OESC), 24th Edition
Ontario Fire Code	Ontario Fire Code (OFC)
Ontario Heritage Act	*Ontario Heritage Act*
Ontario Mechanical Code	
Ontario Pavement and Rehabilitation Manual	1993
Ontario Traffic Manual	Ontario (Canada) Ministry of Transportation. Ontario Traffic Manual. Toronto, Ontario, Canada: Ontario Ministry of Transportation, July 2001.
Ontario Traffic Manual (MTO)	Ontario Traffic Manual, MTO, 2005
Ontario Water Resources Act	R.S.O. 1990
Ottawa Cycling Plan	Ottawa Cycling Plan (OCP)
Ottawa DOTT Recommended Plan	Ottawa DOTT Recommended Plan
Ottawa Escarpment Area District Plan	
Ottawa Integrated Street Furniture Program	Ottawa Integrated Street Furniture Program
Ottawa Official Plan	Ottawa Official Plan (OP)
Ottawa Pedestrian Plan	Ottawa Pedestrian Plan
Ottawa Train Yards Site Servicing Report	David McManus Engineering Ltd., 2001
Ottawa Transit-Oriented Development Guidelines	Ottawa Transit-Oriented Development (TOD) Guidelines
Ottawa Transportation Master Plan	Ottawa Transportation Master Plan
Ottawa Urban Design, A Reference Guide to Creating Great Places and Great Spaces	Publication #2103
PDI-WH 201	PDI-WH 201 Water Hammer Arresters
Pinecrest/Centrepointe Stormwater Management Criteria Study	J F Sabourin & Associates Inc., June 2009
Policy and Guidelines on Disability and the Duty to Accommodate	Ontario Human Rights Commission
Post-Tensioned Box Girder Bridge Manual	Post-Tensioning Institute (PTI) Post-Tensioned Box Girder Bridge Manual
Professional Engineers Act	*Professional Engineers Act* R.S.O. 1990,

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Quality Standards for Architectural Woodwork	Quality Standards for Architectural Woodwork (AWMAC)
Recommendations for Prestressed Rock and Soil Anchors	Post-Tensioning Institute (PTI) Recommendations for Prestressed Rock and Soil Anchors
Regional Municipality of Ottawa-Carleton Transitway Design Manual	Regional Municipality of Ottawa-Carleton Transitway Design Manual, October 1983
Region of Ottawa-Carleton Regional Road Corridor Design Guidelines	Region of Ottawa-Carleton Regional Road Corridor Design Guidelines, July 2000, Region of Ottawa-Carleton
Roadside Safety Manual	MTO
Rock Tunneling with Steel Supports	Proctor, R.V. and White, T.L., Youngstown, Ohio: Commercial Shearing, Inc., 1988
SAE J524	SAE J524 Hydraulic Standards for Industrial Equipment
Secondary Plan for the Central Area	City of Ottawa
Seismic Design and Analysis of Underground Structures	Hashash, Y.M.A. et al., 2001, Tunneling and Underground Space Technology 16, pp. 247-293
Shotcrete Lining Design: Factors of Influence	John M. and Mattle B. (2003), RETC 2003 Proceedings, 726-734
SMACNA Architectural Sheet Metal Manual	Sheet Metal and Air-conditioning Contractors' National Association (SMACNA), 2003
SMACNA HVAC Duct Construction Standards	SMACNA
Specification for Tunnelling	British Tunnelling Society and Institution of Civil Engineers (latest edition)
Specifications Covering Use of Aluminum in Passenger Carrying Railway Vehicles	
SSPC SP10	SSPC SP10 Near-White Blast Cleaning
Standard Respecting Pipeline Crossings Under Railways	
Subway Environmental Design Handbook	Subway Environmental Design Handbook (SEDH) (DOT 1976);
Superpave Asphalt Mix Selection	
TC – RTD 10 Road/Railway Grade Crossing Technical Standards and Inspection, Testing	Transport Canada (TC), October 2002

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Technical Report No. 63, Guidance for the Design of Steel-Fibre-Reinforced Concrete	The Concrete Society, CCIP-017, March 2007
Toxics Reduction Act	S.O. 2009
Transit Cooperative Research Program (TCRP) Report 57 Track Design Handbook for Light Rail Transit	
Tunnel Lining Design Guide	
Tunney's Pasture Master Plan	
UIC605OR	UIC605OR Protection from Corrosion
University of Ottawa – Main Campus Strategy	
User's Guide – NBC: Structural Commentaries (Part 4)	