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7. Commitments and Future Work

During the TPAP, Metrolinx worked with various stakeholders to discuss issues/concerns raised in relation to the design and implementation of the proposed UP Express Electrification project. Recognizing that not all issues can be resolved prior to the detailed design stage, the following section summarizes Metrolinx's commitments, to future action during detail design, as well as future project phases.

7.1 Implementation of Mitigation Measures & Compliance Monitoring

This section is to be read in conjunction with Chapters 6 & 8 (Tables 6-25 and 8-3) of this EPR.

To ensure that potential adverse environmental effects associated with the UP Express Electrification project are avoided/minimized/mitigated to the extent possible, the following actions will be adhered to by Metrolinx during the detailed design and construction phases of the project:

- Prepare and implement a Compliance Monitoring Program (including reporting requirements) during the detailed design and construction phases respectively, to ensure that Metrolinx's compliance with the commitments as listed in this EPR, and to ensure mitigation and monitoring measures are implemented and functioning in the manner predicted
 - This will include transferring all mitigation measures and monitoring requirements identified in Table 6-25 into the Compliance Monitoring Program for compliance tracking purposes;
- Implement all mitigation measures as documented in this Final EPR (as detailed in Chapter 6) during the detailed design, construction and operational phases of the project, as appropriate;
- Ensure that all mitigation measures are captured in the Construction Contract Documents for implementation; and
- Undertake all additional studies/work as outlined in Table 6-25 and Table 8-3 of this EPR prior to implementation of the undertaking.

7.2 Permits and Approvals

A number of permits and approvals (as outlined in EPR Chapter 9) will be required as part of implementing the UP Express Electrification project. Therefore, Metrolinx will:

- During detailed design, review and confirm all permits and approvals (as outlined in EPR Chapter 9) that need to be acquired as part of implementing the undertaking; and
- Obtain all required permits/approvals prior to implementation of the undertaking.

7.3 Heritage and Archaeological Resources

Additional studies for specific heritage/archaeological resources were recommended as part of the TPAP through the Cultural Heritage Assessment Report and Stage 1 Archaeological Assessment Report. Accordingly, these additional studies (as described in Chapter 6) will be carried out by Metrolinx prior to implementing the project, as appropriate. These additional studies generally consist of the following:

- For the potentially affected resources, carry out a Cultural Heritage Evaluation Recommendation Report (CHER) to identify heritage value and attributes;
- If found to have cultural heritage value by the Metrolinx Heritage Committee, conduct a Heritage Impact Assessment (HIA) during detail design to identify potential impacts and appropriate mitigation measures and incorporate mitigation measures into the final design.;
- Follow Metrolinx Interim Cultural Heritage Management Process (2013), for managing heritage assets;
- For any properties determined by the Metrolinx Heritage Committee to be of provincial heritage value, Metrolinx will include the property on the list of Provincial heritage properties maintained by the MTCS and will provide all related documents (e.g., CHERs, etc.) as appropriate to MTCS;
- Carry out a Stage 2 archaeological assessment at the Ordnance site, as described in the Final Stage 1 Archaeological Assessment Report (December 2012); and
- Should previously unknown or unassessed deeply buried archaeological resources be uncovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services.

7.4 Stormwater Management

7.4.1 50 Resources Road site

If deemed necessary during preliminary and/or detailed design of the EMU Maintenance Facility, the recommended option for altering/modifying/relocating the existing SWM pond will be confirmed prior to operation of the proposed maintenance facility. In addition, the design of the stormwater management (SWM) pond adjacent to the EMU Maintenance Facility site will be reviewed to ensure a zero-net reduction in groundwater recharge is achieved (to ensure that baseflow contribution to the Humber River from the EMU Maintenance Facility site is unaffected by the development).

7.4.2 Ordnance Street Site

The following additional studies/work will be carried out by Metrolinx with respect to stormwater management:

- During detailed design, a stormwater management plan/design will be carried out by Metrolinx and will address: quantity control, erosion control, and quality control.
- The stormwater management plan/design will be developed in consultation with review agencies and stakeholders, as appropriate.
- Implement the stormwater management plan/design prior to implementation of the UP Express Electrification project.

7.5 Noise

It is recommended that the results of the noise modeling assessment carried out for the EMU Maintenance Facility be verified based on the subsequent Preliminary Design to be undertaken for the facility, in order to confirm that compliance with NPC-300.

7.6 Visual

As outlined in Chapter 6 of this EPR (see Table 6-25), further review of OCS design, bridge barriers, gantries, and paralleling stations will be undertaken through Metrolinx's Design Review Panel in consultation with the City of Toronto (during detailed design), to identify and consider potential visual enhancements/mitigation measures for minimizing visual effects due to the introduction of electrification infrastructure. The specific aspects to be considered are detailed in Chapter 6 (Section 6.14) of this EPR.

7.7 Traffic

As outlined in the Traffic Impact Study (Appendix I) for the EMU Maintenance Facility at 50 Resources Road, significant negative effects on the adjacent road network are not anticipated. Upon completion of the preliminary design of the Maintenance Facility and prior to construction, a detailed site plan review including the proposed parking layout, site access, circulation, and service vehicle access and turning radii will be prepared to confirm the proposed development will not have negative impacts on the adjacent road network. In addition, the recommendations as listed in Table 6-25 of this EPR will be further considered by Metrolinx during preliminary and/or detailed design of the EMU Maintenance Facility.

7.8 Property Acquisition

Metrolinx will proceed with property acquisition as follows (if required):

- Based on the UP Express Electrification detailed design, confirm locations where temporary/permanent easements/property acquisition will be required;
- Obtain all easements/property acquisitions from public/private property owners that are required to implement the project in accordance with Metrolinx's approved property acquisition process.

7.9 Consultation/Stakeholder Engagement

Metrolinx will continue to engage and communicate with stakeholders beyond EA approval as follows:

- Engage with affected property owners within UP Express electrification study area to acquire property easements, as/if required;
- Engage with affected property owners where grounding and bonding may be required;
- Design and implement a response strategy to address/resolve potential noise complaints during the construction phase;
- Maintain the UP Express Electrification project website throughout the detailed design and construction phases where the public can access updated information on the project;
- Ongoing discussions/consultation with neighboring freight companies during detail design, as appropriate;
- Ensure ongoing coordination with the Eglinton Crosstown project team for the Maintenance and Storage Facility at 3500 Eglinton Avenue West progresses to ensure the required paralleling station facility design provisions are incorporated, as required;
- Metrolinx will continue to consult with the MTO during the detail design stage, with respect to proposed electrification works (e.g. OCS attachments) on MTO-owned structures.

7.10 City of Toronto

Metrolinx will continue to consult and coordinate with the City of Toronto during the detailed design phase as follows:

- Carry out future discussions and negotiations with City of Toronto in relation to alterations required on City bridges;
- Review options to maximize the aesthetics of project infrastructure such as OCS, gantries, paralleling stations and bridge protection barriers. The design options will be considered and reviewed by Metrolinx through their Design Review Panel in coordination with the City of Toronto as appropriate, during detailed design;
- Coordinate with Heritage Preservation Services at the City of Toronto to review detailed designs affecting City heritage resources/properties of interest and incorporate feedback/input into final designs as appropriate;
- Develop traffic, parking, transit, cycling and pedestrian management strategies to be included in construction contract documents in coordination with the City/TTC, as appropriate, to avoid/minimize interference to the extent possible;
- Confirm locations of any additional contractor staging/storage areas required which may require leasing agreements with private property owners and/or the City;
- Metrolinx will engage the City of Toronto during construction planning to ensure that any municipal concerns are addressed in the construction plans prior to commencement of construction activities;

- Provisions for future track electrification and coordination with City bridge design, bridge evaluation to determine feasibility of installing protection barriers, extent and type of bridge rehabilitation, and the verification of bridge types, will be undertaken during the detailed design phase;
- As part of detailed design, Metrolinx will consult with the City of Toronto to review design options and to determine the final design and location of OCS poles in the Sudbury St. area;
- For new infrastructure requiring new municipal water and sewer connections (e.g., at the EMU Maintenance Facility), ensure coordination with the City.

7.11 Hydro One Networks Inc.

Due to the proximity of the proposed UP Express electrification infrastructure to Hydro One's existing transmission corridors, Metrolinx completed a preliminary analysis of the minimum clearances required as part of the EA. During detailed design, further analysis will need to be undertaken to ensure that no conflicts exist due to the proposed electrification infrastructure. In cases where conflicts cannot be avoided, mitigation measures will be developed jointly between Hydro One and Metrolinx to resolve any potential conflicts.

7.12 Utilities

As discussed previously, potential effects on known utilities due to electrification of the UP Express were considered, and mitigation measures identified as appropriate as part of the EA process. There are a significant number of utilities and utility owners within the rail corridor. These utilities have been contacted regarding the potential effects due to electrification, however the final assessment of utility conflicts due to the proposed UP Express Electrification infrastructure will need to be reviewed by Metrolinx as part of the detailed design phase. Implementation and construction obligations will be undertaken pursuant to the crossing agreements with each of the utility companies as required.

During the detailed design phase, the exact locations and depths of utilities will be determined and the staging and relocations approach will be established in discussion with affected utility companies:

- Confirm utility relocations/protection required based on UP Express Electrification detailed design and undertake negotiations with relevant utility companies, as required;
- Based on the requirements of each utility company, utilities will be relocated or protected to allow for the electrification construction works and allow trains to pass without damage;
- Utilities affected by construction will be temporarily relocated along the roadway and railway right-of-way.

In addition, the mitigation measures as outlined in Table 6-25 of this EPR will be implemented, as required for potentially affected utilities.

7.13 Future Design Work

Metrolinx will ensure the following actions are taken during the subsequent design phases of the UP Express Electrification project:

- The requirements and criteria for design and implementation of a traction power electrification system as outlined in the *Metrolinx Electrification Project Electrification Performance Specifications (December 2012)* will be adhered to as part of the detailed designed phase;
- For the grounding and bonding, the decision to implement the Canadian Railway Electrification Guidelines or the European standard will be assessed during the detail design, Metrolinx will ensure that all potentially affected areas are fully mitigated with respect to step/touch potential. This will include:
 - A case by case analysis for those properties with 10m of the ROW ;
 - Confirm type of grounding required, and develop the appropriate installation method, if necessary;
 - Engage potential affected property owners, where required; and
 - Develop maintenance and inspection procedure for installed grounding and bonding.
- Ongoing coordination with Hydro One Networks Inc. during detailed design in relation to the interface between the Hydro One traction power supply and Metrolinx traction power distribution components/designs;
- Develop detailed maintenance plans and procedures for the new electrified system for the operational phase to ensure safety and reliability of the system;
- During detailed design, confirm requirements for undertaking structural assessments and/or conditions assessments for bridges to ensure that the bridge can withstand the increased load of adding a solid barrier to the face of the bridge, and to confirm requirements for additional strengthening. These assessments will need to be submitted to the owner of the structure for review and approval;
- Undertake structural evaluations on Ministry of Transportation (MTO)-owned structures during detailed design, in accordance with MTO requirements;
- During detailed design, undertake a condition survey and structural review of the Metro Toronto Convention Centre building for the proposed attachment connections (if required) and loads from the OCS structures.
- During detailed design, Metrolinx will investigate options to avoid placing the OCS portal structures within the ROW bridge vistas;
- The design of the Ordnance paralleling station has taken into account the space for fire truck turn around at the end of the access road. In terms of the fire access design (where the fire apparatus has to line up in a queue), this will be coordinated during the detailed design with the proposed development and the design of the proposed City Park in the vicinity of the site.

7.14 Additional EMI and EMF Analyses

An Electromagnetic Fields (EMF) and Electromagnetic Interference (EMI) Assessment was carried out as part of the UP Express Electrification EA to document existing EMF and EMI conditions within the study area and to determine

the potential effects of implementing an electrified UP Express system related to EMF and EMI (as documented in the EMC Report, Appendix H). The results of this assessment recommended that additional studies and analyses will need to be carried out by Metrolinx during the future phases of the project, and once the electric train specifications are known. These studies are as follows:

7.14.1 Detailed Design Phase

7.14.1.1 Prepare EMC Analysis Report

During detailed design, further analysis and measurements will be carried once the electric rolling stock specifications are known in order to confirm the results of the EMC Report (see Appendix G) completed as part of the EA and to ensure to ensure EMI immunity and emissions compliance for the electrified UP Express System.

7.14.1.2 Prepare and Implement Frequency Management Plan

A frequency management plan will be developed and implemented by Metrolinx during the EMC detailed design phase. This plan is needed to capture the operating frequencies at the system engineering level from all intentional radiators in the vicinity of the railway.

7.14.2 Construction Phase

Ensure compliance with requirements as outlined in *EN 50121*, *IEEE C63.12*, *AREMA Signalling and Control Manual 11.5.2*, *IEC 61000* and other relevant EMC standards by product manufacturers. The manufacturers will be required to provide compliance test results and supporting documentation to Metrolinx during the project construction phase.

7.14.3 Commissioning Phase

During the UP Express electrification commissioning phase, overall ELF and RF emissions emanating from the UP Express electrified railway system as a whole (including emissions from all the electrified tracks, OCS, TPFs, RRMF, and EMU trains) will be field tested and verified to ensure EMFs are within the limits of applicable industry standards.

7.14.4 Operations/Maintenance Phase

Undertaken testing and maintenance procedures as outlined in Section 6.18.3 of the EPR in order to mitigate EMI to track circuits and increase personnel safety due to EMI induced common mode voltage:

7.15 Other Commitments

The following additional commitments will be fulfilled by Metrolinx during the detailed design stage:

- Develop a phasing and implementation strategy for UP Express electrification
- Develop emergency response plans with emergency service providers to maintain fire, police and emergency medical services during construction