

Electrification EA UPDATE

June - July 2017



Electrification Update

Moving forward with electrification requires Metrolinx to complete an Environmental Assessment (EA) to identify potential impacts of this new infrastructure and ways to mitigate those impacts. EAs for this type of transit project happen under the Transit Project Assessment Process (or TPAP).

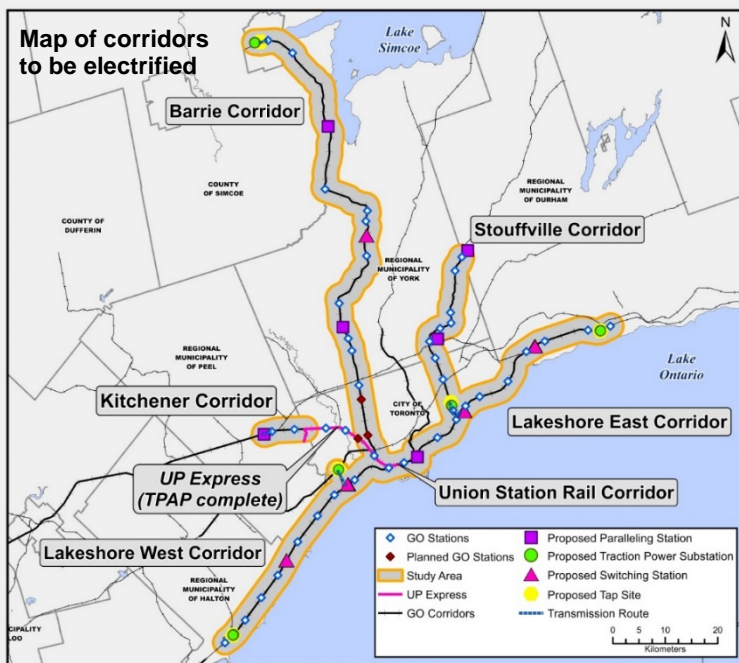
Work on the TPAP has been underway since late 2015, and a significant amount of technical work and public consultation has already been completed. In February and March of 2016, the first round of consultation focused on the TPAP process, electrification infrastructure requirements, and proposed traction power facility locations. The second round of consultation followed in November 2016 and focused on impacts and mitigation options for noise, vibration, and vegetation/trees. In total, 28 public meetings have been held to date.

The purpose of this third round of public consultation for the TPAP is to share information and seek feedback on the draft EA technical studies that have been completed prior to submitting the Environmental Project Report (EPR) for public review.

This guide provides updates on new information since the second round of consultation in the Fall of 2016, and seeks public feedback regarding these updates, as well as any other thoughts or comments the public would like to see considered prior to completion of the TPAP.

What are the plans for GO Transit Expansion?

The Province of Ontario has committed to electrifying the Metrolinx-owned portions of the GO Transit system, and to bringing more train trips to every GO rail corridor (see map below). Trains will be running up to every 15 minutes, there will be service in both directions, and more all-day service. There will also be 150 km of new track (to allow for more uninterrupted service), new bridges and tunnels, and new and renovated stations.



*Note that the Planned GO Stations omit the announced RER and Smart Track Stations.

TECHNICAL REPORTS AVAILABLE

The Environmental Project Report is the final product of the TPAP process. There are a number of Technical Appendices that inform the Project Report, and highlights from those Appendices are reflected in this Guide and also available for review at gotransit.com/electrification.

The Technical Appendices include the baseline environmental conditions in the GO corridors that will be electrified, the anticipated impacts, as well as recommendations for mitigating those impacts.

Key topics covered include (but are not limited to):

- ✓ Natural environment
- ✓ Archaeology
- ✓ Noise and vibration
- ✓ Stormwater management
- ✓ Land use & socio-economics
- ✓ Electromagnetic Interference & Fields (EMI/EMF)
- ✓ Cultural heritage
- ✓ Air quality
- ✓ Visual impacts

What kind of infrastructure is required for electrification?

The TPAP examines the potential environmental effects of constructing and operating the new electrification infrastructure required to convert the existing GO Transit system from diesel to electric propulsion. The project will design and implement traction power supply and distribution components including an Overhead Contact System (OCS) along the rail corridors, bridge modifications, new electrical feeder routes, as well as a number of electrical power supply/distribution facilities located in the vicinity of the rail corridors.

Electrification of the GO Transit network requires electrical power to be supplied from Ontario's electrical system through Hydro One's existing high voltage grid via connections to the proposed Traction Power Substations. As a result, Metrolinx and Hydro One are co-proponents of the TPAP.

Recap of November 2016 Meetings



Participants said that they would like Metrolinx to:

Electrification-Related Feedback:

- Go above and beyond minimum noise and vibration mitigation requirements.
- Proactively communicate with communities on all aspects of the projects (from construction all the way through until there is increased service).
- Create conditions for replacement trees to thrive.
- Include diverse and native species.
- Ensure noise, vibration, and tree removal compensation is locally applied.
- Be open to alternative types of technology for trains on the rail corridor.

Feedback Received Not Related to Electrification:

- Separate at-grade crossings.
- Consider the impacts that providing additional local service will have on the regional service Metrolinx is mandated to provide.
- Integrate GO Service with local transit service.
- Ensure the service remains affordable.
- Review and revise outdated policy and strengthen the procurement process.

The Integrated Summary report from Round 2, as well as links to all previous meeting summaries, can be found at gotransit.com/electrification.

Vegetation & Tree Removal

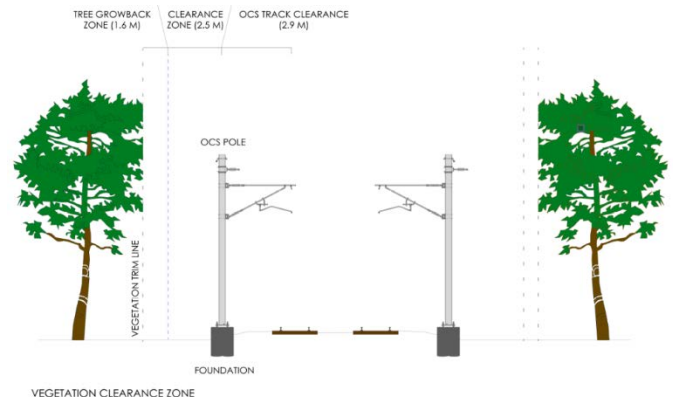
Vegetation removal is required within a maximum 7m zone of the outermost electrified track to minimize the risk of tree limbs falling on the track or overhead wires and to ensure safety for maintenance workers, GO riders, and neighbours.

Vegetation Approach – Private Property

Metrolinx will seek design solutions to minimize tree removal on private property. In the case where a safety risk cannot be avoided, then Metrolinx will consult with land owner and seek municipal tree removal permit. Trees will be compensated as per Municipal requirements.

Vegetation Approach – Metrolinx Property

Technically, Metrolinx can remove trees within Metrolinx property without permits or compensation. Metrolinx is developing a methodology to compensate for trees removed on Metrolinx's property. Metrolinx will partner with Conservation Authorities and municipalities to develop the final compensation strategy.



AMT Deux Montagnes line, Montreal

OCS Visual Effects & Mitigation

The installation of Overhead Catenary System (OCS) infrastructure will affect the viewshed along the rail corridor, particularly in areas of vegetation/tree clearing. Areas of 'high' visual impact will be identified and specific design measures will be incorporated to mitigate visual impacts. These strategies will address the range of visual conditions, area allocations, and mitigation needs that will be found along the corridor. The installation of OCS infrastructure will affect the views at GO Stations, particularly in areas of vegetation/tree clearing. A Design Excellence process will be followed to integrate OCS design into GO Stations to reduce the extent of visual impacts.



Rendering of OCS along corridor

Bridge Barrier Visual Effects & Mitigation

All overhead and pedestrian bridges will require bridge barriers for safety, which may affect views across the bridge. Metrolinx is developing an approach for the design of bridge barriers to visually enhance their appearance and will review options for enhancing aesthetics of bridge barriers in consultation with interested/affected municipalities as appropriate.



Above: Before installation of bridge barrier (Stachan Ave Bridge looking eastward)

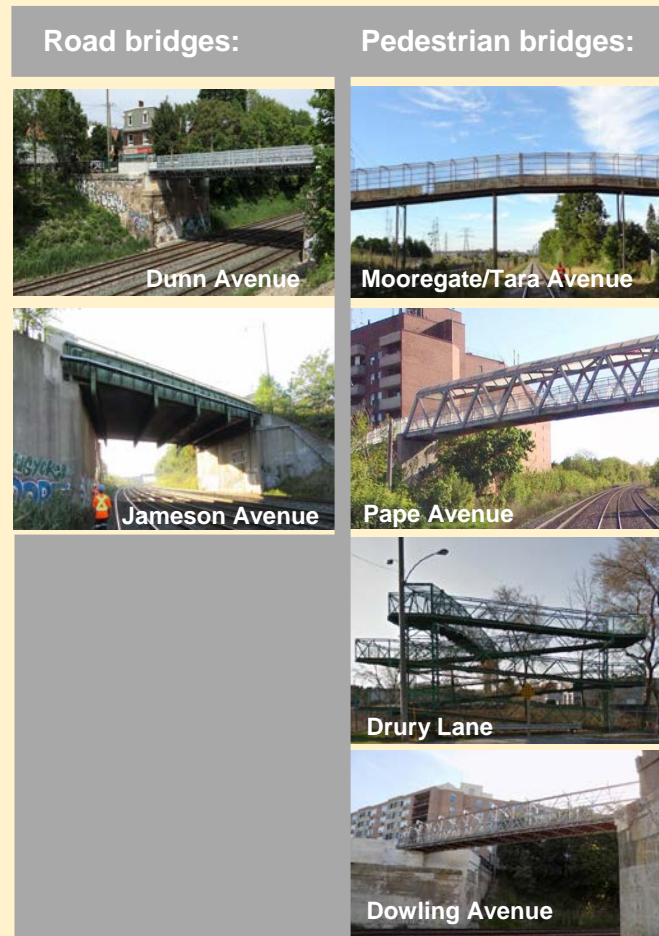


Above: After installation of bridge barrier (Stachan Ave Bridge looking eastward)

Mitigation measures around power facilities, such as landscaping and/or screening, may be considered in residential/sensitive areas (where feasible).

Proposed Bridge Replacements

A preliminary investigation as part of the TPAP identified that some bridges are too low to meet the minimum vertical clearance required or are required to be replaced due to protective barrier requirements to accommodate electrification. The bridges below are proposed for replacement.



Cultural Heritage

Understanding impacts on properties with cultural heritage value or interest is part of the TPAP process. There are three types of modifications that will need to be made to heritage properties as a result of electrification, including:

- Attaching the Overhead Catenary System (OCS) at GO stations and bridges
- Attaching flash plates on bridges
- Attaching bridge barriers to overhead bridges

There are 12 heritage properties potentially impacted by electrification infrastructure: 3 that are provincially significant, 9 that are locally significant. Heritage Impact Assessments will be completed for all 12 of these properties, and the HIAs will have recommendations that will inform the final design.

Noise & Vibration

A Noise and Vibration Study was completed to understand the noise & vibration effects of future electrified GO Transit Expansion service levels (also known as RER or Regional Express Rail).

There are two key protocols in place that Metrolinx follows:

- The 1995 draft Transit Noise and Vibration Protocol from the Ontario Ministry of Environment and Climate Change/GO; and
- The 2013 Noise Guideline (NPC-300) from the MOECC which applies to stationary noise sources such as announcements at train stations

These protocols stipulate that:

- Mitigation must be considered if the project is expected to cause a 5 dB increase or greater in the average noise relative to the existing noise level or the MOE objectives of 55 dBA for daytime and 50 dBA for night-time are exceeded;
- Mitigation is required if it is administratively, operationally, economically, and technically feasible; and
- Noise barriers are considered technically feasible if they can reduce noise by at least 5 dB.

Based on these protocols, the Noise and Vibration Study has proposed noise barriers in a number of corridors where they have been determined technically feasible (see table below). More detailed study will be completed to confirm the administrative, operational and economic feasibility of implementing these barriers.

Location	Kilometres of Proposed Noise Barriers *
Union Station Rail Corridor	0 km
Lakeshore West Corridor	0 km
Kitchener Corridor	1.3 km
Barrie Corridor	39.4 km
Stouffville Corridor	15.8 km
Lakeshore East Corridor	11.3 km

* Numbers are approximate, proposed barrier is a new or retrofitted 5m noise wall

Why electrify?

There are a number of benefits to electrification:

A fast, more attractive service.

- Electric trains can accelerate faster and stay at top speed for longer, saving time for customers;
- By attracting additional riders, frequent electric train service reduces road congestion; and
- Regenerative braking puts energy back into the system.

A more efficient, reliable service.

- More frequent service reduces reliance on scheduled trips and increase the number of available seats;
- Lower operating and maintenance costs; and
- More trips are possible with electric service compared to diesel.

Reduced greenhouse gas emissions and improved local air quality.

Project Milestones

Below is a list of key project milestones and dates:

- TPAP Notice of Commencement: June 14, 2017: A 120 day period is provided to complete a final round of public and stakeholder consultation that will focus on the EPR – **WE ARE HERE NOW**.
- Notice of Completion: October 11, 2017. At this time, the EPR will be finalized.
- 30-Day Public Review: October 12 – November 10, 2017. During this time, the public will have an opportunity to review the EPR.
- 35-Day Minister Review: November 11 – December 15, 2017. During this time, the Minister of Environment and Climate Change will review the EPR.

NEXT STEPS

Feedback from this round of public consultation will help inform and refine the Environmental Project Report (EPR) which is required by the TPAP.

For more information contact: electrification@metrolinx.com or call 1-800-GET-ON-GO or (416)869-3200