

# Construction Ahead: Let's Build It: Traction Power Substation (TPSS)

## What is a traction power substation?

A Traction Power Substation (TPSS) is a steel building similar in size to a double car garage. The TPSS converts commercial alternating current electricity into the direct current power used by the light rail vehicles. TPSSs are one component of the overall traction electrification system for the Light Rail Transit system

## Are TPSSs large power plants?

No. TPSSs transform the electrical power from the utility into the 750 volts dc required to power the light rail vehicles

## What is the power output of a TPSS?

The average power output of a modern light rail TPSS is not large in comparison with typical neighborhood electric power requirements. Many pad-mounted transformers that are used to provide power to neighborhoods and commercial office buildings have an equivalent or higher average power output than the modern light rail TPSS.

TPSSs are very safe, and are regularly used for light rail projects. TPSSs can be found in residential neighborhoods throughout the North America and the world, and no study to date has found safety or health issues associated with TPSS in a neighborhood, adjacent to a senior living facility, or near schools.

Additionally, modern light rail TPSS have more protective features than a pad-mounted transformer in many respects:

- All the electrical equipment in a TPSS is enclosed within a locked building providing security and sound absorption
- The power transformer in a TPSS is a "dry type" transformer, unlike the typical utility pad-mount transformer that uses oil for electrical insulation

- Dry type transformers do not leak, and do not catch fire
- All equipment is enclosed by sturdy, grounded metal compartments
- Electricity cannot "get out" of these compartments
- Even if someone were able to gain entry into the locked substation building, there are no exposed electrical parts to be contacted
- There are regular site visits to the TPSS by operations staff

## Is the TPSS noisy?

There may be low audible sounds from the TPSS, similar to an air conditioning unit. The specified TPSS noise level is 60 decibels (dBA) at a distance of 3 feet from the substation. Sixty dBA is equivalent to conversation in a restaurant or office, background music, or an air conditioning unit at 100 feet. All the electrical equipment in a TPSS is enclosed within a locked building, which provides both security and sound absorption.

**Building a LRT service to support planned growth in the region is an enormous undertaking and we recognize that this work may cause some temporary inconveniences. We will strive to keep any disruption to a minimum.**

**If you have any questions about the construction activities, please contact us. A GrandLinq Contractors representative will respond within one business day, and will work with you to address any question or concern.**

**We appreciate your patience as we work to bring ION to Waterloo Region.**



Note: The images above are representative of what the TPSS could look like; final designs for the unit have not yet been approved.



## Questions About Construction? Connect With Us:



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