



# PROJECT NEWS

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TTC and contractor employees are busy testing many station systems on the TYSSE.

## TESTING AND COMMISSIONING A SUBWAY EXTENSION

The Toronto-York Spadina Subway Extension (TYSSE) is scheduled to open in December 2017, with construction work finishing at different stations throughout the year.

As construction of TYSSE nears completion, the test and commissioning phase of work to ready the subway stations for revenue service has begun. Testing and commissioning is a critical and important milestone for a subway extension project. This process is the beginning stage for the project turning over from the construction contractors to the owner and operator, TTC.

Six new subway stations and connecting tunnels, which form the TYSSE, will extend the TTC's existing Line 1 Yonge-University north into the City of Vaughan in York Region.

### What is Commissioning?

Commissioning involves a series of tests – a full audit trail – of all equipment and systems in the subway extension, including stations and tunnels. Everything that has been placed for use in the new stations and tunnels comes with documents that explain how the item was designed and tested, as well as how the TTC should operate and maintain it. Once completed, commissioning will result in the infrastructure having been fully tested and signed off as being “Fit for Purpose”.

Testing starts at the individual component level in each station (e.g. electric heaters, air handling units and humidifiers), and progresses to larger systems such as HVAC, Power and Fire Alarm.

Once the station systems are fully tested they are linked to integrated systems, to test across station boundaries, either station to station, or station to various control centres. Integration testing involves making sure that links between systems operate as intended, and do not have any unforeseen effects. Integration testing must be completed before proceeding to full system commissioning, which involves testing the complete system functionality of the extension to the Transit Control Centre, including test train running.

The results of the tests performed under commissioning will provide evidence to allow sign off for various parts of the project's safety certification.

"This isn't just any subway extension. This will be a Wi-Fi-, PRESTO-, Automatic-Train-Controlled subway extension," said CEO Andy Byford. "It really will be state of the art from day one."

TTC employees adjusting one of the track switch machines.



First clearance train testing was complete in March.



With overall construction more than 92 per cent complete, the project is focusing in 2017 on testing and trial operations of the facility management, communication and railway electrical and control systems. The next key milestone will be the electrification of the traction power rail by the end of March.

#### Commissioning Achievements to Date

- More than 50 per cent of stations commissioning events have been completed.
- More than 40 per cent of the systems have been individually tested.

#### Commissioning Next Steps

- Start integration testing.
- Turn on traction power.
- Run test trains.
- Accept full documentation for facility commissioning.
- Hand over asset management information to TTC.
- Complete facility safety certification.
- Begin TTC staff training.
- Complete integration commissioning.
- Complete full system commissioning.
- Sign off system safety certification.
- Open the extension of Line 1 in December 2017.

The TYSSE project is an 8.6-kilometre six station extension of the Toronto Transit Commission's Line 1 (Yonge-University) subway line from its present terminus at Downsview Station (to be renamed Sheppard West Station when the extension is complete) to the Vaughan Metropolitan Centre Station at Highway 7. The expansion of the subway will bring the line into The Regional Municipality of York. The new line is scheduled to open by the end of 2017.

**For More Information**

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**YouTube:** Visit the Official TTC YouTube Channel <http://www.youtube.com/officialttcchannel> to view our project videos.

The Toronto-York Spadina Subway Extension project is jointly funded by the Government of Canada, the Province of Ontario, the City of Toronto and The Regional Municipality of York.

