

Tunnelling for the Subway Program

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EGLINTON CROSSTOWN WEST EXTENSION & SCARBOROUGH SUBWAY EXTENSION

WHAT IS A TBM?

- A tunnel boring machines (TBM) is a large machine used to excavate tunnels and bore through rock and soil.
- TBMs are custom-built to match project specifications and the size of tunnels required for each project.
- The TBMs for the Scarborough Subway Extension (SSE) and Eglinton Crosstown West Extension (ECWE) are expected to dig tunnels underground at a rate of 10m per day.

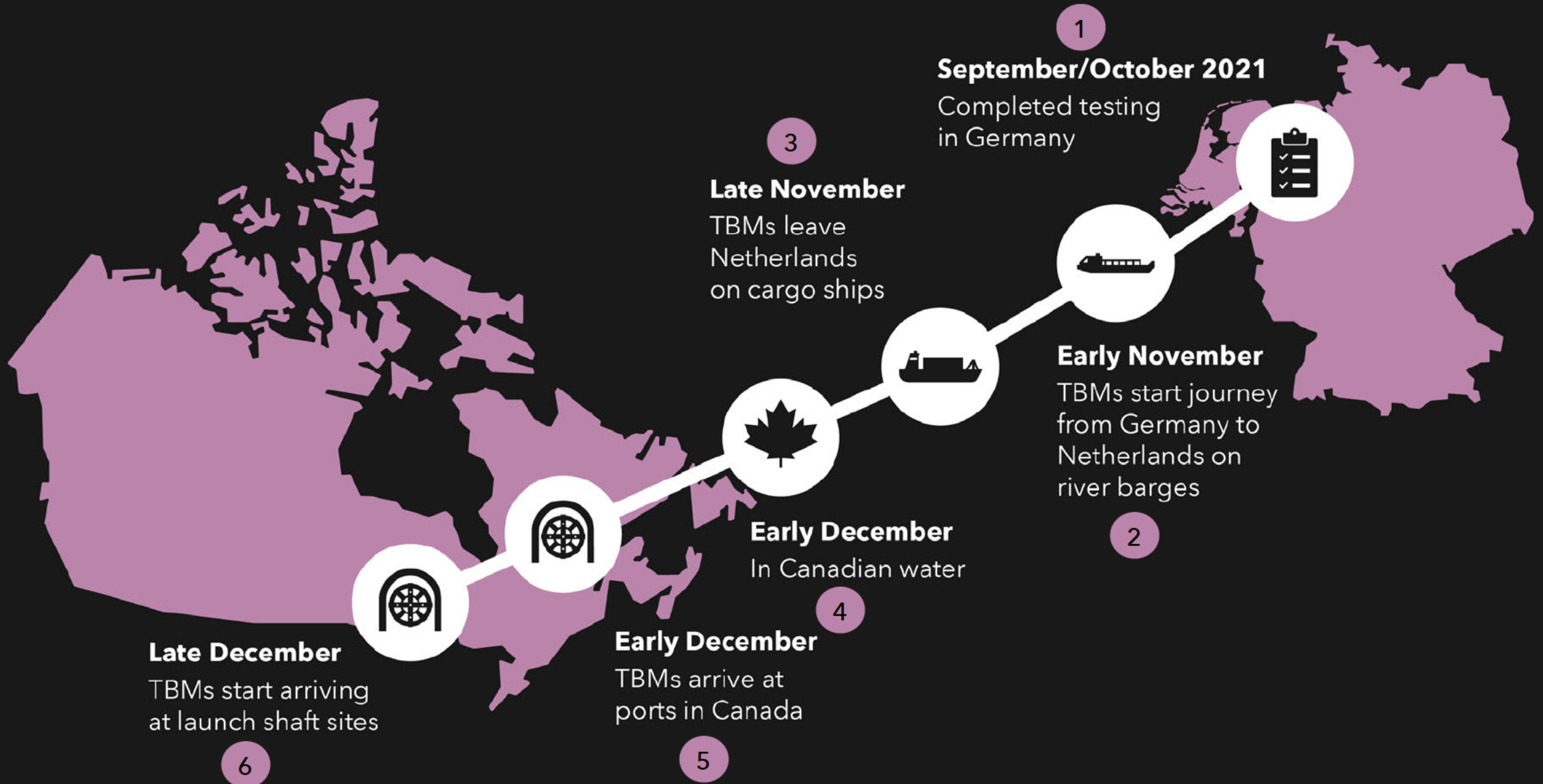


Scarborough Subway Extension TBM during factory testing in Germany



An Eglinton Crosstown West Extension TBM during factory testing in Germany

TRACKING THE TBMs



TBM JOURNEYS



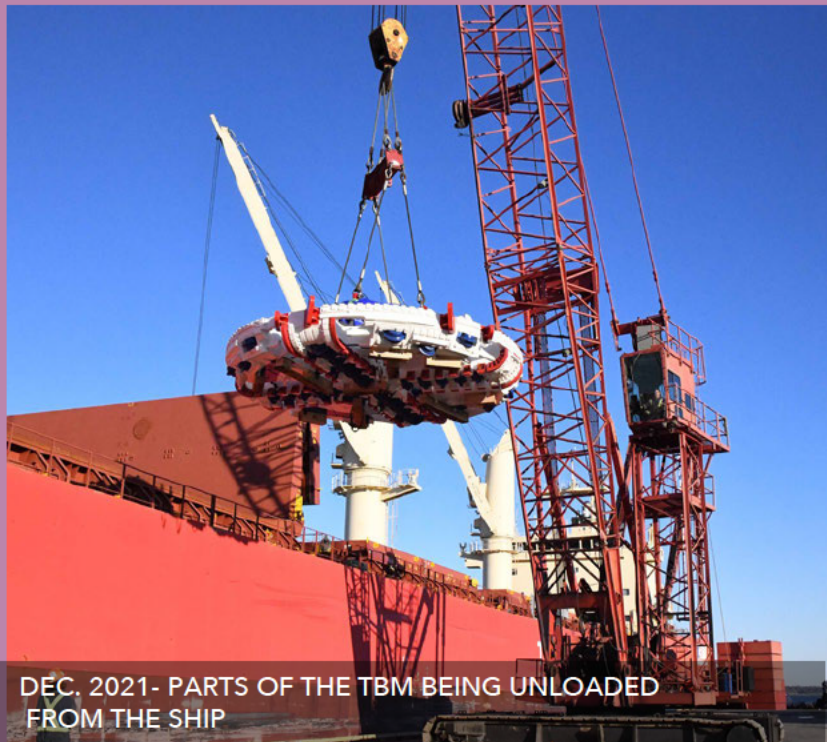
NOV. 2021 - SSE TBM LOADED ONTO SHIP IN NETHERLANDS



DEC. 2021 - SSE TBM ARRIVES IN PORT OF OSHAWA



DEC. 2021 - ECWE TBMS ARRIVE IN PORT OF HAMILTON



DEC. 2021- PARTS OF THE TBM BEING UNLOADED FROM THE SHIP



JAN. 2022 - ECWE TBM ASSEMBLY BEGINS



JAN. 2022 - SSE TBM ASSEMBLY BEGINS

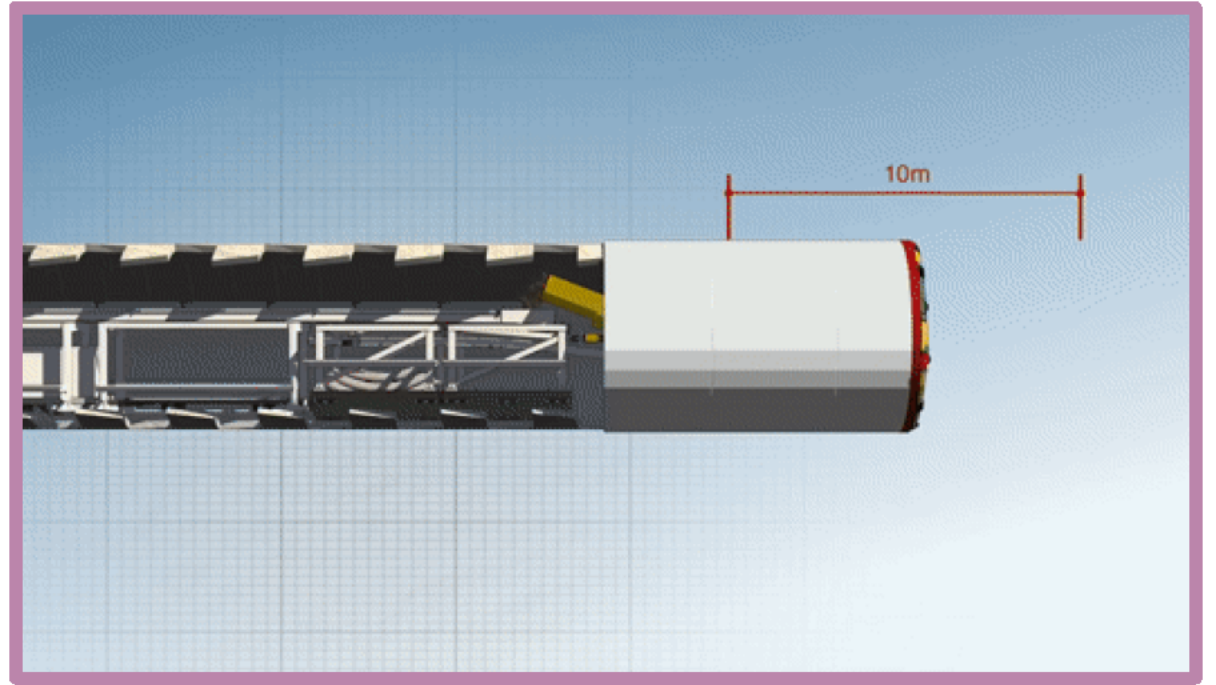
TBM KEY FACTS

	Scarborough Subway Extension	Eglinton Crosstown West Extension Advance Tunnel 1
Number of TBMs	1	2
TBM Names	Diggy Scardust	Rexy and Renny
Diameter of each TBM	11.9 m	6.55 m
Length of each TBM	84 m	110 m
Weight of each TBM	2050 tonnes	663 tonnes
Manufacturer	Herrenknecht (Germany)	
Tunnelling Contractor	STRABAG	West End Connectors

Largest TBM ever used for a transit project in Canada

HOW DOES A TBM WORK?

- The TBMs for the Scarborough Subway Extension and Eglinton Crosstown West Extension are “earth pressure balance” TBMs. This means the pressure inside the cutterhead adjusts to match the pressure of the earth outside of it, which prevents any ground settlement from occurring.
- As the TBM digs through the earth, the soils and rock are removed by a screw conveyor, put on a conveyor belt and transported back to the launch shaft site. They are then hauled off-site to be properly disposed.
- As the TBM advances, it installs precast tunnel liners using a special device on the TBM called a ‘segment erector’.
 - Tunnel liners for both projects are being sourced from CSI-Forterra in Whitby
- The TBMs advance through the earth by pushing off the recently installed rings of tunnel liners using hydraulic jacks.



Animated video of a Crosstown TBM



NEXT STEPS

- Completing excavation at the launch shaft sites
- Completing TBM assembly
- Lowering the TBMs into the launch shafts in the spring to begin tunnelling
- Preparing excavation shafts sites to remove TBMs when tunnelling is completed

