

**Name:** Finnish Tunnelling Association – MTR - FTA

**Type of structure:** Non-profit, independent association

**Founded:** 1974

**Number of members:** 78 Individual Associate Members, 26 Corporate Affiliate Members

**Incomes:** Annual fees and conferences as a main source of incomes

## ASSOCIATION ACTIVITIES DURING 2017 AND TO DATE

- Success Stories for Building Underground Space – seminar
- Nordic Grouting Symposium 2019 in Finland: Organisation committee work
- 4 Scholarships for students active in studies
- Co-Sponsor in the project “New Rock Stress Data from Finland Related to the Update of World Stress Map”
- Participating in the work of the FISE Qualification of Professionals in the Building, HVAC and Real Estate Sector in Finland



The Blominmaki wastewater plant

## CURRENT TUNNELLING ACTIVITIES

### Blominmäki Underground wastewater treatment plant (under construction):

- The treatment plant will process the wastewater of 400,000 residents (2020)
- By 2040 - 150,000m<sup>3</sup> of wastewater will flow through the new treatment plant daily
- More info: <https://www.youtube.com/watch?v=D9PwTxA4rQ0>

### Helsinki Metro Western Extension to Espoo (under construction):

- Helsinki metro will be extended to the west in two phases: 8 + 5 new stations.
- The first phase was ready in autumn 2017.
- The metro will operate along an underground rail line of 21km, in twin parallel tunnels.
- In addition to the stations, a total of 23 shafts will be built for pressure equalisation, ventilation and smoke extraction. The shafts will also be used as emergency exits.
- More info: <https://www.lansimetro.fi/en/home/>

### Töölö Parking Facility:

- An underground parking facility in Helsinki City Centre for 800 cars
- Planned to be ready in 2019

### Waste Water Treatment Plant Mikkeli:

- The Waste Water Treatment Plant in Mikkeli is responsible for producing drinking water and treating wastewater for about 55,000 inhabitants in the city and its surrounding areas.
- Expected to begin operating in 2020.

### The Helsinki Olympic Stadium (under construction):

- Modernization and renewal project 2016 – 2019
- Total excavation volume 145 000m<sup>3</sup> including underground tunnel
- More info: [www.stadion.fi](http://www.stadion.fi)

## FUTURE TUNNELLING ACTIVITIES

### Jokeri Light Rail (Planning):

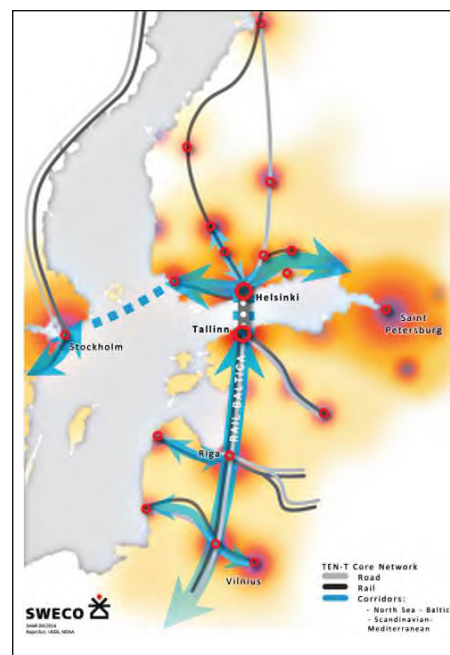
- One of the key projects for orbital cross-region public transport in capital area
- The City Councils in Helsinki and Espoo approved the construction of the Jokeri Light Rail in June 2016. The aim is to start the construction work of the line in 2019.
- The planned length of the line is approximately 25km (15.5 miles), the line will have 33 stops.
- More info: [http://raidejokeri.info/?page\\_id=695](http://raidejokeri.info/?page_id=695)

### City Rail Loop Pissararata (Waiting for the decision)

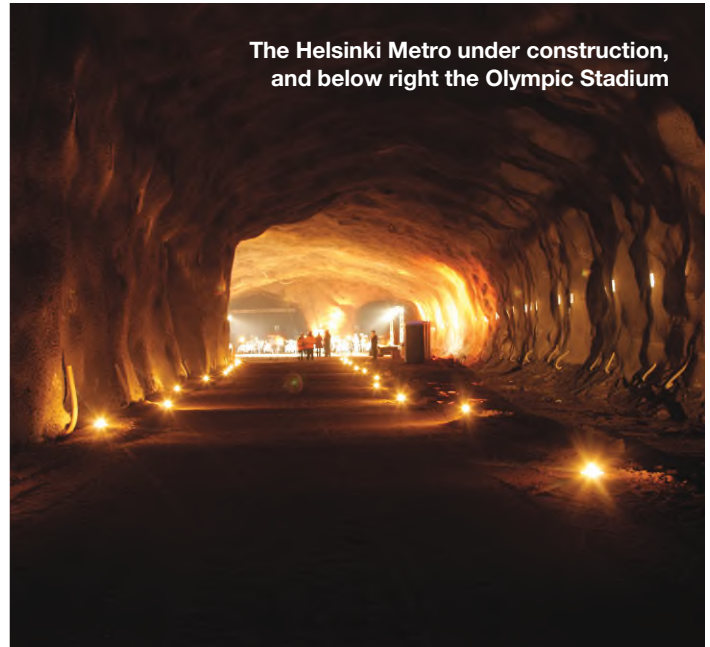
- The City Rail Loop is a planned urban railway line for commuter trains under Helsinki city centre.
- The city plan has been approved but the decision on the construction has not yet been verified.
- More info: <https://www.liikennevirasto.fi/pisara#.WgrnfU32SM8>

### FinEst Link (Feasibility study):

- Information, statistics and research about the cities of Helsinki and Tallinn and the increasing mobility between them.



The FinEst Link



The Helsinki Metro under construction, and below right the Olympic Stadium



- A proposal to build a 92km under-sea railway tunnel linking Finland and Estonia
- More info: <http://www.finestlink.fi/en/>

### STATISTICS

Underground (UG) Spaces in Helsinki with Rock Surface:

- Area = 2,074km<sup>2</sup>
- Volume 12 657 457m<sup>3</sup>
  - UG spaces altogether = 336
  - Helsinki's surface area = 215,12km<sup>2</sup>
  - 1m<sup>2</sup> underground space for every 100m<sup>2</sup> surface area = 1 %
  - VALIO EMMENTAL BLUE LABEL CHEESE E700G has on average 20% holes!!
- Tunnels altogether 293km:
  - 194km of technical tunnels
  - 34km of traffic tunnels
  - 30km of tunnels with a secondary purpose as emergency shelters
  - 14km of parking caverns
  - 22km of tunnels for other purposes.



The Jokeri Light Rail Project