

# Helsinki Urban Underground Spaces

New guidelines  
for visitors



Helsinki



**Due to the Covid-19 pandemic  
changes may occur.  
Please check the service  
provider's website for  
the latest information.**

**City of Helsinki Covid-19 information for visitors**  
[www.myhelsinki.fi/en/coronavirus-covid-19-information-for-visitors](http://www.myhelsinki.fi/en/coronavirus-covid-19-information-for-visitors)

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# Foreword

Helsinki's underground spaces have been of increasing international interest. Requests for visits come almost daily to the author of this brochure alone. At the same time, safety regulations for underground facilities – especially for technical tunnels – have tightened considerably from previous years.

The City of Helsinki has limited capabilities for organising visits. However, this brochure lets visitors make independent exploration visits to underground spaces, send direct requests to the operators/owners of the underground spaces, and gain information about the underground facilities and practices related to them in advance.

## **The brochure contains information about:**

- underground Helsinki in general
- spaces that you can explore on your own
- spaces that require authorisation from the space's operator/owner and a form to be completed by the visitor
- spaces that cannot be visited
- some upcoming spaces
- the centralised management and distribution of ground wires, cables, underground structures and spaces, as well as soil information.

February 2021

**Ilkka Vähäaho**

City of Helsinki

Head of Soil and Bedrock Unit

# Underground master planning is a significant part of land-use planning in Helsinki

Helsinki began constructing its vast network of underground facilities in the 1980s. Underground construction continues to this day and Helsinki now has some 400 separate facilities and tunnels, the deepest of which is about 100 m below sea level. Today, 90 of these spaces are dual-purpose, designed to meet normal needs with strengthening just for 'exceptional times'. If necessary, a sports field can be turned into a shelter in just 72 hours, which includes the time taken to install decontamination showers and toilets, and close the doors tight.

With a compact urban grain – more medium-scale than towering – Helsinki could be characterised as a 'low-rise city' that uses its multi-layered underground in a highly effective way. Underground resources are reserved mainly for uses that are for the common good. This means places where people can gather, as well as utilities such as the city's extensive district heating and cooling network – 1350 km long and growing fast – which recycles energy from local sources that would otherwise go to waste. The connective tissue of the underground also extends far beyond the city itself with a visionary plan to link Helsinki with its sister city, Tallinn, the capital of Estonia, via a 100 km subsea tunnel across the Gulf of Finland.

## **Drivers for underground development**

The low-lying, watery Helsinki area covers 214 km<sup>2</sup> of land and 500 km<sup>2</sup> of sea. Home to 1.5 million

people, around a quarter of Finland's population, Greater Helsinki is the world's northernmost city of this scale (latitude 60.1699°N), but temperatures in the winter are mitigated by the influence of the Gulf Stream, with the average temperature in January and February being around -4 and -5 °C respectively. Escaping a severe winter climate is therefore not a primary consideration for underground development, as it is in Montreal for example (latitude 45.5017°N). Instead, the main drivers are the favourable characteristics of the bedrock and the fact that Finns are used to having lots of open space around them, even in urban areas. As the city structure is becoming denser, more facilities suited for different purposes are being placed underground.

## **Underground Master plan**

With the growth in underground construction and planning, and the need to coordinate different projects, the City of Helsinki took its first steps towards preparing a master plan for its entire underground facilities in the early 2000s. Although the city had maintained an underground space allocation plan since the 1980s, this more comprehensive general plan with its legally binding status reinforces the systematic nature and quality of underground construction and the exchange of information related to it. The underground master plan allows control over the location of significant new underground rock facilities and traffic tunnels and their interconnections.



Photo: Helen Oy

It includes space allocations for transport, sports, various installations and establishments, water and energy supply, parking, storage, waste management and other similar facilities. The aim is to achieve joint use wherever possible, for example with a multi-purpose tunnel network or shared parking, etc.

Underground resources play a central role in the development of the urban fabric of Helsinki and the adjoining areas, helping to create a more unified and eco-efficient structure. In simple terms, underground facilities can be thought of as providing the ultimate 'green roof'. Facilities placed fully underground do not impact the surface aesthetic (once constructed) and can leave space for natural ground surfaces and flora that maintain the natural ecological exchanges of thermal radiation, convection and moisture exchange.

On 8 December 2010, the City Council approved the first Underground Master Plan of Helsinki (except for the reservation of the Pitkääkoski fresh water treatment plant, against which an appeal was made to the Administrative Court, but was rejected on 18 November 2011). The preparation of the new underground master plan began in 2017. A plan draft was reviewed by the Urban Environment Committee in May 2020. The draft is used to prepare a plan proposal, on which the Committee will make a decision in early 2021. The final decision regarding the plan will be made by the City Council.

[www.hel.fi/helsinki/en/housing/planning/current/underground-master-plan](http://www.hel.fi/helsinki/en/housing/planning/current/underground-master-plan)

### **Urban Underground Space – Sustainable Property Development in Helsinki**


Free publication 'Urban Underground Space – Sustainable Property Development in Helsinki':  
[www.bit.ly/urban-underground-space](http://www.bit.ly/urban-underground-space)

### **Video: Helsinki Urban Underground Spaces – Underground master plan & the city centre service tunnel**

[youtu.be/prYiP3sFPfY](https://youtu.be/prYiP3sFPfY)

# Underground spaces open to the public

# Underground spaces open to the public

- 1 Amos Rex
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-  Metro stations

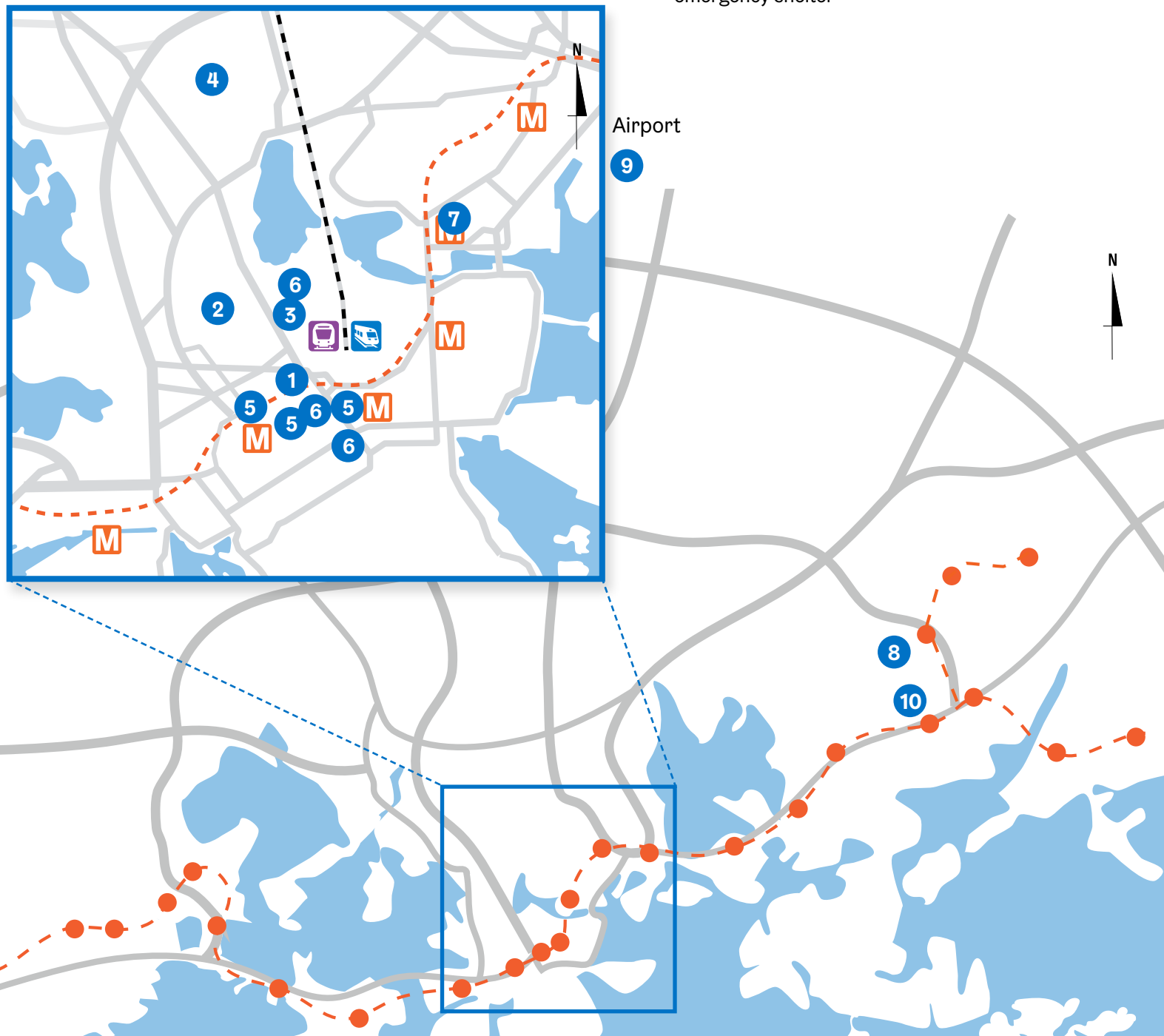






Photo: Tuomas Uusheimo

# Amos Rex

## Introduction:

Expanding museums below ground is not so unusual around the world. In Amos Rex's case, the unusual aspect was how it was planned. Amos Rex is quickly turning into an architectural attraction. The underground location of Amos Rex is not something that is emphasised, in fact quite the opposite. The transition of the museum from 'Glass Palace' (Lasipalatsi) Square to its underground facilities is unnoticeable, and natural light is channelled into the building. Without the underground facilities, Amos Rex could not have been built in the centre of Helsinki. Amos Rex was designed by JKMM Architects.

## Things to remember:

- Please note the publishing rights for the art and exhibitions.
- You are not allowed to film or take photos of people for commercial use without permit.



**Mannerheimintie 22–24, 00100 Helsinki**



**Distance from the Central Railway Station:  
300 m (5 min walk)**



[www.amosrex.fi/en](http://www.amosrex.fi/en)



**Links to image banks:**

[www.bit.ly/amosrex-myhelsinki](http://www.bit.ly/amosrex-myhelsinki)

[www.bit.ly/amosrex-underground](http://www.bit.ly/amosrex-underground)

[www.amosrex.fi/en/press](http://www.amosrex.fi/en/press)



Photo: City of Helsinki Image Bank

# TempPELLIAUKIO Church

## Introduction:

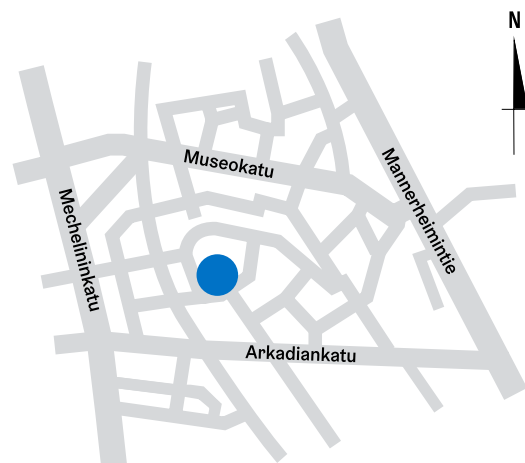
Architect brothers Timo (1928–) and Tuomo (1931–1988) Suomalainen won the open competition in 1960–1961 for the architectural design of TempPELLIAUKIO Church by unanimous decision of the jury. TempPELLIAUKIO Church (‘the Rock Church’) in the centre of Helsinki attracts visitors from all over the world.

The Rock Church was opened in 1969 and is the most popular architectural landmark in Finland, not only among modern buildings but also historic ones. However, due to superficial observations, plenty of mistaken assumptions about the history of its design and its architecture have been, and still are, presented as facts. It is time for them to be rectified:

[www.temppeliaukio.fi/english/artikkeli1.htm](http://www.temppeliaukio.fi/english/artikkeli1.htm)

## Things to remember:

- The church is usually very crowded during the summer.
- The busiest hours are between 10:00–14:00 from Monday to Saturday and 12:00–15:00 on Sundays.
- You are not allowed to film or take photos of people for commercial use without permit.



**Lutherinkatu 3, 00100 Helsinki**



**Distance from the Central Railway Station:  
1.2 km (16 min walk / 10 min door-to-door  
by metro)**



[www.temppeliaukionkirkko.fi/en/  
temppeliaukio@evl.fi](http://www.temppeliaukionkirkko.fi/en/temppeliaukio@evl.fi)



**Link to the City of Helsinki image bank:**  
[www.bit.ly/temppeliaukio-myhelsinki](http://www.bit.ly/temppeliaukio-myhelsinki)  
[www.bit.ly/temppeliaukio-underground](http://www.bit.ly/temppeliaukio-underground)



Photo: Musiikkitalo / Arno Chapelle

# Musiikkitalo – the Helsinki Music Centre

## Introduction:

The Helsinki Music Centre is home to the Helsinki Philharmonic Orchestra, the Finnish Radio Symphony Orchestra and Sibelius Academy of the Uniarts Helsinki. The Helsinki Music Centre was designed by LPR-Architects and it opened to the public in August 2011.

Two-thirds of the Helsinki Music Centre is built underground. When entering the centre from Mannerheimintie, the visitor arrives at the 4th floor of the building. At the heart of the building is a vineyard-style concert hall, accessed through the circular foyer on the 3rd floor. In addition to the main concert hall, the Helsinki Music Centre comprises a further five smaller halls. The concert hall stages, rehearsal rooms and loading area are found on the ground floor. The basement floors house green room facilities for both resident orchestras, with natural light provided by two lightwells. Sibelius Academy classrooms and offices are spread over seven floors that surround the semi-enclosed courtyard overlooking Karamzin Park. The first two bottom floors are home to the university's recording studios and public music library.



## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit. Photography at concerts is not permitted.



**Mannerheimintie 13a, 00250 Helsinki**



**Distance from the Central Railway Station:  
300 m (10 min walk / 8 min door-to-door  
by tram)**



[www.musiikkitalo.fi/en/](http://www.musiikkitalo.fi/en/)  
[www.musiikkitalo.fi/en/your-visit/](http://www.musiikkitalo.fi/en/your-visit/)



**Link to image bank:**  
[www.bit.ly/the-helsinki-music-centre](http://www.bit.ly/the-helsinki-music-centre)



Photo: Jussi Hellsten

# The Olympic Stadium

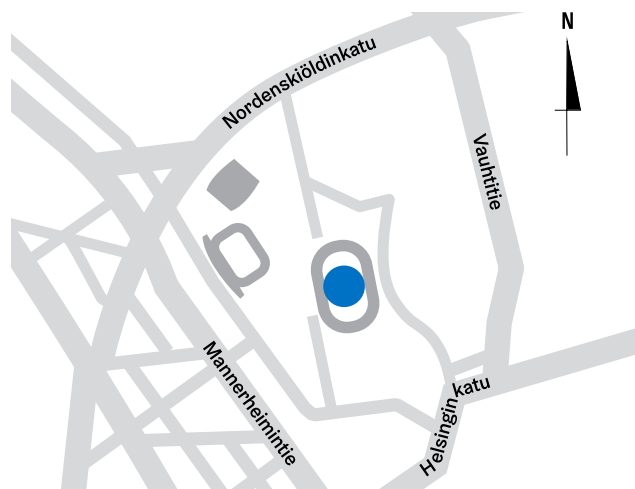
## Introduction:

With its pure functionalistic lines, Helsinki's Olympic Stadium has been dubbed the "most beautiful stadium in the world". The stadium was designed by architects Yrjö Lindegren and Toivo Jäntti. Construction began in 1934 and the stadium was inaugurated in June 1938. It was the main arena for the 1952 Summer Olympic Games which were held in Helsinki. In addition to sport events, the Olympic Stadium is a popular arena for other events, such as concerts. The stadium has around 36,200 seats while the capacity for concerts can be as much as 50,000 spectators.

Between 2015 and 2020, the entire stadium underwent an extensive refurbishment and renewal, during which 20,000 m<sup>2</sup> of underground space of new facilities was built for the stadium. These facilities include multipurpose sport facilities, a logistics area and technical spaces.

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.



**Paavo Nurmen tie 1, 00250 Helsinki**



**Distance from the Central Railway Station:  
3.5 km (16 min door-to-door by bus)**



[www.stadion.fi/en](http://www.stadion.fi/en)  
[www.stadion.fi/en/visit-the-olympic-stadium](http://www.stadion.fi/en/visit-the-olympic-stadium)



**Link to image bank:**  
[www.bit.ly/the-olympic-stadium](http://www.bit.ly/the-olympic-stadium)



Photo: Shutterstock

# Metro stations

## Introduction:

Metro is a rapid transit system serving Greater Helsinki. It is the world's northernmost metro system. The Helsinki Metro was opened to the general public on 2 August 1982 after 27 years of planning. It is operated by Helsinki City Transport under the Helsinki Regional Transport Authority and carries 63 million passengers per year.

The metro system consists of 2 lines, which serve a total of 25 stations. It has a total length of 35 kilometres. The metro serves as the predominant rail link between the suburbs of East Helsinki, downtown Helsinki and the western suburbs of the city of Espoo.

The line passes under the Helsinki Central Railway Station, allowing passengers to transfer to and from the Helsinki commuter rail network, including trains on the Ring Rail Line to Helsinki Airport.

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.



[www.hel.fi/hkl/en/by-metro/](http://www.hel.fi/hkl/en/by-metro/)



Link to the City of Helsinki image bank:  
[www.bit.ly/metro-underground](http://www.bit.ly/metro-underground)

## List of Metro stations

**Matinkylä**, below ground  
**Niittykumpu**, below ground  
**Urheilupuisto**, below ground  
**Tapiola**, below ground  
**Aalto University** (Aalto-yliopisto), below ground  
**Keilaniemi**, below ground  
**Koivusaari**, below ground (subsea)  
**Lauttasaari**, below ground  
**Ruoholahti**, below ground  
**Kamppi**, below ground  
**Central Railway Station** (Rautatientori), below ground  
**University of Helsinki** (Helsingin yliopisto), below ground  
**Hakaniemi**, below ground  
**Sörnäinen**, below ground  
**Kalasadama**, above ground  
**Kulosaari**, above ground  
**Herttoniemi**, above ground  
**Siilitie**, above ground  
**Itäkeskus**, below ground  
**Myllypuro**, above ground  
**Kontula**, above ground  
**Mellunmäki**, above ground  
**Puotila**, below ground  
**Rastila**, above ground  
**Vuosaari**, above ground



Photo: Pertti Nisonen

# Underground walking and shopping routes

## Introduction:

Underground spaces that are open to the public mainly include underground car parks, metro stations and so on. The map on the next page shows some underground walking and shopping routes. One of them is a public walking and shopping route from the Kamppi Bus Station and Shopping Centre to the Stockmann department store via the Forum Shopping Centre.

Another branch of this route goes to the Central Railway Station and the Citycenter Shopping Centre via the Sokos department store.

There is also an underground walking route between Finlandia Hall and the Helsinki Music Centre, stretching to the other side of Mannerheimintie.

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.



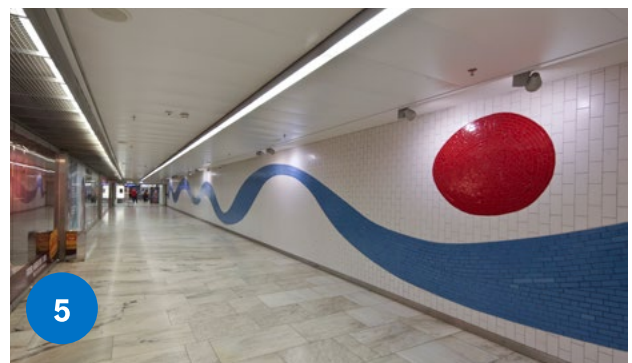
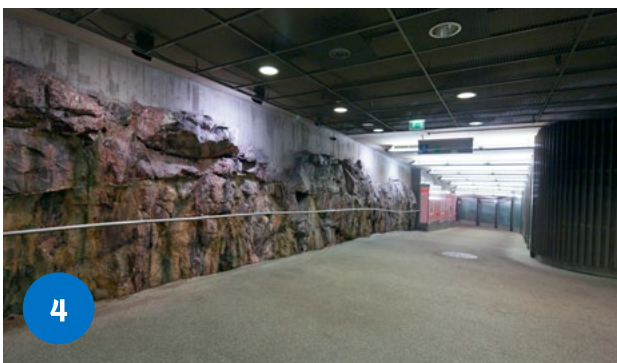
**Link to the City of Helsinki image bank:**  
[www.bit.ly/walking-routes-underground](http://www.bit.ly/walking-routes-underground)

# Underground walking and shopping routes





Photo: Pertti Nisonen



Photos 1,2, 3, 4, 5, 6 Pertti Nisonen. Photo 7 Arend Oudman.





8

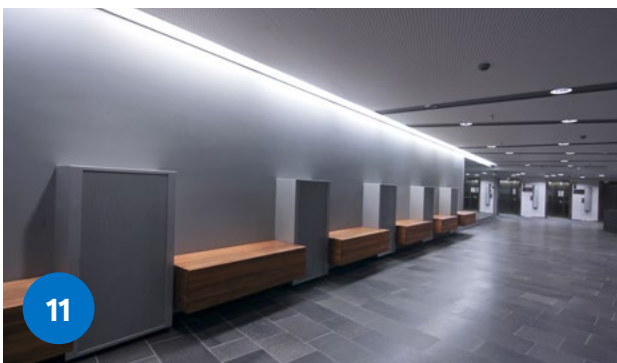
Photo: Pertti Nisonen



9



10



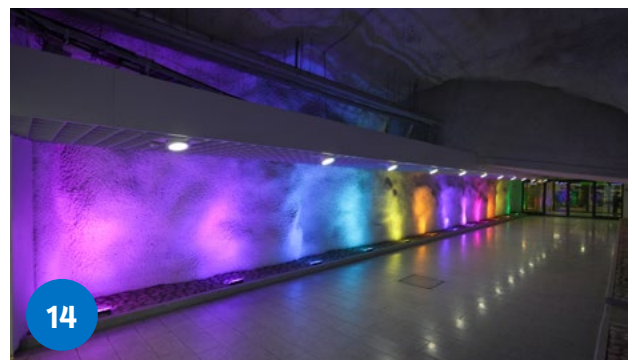
11



12



13



14

Photos 8, 10, 11, 12, 14 Pertti Nisonen. Photos 9, 13 Arend Oudman.



Photo: Pertti Nisonen

# Underground parking

## Introduction:

Space in the city centre is getting increasingly cramped and there are few free spots for building above ground. An increasing amount of attention is being paid to the attractiveness of underground spaces these days. This is evident, for example, in the interior and other design of parking facilities and the accessways leading to them. The planning of underground spaces located in bedrock gives architects an opportunity to utilise the living and versatile rock surface. Structural engineers need to understand and know how to dimension the underground space as a rock-framed, self-supporting structure. The outcome is not only cheaper than a concrete-framed space, but also far more beautiful.

Helsinki also specialises in combining the need of underground parking and the obligation to build emergency shelters. Examples of underground parking facilities, which can be used also as emergency shelters include:

- P-Veturi / Itä-Pasila common emergency shelter
- Herttoniemenranta P10 / Herttoniemenranta common emergency shelter
- Rokkiparkki / Emergency shelter for local residents in Ruoholahti
- P-Redi / Kalasatama public emergency shelter
- Mall of Tripla parking complex / Emergency shelter

<https://servicemap.hel.fi/unit?category=service:808>

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.

**There are several entry points to parking caverns, but most of the entries are only for paying customers:**

 [www.aimopark.fi](http://www.aimopark.fi)  
[www.europark.fi](http://www.europark.fi)  
[www.moovy.fi](http://www.moovy.fi)

 **Link to the City of Helsinki image bank:**  
[www.bit.ly/parking-underground](http://www.bit.ly/parking-underground)



Photo: Leikkiluola

# Sport facilities

## Arena Center Hakaniemi and Leikkiluola indoor playground

Located app 30 metres below Hakaniemi market place. Four courts for floorball, futsal, handball and badminton. Leikkiluola is the most popular indoor playground and offers fun activities for kids of all ages, all-year-round no matter the weather.

 **Sörnäisten rantatie 2, 00530 Helsinki**

 **Distance from the Central Railway Station: 2 km (10 min door-to-door by metro)**

 [www.arenacenter.fi/arena-center/hakaniemi/](http://www.arenacenter.fi/arena-center/hakaniemi/)  
[www.en.leikkiluola.fi/](http://www.en.leikkiluola.fi/)

## Formula Center Helsinki - Underground karting in an air raid shelter

300 metres long karting ring in eastern Helsinki.

 **Yläkivenrinne 1, 00920 Helsinki**

 **Distance from the Central Railway Station: 12 km (30 min door-to-door by metro)**

 [www.formulacenter.com](http://www.formulacenter.com)



Photo: Formula Center Helsinki



Photo: City of Helsinki Image Bank

# The Ring Rail Line, Airport railway station & Aviapolis

## Introduction:

Kehärata (the Ring Rail Line, previously Marjarata) is a railway route in the city of Vantaa in Greater Helsinki. It connects Helsinki Airport and the adjacent Aviapolis business and retail district to the Helsinki commuter rail network. The line fills the gap between the Vantaankoski and Tikkurila railway stations, running in a tunnel underneath the airport.

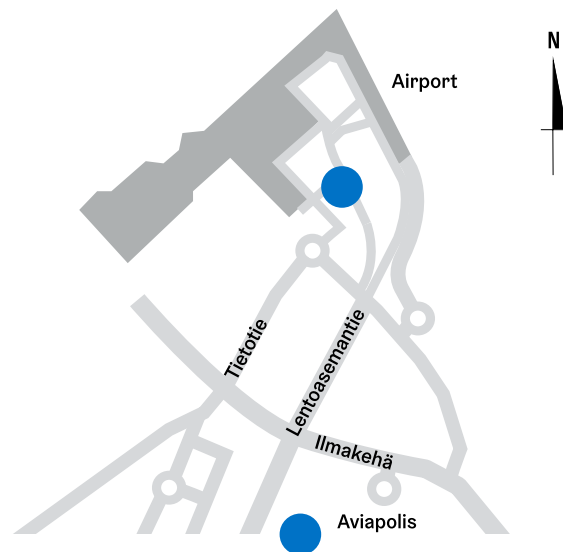
The line length is 18 km and it started operating on 1 July 2015.

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.



Photo: Ilkka Vähäaho



**Helsinki Airport, 01530 Vantaa**



**Distance from the Central Railway Station:  
24 km (42 min door-to-door by train)**



[www.vr.fi/en](http://www.vr.fi/en)



**Link to the City of Helsinki image bank:  
[www.bit.ly/ringrail-underground](http://www.bit.ly/ringrail-underground)**



Photo: City of Helsinki Image Bank

# Itäkeskus swimming hall and emergency shelter

## Introduction:

The Itäkeskus swimming hall and gym in East Helsinki has improved its services for minority customers: the swimming hall introduced a unisex changing room in the beginning of the autumn 2018 season.

The underground swimming pool and gym has facilities on two floors and can accommodate some 1,000 customers at a time. The hall attracts approximately 400,000 customers a year. Quarried out of solid rock, the hall can be converted into an emergency shelter for 3,800 people if necessary.



In case of an emergency, this space and all other spaces with this sign are used as emergency shelters. Underground emergency shelters are nowadays designed to meet the needs of normal times with strengthening 'just for exceptional times'.

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.



**Olavinlinnantie 6, 00900 Helsinki**



**Distance from the Central Railway Station:  
11 km (22 min door-to-door by metro)**



[www.hel.fi/helsinki/en/culture/sports/indoor/swimming/swimming-halls](http://www.hel.fi/helsinki/en/culture/sports/indoor/swimming/swimming-halls)



**Link to the City of Helsinki image bank:**  
[www.bit.ly/itakeskus-underground](http://www.bit.ly/itakeskus-underground)

# Underground spaces where authorisation is required



Photo: Shutterstock

# The city centre service tunnel

## Introduction:

The city centre service tunnel (Kehu) is a more than three-kilometre-long underground service tunnel stretching from Ruoholahti in the west to Kaisaniemi in the east, with underground reserves and access to several premises. Kehu consists of two parts: the Kluuvi service tunnel built in the 1980s and the Huoltoväylä (Service frontage road) constructed between 2005 and 2010. Kehu was built for estate maintenance traffic and traffic to underground parking caverns.

The purpose of Kehu is also to enable the creation of a pedestrian-friendly city centre. Kehu is owned by the City of Helsinki. Helsingin Väylä Oy is responsible for the administration of Kehu.

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.

 [info@helsingintoimitilat.fi](mailto:info@helsingintoimitilat.fi)

 **Link to the City of Helsinki image bank:**  
[www.bit.ly/service-tunnel-helsinki](http://www.bit.ly/service-tunnel-helsinki)

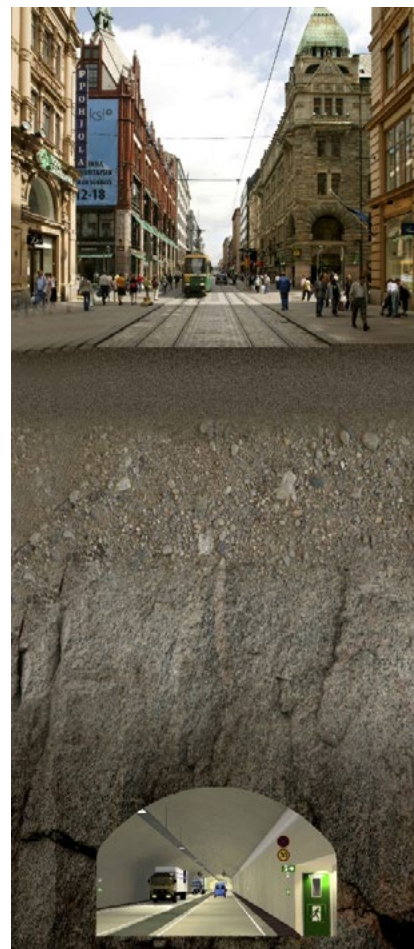


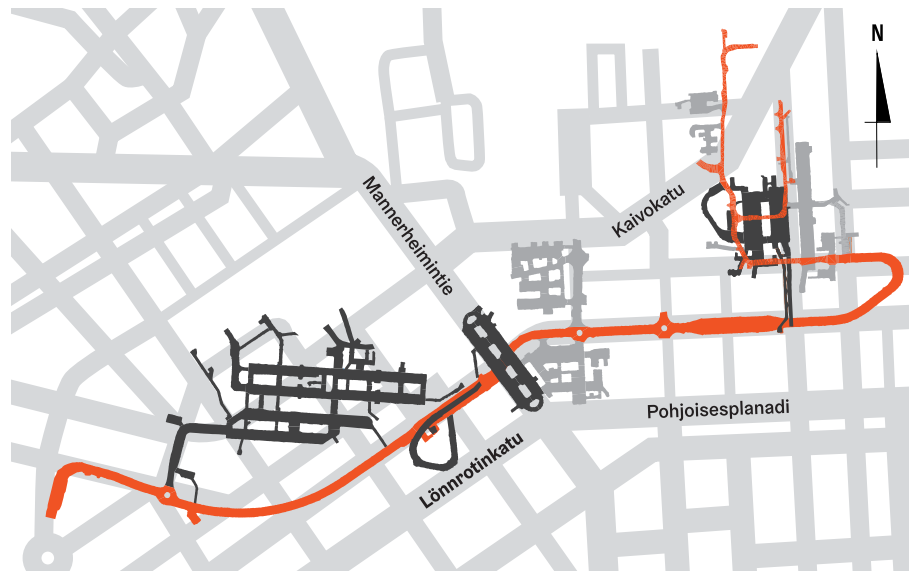
Photo: City of Helsinki



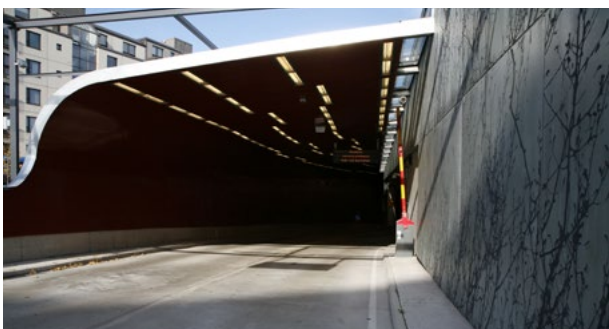
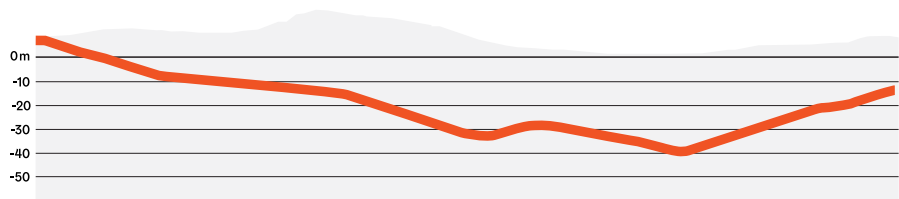
Photo: Niina Soikkeli

- The city centre service tunnel
- Estate maintenance
- Parking

▶ **Link to the video: Helsinki Urban Underground Spaces – Underground master plan & the city centre service tunnel**  
[youtu.be/prYiP3sFPfY](https://youtu.be/prYiP3sFPfY)

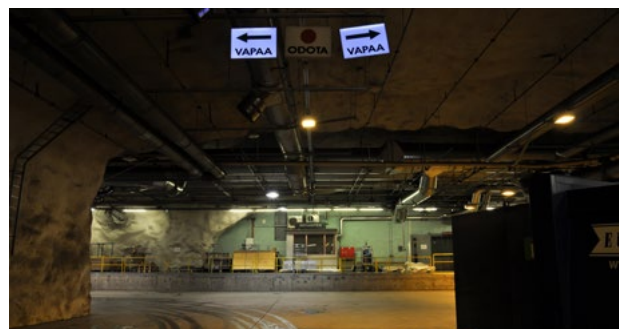


The tunnel's deepest point is more than 40 meters below sea level.



Tunnel entrance in Ruoholahti.

Photo: Roy Koto



Stockmann's loading bay.

Photo: Niina Soikkeli





Photo: Ilkka Vähäaho

# The Viikinmäki wastewater treatment plant

## Introduction:

The Viikinmäki wastewater treatment plant in Helsinki is the largest wastewater treatment plant in Finland and the Nordic countries.

The Viikinmäki bedrock treatment plant processes the wastewater of residents in Helsinki, central and eastern Vantaa, Kerava, Tuusula, Järvenpää, southern Mäntsälä, Pornainen and Sipoo. In total, it processes the wastewater of around 800,000 residents, as well as the wastewater of the region's industry.

Completed at a cost of approximately €200 million, the plant began operating in 1994. It replaced more than 10 smaller treatment plants, all above ground, thus allowing these sites to be zoned for more valuable uses.

The total flow rate of the treatment plant is around 270,000 cubic metres in a day and an average of 100 million cubic metres of wastewater is treated at the plant every year. The treated wastewater is conducted through a rock tunnel into the sea in front of Katajaluoto, eight kilometres away from the southernmost tip of Helsinki, into a depth of 20 metres.

Around 85 percent of the water conducted to the treatment plant is domestic wastewater and the remaining 15 percent is industrial wastewater.



**Hernepellontie 24, 00710 Helsinki**



**Distance from the Central Railway Station:  
9.3 km (40 min door-to-door by bus)**



[vesi.vierailut@hsy.fi](mailto:vesi.vierailut@hsy.fi)

[www.hsy.fi/en/hsy/visits-to-hsys-locations/](http://www.hsy.fi/en/hsy/visits-to-hsys-locations/)



**Link to the City of Helsinki image bank:**

[www.bit.ly/viikinmaki-underground](http://www.bit.ly/viikinmaki-underground)



Photo: Rockplan Ltd

# Hartwall Arena training hall and restaurant

## Introduction:

The 31-metre-wide ice hockey practice rink (15,000 m<sup>3</sup> training hall excavation volume), excavated 20 metres below Hartwall Arena allows teams to practice throughout the year. The restaurant has a 350-person seating capacity (3,000 m<sup>3</sup> restaurant excavation volume).



**Areenankuja 1, 00240 Helsinki**



**Distance from the Central Railway Station:  
4 km (23 min door-to-door by train)**



[info@hartwallarena.fi](mailto:info@hartwallarena.fi)  
[www.hartwallarena.fi/en](http://www.hartwallarena.fi/en)

## Things to remember:

- You are not allowed to film or take photos of people for commercial use without permit.



Photo: Rockplan Ltd



Photo: City of Helsinki Image Bank

# Development of the urban structure and constructions for public transport

## Introduction

Underground resources play an extremely important and central role in the development of the city structure of Helsinki and the adjoining areas, helping to create a more unified and ecoefficient structure.

Underground planning enhances the overall economic efficiency of facilities located underground and boosts the safety and use of these facilities. In simple terms, underground facilities can be thought of as providing the ultimate 'green roof'. Facilities placed fully underground (once constructed) do not impact the surface aesthetic and can provide natural ground surfaces and flora that maintain the natural ecological exchanges of thermal radiation, convection and moisture exchange.

## Paloheinä tunnel for busses

Paloheinä tunnel passes from Paloheinä to Kuninkaantammi underneath the Central Park connecting two residential districts.

The tunnel is 1.2 kilometres long. Safety and environmental views were emphasised in its plans. The tunnel has been planned in a manner that ensures it has very minor effects on the Central Park and helps it to sit naturally in the landscape. The rock waste excavated from the tunnel was utilised for construction works in Kuninkaantammi and Paloheinä districts.



**Pakilantie 124, 00670 Helsinki**



**Distance from the Central Railway Station:  
13 km (42 min door-to-door by bus)**

# Underground spaces not open for visits



Photo: City of Helsinki Image Bank

## Technical tunnels

There are many technical tunnels and underground caverns in Helsinki, but they are not open to the public. These tunnels are managed by Helsingin Energiatunnelit Oy (a subsidiary of Helen Group) and HSY (Helsinki Region Environmental Services Authority). Helen Ltd is one of the biggest energy production and distribution companies in Finland. HSY is a municipal body that produces waste management and water services, and provides information on the Helsinki Metropolitan Area and the environment.

Helsinki specialises in 'all-in-one' utility tunnels for district heating and cooling, electrical and telecommunications cables and water.

The City of Helsinki has about 300 km of technical maintenance tunnels, 60 km of which are utility tunnels used by a number of operators. The tunnels, built in Helsinki since 1977, accommodate transmission lines and pipes for district heating, district cooling, electricity and water supply systems, as well as a large number of different cable links.

## Suomenlinna island emergency and service tunnel

Suomenlinna is one of the largest sea fortresses in the world and is located about 1 km off the coast of Helsinki.

There is a service and emergency tunnel from the mainland to the island. It is 1300 m long, 4 m wide and 4 m high.

The tunnel was opened in 1981, and was renovated in 2018. The tunnel includes lines for district heating, water, sewage, electricity, telephones, television and data. The tunnel is only used by emergency vehicles.

**Visits to technical tunnels are not allowed.**

 [www.helen.fi/en/](http://www.helen.fi/en/)  
[www.hsy.fi/en/](http://www.hsy.fi/en/)  
[www.suomenlinna.fi/en/](http://www.suomenlinna.fi/en/)

 **Link to the City of Helsinki image bank:**  
[www.bit.ly/technical-tunnels](http://www.bit.ly/technical-tunnels)



Photo: Helen Oy

# Esplanadi artificial lake and Mustikkamaa heat caverns

## Introduction:

Helen, an energy company owned by the City of Helsinki, aims to move toward more environmentally friendly energy production. Minimising energy waste is one of the most important weapons in reaching the goal.

In its production facilities Helen produces both district heating and district cooling for residential and office buildings. Fifty metres beneath Esplanadi Park lies an artificial lake about 81 metres long, 9 metres wide, and 39 metres deep. It has a volume of 260 million litres. It works as a cooling accumulator for the district cooling system, through which cold water is brought to the cooling equipment of the buildings. The district cooling system also produces heat. When the cooled air that is supplied to the buildings is warm again, Helen's system delivers the heat of the indoor air along with the water back to the heat pump plant located in a cavern next to the artificial lake.

Beneath the island of Mustikkamaa, at a depth of 80 metres, lie three disused oil storage caverns, two of which are filled with tap water. The caverns serve customers of the district a heating network by balancing out peak consumption throughout the year. For example, waste heat from wastewater and buildings can be converted into district heat, stored in the water of the heat caverns, and released for use when needed. The heat does not escape, as the dozens of metres of bedrock serve as insulation. The height of the caverns is about 28 metres, the width is 22 metres, and their length is 240-350 metres. The total volume of the caverns is 320 million litres. The Mustikkamaa heat caverns will be taken into use in 2021.

The tunnels are owned by Helsingin Energiatunneli Oy, which rents them to Helen Oy, the operator of the plants.

 [www.helen.fi/en/](http://www.helen.fi/en/)

# The future



Photo: B & M Architects Ltd

# Garden Helsinki

## Introduction:

Garden Helsinki, a world-class event arena embracing an extensive selection of complimenting amenities, facilities and services is under development in the heart of Helsinki. The arena, utilising the most advanced technical solutions in the world, will provide elite sports and culture events and attractions, as well as exercise and hobbies for Helsinki residents and visitors on a daily basis all year round.

The plan is to build the Garden event arena almost entirely underground. Space-requiring operations and other essential services will be placed underground, increasing the concentration of the urban area while limiting constraint on the above-ground environment.

Rock engineering significantly improves the energy efficiency of construction. Making an event arena suitable for ice sports energy efficient is challenging, but quarrying it into bedrock will reduce its energy consumption to about half of that of a conventional construction solution.



**Nordenskiöldinkatu 11–13, 00250 Helsinki**



**Distance from the Central Railway Station:  
3 km (16 min door-to-door by bus)**



[www.gardenhelsinki.fi/en/](http://www.gardenhelsinki.fi/en/)



Tallinn

Helsinki

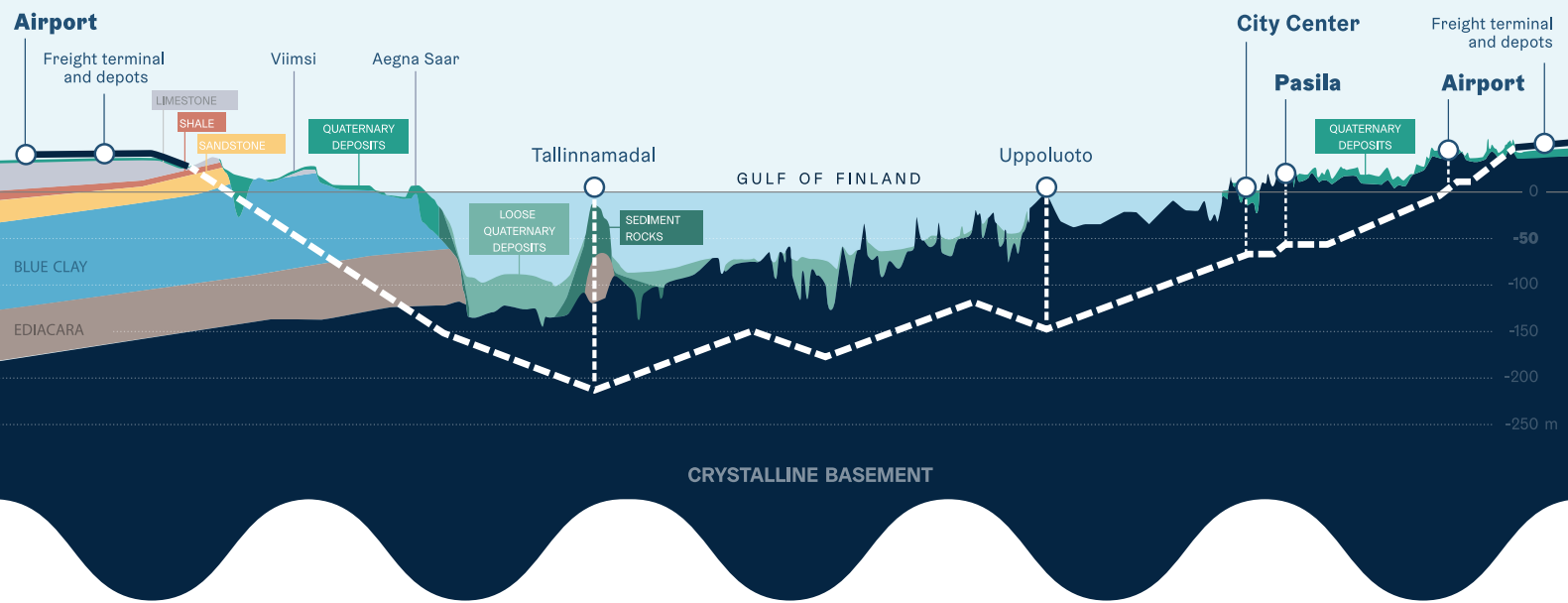


Photo: FinEst Link

# The FinEst Railway tunnel

## Introduction:

FinEst Link is an initiative founded and executed by the City of Helsinki, the City of Tallinn Government, the Estonian Ministry of Economic Affairs and Communications, the Finnish Ministry of Transport and Communications, the Helsinki-Uusimaa Regional Council and the Harju County Government of Estonia. The Finnish-Estonian Transport Link cooperation document was approved in Tallinn on 5 January 2016.

The goal of the FinEst Link cooperation is to develop mobility between Helsinki and Tallinn and to improve transport links. The cooperation will also provide the framework for increasing economic co-operation between Helsinki and Tallinn, as well as investigating the economic preconditions for, and impact of, the proposed Helsinki-Tallinn railway tunnel. Made together with rail transport infrastructure project Rail Baltica, the FinEst railway tunnel will connect Helsinki, Tallinn, Pärnu, Riga, Panevežys, Kaunas, Vilnius, Warsaw and run all the way to Central Europe.

The private project developer Finest Bay Area Development Oy started to design an alternative concept for the tunnel in the autumn of 2017. The project’s environmental impact assessment program began in May 2018. The EIA procedure

examines three different route options on the Finnish side while, correspondingly, Estonia’s national EIA procedure examines four different route options. All the project options involve the construction of a freight terminal to the north of Helsinki Airport and a railway connection for the freight terminal. The total cost of the project is estimated at EUR 15 billion.



- [www.finestlink.fi](http://www.finestlink.fi)
- [www.railbaltica.org](http://www.railbaltica.org)
- [www.bit.ly/finest-bay-area-development](http://www.bit.ly/finest-bay-area-development)
- [www.finestbayarea.online/](http://www.finestbayarea.online/)





Photo: Länsimetro Oy

# Länsimetro, West Metro extension, phase 2

## Introduction:

Phase 1 of the West Metro extension entailed the construction of the West Metro from Ruoholahti to Matinkylä.

Passenger traffic in the first phase from Ruoholahti to Matinkylä began in November 2017. In the Matinkylä–Kivenlahti section, construction is under way for five new stations, seven kilometres of rail line in two parallel tunnels and an underground metro depot in Sammalvuori. The aim is to hand over the facilities to the operator, Helsinki City Transport, during 2023.



Länsimetro Oy, Piispanportti 10 A,  
02200 Espoo  
(Near Matinkylä metrostation)



Distance from the Central Railway Station:  
15 km (25 min door-to-door by metro)



[www.lansimetro.fi/en/](http://www.lansimetro.fi/en/)



Link to Länsimetro image bank:  
[www.flickr.com/lansimetro](http://www.flickr.com/lansimetro)



Photo: JKMM Architects Oy

# The New National

## Introduction:

An architecture competition was organised in 2019 for the designing of an annexe by the historical National Museum building in Helsinki. The winner of the competition was JKMM Architects' proposal "Atlas". If the project advances as planned, the building of the annexe will be completed around 2025.

The "New National" annexe will add 17 000 m<sup>2</sup> of multifunctional space for exhibitions and events to the museum. The annexe and event spaces will mostly be built underground. The annexe's most notable feature is a monumental structure with a cantilevered concrete roof that forms the entrance to the museum.

The expansion will enable the production of large international exhibitions in the National Museum of Finland. The adaptable facilities also facilitate the organising of varied events and conferences.


**Size:**  
17 000 m<sup>2</sup>



## Client:

The Finnish Heritage Agency, the National Museum of Finland and Senate Properties

[www.kansallismuseo.fi/en/tietoa-meistae/uusi-kansallinen](http://www.kansallismuseo.fi/en/tietoa-meistae/uusi-kansallinen)

 [www.jkmm.fi/work/national-museum-of-finland/](http://www.jkmm.fi/work/national-museum-of-finland/)

[www.uusikansallinen.fi/en/](http://www.uusikansallinen.fi/en/)



Photo: Sitowise Oy and Lindroos Architects Oy

# The Kaisa Tunnel

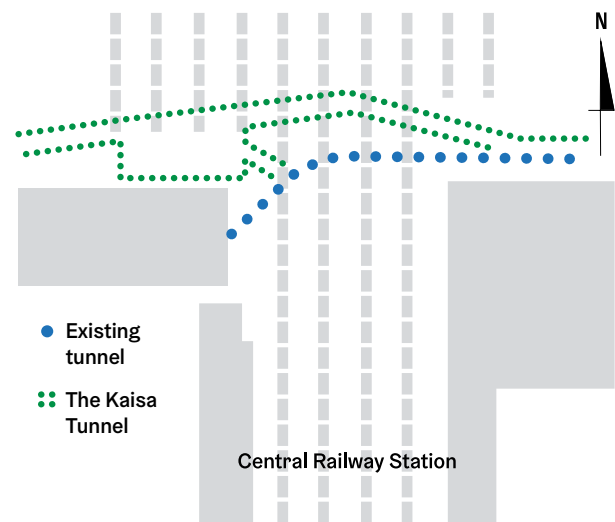
## Introduction:

The Kaisa Tunnel is a new path for cyclists and pedestrians passing under all 19 tracks of Helsinki's Central Railway Station. The Kaisa Tunnel will ease cycling in the east-west direction, while reducing bicycle traffic in front of the station itself. The ends of the tunnel are at the southwest corner of Kaisaniemi Park and on Töölönlahdenkatu. At Töölönlahdenkatu the Kaisa Tunnel links up with the Baana pedestrian and cycling path.

The Kaisa Tunnel is about 220 metres long, about 8 metres wide, and 3 metres high. The cycling lane is 4 metres wide and the pedestrian lane is 3.5 metres wide. In connection with the tunnel there will be a bicycle centre and parking area for about 1,500 bicycles owned by Helsinki City Transport (HKL).

There will be no direct connection from the Kaisa Tunnel to the rail platforms, but the tunnel is being built north of the existing pedestrian tunnel and the two tunnels will be linked by a passageway.

**Estimated construction time:**  
2021–2023



**Buyer:**  
City of Helsinki

**Contractor:**  
Destia

[www.hel.fi/helsinki/fi/kartat-ja-liikenne/kadut-ja-liikennesuunnittelu/katujen-rakentaminen/kaisantunneli](http://www.hel.fi/helsinki/fi/kartat-ja-liikenne/kadut-ja-liikennesuunnittelu/katujen-rakentaminen/kaisantunneli)



[www.destia.fi/uutishuone/projektit/kaisantunneli.html](http://www.destia.fi/uutishuone/projektit/kaisantunneli.html)

[www.facebook.com/kaisantunneli/](https://www.facebook.com/kaisantunneli/)

# Underground Helsinki is based on coordination

The City Survey of Helsinki collects information on all utilities (tunnels, underground spaces, pipes, cables, etc.), adds it to the maps and GIS systems, and delivers the maps to all those who need it. The owners of the utilities are responsible for the quality of the data.

According to the Finnish Land Use and Building Act and Decree, the City of Helsinki may maintain maps or files for which the owners of pipes, cables, etc., shall provide the necessary information.

## **Cables and cable transfer**

Areas under construction often have underground cables that have to be removed before construction.

One special feature is the City of Helsinki's cable map: The cable map presents the locations of underground cables. The map also reports cable dimensions, cable materials and, to some extent, the depths at which cables are buried.

## **Cable information service**

The cable information service is available for excavation, drilling and related engineering projects.

## **Urban Environment Division, Customer Services**

[www.hel.fi/helsinki/en/administration/participate/contact/search-address/toimipistekuvaus?id=7411](http://www.hel.fi/helsinki/en/administration/participate/contact/search-address/toimipistekuvaus?id=7411)

## **Soili**

The Soili service lets you independently search for ground investigation data in the City of Helsinki's database. The service allows you to search for a soil map, ground investigation map or base map of the required area; diagrams and sections of the required area printed into an image file; ground investigation and groundwater data in infra format of the required area; and bedrock confirmation drillings in CSV format. A charge is made for the service, and the service is intended only for design and engineering offices.

Helsinki residents can learn about the Helsinki soil and bedrock with the help of the free-of-charge Helsinki Map Service (<https://kartta.hel.fi/>), which contains soil and bedrock maps as well as information about groundwater.

**Read more:** <https://soili.hel.fi>

# APPLICATION to visit underground spaces in Helsinki

## ABOUT YOUR VISITATION

Name the underground space you would like to visit:

City centre service tunnel, [info@helsingintoimitilat.fi](mailto:info@helsingintoimitilat.fi)

Hartwall Arena Training Hall & Restaurant **Closed for the time being**

Viikinmäki wastewater treatment plant, [hsy.fi/en/hsy/visits-to-hsys-locations](https://hsy.fi/en/hsy/visits-to-hsys-locations)

Preferred date for your visit: \_\_\_\_\_

Why are you interested in this underground space? \_\_\_\_\_

Are you going to publish images, footage or  
written articles? \_\_\_\_\_

If so, please name the medias: \_\_\_\_\_

## YOUR ORGANISATION

Name of the company/community: \_\_\_\_\_

Street address: \_\_\_\_\_

Country: \_\_\_\_\_

www address: \_\_\_\_\_

## CONTACT PERSON

First name: \_\_\_\_\_

Surname: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_

Name of your superior: \_\_\_\_\_

Email address of your superior: \_\_\_\_\_

## GROUP

Group size: \_\_\_\_\_ person(s)

Names of the other group members: \_\_\_\_\_

Signature: \_\_\_\_\_

Print name: \_\_\_\_\_

Date and place: \_\_\_\_\_

Print, fill in and scan this form to pdf format and email it directly to the email address indicated in the underground space description. All details about the visit and other essential details like safety regulations will be communicated to the contact person before the visit.

**City of Helsinki**

Urban Environment Division, Soil and Bedrock Unit

[www.geotechnics.fi](http://www.geotechnics.fi)  
[geo@hel.fi](mailto:geo@hel.fi)

Urban Environment brochures 2021:3

Download the latest version of this brochure [www.bit.ly/underground-spaces](http://www.bit.ly/underground-spaces)

Download the pictures of this brochure <https://aineistopankki.hel.fi//LJbgc2PwwHSs>