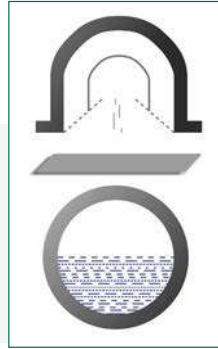


# Greece

**Name:** Greek Tunnelling Society (GTS)

**Type of Structure:** non-profit association with membership

**Number of Members:** 250 members, 15 corporate members



## ASSOCIATION ACTIVITIES DURING 2022 AND TO DATE

The Council Board executed numerous meetings - most of them virtual - for running GTS activities.

Preparations for the World Tunnel Congress 2023 and the 49th ITA Gen. Assembly in Athens, 12th – 18th May 2023, have been in full progress. The Congress Organizing Committee (OC) coordinated the various sub-committees working on the different aspects of the Congress, i.e. sponsorship, exhibition, marketing, advertising, technical visits, social events etc. The Scientific Committee (SC) examined all abstracts submitted

and, afterwards, reviewed the full papers, provided comments where needed, which authors had to consider before resubmitting their work for either oral or e-poster presentation. All the above tasks were executed in collaboration with our PCO company and always in line with the ITA “WTC Planning Guide”.

We have been in continuous contact with ITA, presented the WTC Backup Plan and Progress Reports. The Congress will be hybrid and include the Scientific Sessions, the Technical Exhibition, the ITA Gen. Assembly and other ITA activities. Well known professionals in the field of tunnelling and underground works, both

local and international, have been handling the various challenges. (<https://wtc2023.gr/>).

The Chairman of the WTC2023's OC has participated in all ITA ExCo meetings, both virtual and physical, representing the host member nation.

GTS participated in the WTC 2022 held in Copenhagen, Denmark, in 5th – 8th September. In order to promote WTC2023, we rented an exhibition booth run by our PCO and six members of our Council Board (CB) and associated with exhibitors and foreign colleagues. Our Chairman took part in the two sessions of the 48th ITA General Assembly. At the closing of the Assembly, GTS were handed the official ITA flag for the upcoming WTC 2023 in Athens.

We were also present in the British Tunnelling Society 2022 Congress with a booth in London, October 2022. Three members of GTS ran a booth and promoted WTC 2023 to delegates. Our G. Doulikas, GTS Young Members secretary, was elected President of the respective BTS Young Members.

The WTC2023 SC's co-chair Prof. V. Marinou, National Technical University

Athens, was elected new President of the International Association of Engineering Geology and the Environment (IAEG) for the period 2023-2026.

GTS's CB member Prof. C. Paraskevopoulou, Leeds University, was honoured with the 2021 Science Award, A' Class, of the Academy of Athens for her research work in Mining Engineering.

On World Tunnel Day, 5-12-2022 - within the context of Saint Barbara's Day - we took part in the daily marathon broadcast presenting the work of young Greek academics and engineers on the underground works research field as well as on tunnelling projects.

GTS published regular issues of its electronic magazine informing our members about our activities, recent news, new underground projects in Greece and globally, interesting technical publications etc. The Young Members Group emphasized its work on promoting webinars on interesting tunnelling issues, research results, work opportunities for young tunnellers etc via social networks.

## CURRENT TUNNELLING ACTIVITIES

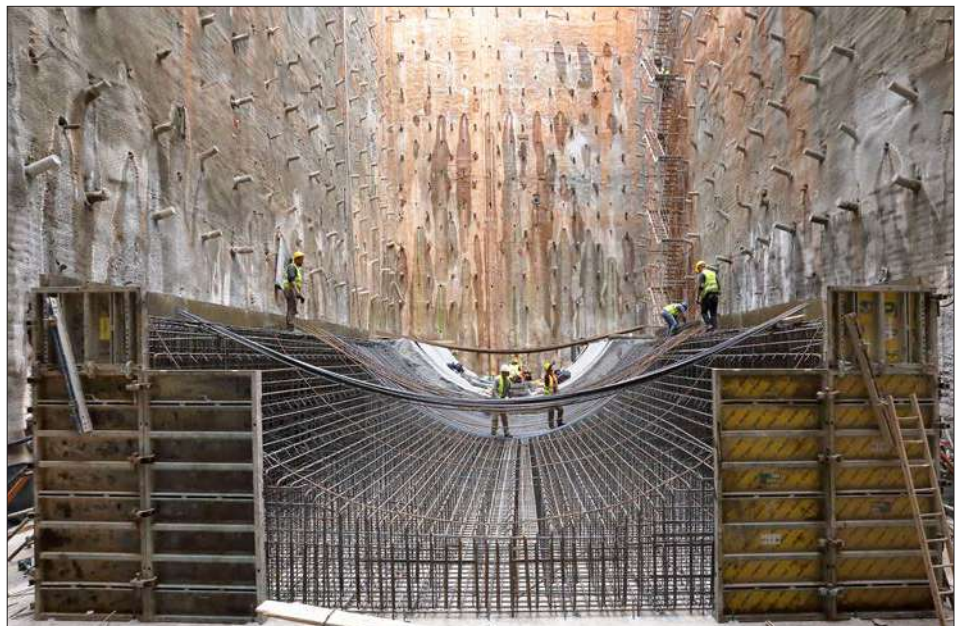
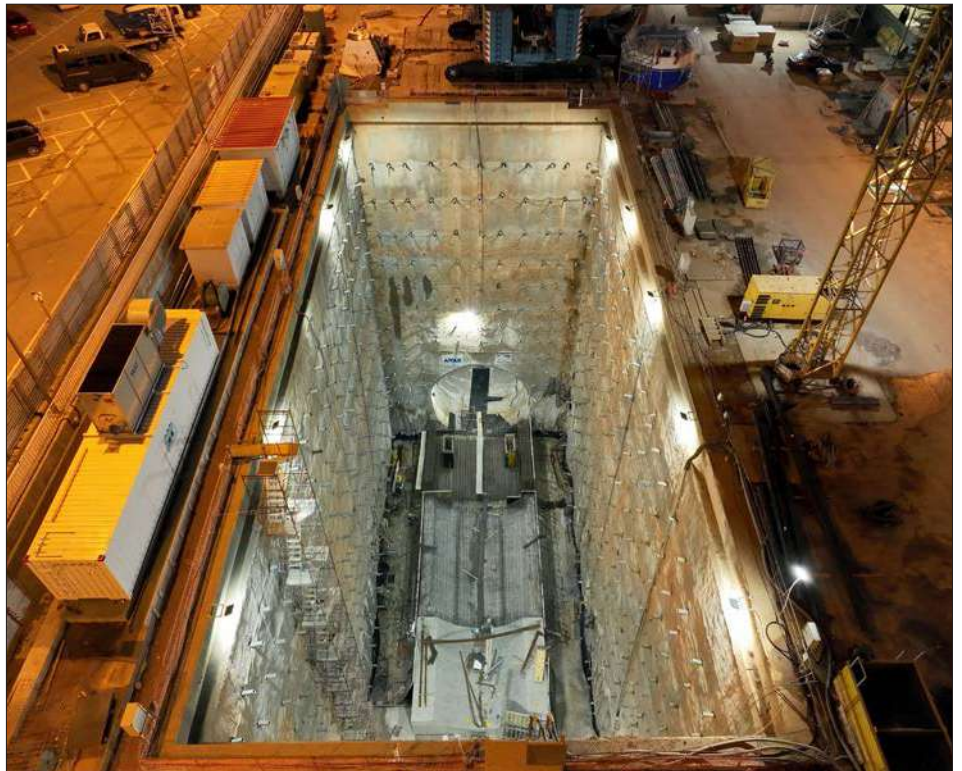
### Athens METRO

#### Line 3 Extension to Piraeus

In October 2022 the last three Stations (Maniatika - Piraeus - Dimotiko Theatro) of the Project were put into operation concluding the 7.6km long (6.5km of which was constructed by TBM) Metro line section. It serves approximately 132,000 passengers daily reducing private car traffic by 23,000 and CO2 emissions by 120 tons per day. Dimotiko Theatro Station is an open museum with antiquities on display. Piraeus Station is a vital transport hub connecting Metro Lines 1 & 3, the Port, the Suburban Railway and a new Tram Line (5.4km long with 12 Stations). Furthermore, the direct connection between the Port and Athens International Airport "El. Venizelos" benefits the economy of the Attica region and Greece as a whole.

#### New Line 4 - Section A "Alsos Veikoy - Goudi"

Works for the new Athens Metro Line 4, first section, are continuing. The €1.5bn, 96 month duration Design & Build contract for the 13km long, fully automated Metro Line with 15 stations was signed in 2021. The Project includes tunnelling works by two TBMs, underground stations, station fit-out, ventilation shafts, mechanical and electrical systems, rail infrastructure and systems, underground train maintenance and washing plant,



rolling stock light maintenance facilities and a new central control building. It is the biggest public Project currently being executed in Greece. It is foreseen this Metro section will serve 341,000 passengers on a daily basis in 2030. Preparatory works are in full progress at all worksites including archaeological investigation, utilities diversions, traffic deviations etc. The open cut excavated shaft to accommodate the first TBM is completed. The TBM's parts are being delivered to the site for its operation to start around April 2023. The second TBM start shaft in Veikou is also being constructed while excavation and retaining system installation has begun at other sites.

### Thessaloniki Metro

The first Metro Line for the second largest city in Greece, Thessaloniki, is close to commencing operation in 2023. The project includes 18 underground stations, ~14.4km of tunnelling and a 50,000m2 depot area. There will be 18 fully automatic driverless and air-conditioned trains of the latest technology, as well as automatic Platform Screen Doors in each Station for improved passenger service and safety. Civil, trackwork and E/M works of the twin single-track tunnels are completed. All but one of the stations are complete and equipped. Only Venizelou Station is currently under construction as it was delayed due to serious archaeological findings.



It is expected that the daily ridership will rise to 313,000 passengers. As a result of the Metro operation, street traffic will be reduced by 57,000 vehicles/day and CO2 emissions by 212 tons/day. Venizelos Station will become an open museum that will display the ancient history of the city.

An international tender was announced in 2022 for the operation and maintenance of the Thessaloniki Metro System on a public-private-partnership (PPP) basis.

**Underground section of coastal road in the Hellinikon area, Athens**

The Project budget is approx. €80M. The existing coastal road (Poseidonos Street) will be placed underground for a length of 3km by a cut & cover to host two traffic directions of three lanes each. This is part of the “The Ellinikon”, near the former Athens airport, which is Europe’s greatest urban regeneration project. Construction works are underway with excavation ongoing while concreting of the bottom slab follows. Completion is scheduled for the end of 2024.

**Central Greece Motorway (E65) – Lamia – Xyniada Section**

The project covers the construction of the south section of the Central Greece Motorway. It includes a twin tunnel with a total length of approximately 3km. Civil works for the tunnel were completed in 2022 and E/M installations are underway. Boring of the tunnel was challenging within geologically adverse ground conditions and lasted for more than two years.

**FUTURE TUNNELLING ACTIVITIES  
New Athens Metro Line 2 extension to Ilion**

The first phase of the Tender process (Call for Interest) was released for potential bidders to submit their financial and legal documents. This extension of the existing Line 2, from Anthoupoli Station to the district of Ilion, is being designed in-house by the Metro Project authority. The double-track tunnel will be approx. 4km long with three underground stations, six shafts and will include both civil and electromechanical works. The estimated cost is €550M and a construction time of five years.

**Kimis Road extension to Athens–Thessaloniki National Highway**

The Project was assigned last year but due to judicial conflict, no contract has been signed yet. It includes a 1.26km long double tube urban tunnel and a 1.16km long cut & cover tunnel that will connect



Attiki Odos (highway) with Athens–Thessaloniki National Highway. The cost will be approx. €350M and the estimated construction period of four years.

**Underwater road linking Salamina - Perama in Attica region**

Three consortia filed bids for this Project that concerns the design, construction, financing, operation, maintenance of an approx. 15km long highway which includes a 1.2km long immersed tunnel and two tunnels 1.7km long and 600m respectively. The Environmental Impact Assessment study of the project is at the phase of approval and following that the tendering process is expected to be finalized. The cost will be approx. €500M and the estimated construction period is 4 years.

**Northern Road axis for Crete island**

A concession project concerning the design, construction, financing, operation, maintenance of an approx. 200km long motorway which includes a significant number of tunnels i.e. i) Souda-Kalyves section: a 1.22km long tunnel, ii) Kalyves – Agioi Pantes: a 230m long tunnel, iii) Vrises-Petres-Atsipopoulos: five tunnels of 4.59km total length, iv) Exantis-Fodele-Linoperamata: Five tunnels of a total length of 319km, v) Hersonissos – Malia: a 375m long tunnel, vi) Malia – Neapoli: two tunnels of 4km total length. The project is split into two separate tenders: i) a concession agreement for the section between Chania and Hersonissos, and ii) a PPP project for the Hersonissos-Neapolis section. The cost has been estimated at around €1.1bn for the concession project and €360M for the PPP project.

**Urban tunnels in the Metropolitan area of Athens**

The implementation of the Athens Metropolitan Area Master Plan requires

new road tunnels, which include: i) the 3km long Ilioupolis urban tunnel, and ii) a 2km long motorway tunnel that will connect Attiki Odos (highway) and Rafina port.

**Klissouras road tunnel**

A new road tunnel (Klissouras) 1.36km long in the highway connecting the towns of Castoria and Ptolemais in north Greece is at the final phase before contract signing. The cost will be approx. €71M with EU funding while the construction period is estimated at 36 months.

**Underwater road link to connect Lefkada island to mainland**

To connect Lefkada island to the mainland national highways, 3.11km roads are currently being designed of which 1.2km will be an underwater tunnel crossing the existing sea strait.

**Thessaloniki Metro line extension**

The Thessaloniki METRO line extension to the north-west of the city that will serve six municipalities including nine new underground stations is currently in the first design phase. .

**STATISTICS**

**1. Length or volume excavated - % mechanized/% conventional during 2021** ~ 1500m - 0% / 100%

**Amount (USD or EUR) of tunnelling / underground space facilities awarded in 2021** = €900M

**3. List of tunnels completed:** Central Greece Motorway (E65) – Lamia - Xyniada Section, twin tunnels with a total length of approximately 3km.

**4. List of tunnels under construction:** Athens Metro Line 4, Thessaloniki Metro, Othris mountain twin tunnels (E65 motorway), tunnels along the Rododafni-Patra new railway section, underground railway corridor in Athens area.

**EDUCATION ON TUNNELLING IN THE COUNTRY**

**National Technical University of Athens**

Postgraduate Course  
Design and Construction of Underground Works

Schools: Mining and Metallurgical Engineering/Civil Engineering (more info: <http://tunnelling.ntua.gr/>)