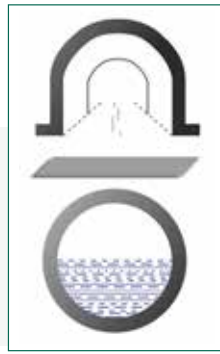


Greece

Name: Greek Tunnelling Society

Type of Structure: non-profit association with membership

Number of Members: 250 members, 14 corporate members



ASSOCIATION ACTIVITIES DURING 2020 AND TO DATE

In 2020 the Greek Tunnelling Society (GTS), during the pandemic, continued working to promote the environmental, social, technical and economic advantages of the construction and operation of tunnels and underground space. The Council Board executed monthly - mainly virtual - meetings for the organization of GTS activities, apart for the numerous meetings that were carried out for the various issues raised as part of the Athens Candidacy to host WTC2023.

Last year was a milestone for the GTS's activities as it involved numerous hours of hard work in supporting the Athens Candidacy to host WTC 2023 (<https://athenswtc2023.gr/>). At last, GTS's members hard work paid off as Athens was the preferred city for the WTC2023 by the MNs of ITA.

Three issues of the electronic magazine of the Greek Tunnelling Society were published. The Young Members Group promoted tunnelling news, research results, new projects etc both in Greece and abroad via social networks (facebook page).

Four Workshops / On-line webinars were organized / co-organized by GTS:

- em. Prof. K. Pitilakis "Seismic Response, Design & Risk Assessment of Tunnels" 7/10/2020 joint organization GTSym and TALym (India)
- Prof. N. Vlachopoulos "Eupalinos Tunnel - An Engineering Feat" 13/8/2020 joint organization GTSym and TALym (India)
- On-line Workshop with ITACUS "Expanding Underground / Knowledge & Passion to Make a Positive Impact on the world" 1/7/20
- Prof. V. Marinos & Prof. A. Benardos "Tackling Uncertainty in Tunnelling" 21/5/20 joint organization GTSym and BTSym (UK)

The webinars are available on the website of GTS. The Greek Tunnelling Society participated in the virtual WTC2020 Congress in Kuala Lumpur, Malaysia.



CURRENT TUNNELLING ACTIVITIES

ATTIKO METRO (Athens METRO)

On 6-7-2020, half of the 7.6km long METRO line 3 extension towards Piraeus, became operational including AGIA VARVARA, KORYDALLOS and NIKEA stations. The MANIATIKA - PIRAEUS - DIMOTIKO THEATRO section remained under construction. It was decided that the MUNICIPAL THEATER station was to become an open museum. 6.5km of the tunnels were constructed using TBM. The Metro Extension to Piraeus will serve approximately 132,000 passengers on a daily basis.

Thessaloniki METRO

The first Metro Line for the second largest city in Greece, Thessaloniki, is under im-plementation. The project includes 18 underground stations, ~14.4km of tunnelling and a 50,000m² depot in the Pylea area. Approximately 80% of the total tunnels' length were constructed by two EPBMs. The excavation and final lining installation of the twin single-track tunnels has been completed. State of the art construction methods, driverless trains and modern operation systems were specified and im-plemented. The Metro alignment was designed at significant depths to minimize the possibility of interventions with archaeological findings which were expected to be encountered within the historical centre of Thessaloniki. The Venizelos station will become an open museum that will display the ancient history of the city.

Central Athens railway Station – Three bridges area.

The €66M project involves the construction of a 2.36km long four-track rail corridor, 60% of which will be a fully underground alignment. It is expected to become fully operational in 2024, while at the end of 2023, the new quadruple railway corridor from Athens to the area of 3 Gefyres will be completed.

Central Greece Motorway (E65) – Lamia – Xyniada Section

The project concerns the construction of the south section of the Central Greece Motorway. It includes a twin tunnel with a total length of approximately 3km. Less than 400m remains to be excavated.

Halkidiki mining project

The northeastern side of Halkidiki, in northern Greece, has a long history of mining activity. Currently three exploitation areas exist namely Olympiada, Skouries and Stratoni areas. The overall development of Kassandra mines is considered a mega-project with numerous challenging civil works (surface and underground) and earthworks. In underground infrastructure, the most notable works completed or currently under construction include Kokkinolakkas stream diversion tunnel, 1,140m long, Olympias main access tunnel, ~9km long, Skouries spiral decline, ~5.5km long and Skouries access shaft, ~700m deep.



FUTURE TUNNELLING ACTIVITIES

New Athens Metro Line 4 - Section A "ALSOS VEIKOY – GOUDI"

The winning consortium offered €1.32bn tender for the Design and Built contract for the 13km long, fully automated new METRO line 4 that will include 15 new stations in Athens. The project includes tunnelling works, underground stations, station fit-out, mechanical and electrical systems, rail Infrastructure and rail systems. The U-shaped Line 4 consists of two radial branches to Galatsi and Maroussi municipalities, as well as of one central part that runs through Athens City Centre. Tender award of the first phase of Line 4 is

currently ongoing, for the implementation of the first section (from Alsos Veikou to Goudi). The scope of the project covers ridership of 8,000 passengers at peak hours in the section with the highest passenger load in year 2030, as well as the ridership of 13,000 passengers/peak hour/direction foreseen in the long run.

New Athens Metro Line 2 extension to Glyfada

A 4.5km long Extension METRO line including three stations has recently gone into design.

Underwater road link connecting Salamina - Perama in Attica region – Estimated cost ~ €400M.

A competitive dialogue process is underway between the preferred three interested parties. The project concerns the design, construction, financing, operation, maintenance and exploitation of an approximately 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 was recently completed.

Northern Road Axis of Crete island (NRAC)

A concession project concerning the design, construction, financing, operation, maintenance and exploitation of an approximately 200km long motorway which includes a significant number of tunnels i.e. i) Souda-Kalyves section: an 1.22km long tunnel, ii) Kalyves – Agioi

Pantes: an 230m long tunnel, iii) Vrises-Petres-Atsipopoulos: five tunnels of 4.59km total length, iv) Exantis-Fodele-Linoperamata: Five 5 tunnels of a total length of 3.19km, v) Hersonissos – Malia: a 375m long tunnel, vi) Malia – Neapoli: two tunnels of 4km total long. The project is split in two separate competitions: 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 €359.6M for the PPP project. The tendering process involves a Competitive Dialogue. Currently the Contracting Authority (Ministry of Infra-structure and Transport) is examining the technical skills of the interested parties.

Urban tunnels in Metropolitan area of Athens

The implementation of Athens Metropolitan area Master Plan requires some new road tunnels, which include: i) The 3km long Ilioupolis urban tunnel ii) The 2km long motorway tunnel that shall connect Attiki Odos (highway) and Rafina port and iii) The 1.26km long double tube Kimis Urban tunnel and the 1.16km long Cut & Cover that will connect Attiki Odos (highway) with Athens – Thessaloniki highway.

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.

STATISTICS

1. Length or volume excavated - % mechanized / % conventional during 2020:

~ 3500m - 100% / 0%

2. Amount (USD or EUR) of tunnelling / underground space facilities awarded in 2020:

No available data

3. List of tunnels completed:

METRO line 3 extension AGIA VARVARA, KORYDALLOS and NIKEA section

4. List of tunnels under construction:

Athens METRO extension to Piraeus, Thessaloniki METRO, Othris mountain twin tunnels (E65 motorway), tunnels along the Rododafni - Patra (Bozaitika area) new railway section and some other hydraulic and railway tunnels in Attika region.

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/>)