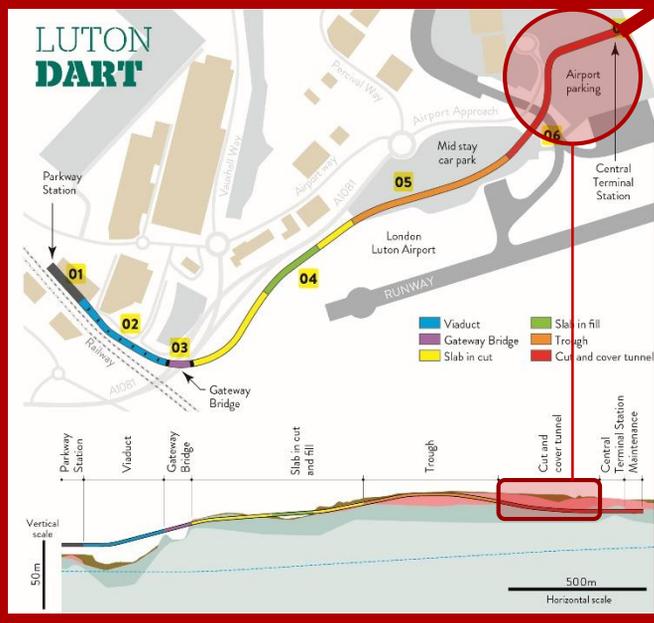


ESS's Specialist Communications division designs and installs bespoke tunnel communication system using Tunnel Mesh, providing full communications and ensuring site safety and productivity.

Luton DART – Project background

The Luton DART (Direct Air-Rail Transit) will speed travellers from Luton Airport Parkway station to the terminal of London Luton Airport in well under four minutes. The project will provide a step-change in how passengers get to and from the airport, and is being funded and delivered by Luton Council's airport company, London Luton Airport Ltd (LLAL). Scheduled to open in 2022, passengers will be able to travel between St Pancras and London Luton Airport in just 30 minutes using the fastest trains and seamless Luton DART transfer. The scheme will be a double-shuttle, fully-automated people-mover, based on the latest system technology and design innovation, capable of operating 24 hours a day, seven days a week. The cable-driven system is energy efficient and environmentally friendly. The Luton DART complements the airport operator's recent £160m transformation programme to deliver a truly world-class passenger experience at London Luton Airport.

The Requirement



Having partnered with ESS in the past to provide communications equipment, our client, GEL Engineering contacted us to discuss the project they were working on within the tunnel on the Luton DART project. GEL Engineering currently provides complex design and build solution predominantly into the Water & Waste Water industries in the UK. Our specialised engineering & civils solutions include the decommissioning and refurbishment of complex water treatment plants and infrastructure including industrial equipment, pipework and machinery which can be up to 200 years old. Gel needed specialist equipment to ensure full coverage is achieve throughout the working area. This is to provide a reliable way of communicating both for day to day task but also in and emergency.

“ESS responded quickly to our initial enquiry and came to site promptly to carry out a site survey and discuss our requirements in full”

*Eoghan Mc Tighe - Project Manager
GEL Engineering Limited*

During the site survey it was identified that our TunnelMESH system would be a perfect fit for the project. The TunnelMESH system is made by MTI TECH LTD who our one of our trusted suppliers. Currently we are the only company in the UK to be able to hire this equipment. ESS specialise in projects where wireless systems can be difficult to deploy – mines, tunnels, tunnelling projects, cable tunnels, and many other industry examples. Whether the best technology fit is DMR radio, Industrial Wi-Fi, Leaky Feeder, LTE, or Fibre optics ESS together with its partners are able to provide the right solution.

“The Specialist Communication Team at ESS have time and again proved that they know their stuff. We are very proud to be partnered with them providing bespoke solutions for these difficult environments”

*Hans Becker
IPTT Limited*

The Solution

Using a combination of wireless network nodes and InstaMesh® networking software, TunnelMESH networks employ any-node to any-node capabilities to continuously and instantaneously route data via the best available traffic path and frequency—for any number of nodes, all with extremely low overhead. BreadCrumbs can communicate with any Wi-Fi or Ethernet-connected device to deliver low-latency, high-throughput data, voice and video applications across the meshed, self-healing network.



Within a tunnel that has good line of sight, distances of around 1000m can be achieved between wireless nodes. Additional nodes can be added to extend the range of TunnelMESH and in doing so, TunnelMESH extends the digital world underground, enabling voice communications, personnel and asset tracking, video monitoring, live gas detection information, geotechnical measurements, and many other applications. For this application, we deployed both the TunnelMESH infrastructure coupled with iPTT P-500 Hand held units.

The iPTT P-500 units are capable of working over both 3G/4G and Wi-Fi enabling these units to work perfectly over the TunnelMESH Wi-Fi infrastructure.

With the addition of a 4G router to one of the TunnelMESH nodes and a 4G signal, the radios can then also be used Outside of the tunnel/working area exploiting the flexibility of the push to talk over cellular aspect of the devices.

The iPTT P-500 devices can provide the following key features

- GPS Location Tracking
- Historical GPS Location Tracking (Snail Trail)
- Panic/Alarm Button
- Group/Channel and individual calls
- Call Log
- Rugged and robust
- Multi-Network SIMs (giving you the benefit of all available Mobile Networks)



GEL Engineering and ESS – The Future

ESS will continue to support GEL Engineering's operation activities with the hire of communications equipment, Full on site support, planned maintenance visits as well as discussions on any new innovations within the communications industry will be provided by ESS. ESS working with our network of depots across the UK and the Specialist Communications Team will continue to provide the high level of service that the team at GEL engineering have already experienced.



"Since Partnering with ESS, we have found their ability to meet our needs excellent. They have provided us with sound advice and their competitive hire rates makes their offering hard to beat"

*Eoghan Mc Tighe - Project Manager
GEL Engineering Limited*