FERROVIAL: CONSTRUCTION OF LONDON'S SILVERTOWN TUNNEL GETS THE PRIVATE 5G TREATMENT

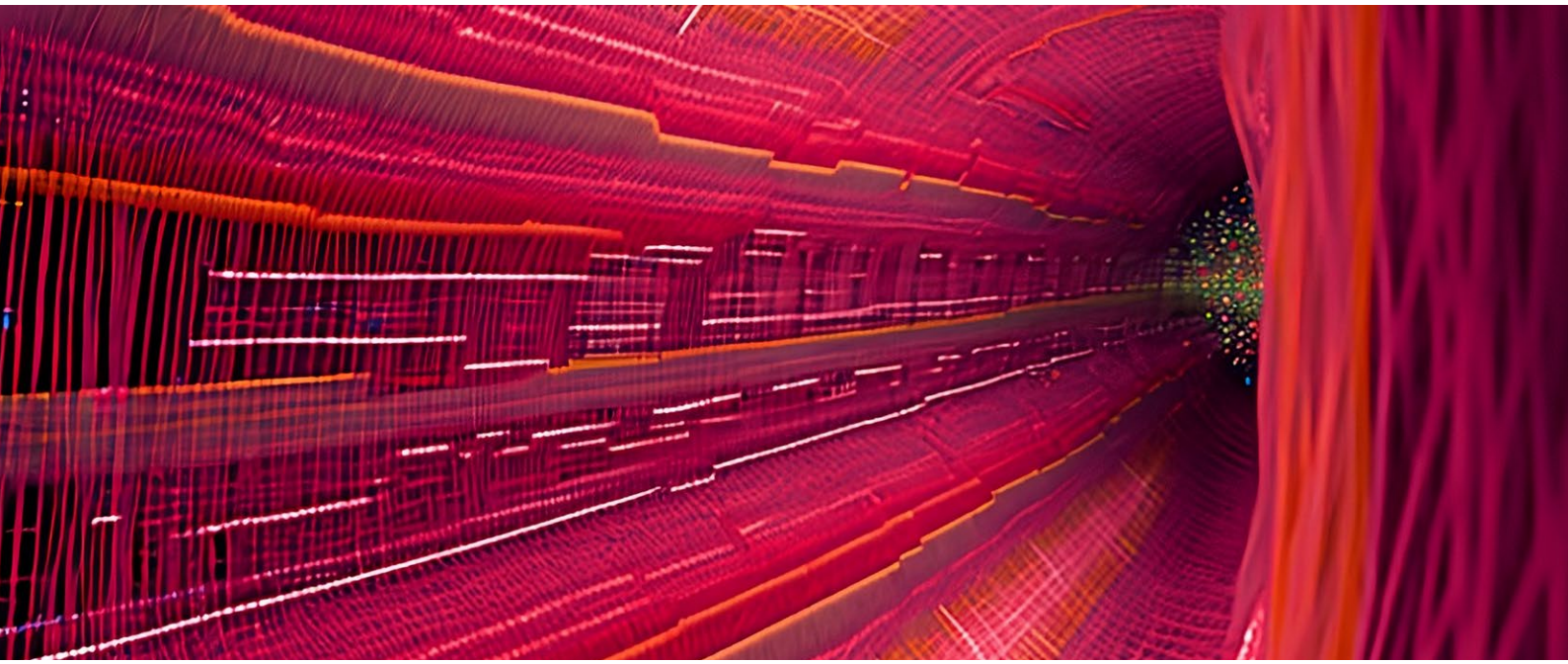
Case study

boldyn NETWORKS

Summary

On 7th April, 2025, the Silvertown Tunnel officially opened, linking Silvertown in East London to the Greenwich Peninsula, south of the River Thames. As the first new road tunnel under the River Thames in over 30 years, it has led to significantly less congestion around the approaches to the adjacent Blackwall Tunnel.

Latest Transport for London (TfL) monitoring data[1] confirmed that journey times on approach roads have reduced by as much as 70% during peak morning travel hours, while also boosting public transport uptake. This major infrastructure project marks a big win for London, easing the flow of traffic in a congestion hotspot and pollution-prone zone.



The Transport for London contract for the c.£1 bn project was signed in November 2019 by the Riverlinx consortium, composed of Ferrovial (through its highways division), Aberdeen, Invesis, and SK ecoplant, under a PPP contract for the design, construction, financing, and operation and maintenance for a 25-year period.

The joint venture Riverlinx CJV, comprised of Ferrovial (through its Construction division), BAM, and SK ecoplant, has been responsible for the design and construction. During the construction phase, they sought an expert partner to deliver a robust and innovative connectivity solution that could:

- Support emerging digital applications such as robotics, AI, and Building Information Management (BIM)
- Underpin mission-critical communications and safety systems
- Drive efficiency and coordination across three major construction sites

1. Transport for London (TfL) Monitoring Data

The challenge

Constructing a twin-bore tunnel under the Thames required sophisticated coordination and real-time data sharing across multiple portals and worksites. Public mobile networks could not deliver the reliable coverage, capacity, and low latency needed to support the scale of the operations and integration of digital applications.

To solve this, Ferrovial partnered with Boldyn Networks to deploy a construction-phase private 5G network.

The solution

5G standalone private network: Delivering secure, high-performance wireless coverage across key construction zones

Centralised orchestration via Boldyn's Neutroon platform: Enabled network slicing, prioritisation of mission-critical traffic, and simple management from a single control plane

Fully managed service: Ensured maximum uptime with Boldyn providing end-to-end monitoring, maintenance, and network optimisation

"The Silvertown Tunnel is a blueprint for the influence that private 5G can have in construction projects. We were delighted to partner with Ferrovial and support them with a secure, high-performance network that enabled everything from worker safety applications to robotics trial. It is testament to our experience of delivering connectivity in complex environments and proves that digital infrastructure can be deployed quickly, scaled to project needs, and make a measurable impact on safety and efficiency."

Gearoid Collins
Commercial Director Real Estate, Enterprise,
Wind Farms & PNE, Boldyn Networks

Outcomes and legacy

The private network was a catalyst for onsite innovation, supporting multiple high-impact use cases for Ferrovial's project activities:

Connected workers:
Provided secure and reliable communications across worksites, improving coordination

Immersive BIM with VR:
Enabled engineers to use VR headsets for real-time design reviews, improving decision-making

CCTV & video monitoring:
High-definition surveillance of critical areas, enhancing site security and safe operations

AI-enabled safety:
Powered geofenced zones, PPE compliance checks, identified hazards and detected trips and falls to reduce incidents

Vehicle speed monitoring:
Supported radar-based trials to manage traffic and reduce risk

Robotic automations:
Delivered the low-latency connectivity required to safely test robotic equipment

These outcomes delivered tangible benefits for Ferrovial: safer sites, more efficient operations, and faster deployment of new technology. This was all underpinned by a network that could scale dynamically with the project.

Although the network was decommissioned after the construction phase, the Silvertown Tunnel project stands as a powerful example of what's possible when construction and connectivity come together.

This deployment has provided a model for infrastructure projects in major metropolitan areas and demonstrates that private 5G can enable safer worksites, reduce disruption, and accelerate delivery.

By powering innovation from day one of construction through to the operational phase, projects like Silvertown create a legacy of more connected, sustainable, and resilient cities, long after the build is complete.

"Boldyn's private 5G solution allowed us to explore the reimagining of how we manage and deliver the construction of a major infrastructure project. It enabled cutting-edge innovative applications like VR for BIM and automation trials, showed that we can improve site safety & security and gave us a model we can replicate for even larger projects."

Adrian Talbot
Head of Centre of Excellence for Mobility, Ferrovial Group Innovation

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