Case Study

core controls
An ipsum Group Company

Blackwall Tunnel
Core Controls Solutions

Overview of works

The Blackwall tunnel is a pair of road tunnels which circumvent the River Thames in east London. The tunnel was originally opened as a single bore in 1897 as a major transport project to improve commerce and trade in London's East End, and supported a mix of foot, cycle, horse-drawn and vehicular traffic. By the 1930s, capacity was becoming inadequate, and consequently a second bore opened in 1967, accommodating southbound traffic while the earlier 19th century tunnel accommodated the northbound

Over the years, as technology has advanced there have been countless upgrades and new systems installed within the tunnels to improve safety and operator visibility. Core Controls were recently engaged to provide the design and implementation of the control systems associated with new safety systems:

- North & Southbound Sub Tunnel Linear Heat Detection System
- North & Southbound Sub Tunnel Lighting Control.
- Mid River Sump Fire and Gas Detection Systems.
- Southbound North Portal Gas Detection System

On this occasion the plant equipment was provided by the principle contractor, the project brief for Core Controls was as follows:

The scope of works included

- Sub Tunnel Linear Heat Detection.
- Sub Tunnel Lighting Control.
- Fire and Gas Detection Integration.
- SCADA integration into legacy Systems.
- Infrastructure Upgrades

- Design and implement 6 new Outstations using Schneider Momentum PLC's.
- Design and implement a network solution to compliment the existing TfL infrastructure.
- Integrate new outstations and mimics onto existing Citect SCADA system.

Our solution

Six new outstations were installed in strategic locations across the site to interface with the plant equipment installed throughout the tunnels. Outstations located in the shaft and vent buildings at either end of the tunnel provide discrete IO interfaces with lighting distribution boards allowing remote control and monitoring of the lighting systems in the sub tunnels. Outstation Modbus TCP IP communications with two independent Listec Linear Heat Detection controllers, provide an holistic view of the longitudinal temperatures of the sub

Our solution

tunnels and provide fire detection through the tunnels. Outstations located in the portals communicate with Fire Detection equipment and Gas Analysers via RS485 Modbus connections. All the information is presented on intuitive graphics on the SCADA system in the central control room.

This project was successfully implemented within a very short timescale, with a concerted efforts made to surpass the requirements of the project. The implementation of these systems now provide TfL with a safer environment for its subcontractors and maintenance teams as well as increased long term protection of their assets.