

Cardiff International Airport

Airfield Pavement Rehabilitation and AGL Infrastructure Upgrade

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Cardiff Airport Turnkey Solution

Airfield Rehabilitation and AGL Infrastructure Upgrade

Project Key Facts

Client Name | Associated Asphalt Contracting Ltd
Location | Cardiff, Wales, United Kingdom

Dates | Sept 2025

Project Overview

Cardiff Airport undertook a significant infrastructure improvement programme focused on enhancing runway safety, improving airfield lighting performance, and extending the operational life of critical assets. The project combined large-scale airfield pavement rehabilitation with a comprehensive upgrade of the airport's Aeronautical Ground Lighting (AGL) electrical infrastructure. By delivering these improvements as a single coordinated programme, the airport ensured compliance with current aerodrome standards while strengthening operational reliability and reducing long-term maintenance costs.

A key priority for Cardiff Airport was maintaining operational continuity throughout construction. All airfield works were delivered during carefully planned night-time runway possession periods, allowing normal daytime flight schedules to continue uninterrupted. This required detailed planning, coordination, and collaboration between engineering teams, airport operations, and project stakeholders to ensure both safety and efficiency across every phase of the programme.

The project centred on the full renewal of the airfield lighting electrical network. All primary AGL circuits were completely rewired, with new series isolating transformers installed across the lighting system. Secondary cabling within resurfaced pavement areas was replaced to improve long-term reliability and accessibility. In addition, new DC segment and control cabling was installed to all airfield lighting circuits, supporting improved system control and monitoring capability.

Alongside these electrical upgrades, Cardiff Airport invested in modernising the airfield lighting technology itself. Existing halogen luminaires across the runway, taxiways, and approach systems were removed and replaced with energy-efficient LED fittings.

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The upgrade included runway edge, threshold, end, and centreline lighting, taxiway edge lighting including lead-on and lead-off systems, and taxiway centreline lighting on Taxiways Alpha and Bravo. Both Runway 12 and Runway 30 approach lighting systems were upgraded to LED technology, and new Precision Approach Path Indicator (PAPI) installations were provided for both runway directions. Additional lighting was installed on the runway turn pad to support improved aircraft manoeuvring visibility.

Supporting infrastructure was also modernised to align with the new pavement geometry and future maintenance requirements. New transformer housing cabinets were installed for the Runway 30 approach lighting system, and a new main earthing network with earth rods was constructed to enhance electrical safety and resilience. New pit and duct routes were installed across the airfield to support revised cable routing and simplify future maintenance activities.

Extensive enabling works formed an important part of the programme. Existing airfield electrical services were surveyed, protected, diverted, or relocated where required to accommodate the pavement rehabilitation works. Redundant cables, pits, ducts, transformers, and associated equipment were removed, helping to rationalise the electrical infrastructure across the airfield. Mandatory Airfield Guidance signage and Runway Guard Lights were relocated and recommissioned in line with the updated airfield layout. All new infrastructure was clearly labelled and documented, followed by comprehensive testing, commissioning, and formal system handover.

The completed project delivers substantial operational benefits for Cardiff Airport. The rehabilitated runway surface provides improved friction characteristics and an extended service life, reducing the need for future maintenance interventions. The full conversion to LED AGL technology improves lighting reliability, visibility, and resilience while significantly reducing energy consumption and lifecycle costs. The modernised electrical infrastructure ensures compliance with current aviation standards and provides a future-ready platform for ongoing maintenance and potential system expansion.

By integrating pavement rehabilitation with a complete AGL infrastructure upgrade, Cardiff Airport has strengthened the safety, efficiency, and sustainability of its airfield operations. The project demonstrates how coordinated infrastructure investment can deliver immediate operational improvements while supporting long-term airport performance and growth.

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