CASE STUDY

HAWARDEN AIRPORT RUNWAY

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THE AIRPORT

Hawarden Airport is a privately operated aerodrome serving Airbus's wing manufacturing facility in the UK. Established in the early 1930s, the site has a long-standing aviation heritage and has evolved over decades to support large-scale aircraft manufacturing and specialist aviation operations.

Today, Hawarden Airport is owned and operated by Airbus UK and remains a critical component of Airbus's global manufacturing network. The site is the centre of wing production for all Airbus commercial aircraft, with completed wings transported to final assembly lines across Europe by the Airbus A330 Beluga fleet. Maintaining runway availability and surface integrity is therefore essential to uninterrupted manufacturing operations.

THE CHALLENGE

By 2009, the airport's grooved asphalt runway, then 14 years old, was beginning to show early signs of deterioration. Aggregate loss was starting to occur and surface cracking was becoming visible, presenting a potential future maintenance risk if left untreated.

Operational constraints added complexity to the challenge. Runway access was limited to nights and weekends, leaving little tolerance for lengthy closures or disruptive maintenance activities.
Initial investigations considered conventional resurfacing and hot in-situ recycling solutions. However, as the runway structure remained fundamentally sound, these options were deemed unnecessary, costly, and overly disruptive. Instead, Hawarden Airport elected to explore asphalt preservation as a proactive asset-management strategy.

Small-scale trials of preservation and rejuvenation materials were undertaken. Following these trials, ASI Solutions' RHiNOPHALT® asphalt preservation system was selected as the most appropriate solution. Its ability to seal, waterproof and slow binder oxidation aligned precisely with the airport's operational, financial and long-term performance objectives.

THE SOLUTION

RHiNOPHALT® is a rapid-cure, penetrative asphalt preservation system designed to extend pavement life by stabilising the asphalt binder and slowing the ageing process. The treatment penetrates the surface course through micro-cracks and interconnecting voids, sealing the pavement and preventing further oxidation and moisture ingress.

In September 2009, RHiNOPHALT® was applied to Hawarden Airport's runway. The entire preservation treatment, including replacement runway markings, was completed over a single weekend. Within less than 72 hours, the runway was fully operational, delivering an effective preservation solution capable of extending pavement life by a minimum of five years, without disrupting airport operations.

SECOND PRESERVATION TREATMENT

Following the success of the initial application, the runway surface remained in excellent condition, with degradation significantly slowed. In late 2014, Hawarden Airport identified the need for a further life extension to align with a planned major rehabilitation programme required to accommodate the introduction of the Beluga XL A330 Super Transport aircraft.

RHiNOPHALT® was chosen again as the solution to this, following the positive experience at the airport in 2009.

Application rate testing was carried out ahead of the second treatment confirmed that a slightly reduced application rate was sufficient, reflecting the preserved condition of the pavement.
The second application was completed in 2015 during a short weekend closure and included masking of over 280 airfield ground lighting units and full re-white lining – once again demonstrating the suitability of RHiNOPHALT® for tightly constrained operational environments.

EXTENDED PAVEMENT LIFE AND SUSTAINABILITY OUTCOMES

The initial RHiNOPHALT® application in 2009 delivered a five-year performance life extension. The second treatment in 2015 extended the service life further, enabling the runway to remain in service until mid-2018. In total, the runway surface achieved a service life of 23 years, representing an overall extension of nine additional years beyond its original design life.

Crucially, the two RHiNOPHALT® preservation treatments delivered a carbon saving of over 90% when compared to one full asphalt resurfacing. The ability to carry out works within narrow maintenance

KEY BENEFITS

Substantial financial, operational, and environmental benefits were achieved through improved asset management using RHiNOPHALT®:

- Approximately 10% of the cost of full asphalt resurfacing
- Supports an airport's sustainability charter by extending pavement life, reducing raw material use and carbon emissions and minimising disruptive maintenance works
- Rapid application, suitable for night-time and weekend closures, maximising airfield availability
- Adds years to pavement life, delaying expensive replacement and reducing whole-life costs

windows, without affecting airport operations, proved to be a decisive advantage over traditional surface treatments.
RHiNOPHALT® is applied before visible defects become critical. By penetrating the asphalt surface and forming a durable seal, it keeps water out, slows ageing, and preserves asphalt in good condition for longer – supporting smarter, more sustainable infrastructure management.

- Minimises the risk of foreign object debris (FOD) associated with aggregate loss.