

# TAXIWAY CONFIGURATION AIRFIELD MODELLING

-  Belfast City Airport
-  United Kingdom
-  Process optimisation, 3D fast-time simulation
-  2025



## KEY OUTCOMES:

- Review of proposed security designs
- Development of optimised layout options
- Identification of resource requirements



## THE NEED:



- George Best Belfast City Airport is planning for future operational growth and aims to ensure that its runway infrastructure is capable of accommodating forecast 2040 demand.
- To support these development plans, the airport commissioned a study to evaluate the operational performance of the existing runway under multiple infrastructural scenarios.
- A key focus of this initiative is assessing the potential benefits and operational justification for a runway loop, ensuring that future capacity, delay management, and apron utilisation remain at optimal levels.

## THE APPROACH:

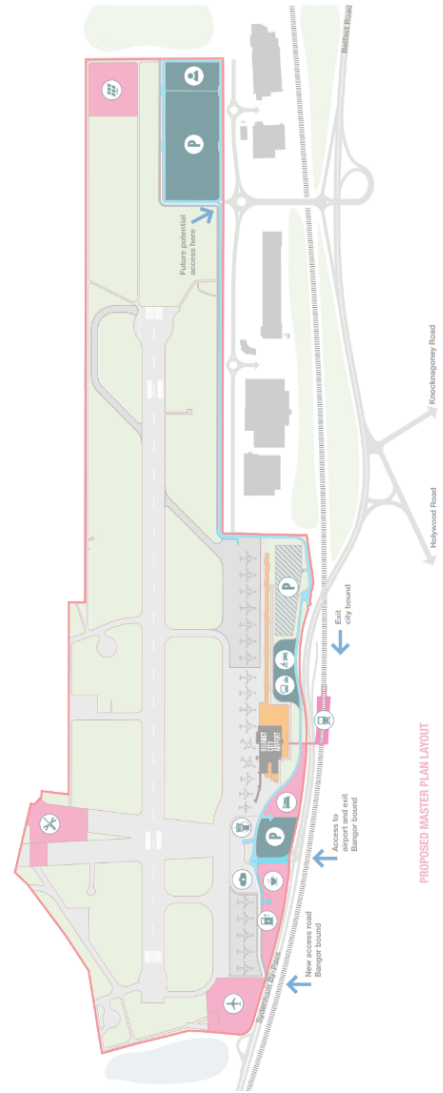


- The study modelled and analysed runway, taxiway, and apron operations under projected demand, with a focus on identifying bottlenecks and high-congestion areas.
- Multiple operational scenarios were tested based on projected 2040 Design Day Flight Schedules, alternative infrastructure provisions (Runway loop vs. No runway loop), and varying airspace separations (current practices vs. ICAO Legacy Minimum standards).
- The analysis covered total delay, throughput, departure queue performance, and apron congestion, providing a detailed operational performance picture for each configuration.

## THE SOLUTION:



- Identified and recommended the optimal configuration that delivers the best balance between operational performance, capacity, and investment value, supported by robust scenario modelling and quantified performance metrics.
- Provided clear, evidence-based recommendations to guide BHD's long-term master planning, ensuring infrastructure investments are targeted for maximum operational benefit.



"EBEA Consulting's detailed modelling and data-driven approach provided Belfast City Airport with confidence in planning for future growth. Their evidence-based recommendations have clarified where infrastructure investment will yield the greatest operational efficiency, ensuring our strategy aligns with forecast demand and capacity needs."

**Jonathan Rice**  
Head of Capital Projects & Facilities  
Belfast City Airport