



AUCKLAND AIRPORT

Auckland, New Zealand

BHS Peer Review BHS Concept Feasibility

Auckland International Airport Limited | 2018 – 2021



ASSOCIATES, INC.

BNP PROJECT TEAM

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REFERENCE

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SCOPE OF SERVICES

Master Planning
Analysis and Demand Study
Conceptual Design
Dynamic Simulation

BNP Associates, Inc. was retained by Auckland International Airport Limited (AIAL) to initially provide a peer review of the Baggage Handling System (BHS) strategies within their Terminal Development Plan. The Peer Review led to AIAL tasking BNP with developing high-level BHS concept options to both upgrade their existing Hold Baggage Screening (HBS) systems from ECAC Standard 2 to Standard 3, and to integrate their existing systems with a new BHS facility intended to support the consolidation of domestic passengers within their current international terminal.

The concept work evaluated various BHS technologies and considered both conventional belt conveyor as well as Individual Carrier Systems (ICS). To overcome challenging space restrictions and to accommodate airline requirements to minimize manual handling of baggage, BNP developed a batching solution integrated with an ICS-based bag buffer to optimize make-up operations. This was matched with a redeveloped six-machine HBS system integrated downstream of a reconfigured check-in departures hall. Detailed phasing step plans and BHS cost estimates were developed to provide a pathway for construction as well as outline a budget through each stage of the BHS construction.

All design work was data driven from the output of BNP's demand analysis on the design flight schedules grown to the required planning years. These demands were matched with appropriate BHS recourses, evaluated with the client redundancy requirements, and then developed into a BHS design within the Revit BIM environment to coordinate with the design team (architecture, MEP, structure).

BNP provided a dynamic simulation of the preferred concept design to illustrate the operation and processing of bags generated from the design day flight schedules. This simulation was run to review the ability of the system to recover after various failure scenarios.

BNP was recently tasked with reevaluating passenger demands based on the impact of the Covid-19 Pandemic and to provide feedback to AIAL regarding new trigger points for the BHS expansion and impact to previous BHS concept design work.