

## MERIT

## Three-Runway System (3RS)

Airport Authority Hong Kong

## PROJECT LOCATION

Chek Lap Kok, HKSAR

## TYPE OF WORK

Aviation, Building, Civil, Infrastructure, Reclamation, Runway and Airport Systems

## PROJECT TIMESCALE

2016 to 2024

## INTRODUCTION OF PROJECT

Three-Runway System (3RS) project involves the following seven core projects:

- Reclaiming approximately 650 hectares of land north of the existing airport island, using non-dredge methods including deep cement mixing.
- Building the T2 Concourse and an associated apron. Building a new, 3,800-metre-long runway and its supporting taxiway systems. The existing North Runway will also be reconfigured.
- Expanding Terminal 2 to provide full-fledged passenger services including arrivals and departures facilities.
- Building a new, 2,600-metre-long Automated People Mover (APM) system that will connect Terminal 2 with the new passenger building.
- Building a new Baggage Handling System (BHS) linking Terminal 2 with the new passenger building.
- Building other associated airport support infrastructure, road network and transportation facilities.

## THREE WINNING FACTS

## People-Centric

- Under its smart airport strategy, AA has been investing in new technologies to enhance services and operational efficiency.
- **Visions from Senior Management** to digitalise 3RS by **leveraging advanced digital technologies** and **embrace digital practices** for project delivery on time and on budget.
- Promoting and attracting talents from the local industry by sharing and working with the Project collaborators. More than **250 BIM practitioners** worldwide (Australia, HKSAR, Korea, Japan, Netherlands, PRC, Singapore, UK) are working on one 3RS Project.
- BIM educating and training for more than **580 internal employees** on one single project. One of the largest internal training structured within one Organisation.

## Process Optimisation

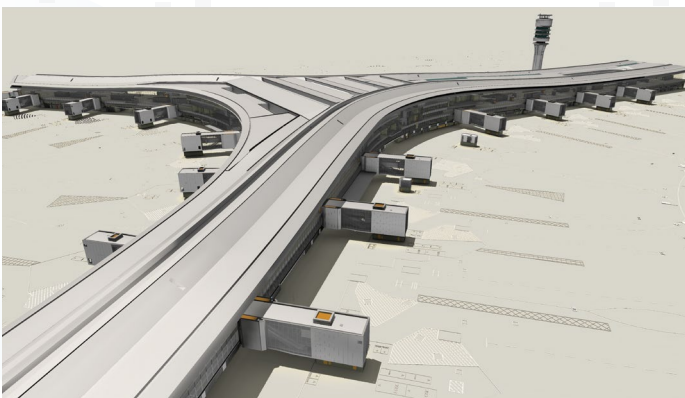
- **Formulated AA BIM Specification, BIM Standard** for design, construction, tender and handover to AA's facility management team. Such documents set the goals and formulated strategies in implementing advanced digital technologies to **streamline workflows, application and integrating advanced technologies**. Digital practices like BIM implementation are planned in all Contract documents, **Contract milestones (milestone-based deliverables), General Material and Workmanship Specification (GMWS), Survey Guidelines** and other documents. Continuous refinement of digitalisation process, AA's Specification and Standards with inputs from Project collaborators. Improvement of such BIM Specification, Standards and strategies by referencing **international and local Standards, Specifications and Technical Circular** in later stage. Ability to execute and foster a **culture of innovation, collaboration and partnering**. Promote digital fabrication, DfMA, MiC and machine control.

## Technology Adoption

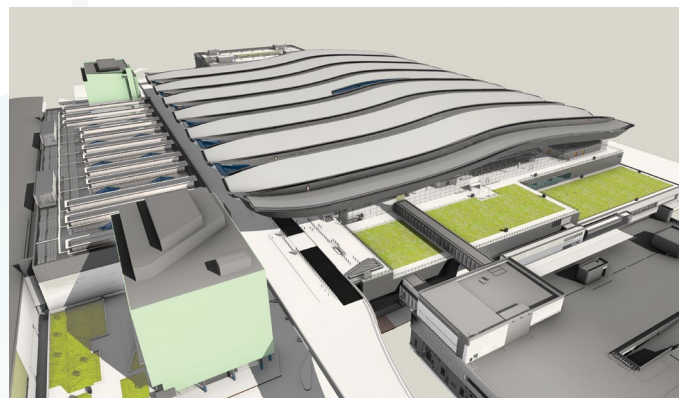
- Adopted advanced technologies and integration of systems as one holistic system for integrating isolated solutions like positioning, site surveying/ setting out, networking and 3D control systems on construction machines on 3RS. Laser scanning to verify as-built conditions (Field-to-BIM) and machine control for runway construction (BIM-to-Field) are implemented; Use of online collaboration platforms, cloud-based solutions, tablet/ mobile solutions for sharing of 3D data.
- Data-driven, data progress and monitoring – Use of business intelligence analysis tools to monitor, analyse, and review 3RS status, performance and dashboard reporting.
- Planned ahead and implemented asset management requirements during design and construction phases for BIM data, which will be handed over to asset management team for on-going integration into BIM-GIS/ Digital Twin platform.
- With the aim of developing HKIA into a smart airport, AA has been working closely with its business partners and technology companies to develop and employ innovative solutions to redefine the future travel experience. The Smart Airport – Technovation Conference and Exhibition held in 2018 is an ideal platform for airport community members and industry experts to exchange ideas on the latest trends in innovative technology such as Internet of Things (IoT).



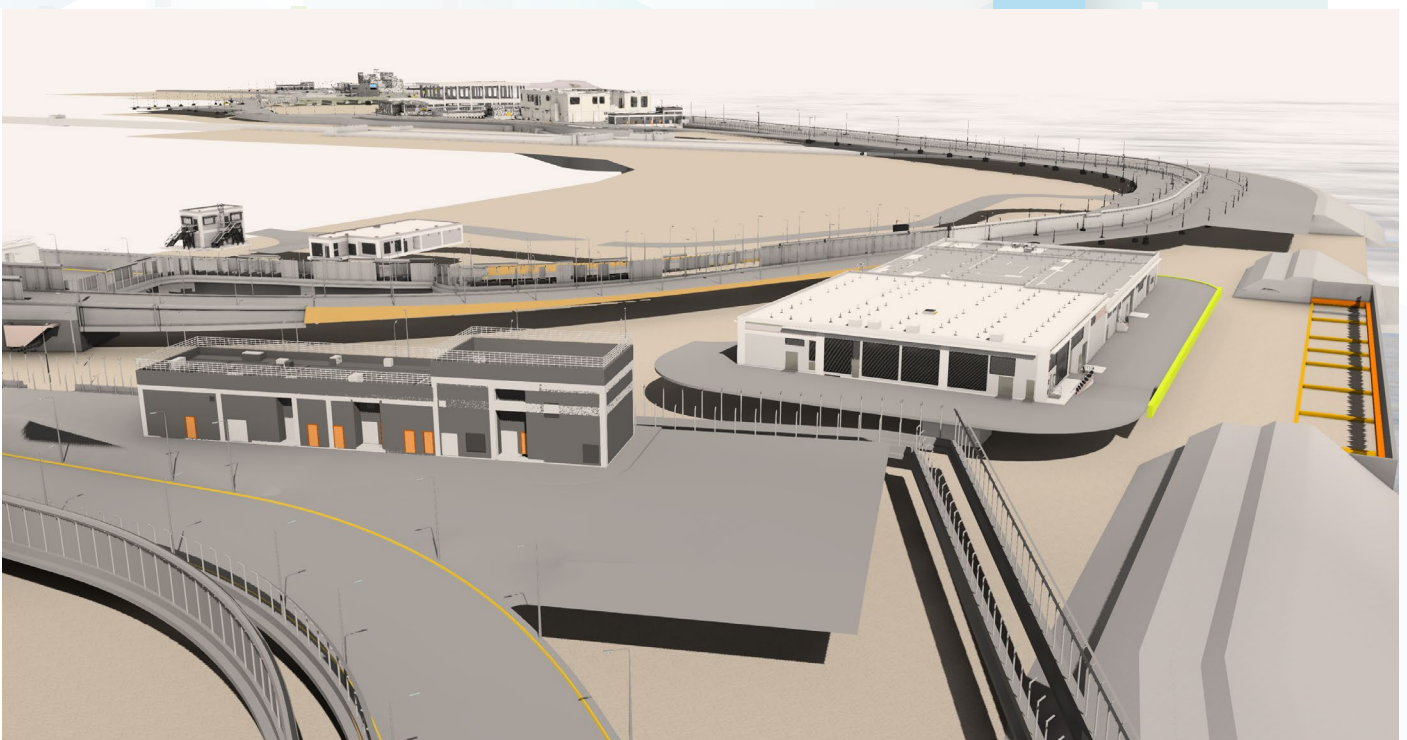
The completion of pavement works on the 3,800-metre-long and 60-metre-wide Third Runway



Terminal 2 Concourse and Apron Works



Terminal 2 Expansion Works



The APM and BHS Tunnels and Related Works