



TODD

ABOUT US

Established in 1976, TODD's have grown to be included within the Architect's Journal's list of top 100 UK practices, with offices in Belfast, London and Dublin and associated studios in Edinburgh and Riyadh. Their completed portfolio of award winning work extends across a broad spectrum of project categories, including the iconic and globally recognised Titanic Belfast.

MAP (McAlister Armstrong & Partners) were one of the UK's leading aviation architects with over 30 years of experience of working in over 28 airports in UK, Ireland, Europe, the Middle East and the Americas.

In 2013 MAP joined the internationally respected TODD Architects Group as a sister company and in February 2016, merged with TODD Architects.

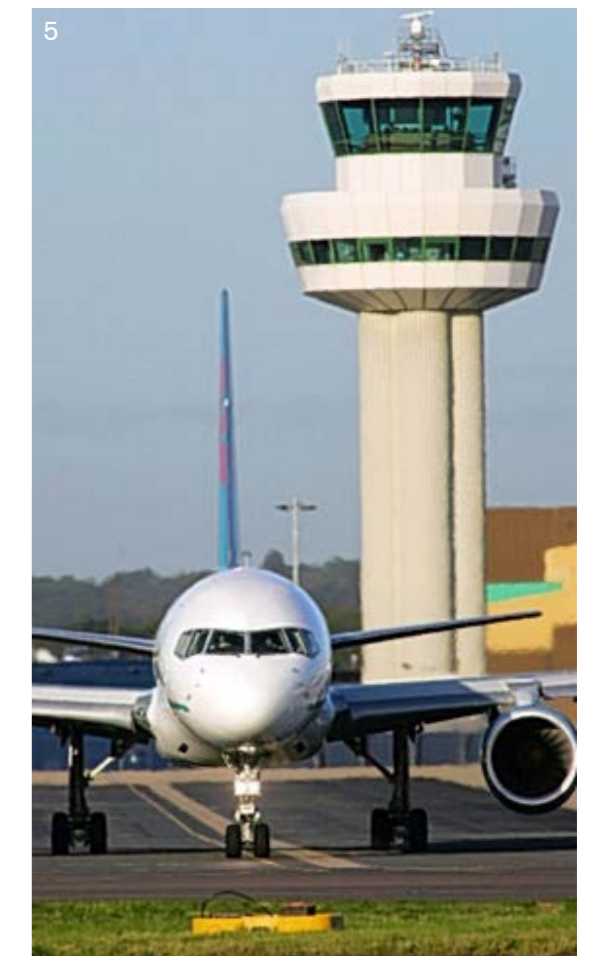
The joining of the two companies, combining our airport design expertise with TODD's innovation and flair and a resource base of over 55 staff, is allowing us to further expand our business in the aviation sector both in the UK and overseas.

The TODD commission base also covers public and private sectors, with specialisations developed in healthcare, education, offices, retail, residential, arts, leisure and cultural facilities. Our completed buildings have been delivered under a range of procurement routes, from a 'traditional' approach to Design & Build – where we are regularly retained by contractors in a delivery role. In addition to our core discipline of architecture, we offer project management, town planning, masterplanning, urban design, workplace and interior design services.

We are quality assured under an Integrated Management System (to ISO 9001, 14001 and OSHAS 18001), have an office "Green Team" that researches and disseminates sustainable design guidance, and through investment in appropriate software and staff training, are increasingly engaged in projects where BIM modelling is required.

In 2015 we also entered into a strategic alliance, named 431 Architecture, with AJ100 practices Keppies and Stride Treglown. As a combined organisation we are able to offer: a resource base of over 500 staff: a very wide range of sectorial skills / specialisations: and a geographic spread of offices across the UK.

- 1 Bristol Airport
- 2 London Luton Airport (Master Plan 2012)
- 3 Bristol Airport
- 4 Shannon Airport
- 5 London Gatwick Airport



OUR UNDERSTANDING

Our approach to aviation design is directed by two key insights:

An acute appreciation of the requirements of operators and airlines to ensure that facilities are secure, easy to maintain, economic and can generate maximum revenue.

A recognition of passengers desire for a comfortable and convenient environment that will enhance the travel experience, with facilities and processes that are easily understood and navigated.

These factors, coupled with a holistic appreciation of all aspects of sustainable design, inform all our airport projects - from feasibility studies and masterplans to renovations, expansions and new terminal buildings.

We have a core team of senior management and dedicated architectural staff that have over thirty years experience in the aviation sector. They have developed an in-depth knowledge and appreciation of all aspects of successful airport design.

Our commission base includes every area of airport design from high strategic planning to the most modest of terminal refurbishments. It includes: Aerodrome Master Planning, Capacity Studies, Terminal design incorporating all terminal processing sub-systems, landside and airside passenger areas, security facilities, baggage handling facilities.



OUR GLOBAL REACH

We have successfully delivered projects at some of the UK's busiest airports, as well as in a number of disparate locations across the globe.



We have worked with the following airports:

- Aberdeen Airport, Scotland
- Belfast International Airport, N. Ireland
- Bristol Airport, England
- Bratislava International Airport, Slovakia
- Cardiff Airport, Wales
- Cork Airport, Ireland
- Derry Airport, N. Ireland
- Dublin Airport, Ireland
- Galway Airport, Ireland
- George Best Belfast City Airport, N. Ireland
- Haji Terminal Complex, KAIA, Jeddah, Saudi Arabia
- Howard Air Force Base, Panama
- Highlands & Islands Airports, Scotland: (Benbecula Airport, Inverness Airport, Islay Airport, Kirkwall Airport, Stornoway Airport, Wick Airport)
- London Gatwick Airport
- London Luton Airport
- Orlando Sanford Airport, USA
- Port Salines Airport, Grenada, West Indies
- RAF Valley, Wales
- Shannon Airport, Ireland
- Stockholm Skavsta Airport, Sweden
- Sumburgh Airport, Scotland
- USAF Lakenheath, England
- USAF Mildenhall, England
- Viru Viru Airport, Bolivia

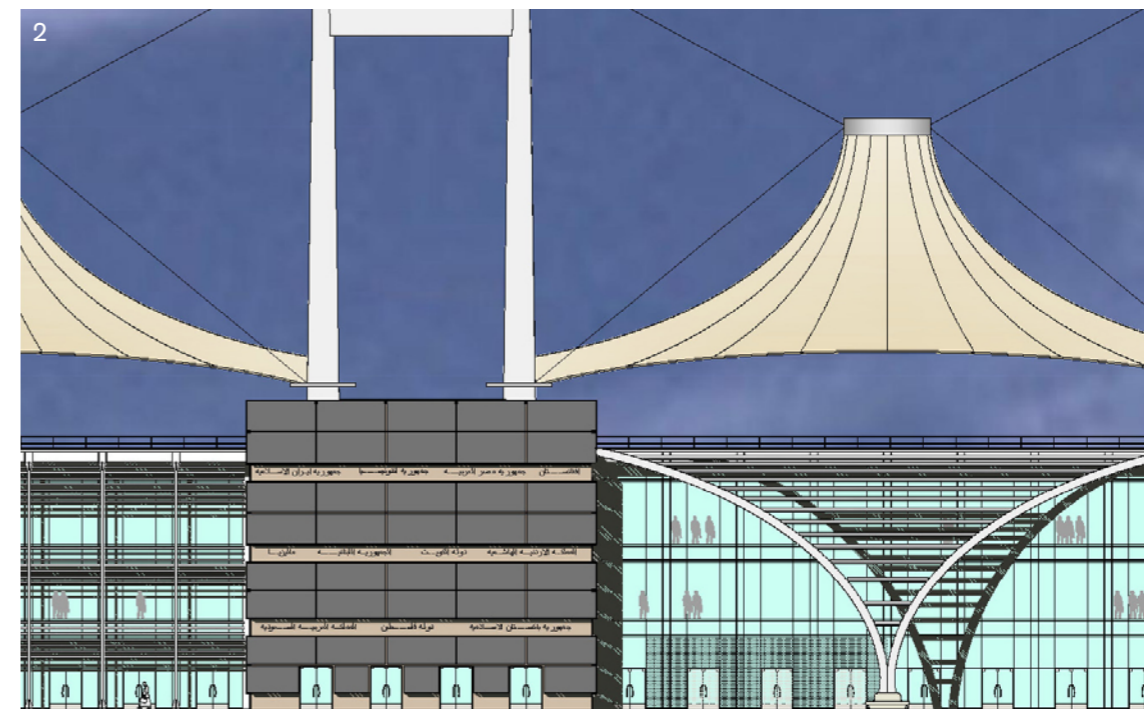
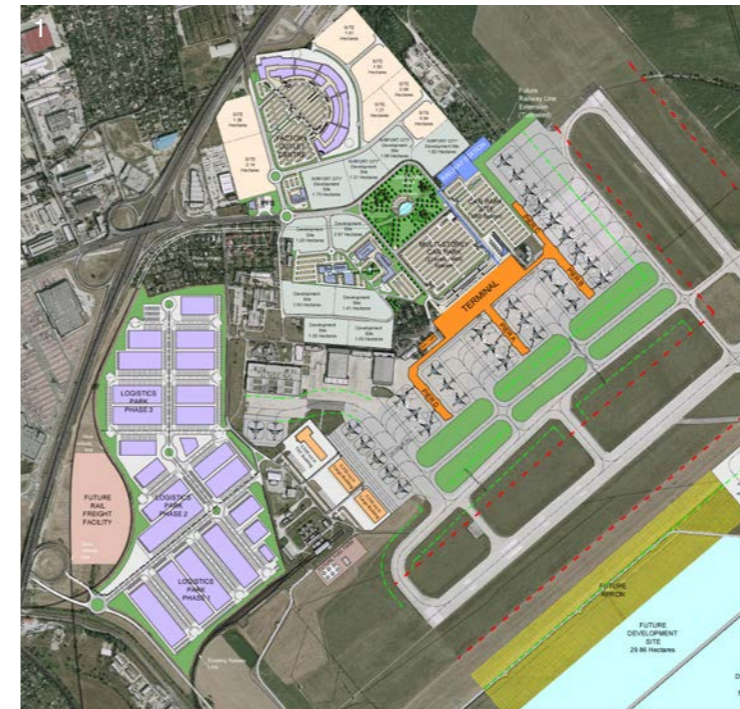
CASESTUDIES

As already stated the company has had commissions in over 28 airports and repeat commissions from long-standing clients such as Abertis/TBI plc, DAA and Bristol Airport recognise our expertise in producing successful design solutions in the aviation environment and the delivery of a high quality service. Our experience over recent years has covered a multiplicity of airport planning, architectural and asset management projects for terminals, airside & landside infrastructure (including transport interchanges).

The work has included master planning, feasibility studies, strategy development and capacity studies (using our own capacity model) leading to building developments in passenger terminals and ancillary buildings such as fire stations, car hire complexes, cargo depots, FBO Hangars, airfield landside/airside security checkpoints, business parks, car park buildings and miscellaneous other ancillary developments.

Currently in 2015-2017, we are working with London Luton airport, Dublin Airport, Bristol Airport, Belfast International Airport, Belfast City Airport, and Cardiff airport on Terminal extension projects up to £55m and Master Plans up to £300m. However, to set out a cross section of our recent experience, we provide three case studies below based around long standing client airports.

- 1 Development Master Plan, Bratislava Airport, Slovakia
- 2 Hajj Terminal Elevation, KAIA, Jeddah, Saudi Arabia



CASESTUDY ONE

ABERTIS/TBI AIRPORTS



In recent years, the company has carried out numerous projects at TBI / Abertis airports (now individually owned) as follows:

Belfast International, London Luton, Cardiff, Stockholm Skavsta Sweden, Orlando Sanford Florida, and scheme design bids for the Hajj Terminal at KAI airport, Jeddah, and Bratislava airport, Slovakia (both shortlisted).

This has involved hundreds of projects ranging from £400m and £100m master plans and detailed planning applications for London Luton airport in 2006 and 2012 respectively, Government White Paper Master Plans in 2006 for Belfast International & Cardiff airports, a Master Plan in 2006-2007 for Stockholm Skavsta airport, fast track construction projects such as the £25m new pier, airside departures and arrivals area project at London Luton Airport (completed in 10 months) through other multi million pound terminal construction projects down to asset management minor works.

With regard to Airport planning, current Head of Aviation Shaun Ferguson & Director Gary McConville led the master planning teams for:

- London Luton Airport
2006 - 2007 & 2011- 2012
- Belfast International Airport
2006 & 2009 - present
- Bristol Airport
2008 - 2011 and 2016 - present
- Cardiff Airport
2006 & 2012 - 2014
- Stockholm Skavsta Airport
2003 - 2006

All of the master plans addressed the core areas of: Forecasts and capacity studies, infrastructure proposals, safeguarding and land/property take (both operational and commercial), surface access initiatives, impact on people and the natural environment, and proposals to minimise and mitigate impacts.

The master plan structure in all cases was devised to:

Encourage communication with a range of stakeholders, including airlines, funding institutions, local authority and other local interests, to allow them to make well informed investment decisions;

Help airport operators to make clear at an early stage the key milestones of airport growth development projects such as the submission of a planning application, construction and opening;

Demonstrate the range of costs and benefits of airport growth including commercial opportunities on non-operational land holdings;

Enable airport operators and others to assess local social and environmental impacts (including those arising from land take and habitat loss) and provide an opportunity to develop preliminary proposals on how those impacts could be mitigated.

CASESTUDY ONE ABERTIS/TBI AIRPORTS

- 1 London Luton Airport Project Odyssey
- 2 London Luton Airport Pier A and Airside Departures concourse
- 3 Cardiff Airport Baggage Reclaim
- 4 Belfast International Airport Check-in Hall



CASESTUDY ONE

ABERTIS/TBI AIRPORTS

London Luton Airport

In 2005, London Luton Airport commissioned the company to carry out master planning for expansion from 10mppa up to 17.5mppa within the current airfield boundaries. From this, a £400m detailed scheme design was prepared for a major expansion to the existing terminal including 2 no. additional piers, a 3000 space MSCP with an underground APM terminus linked to the terminal, additional aircraft parking aprons, a new Taxiway and 2no. RETs. However, due to a change of ownership, a major optioneering exercise followed to further maximise the site and over a period of 6 months the design team produced a new study for an incremental expansion up to 22mppa.

In 2012, a revised scheme design was submitted to the planning authorities for a £100m development to increase the passenger throughput capacity to 18mppa which included a £55m terminal expansion with a new pier. Planning permission was received in 2013 and this terminal extension is currently on-site with completion due in 2017.

Belfast International & Cardiff Airports

TBI commissioned the company to prepare, in conjunction with the rest of the design teams and other specialists, the Government White Paper Master Plans for Belfast International Airport and Cardiff Airport. The Belfast proposal included a new Terminal with piers, additional aircraft parking aprons, car parks for expansion from the existing 5mppa to 12mppa over the 20 year period and a major business park within the airport environs.

We are currently commissioned to prepare a further 2016 Strategic Master Plan for Belfast International.

The Cardiff proposal included an extension to the Terminal with piers, additional aircraft parking aprons, car parks including a multi-storey for expansion from the existing 2mppa to 8mppa over the 20 year period and a business park within the airport environs.

Hajj Terminal, Jeddah, Saudi Arabia

In 2006, the company (led by director Gary McConville) was commissioned by TBI and their Saudi Arabian partner, the Alesayi Group, to prepare a fully designed bid for the new Hajj Terminal at King Abdulaziz International Airport, Jeddah, KSA for a BHR throughput of 3800pph arrivals & 3500pph departures.

The design and technical assessment of our scheme design gained the highest bid score by a margin of 15% but the Binladin Group succeeded in winning the bid as a result of their financial proposal.

Bratislava, Slovakia

The company (led by Head of Aviation, Shaun Ferguson) was commissioned by TBI to prepare a full terminal and airfield master plan for a bid to expand Bratislava Airport, Slovakia from a current throughput of 1mppa up to 10mppa capacity on a phased basis with a surrounding cargo complex, a logistics park, business park, new railway terminus, and a factory outlet complex.

As in all of the above, collaborative working with the client body, airport stakeholders, the design team and other interested parties was a key component of the success of this work sequence. Very frequent meetings with all parties as part of a structured approach to optioneering combined with qualitative aviation experience.

CASESTUDY ONE ABERTIS/TBI AIRPORTS

- 5 Bratislava Airport Master Plan aerial view
- 6 Stockholm Skavsta Master Plan
- 7 Belfast International Airport Baggage Reclaim
- 8 Proposed Hajj Terminal Check-in Hall, Jeddah
- 9 London Luton airport Landside Departures



CASESTUDY TWO BRISTOL AIRPORT

2

At Bristol airport, the company has worked on over 90 projects, large and small ranging from the successful achievement of planning permission for an £180m development of Bristol airport in 2011, the completion to date of approx. £50m of major Terminal works on site through to minor works such as refurbishment of toilets, preparation of directional signage/ way finding maps, individual room refurbishments.

Currently a further £18m West extension to the Terminal is on site for completion early 2017.

In 2008, the company was appointed to prepare a master plan and subsequent planning application for the development of Bristol Airport. Currently operating at that time with a passenger throughput of around 6mppa, the airport forecast that passenger numbers would continue to rise with a throughput of 10mppa forecast for 2019.

This equated to a rise in air transport movements (ATM) to around 85,000 per year by 2019. BIA Ltd. required additional infrastructure to accommodate this anticipated growth in passenger numbers and aircraft movements with a key aim to provide an enhancement of the airport itself and the immediate locality, including improved landscaping and biodiversity within the site, enhanced

lighting across the site, a commitment to reduce energy use within buildings and improvements to surface access to the airport.

In essence, the proposals were to be designed to accommodate the estimated capacity whilst:

- Creating a high quality 'asset' for the region.
- Maximising the efficiency of the existing site and Terminal building.
- Carefully integrating existing and new components to create a unified scheme.
- Employing best current practice in terms of sustainable airfield facilities.
- Planning for long term needs with inbuilt flexibility.
- Enhancing the passenger and staff experience.

Very early in the project, a series of studies informed the process and included a full assessment of existing context, a capacity study of the same by the company split into individual sub-system studies, research into the social & economic context including inward investment, competitiveness, regeneration, local economic benefits and an assessment of planning policies, both nationally and locally.

Benchmarking of similar sized airports to that proposed (Birmingham, London Luton, Glasgow, Edinburgh) was also carried out for processing sub-systems. Initially the master plan for the whole airfield was developed on a macro scale but the design of the terminal building expansion and piers was obviously optioneered in detail as the main terminal is a system of interactive components, each of which needs to be planned to provide a balanced passenger process from forecourt / car parks through to aircraft.

The main components comprise:

- Terminal road system including drop off and pick-up areas;
- Landside departures concourse including check-in, baggage facilities, waiting area, catering and shops;
- Security search;
- Airside departure lounge, including seating, shops, catering and airline lounges;
- Departure gates and passenger transfer to aircraft;
- Arrivals gates;
- Immigration;
- Baggage reclaim and customs;
- Arrivals concourse; and
- Offices, storage and accommodation for airport companies.

The main terminal extensions, new walkways & piers, a 3600 space multi-storey car park with transport interchange linked to the terminal, a Biomass Energy Centre, and new Fire station were developed to scheme design stage while new administration block (4,000 sq.m.), airport services support, Motor Transport, flight catering, Snow Base, Royal Mail Airhub, and car rental complex buildings were developed to outline stage.

Expansion of the aircraft parking aprons with acoustic barriers, taxiway widening, runway turning heads, RESA improvements and a general aviation zone were incorporated in the master plan. An access design philosophy was established and incorporated and a landscaping master plan drafted with a design palette for reserved matters based on agreed design principles.

CASESTUDY TWO BRISTOL AIRPORT

- 1 Central Pier Boarding Lounge
- 2 Central Pier
- 3 Proposed Multi-storey Car Park
- 4 East Terminal Extension
- 5 Airside Departures Area
- 6 Airside Departures Area
- 7 East Walkway



CASESTUDY TWO BRISTOL AIRPORT

- 8 West Terminal Extension
- 9 Bridge link from MSCP
- 10 New Hangar
- 11 West Terminal Extension
- 12 Proposed Multi-storey Car Park



CASESTUDY THREE

LONDON LUTON AIRPORT

3

London Luton Airport is London's 4th largest airport with a throughput of over 15 million PAX. In 2001 we were commissioned to design a segregated walkway to serve 11 aircraft stands. The existing route from the terminal to aircraft required passengers to cross a main airside road leading to the baggage reclaim area. We worked closely with the airport and easyJet to develop various solutions to the problem. During this process the concept of Pre-Board Zones (PBZs) was born and London Luton Airport became the first airport to use PBZs. A concept which has been successfully replicated in other airports across Europe.

We were commissioned in 2004 to design a major terminal extension at Luton to include: additional contact stands, a new 7 gate pier, completely re-configure the airside terminal with a new departures retail area, a new immigration hall, 9 x-ray passenger screening facility, rationalization of existing baggage halls and a new landside arrivals hall with onward travel centre.

The new passenger screening area, new retail area, new pier and new immigration facilities had to be operational for the summer season of 2005 which resulted in an extremely fast-track project with close cooperation from the Design & Build contractor. As it was not possible to close any part of the airport during the construction it was vital to design and phase the works in such a way to minimise disruption to passengers and the operation of the airport. The passenger screening facility and equipment moved overnight allowing for uninterrupted operation and passengers were routed around their old facility while it was reconfigured.

The £25m project was fully completed in 2005 and has proved highly successful in its operation and has greatly increased the level of passenger experience.

We were subsequently retained to develop a series of proposals for a major terminal and airfield extension that would allow the airport to increase its capacity by up to 18 mppa.

This included infrastructure and land use design, incorporating both aerodrome and adjacent business park proposals. Each scenario was accompanied by a capacity model which provided various business case and peak spreading options to align with the same and each scenario and its sub-phases were costed and incorporated into a financial model.

Optioneering proposals included:

- Terminal extensions and reconfiguration including options for major replacement of existing sections of the terminal
- 2 no. new piers
- Apron and taxiway expansion to accommodate 54 aircraft
- New rapid transit link between the train station and terminal buildings
- Underground links between the terminal building and long term car parks
- Underground road access to a development site to the East of the airport

The chosen Master Plan (Project Curium) was submitted for planning permission in 2012 and was granted permission in 2013.

The proposal included:

- Terminal extensions and reconfiguration
- 1 no. new pier
- Apron expansion to accommodate 48 aircraft stands
- New multi-storey car park
- Extended surface car parks
- Parallel taxiway extensions

The company is now part of a Design & Build team currently implementing the construction stage of the development on site.

CASESTUDY THREE LONDON LUTON AIRPORT

- 1 Project Curium Master Plan 2012
- 2 Project Curium Landside Arrivals Area
- 3 Project Pegasus Pier A
- 4 Project Pegasus Airside Departures Area
- 5 Project Curium Terminal Extension
- 6 Project Curium Terminal Extension



CASESTUDY THREE LONDON LUTON AIRPORT

- 7 Link Building A and Departures Building
- 8 Pier A
- 9 Link Building A
- 10 Pre-Board Zone
- 11 Departures Retail Area
- 12 Project Curium Central Terminal Area



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