



# BRISBANE AND CAIRNS CONTROL TOWER LIFE EXTENSIONS

## SUBMISSION 1.0

STATEMENT OF EVIDENCE  
TO THE  
PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS

AIRSERVICES AUSTRALIA  
CANBERRA ACT  
AUGUST 2015

*This page has been intentionally left blank*

## Table of Contents

<b>1.</b>	<b>Project Title .....</b>	<b>4</b>
<b>2.</b>	<b>Background.....</b>	<b>4</b>
	2.1 Context.....	4
<b>3.</b>	<b>Need for the Works .....</b>	<b>5</b>
	3.1 Project Description.....	5
	3.2 Identified Need.....	5
	3.3 Options Considered to Fulfil the Identified Need .....	6
	3.3.1 Do nothing.....	6
	3.3.2 Upgrade and refurbish facilities .....	6
	3.4 Related Works .....	6
	3.5 Heritage Considerations .....	6
	3.6 Environmental Impact Assessments.....	6
	3.7 Impact on Local Community .....	7
	3.8 Stakeholder Consultation.....	7
<b>4.</b>	<b>Purpose of Works .....</b>	<b>7</b>
	4.1 Project Objective.....	7
	4.2 Site Selection .....	8
	4.3 Project Scope.....	8
	4.3.1 Brisbane Tower.....	8
	4.3.2 Cairns Tower.....	8
	4.3.3 Zoning and local approvals.....	8
	4.3.4 Applicable legislation .....	8
	4.3.5 Applicable codes and standards.....	9
	4.3.6 Planning and design concepts.....	9
	4.3.7 Mechanical and electrical services .....	9
	4.3.8 Fire protection and security measures.....	9
	4.3.9 Acoustics.....	9
	4.3.10 Water and energy conservation measures.....	9
	4.3.11 Provisions for people with disabilities .....	9
	4.3.12 Work, health and safety measures .....	10
<b>5.</b>	<b>Cost Effectiveness and Public Value .....</b>	<b>10</b>
	5.1 Project Budget .....	10
	5.2 Details of Project Delivery System.....	10
	5.3 Construction Program/Project Schedule.....	11
	5.4 Revenue.....	11
	5.5 Public Value .....	11
<b>6.</b>	<b>Acronyms .....</b>	<b>11</b>

## 1. Project Title

Brisbane and Cairns Control Tower Life Extensions.

## 2. Background

Airservices Australia (Airservices) is a Government-owned organisation responsible under the *Air Services Act 1995* (the Act) for the provision of air traffic management, air navigation support (communications infrastructure, radar and navigation aids) and aviation rescue fire fighting (ARFF) services to the aviation industry.

Airservices manages the airspace stretching in latitude from two degrees to 90 degrees south and in longitude from 75 degrees to 163 degrees east, which equates to around 11 percent of the world's total airspace.

Forecasts for aviation traffic growth indicate passenger numbers in Australia's region will grow by as much as 60 per cent by 2030. This growth, along with extra-long haul airline operations, new military aircraft capabilities, the increasing use of remotely-piloted aircraft, and the limitations of legacy infrastructure, presents a significant capability challenge for Australia in the medium term. New infrastructure projects such as new runways and terminals at existing airports, new airports to serve major cities, new aircraft fleets, and new technology in aircraft and ground systems are being rapidly introduced.

Airservices revenue is derived from provision of services for air traffic control (ATC) and ARFF. This revenue funds our operating expenses and our investment in capital works and other projects on behalf of the Australian Government and the aviation industry. We return a dividend to government each year.

We liaise directly with our airline customers to negotiate our Long Term Pricing Agreement (LTPA) which is endorsed by the Australian Competition and Consumer Commission (ACCC) and monitored by industry stakeholders through a Pricing Consultative Committee (PCC).

Capital expenditure is in alignment with the LTPA. The capital expenditure program remains balanced between rebuilding and maintaining core capabilities and the introduction of new services and initiatives to support forecast growth in the aviation industry.

### 2.1 Context

Airservices provides air traffic control services from two Air Traffic Services Centres (ATSCs) in Melbourne and Brisbane and 29 control towers at international and regional airports. Some local approach and departure services are also provided from terminal control units currently located in Adelaide, Cairns, Perth and Sydney. Australian airspace is currently divided into a Northern Flight Information Region (FIR), controlled from the Brisbane ATSC and a Southern FIR controlled from the Melbourne ATSC (refer figure 1).

A key strategy to enable Airservices to meet the estimated increase in air traffic and to cater for safe and efficient future airport operations (such as the proposed parallel runways at Brisbane), is an upgrade of the technology and equipment available to tower controllers. New technology, known as the Integrated Tower Automation Suite (INTAS), is being progressively implemented at all out towers and will combine flight and operational data, surveillance and voice communications into a single integrated, tower-specific system. It will replace manual systems dating back to the construction of many towers, in some cases over 40 years ago.



Figure 1: Airmen tower locations

INTAS will greatly enhance the provision of air traffic management at airports. By transitioning away from manual, paper based systems, tower controllers will be able to concentrate more on the visual surveillance of the airport and aircraft, which supports increased situational awareness and enhanced safety.

INTAS is being progressively rolled out to the towers in readiness for a new Civil-Military Air Traffic System (CMATS). Under the OneSKY Australia Program, CMATS is the joint solution of Airmen and the Department of Defence that will bring together civil and military air traffic control under a single harmonised air traffic management system. CMATS will be installed into the ATSCs and terminal control unit facilities and will need to interface with INTAS for tower operations.

The building and infrastructure upgrade of Brisbane and Cairns towers is a key dependency for installation of INTAS technology.

### 3. Need for the Works

#### 3.1 Project Description

This submission is for the refurbishment of the Brisbane and Cairns air traffic control towers. It will include refurbishment of the existing facilities and upgrading the supporting infrastructure to extend design life at both locations.

#### 3.2 Identified Need

The Brisbane and Cairns towers were built in 1987 and 1990 respectively. The internal fit out and supporting infrastructure is largely from the original installation and is at the end of its design life.

Independent engineering assessments conducted at both towers identified that the building services systems (electrical, mechanical, fire suppression) are at the end of their life expectancy, some components of the facilities do not meet current building codes and standards, work health and safety standards or environmental sustainable design requirements, and there is the likely presence of hazardous materials within the building structures

The engineering assessments also identified that the existing building infrastructure has insufficient capacity to cater for the implementation of system upgrades, including INTAS. The existing lights and blinds at Brisbane and Cairns towers do not have the automation capability to interface with INTAS in order to provide effective control of the lighting in the tower cabin. The new INTAS operator consoles

will provide access to environmental controls for manipulating task lighting and controlling window blinds.

### **3.3 Options Considered to Fulfil the Identified Need**

The options considered by Airservices to rectify deficiencies in capacity, functionality and compliance of the Brisbane and Cairns towers were to maintain existing facilities (i.e. do nothing) or to upgrade and refurbish existing facilities.

#### **3.3.1 Do nothing**

The option of maintaining the existing facilities without significant refurbishment was discounted as the tower fit out and building services are unable to support future capability needs, including the installation of INTAS.

In addition, there is an increasing risk of failure and potential loss of services. The facilities would also remain non-compliant with building codes and standards and environmental sustainable design requirements. Airservices staff would continue to be exposed to increased levels of risk associated with known workplace health and safety issues.

#### **3.3.2 Upgrade and refurbish facilities**

Upgrading and refurbishment of existing facilities at both locations was chosen as the preferred option. While it does involve a significant investment into the facilities this option:

- provides a building life extension of another 15 years
- ensures reliability, availability and maintainability of mechanical and electrical infrastructure
- provides infrastructure capacity to facilitate the implementation of future systems (i.e. INTAS)
- rectifies non-conformance with building codes and standards
- addresses all identified workplace health and safety issues, including removal of hazardous materials
- modernises the standard of accommodation and amenities for staff to meet current legislative and efficiency standards.

### **3.4 Related Works**

There are no other projects referred to the PWC directly related to this project. The INTAS rollout at towers is reliant on this project to provide the required infrastructure necessary for the INTAS implementation.

### **3.5 Heritage Considerations**

The construction works will take place on existing Airservices compounds on already disturbed land. As such, the impact to cultural heritage has been assessed as negligible.

### **3.6 Environmental Impact Assessments**

As the refurbishment is taking place within Airservices compounds and existing buildings, there are no anticipated environmental impacts associated with the construction works, with the exception of disposal of existing infrastructure. Disposal of waste would be in accordance with the *Environment Protection (Prescribed Waste) Regulations 1998*, therefore the impact would be low.

The main impact during construction would be noise, primarily for Airservices staff. Work plans will be subject to approval from ATC management and Airservices safety specialists, including mitigation strategies to be put in place for any works that are deemed disruptive. This could include scheduling work outside maximum use hours as designated by ATC.

The construction activities will comply with each airport's environmental management procedures. This includes the construction contractor preparing a Construction Environmental Management Plan (CEMP) for approval by the Airport Environment Officer.

The final result of the project will have a positive environmental impact through buildings that have implemented energy and water efficient equipment and features, thus minimising energy usage.

### **3.7 Impact on Local Community**

All refurbishment and upgrade activities will be conducted within the existing Airservices compounds at the Brisbane and Cairns airport precincts. As such, there are no expected impacts on the local community or the travelling public.

A beneficial impact is the generation of temporary employment opportunities for building contractors to support the project.

### **3.8 Stakeholder Consultation**

The facilities are located within areas of land leased by Airservices from Brisbane and Cairns Airports, and extensive consultation has been undertaken with the airports about the proposed project.

Airservices charges airlines and aircraft operators for the use of its services and this revenue funds its operating and capital expenditure requirements. Both the capital expenditure and prices are subject to extensive consultation with these customers and with other affected stakeholders (including airport owners). The prices for these services are regulated by the ACCC under the Prices Surveillance sections of the Competition and Consumer Act 2010. Under this regulatory arrangement, the ACCC also consult with Airservices customers and stakeholders to assess whether Airservices capital expenditure is at an appropriate level (i.e. fit-for-purpose with no excess).

Airservices has also kept the Civil Aviation Safety Authority and Department of Infrastructure and Regional Development informed of the project as part of our regular stakeholder engagement. Internal consultation has also been extensive with air traffic controllers that will use the facility as well as with specialists including engineering, project safety and work health and safety.

## **4. Purpose of Works**

### **4.1 Project Objective**

The objectives of the project are to:

- extend the building and infrastructure life of the Brisbane and Cairns towers for an additional 15 years
- improve infrastructure and equipment reliability, availability and capacity to meet current and future requirements (including implementation of INTAS)
- provide contemporary and fit-for-purpose accommodation for staff that meets legislative requirements, building codes and standards and Airservices accommodation guidelines.

## 4.2 Site Selection

The proposed works will be undertaken within the existing ATC tower buildings at Brisbane and Cairns airports.

## 4.3 Project Scope

### 4.3.1 Brisbane Tower

The scope of work for the Brisbane tower upgrade includes:

- general refurbishment of the control tower, including roof repairs, painting and treatment of corrosion, and a fit out and refurbishment of the interior
- mechanical upgrades including replacing the Heating Ventilation and Air Conditioning (HVAC) system, replacing the Building Control and Monitoring System (BCMS) and replacing fuel and hydraulic systems, including hot and cold water systems
- electrical upgrades including assessment ( and if necessary replacement of) the power supply system and replacing existing distribution boards and switchboards
- extensive updates to fire protection systems, including replacement of fire indication panels, replacement of the fire warden intercom phone and upgrading the fire and smoke detection systems in the tower as well as replacing the fire doors.

### 4.3.2 Cairns Tower

The scope of work for the Cairns tower life extension includes:

- general refurbishment of the control tower, new task (spot) lighting and provision of new automated blinds to each of the glazed sections in the control cabin
- general Control Tower Complex (CTC) Refurbishment
- modernisation of the radio equipment room
- modernisation of the CTC power house providing uninterruptable power for the facilities
- modernisation of the administration area.

### 4.3.3 Zoning and local approvals

The proposed projects at both locations will take place in an area of land leased by Airservices from Brisbane and Cairns Airports in accordance with the approved Airport Master Plans.

Airservices requires various building approvals from the airports. Early consultation and advice on these approvals has already been sought.

### 4.3.4 Applicable legislation

The following key legislation is applicable to this project:

- *Air Services Act 1995*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Airports (Building Control) Regulations 1997*
- *Airports (Environment Protection) Regulations 1997*
- *Aviation Security Act 2004*
- *Fair Work (Building Industry) Act 2012*
- *Building and Construction Industry Improvement Act 2005*



- *Work Health and Safety Act (WH&S) 2011*
- *Fair Work Act 2009*
- Queensland State Planning Policy

The project also needs to be consistent with Brisbane and Cairns Airport Master Plans and airport environmental policies.

#### **4.3.5 Applicable codes and standards**

The design of the new facilities will comply with all relevant sections of the National Construction Code (NCC), Building Code, Airservices Environment Strategy and Airservices accommodation standards.

#### **4.3.6 Planning and design concepts**

The planning and design considerations for the project include:

- design life of 15 years
- meeting of all applicable government legislation, regulations, building codes and standards
- accommodation layouts that meet work health and safety standards, Airservices office accommodation standards and ATC operational requirement;
- INTAS equipment requirements

#### **4.3.7 Mechanical and electrical services**

The project will include an upgrade of electrical, heating and air conditioning systems which will meet current building codes and standards, as well as Airservices engineering requirements for ATC systems and buildings.

The upgraded electrical services will improve reliability, maintainability and availability performance for current requirements, as well as provide the configurations and capacity required for INTAS.

#### **4.3.8 Fire protection and security measures**

The Brisbane project will include an upgrade to fire protection services to make it compliant with relevant codes and standards.

#### **4.3.9 Acoustics**

The refurbishment will take into consideration an appropriate level of acoustic treatment consistent with the provision of a suitable working environment for air traffic controllers and buildings on an operational airfield.

#### **4.3.10 Water and energy conservation measures**

Airservices is committed to ecologically sustainable development and reduction of greenhouse gas emissions. The Airservices Environment Strategy has requirements to minimise the risk of pollution and reduce energy, water and waste impacts at facilities.

The project will meet all applicable government legislation, regulations, building codes and standards and Airservices requirements in relation to water and energy use and management

#### **4.3.11 Provisions for people with disabilities**

Preliminary advice from Brisbane and Cairns Airports is that the proposed works may be exempt from the Australian standards and codes relating to the *Disability Discrimination Act 1992* based on the control towers being considered 'special purpose' buildings.

Design documentation will require approval the Airport Building Controller of both airports prior to the works commencing, including compliance with all relevant legislation.

#### **4.3.12 Work, health and safety measures**

The proposed facilities will comply with Airservices safety management system and workplace health and safety policies and procedures as well as the *Work Health and Safety Act 2011*.

Project safety and work health and safety specialists within Airservices will be engaged on the project to undertake work health and safety, and project safety assessments to ensure all impacts are identified and correctly managed.

In accordance with the *Building and Construction Industry Improvement Act 2005*, building contractors will be required to hold full occupational health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Occupational Health and Safety Accreditation Scheme.

The construction site will be within a restricted area and will be appropriately secured to prevent unauthorised access during the refurbishment period. No special or unusual public safety risks have been identified.

## **5. Cost Effectiveness and Public Value**

### **5.1 Project Budget**

The overall budget of the proposed works is estimated at \$23.9 million, made up of \$9.98 million for Brisbane and \$13.95 million for Cairns (all exclusive of GST). The budget incorporates all construction costs, labour, travel and a risk and contingency provision.

A detailed breakdown of the cost of the main elements is provided in the confidential cost estimate submitted separately (Submission 1.1).

### **5.2 Details of Project Delivery System**

All projects in Airservices are managed in accordance with Airservices *Project Management Instruction (PMI)* which is based on four project life-cycle phases – initiating, planning, executing and closing. An independent ‘gate’ review is conducted at the end of each phase to ensure readiness to proceed to the next phase.

Airservices Project Managers and a project support team have been appointed for this project which is currently in the planning phase. In order to meet specific legislative and internal requirements, Airservices has developed a number of management systems that comprises policies, procedures and accountabilities in areas such as safety management, systems engineering management, environmental management, operational management, risk management and financial management. All projects must comply with these management systems, which includes engaging resources from each specialist area to develop management plans, document, validate and sign-off requirements, approve final designs, work plans and other deliverables. Specific engineering roles within Airservices have delegated power under the *Air Services Act* and associated legislation to approve engineering requirements, designs and commissioning readiness.

Resources within procurement, legal and finance area are also engaged to manage procurement activities and oversee project finances.

External resources include consultants during the planning phase for cost and design planning. For the executing phase, a prime construction contractor will be appointed under a design and construct contract via a tender process. Independent consultants, such as a quantity and building surveyor, will be engaged via the Airservices preferred supplier panel.

### 5.3 Construction Program/Project Schedule

Subject to PWC approval, the construction work for Brisbane Tower is intended to commence in late 2016 and be completed by mid-2017, and the construction work for Cairns Tower is intended to commence in early 2016 and be completed by late 2016.

### 5.4 Revenue

Airservices currently receives revenue for the provision of ATC services. The revenue arrangements will not change as a result of this project.

### 5.5 Public Value

The public will benefit through Airservices ability to implement modern technology and deliver air traffic control services that enhance the safety and efficiency of airport operations.

The refurbishment and upgrade of supporting infrastructure to current regulations, standards and guidelines enables Airservices to increase its ability to improve its environmental performance, further contributing to a reduced level of emissions.

The project will generate a significant amount of short-term employment in both regions within the office fit-out and building infrastructure sectors.

## 6. Acronyms

Acronym	Description
ACCC	Australian Competition and Consumer Commission
ARFF	Aviation Rescue and Fire Fighting
ATC	Air Traffic Control
ATSC	Air Traffic Services Centre
BCMS	Building Control and Monitoring System
CMATS	Civil-Military Air Traffic System
CTC	Control Tower Complex
HVAC	Heating Ventilation and Air Conditioning
INTAS	Integrated Tower Automation Suite
LTPA	Long Term Pricing Agreement
NCC	National Construction Code
PCC	Pricing Consultative Committee
PMI	Project Management Instruction
PWC	Parliamentary Standing Committee on Public Works