airservices

Air Traffic Management Services Plan
2013–18

connecting australian aviation

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About this plan

Airservices Air Traffic Management Services Plan 2013–18 outlines the operational, environmental and economic context for the provision of one of our core services to industry.

The plan aligns changes in air traffic management with regulatory requirements and infrastructure implementation. This will allow us to meet global, regional and local performance expectations – particularly in the safety, environment and demand and capacity management areas – while ensuring that our service provision has cost-effective sustainability to deal with future aviation and economic growth.

Our service delivery environments

Our mission is to provide safe, secure, efficient and environmentally responsible air traffic management services.

The current plan continues to reinforce the delivery of our services through the service delivery environment framework – East Coast Services, Regional Services and Upper Airspace Services. These remain the preferred means of matching the management of services to expectations through this planning period.

The continuing and projected growth in air traffic presents increasing complexity to the operating environment. In preparing to effectively manage demand and capacity, maintain safety as the highest priority, minimise environmental impacts and develop and implement future capabilities, we continue to reform our operations. Through our vision, mission and values we aim to optimise the management of Australia's airspace and the use of aviation infrastructure and technology.

In response to the ongoing growth at capital cities and other major regional airports, we have established a dedicated Demand and Capacity Management division that works collaboratively with airlines and airports primarily to improve air traffic flow management.

Meeting customer demand and expectations

We will continue to focus on connecting the aviation industry and developing new levels of cohesion in our relationships that are necessary to create opportunities to meet the challenges ahead.

Through our Services Charter, we seek to engage stakeholders in a common understanding and agreement of current and future service delivery requirements and expectations, in a way that allows our performance to be effectively measured.

Our aim is to meet, or exceed, the performance expectation of our stakeholders.

Overview

Our *Air Traffic Management Services Plan 2013–18*:

- considers the external and internal influences
- lists our main challenges
- describes our service delivery environments
- provides key service outcomes for those environments
- identifies the expected aviation activity growth and demand for our services
- identifies the high level air traffic management goals for each service
- provides a high level view of operational improvements and the supporting initiatives
- provides an insight into the future.

Developing the plan

In developing this plan, we have taken into account international and national strategic, tactical and operational developments and plans.

External drivers

The plan supports agreed international and domestic air traffic management concepts and practices as currently outlined by the *Global Air Navigation Plan (GANP - Doc 9750)*, the *International Civil Aviation Organisation (ICAO) Global ATM Operational Concept (GATMOC - Doc 9854)* and the *ICAO Global Air Navigation Asia Pacific Regional Plan (Doc 9673)*. It is also commensurate with the future direction and intent of the *ICAO Global Air Navigation Capacity and Efficiency Plan - 2013–2028*[1].

This plan is consistent with the National Aviation Policy White Paper, the Australian Airspace Policy Statement, the Ministerial Statement of Expectations and aligns with the Australian Strategic Air Traffic Management Group (ASTRA) Australian Air Traffic Management Strategic Plan.

Internal drivers

This plan supports and contributes to a series of strategic and operational goals within Airservices.

The Airservices Corporate Plan 2013–18

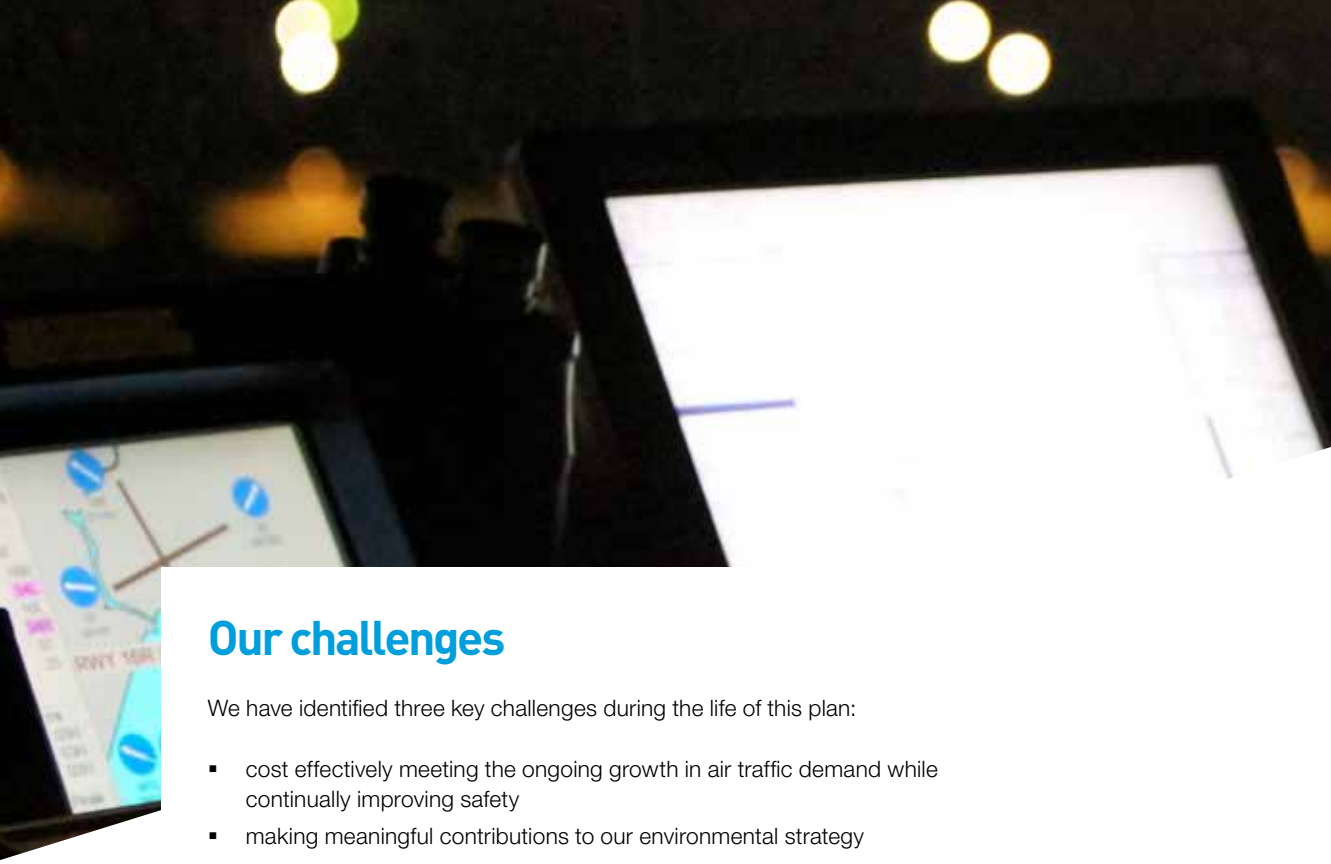
The corporate plan outlines how Airservices intends to progress towards its mission, vision and values over the next five years. Key strategies cover three themes:

- maximising safety performance
- high performing organisation
- core operational and business excellence.

The Airservices Environment Strategy 2011-16

The environment strategy details a number of current and future actions to manage aviation and operational related green house gas emissions and noise impacts to balance the expectations of the community, government and industry.

1. This document is currently in draft and under international consideration.



Our challenges

We have identified three key challenges during the life of this plan:

- cost effectively meeting the ongoing growth in air traffic demand while continually improving safety
- making meaningful contributions to our environmental strategy
- improving our services by working collaboratively on initiatives and projects in areas where value can best be delivered.

Other considerations with an impact on our delivery of this plan include:

- developing a joint operating concept to achieve harmonisation of civil and military air traffic management functions
- capitalising on new infrastructure and technology advances in communication, navigation and surveillance capabilities
- maintaining a skilled workforce that is responsive to change and the challenges ahead.

Developments

Major activities across all service delivery environments during this planning period include:

- optimising runway utilisation and standardising operating practices
- collaborating with airports and airlines to improve the flow of air traffic to and from our major airports to ensure there is a balance between demand and available capacity
- data sharing to improve longer term strategic network planning and predictability and to better manage the tactical daily operational flow of aircraft
- data sharing and enhanced operating practices with adjoining air services navigation providers to improve the seamless (harmonised and consistent) management of services
- further enabling safety and flight efficiency driven by improved airborne performance based navigation and surveillance capabilities, and the implementation of system conflict detection that supports the ongoing implementation of user preferred routes and trajectories
- improving our service delivery efficiencies at regional airports and in regional areas by further enabling the existing radar surveillance capability and closely monitoring the mandatory transition to airborne Automatic Dependent Surveillance Broadcast (ADS-B) capability to expand contiguous surveillance services
- optimising network capacity and working with stakeholders to ensure that safe, effective and efficient service improvements are key outcomes of any investment in technology and large scale airport infrastructure projects
- integrating and harmonising services with the Department of Defence.

The magnitude of these developments also requires us to make step changes in our operational systems, workforce capability, procedures and operating practices.

East Coast Services

Service domain

East Coast Services airspace encompasses the climb, enroute and descent phases of aircraft flights between the major east coast airports in a corridor stretching from Cairns to Adelaide.

Tower services are provided at Adelaide, Melbourne, Canberra, Sydney, Gold Coast, Brisbane and Cairns that cater predominately for medium to large regular public transport aircraft operations.

Tower services are also provided at Avalon and Essendon that cater for a less dense but broader mix of aviation activities and at the secondary general aviation airports at Parafield, Moorabbin, Bankstown, Camden and Archerfield.

Service outcome

Our primary service outcome is delivering safe and optimised gate-to-gate operations between Australia's higher population cities along the corridor that includes the integration of air traffic to and from upper airspace and regional operations.

Our service provides appropriate and timely air traffic flow management to dynamically balance the airport arrival and departure demand at the major airports.

We continue to strive to extract and optimise all latent capacity and to work with stakeholders to improve schedule predictability and minimise airborne delay.

At general aviation and other airports our service outcome is focussed on continuing to provide an environment that fosters high aviation safety standards and professionalism.

Service demand

Passenger numbers are forecast to continue to increase over the next 20 years with BITRE[2] forecasting annual passenger growth of 3.6% for Sydney, 3.9% for Melbourne and 4.2% for Brisbane. The demand for our services will increase accordingly with yearly aircraft movement rates forecast[3] to increase by 2.3% for Sydney, 2.0% for Melbourne and 3.1% for Brisbane.

Government, airport owners and industry recognise that without commensurate increases in airport capacity at these major capital cities there will be a constraint on demand and economic growth.

Delivering operational improvements

We are engaged in a range of projects and initiatives to support the management of demand against the predicted growth in air traffic and the available capacity in the east coast environment.

2. Research Report 133 - Air passenger movements through capital and non-capital city airports to 2030-31
3. Bureau of Infrastructure, Transport and Regional Economics Research Report 117 - Aircraft movements through capital and non-capital city airports to 2029-30

Goal	Initiatives
Continuity of service	▪ Upgrade Eurocat hardware and software. ▪ Enhance control tower services through the provision of new infrastructure, functionality and capability.
Progressing performance based navigation	▪ Implement Smart Tracking. ▪ Review and evolve routes to further integrate aircraft performance based navigation capability into terminal area and runway procedures. ▪ Deploy approach with vertical guidance procedures for runways with supporting infrastructure.
Optimising airport and runway capacity	▪ Implement procedures and practices to increase operational effectiveness of our terminal area and tower services to optimise the use of existing latent capacity. ▪ Implement a cross-industry program to develop procedures and practices to safely minimise runway occupancy times at major airports.
Sustainable all weather acceptance rates	▪ Deploy ground-based augmentation systems where maximum operational benefit can be obtained. ▪ Evaluate the benefits achieved from deployments of Airport Surface Movement Guidance and Control System to optimise ground movements. ▪ Work with airport owners and airlines to optimise airport capacity in adverse weather conditions.
Demand and capacity management	▪ Share data with airlines and airports to improve air traffic flow management, airport demand and capacity balancing and operational predictability. ▪ Implement arrivals and departures management practices based on collaborative decision making process.
Improve airspace organisation and service delivery management	▪ Work with airport owners, airlines and the community to optimise service delivery capability for terminal area and tower services in line with performance based navigation capabilities.
Future developments	▪ Review emerging technologies for their relevance to improving our efficiency and service delivery.

Upper Airspace Services

Service domain

Upper Airspace Services airspace encompasses transcontinental airspace above 28,000 feet beyond the East Coast Services domain, and all trans-oceanic airspace in the Australian Flight Information Regions. It also includes upper airspace managed under contract for the Honiara and Nauru Flight Information Regions. It is the gateway service provider for all international aircraft operations to and from Australia.

Service outcome

Our primary service outcome is the continued deployment of capabilities, practices and procedures to enhance safety and flight efficiency and the expansion of flexible tracking and user preferred routes.

Improved airborne performance based navigation and surveillance (ADS-B) capabilities and the implementation of enhanced system conflict detection underpin our continuous surveillance service and ongoing roll out of user preferred routes.

The seamless management of our services across all phases of flight, including adjoining air navigation service providers, will integrate with national and international long range air traffic flow management requirements building towards a user preferred trajectory environment with improved predictability.

Service demand

International and domestic passenger movements are forecast[4] to increase by 4.9% and 3.3% respectively a year over the next 20 years. International aircraft movements are forecast[5] to increase by 4% and regional movements by 2.2%.

Along with the growth to and from the Asian region, infrastructure, energy and mineral projects in north-west Western Australia, Northern Territory, northern Queensland and Papua New Guinea are also expected to continue to deliver air traffic growth.

International air traffic and airports in regional areas with significant fly-in fly-out workforces will become increasingly integrated with air traffic flow management requirements for east coast airports and Perth Airport.

Delivering operational improvements

We are engaged in a range of projects and initiatives to safely improve service flexibility that supports flight efficiency, seamless services and the interoperability with national and international air traffic flow management.

4. Bureau of Infrastructure, Transport and Regional Economics Research Report 133 - Air passenger movements through capital and non-capital city airports to 2030-31
5. Bureau of Infrastructure, Transport and Regional Economics Research Report 117 - Aircraft movements through capital and non-capital city airports to 2029-30

Goal	Initiatives
Continuity of service	▪ Upgrade Eurocat hardware and software.
Enhance situational awareness and service capability	▪ Wider use of surveillance separation minima to enhance service capability and flight efficiencies supported by the ADS-B program and the CASA regulatory mandate for ADS-B Out aircraft equipage. ▪ Enhance coordination and communication capabilities through exchanging data with adjacent air navigation service providers.
Enhance decision support tools	▪ Deploy Flight Plan Conflict Function to improve conflict detection.
Improve airspace organisation and service delivery management	▪ Improve the seamlessness of our services and flight information region boundary management with our neighbouring air navigation service providers. ▪ Flexible use of airspace through civil/military harmonisation. ▪ Flexible service provision through enhancement of controller capability and the system management of sectors.
Demand and capacity management	▪ Integration with east coast airports and Perth airport air traffic flow management. ▪ Improved sector capacity enabled by surveillance.
Progress performance based navigation	▪ Review route structures that are associated with navigation aids that will be decommissioned. ▪ Facilitate user preferred routes and Dynamic Airborne Re-route Procedures. ▪ Enable agreed outcomes from the User Preferred Trajectory Strategy stakeholder workshops.
Future developments	▪ Transition from a route and sector structure based on terrestrial navigation aids to one based on performance based navigation, surveillance capability and service demand. ▪ Improve strategic and tactical traffic forecasting to enhance services associated with flight efficiency, air traffic flow and workload management. ▪ Review emerging technologies for their relevance to improving our efficiency and service delivery.

Regional Services

Service domain

Regional Services provides air traffic services to lower capacity regular public transport aircraft and general aviation aircraft in transcontinental airspace below 28,500 feet, and below 24,500 feet beneath the East Coast Services domain. It also provides control tower and terminal area services at Perth, control tower service at Jandakot and at regional airports nationwide.

Service outcome

Our primary service outcome is the continued enhancement of services in lower airspace, providing cost-effective terminal area and control tower services for regional Australia and the effective integration of regional traffic into air traffic flow management requirements for east coast airports and Perth.

We will continue to expand our surveillance services and provide enhanced and new services to regional aviation to manage safety, flight efficiency and future growth.

At Perth, our focus is on the provision of appropriate and timely air traffic management to dynamically balance airport arrival and departure demand to optimise the use of available capacity and to improve predictability.

At Jandakot and other regional airports our service outcome is also focussed on continuing to provide an environment that fosters high aviation safety standards and professionalism.

Service demand

Passenger movements through all non-capital city airports are forecast[6] to grow by 3.2% a year and at Perth by 4.4% a year over the next 20 years. For Perth this means a yearly increase in aircraft movement rates of 2.1%[7].

At regional airports we monitor aircraft movements and information from a number of sources to provide intelligence on short and long term factors that may impact on future aircraft movements and therefore the need for our services.

It is evident that demand for higher service levels and new services will continue during the timeframe of this plan and we will be ready to meet these challenges.

Delivering operational improvements

We are engaged in a range of projects and initiatives to support the forecast growth in the regional services environment.

6. Bureau of Infrastructure, Transport and Regional Economics Research Report 133 - Air passenger movements through capital and non-capital city airports to 2030–31
7. Bureau of Infrastructure, Transport and Regional Economics Research Report 117 - Aircraft movements through capital and non-capital city airports to 2029-30

Goal	Initiatives
Continuity of service	▪ Upgrade Eurocat hardware and software. ▪ Enhance control tower services through the provision of new functionality and capability. ▪ Upgrade infrastructure at control towers.
Optimise airport and runway capacity	▪ Implement procedures and practices to increase operational effectiveness of our terminal area and control tower services at Perth. ▪ Implement a cross-industry program to develop procedures to safely minimise runway occupancy times at Perth.
Sustainable all-weather acceptance rates	▪ Work with Perth Airport and airlines on options to maximise airport capacity in adverse weather conditions.
Enhanced situational awareness and service capability	▪ Deploy Airport Surface Movement Guidance and Control System at Perth. ▪ Introduce approach surveillance services at regional airports using existing radar surveillance. ▪ Continue to enable the wider use of surveillance separation minima to enhance service capability supported by the ADS-B program and the CASA regulatory mandate for ADS-B Out aircraft equipage.
Progress performance based navigation	▪ Implement Smart Tracking. ▪ Review route structures that are associated with navigation aids that will be decommissioned. ▪ Deploy approach with vertical guidance procedures for runways with supporting infrastructure.
Demand and capacity management	▪ Enhance air traffic flow management at Perth.
Improve airspace organisation and service delivery management	▪ Introduce control tower services at Port Hedland. ▪ Work with Perth airport and airlines to optimise service delivery capability for terminal area and tower services in line with performance based navigation capabilities.
Future developments	▪ Surveillance services at regional airports using ADS-B supported by the CASA regulatory mandate. ▪ Review remote and virtual tower capabilities for possible deployment at non-controlled airports. ▪ Review emerging technologies for their relevance to improving our efficiency and service delivery.

Demand and capacity management

Service domain

The Demand and Capacity division works with airlines and airports to strategically improve air traffic flow management and to pre-tactically balance demand expectations against network and airport specific capacity. It incorporates the Network Operations Centre (NOC), the Aeronautical Information Service (AIS) and the Procedures Design Service (PDS).

The NOC is a centralised coordination unit, which compiles and distributes short term intelligence, and enables our pre-tactical network operations planning. The coordination includes information on abnormal events with the potential to impact on tactical operations and service continuity. The NOC also provides NOTAM and pilot briefing services.

AIS provide the timely production and distribution of an Australian AIP, AIP SUP, ERSA, DAP, AIC, DAH, aeronautical charts and NOTAMs.

PDS designs and maintains the publication of instrument approaches and departure procedures for 300 aerodromes across Australia, including GPS non-precision approaches and performance based navigation designs such as those specified under various required navigation performance (RNP) criteria.

Service outcome

Our primary service outcome is the optimisation of end-to-end air traffic management performance of the network as a whole by developing and introducing more effective and efficient planning for air traffic flow management and aeronautical information exchanges.

Aeronautical Information Management (AIM) will change our focus from the production of specific products (as is the case for AIS), to the management of aeronautical information. In other words, future information management systems will be designed to comply with global standards on the management and exchange of aeronautical information and become increasing available in real time.

Strategically we will continue to work with various stakeholders to enhance collaborative decision making processes and initiate projects and activities for optimising network and airport capacity to manage demand.

Service demand

The number of aircraft movements through capital city airports is expected[8] to increase by 2.2% a year over the next 20 years. The growth in demand particularly at Melbourne, Sydney, Brisbane and Perth will drive an increase in network complexity and airport congestion. The air traffic flow between the major and some regional airports will become increasingly interdependent. We continue to strive to extract and optimise available network and airport capacity.

Performance based navigation capabilities will generate an increase in demand for varied procedure design types leading to increased output requirement from the PDS.

8. Bureau of Infrastructure, Transport and Regional Economics Research Report 133 - Air passenger movements through capital and non-capital city airports to 2030-31

Delivering operational improvements

Airservices is engaged in a range of projects and initiatives to support the forecast growth and prepare to respond to the service demand expected during and beyond the timeframe of this plan.

Strategically we will work with stakeholders to ensure that safe, effective and efficient service improvements are key outcomes of any investment in large scale airport infrastructure projects.

Goal	Initiatives
Continuity of service	▪ Upgrade National Operations Centre operational architecture to ensure continuity and to meet regulatory compliance requirements.
Optimise airport and runway capacity	▪ Through the Airport Capacity Enhancement program identify under-utilised airport capacity and identify procedures and practices that can be accessed to improve airport traffic flow. ▪ Implement a pro-active approach to arrivals and departure management.
Enhanced network management	▪ Through the Collaborative Decision Making program identify and enable operational improvements and develop systems such as METRON to manage increased traffic demands. ▪ The planning and management of airport operations that allows their full integration into network focussed air traffic management.
Enhanced aeronautical information management and service reporting	▪ Prepare for certification of our AIS to meet the pending Part 175 Civil Aviation Safety Regulations. ▪ Implement a centralised, integrated aeronautical reference data management capability (Project Mercury) to improve aeronautical data quality, integrity and timeliness of delivery. ▪ Implement operational data services to improve our data storage and reporting capability and to make data more readily available to user applications within and external to Airservices. ▪ Progressively move to real-time and predominately self service AIM.
Progress performance based navigation	▪ Continue to develop approach with vertical guidance procedures for runways with supporting infrastructure. ▪ Expand the availability of 'public' required navigation performance (RNP) procedures. ▪ Designate routes with a RNP specification.
Future Developments	▪ Introduce a System Wide Information Management (SWIM) capability over which real time aeronautical information sharing (data distribution) is available. ▪ Develop new terminal area routes associated with additional runways for Brisbane, Melbourne and Perth airports and the Sydney area that optimise performance based navigation capabilities and optimise capacity.

The future

The growth predicted in Australia and South East Asia over the next few years and well beyond the life of this plan will have a significant impact on our current Air Traffic Management systems and our service provision against available airport infrastructure.

The planning and procurement for a next generation air traffic management system is well underway and will provide greater service flexibility and capability to effectively enable future global ATM operational concepts that are relevant to our region.

Our air traffic flow management will mature to regulate traffic flows involving departures, smooth flows and manage rates of entry into airspace serving high density airports, manage arrival times at waypoints or flight information region/ sector boundaries and re-route traffic to avoid saturated or weather affected areas.

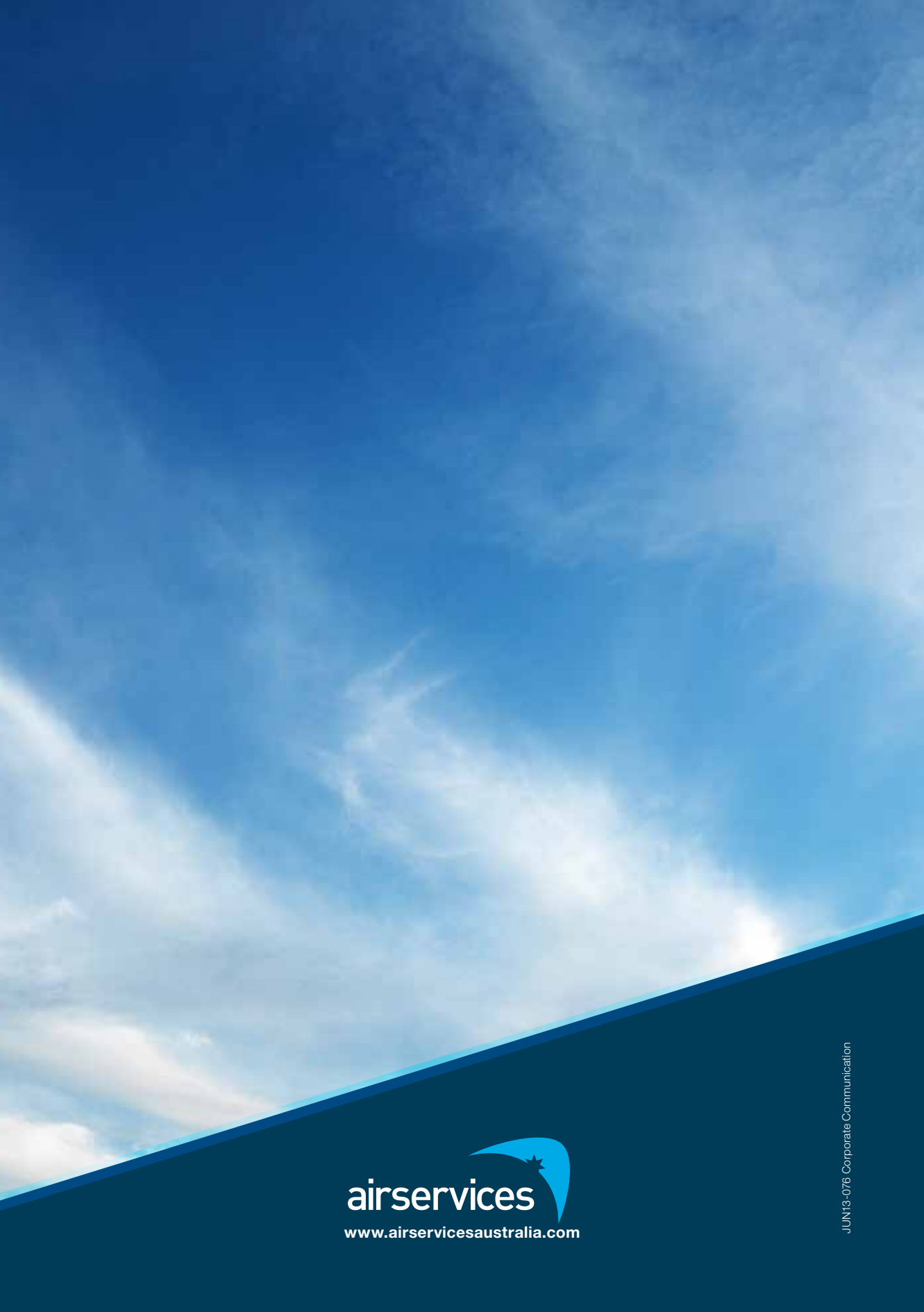
Airport owners are investing in large scale infrastructure upgrades, such as additional runways to enhance capacity that are expected to become available in the 2018+ timeframe. This presents new opportunities for cohesive collaboration with the Australian aviation industry, as a much greater degree of coordination is needed between government, communities and the industry in order to manage the changes to airspace, air routes and services effectively, efficiently, safely and within environmental expectations.

Airlines are investing in fleet upgrades with next generation avionics. Future implementation of performance based navigation in terminal airspace is seen as a key enabler for the advanced terminal operations envisaged by a mature air traffic management modernisation program.

Performance based navigation will enable similar improvements in continental and oceanic enroute operations. Key goals are safely increasing the availability and utilisation of user-preferred profiles and attaining the advantages of more dynamic sectorisation of airspace that supports operational efficiencies while fully integrating with network air traffic flow management.

SWIM and associated services (applications and infrastructure) will enable the creation of an aviation intranet based on standard data models and protocols to maximise real time information management and interoperability.

Our vision is to connect the Australian aviation industry to deliver world best industry performance.



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