



Environment Strategy  
**2011-16**





## Foreword

Airservices Australia (Airservices) is a government-owned organisation providing safe and environmentally responsible air traffic management and related services to the aviation industry. Airservices is recognised world wide as an Air Navigation Service Provider (ANSP) that is both an operational and technical innovator. This reflects the expertise of our staff and the forward looking industry to which our organisation provides services.

In recent times, the way the organisation has managed its environment obligations has come under increased focus. We believe it is essential to improve our environmental performance and to better manage the impacts of aviation on the community that we can control or influence, as well as to capitalise on the opportunities that improved performance can bring to our airline customers.

The focus on developing more sustainable business practices is not just about good environmental stewardship, but is a core business issue reflected in the Airservices Corporate Plan. How the aviation industry responds to the challenges of environmental performance (particularly with regard to noise and emissions) will be an important determinant in its growth and resilience into the future. Airservices' environment strategy is established within this industry context and looks to prepare Airservices to facilitate better environmental outcomes for the industry and the community.

In this strategy, Airservices commits to a set of environmental actions that balance positive environmental outcomes with legislated and other obligations, community expectations, commitment to government policy and efficiency improvements sought by industry. The strategy is supported by a detailed work plan, incorporated in Airservices' corporate planning process and reported broadly through regular updates to industry and the community more broadly through our annual report.

Our goal is to facilitate better environmental outcomes for our customers, stakeholders, the general community and ourselves by improving the environmental performance of our services, infrastructure, operations and people.

I hope that you take the time to read this document and I look forward to reporting on our performance against the strategy outlined.



**Greg Russell**  
**Chief Executive Officer**  
**Airservices Australia**

**20 April 2011**



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# Imperatives for the future

There are two key environmental imperatives that need to be met by the aviation industry in the coming decades - the management of aircraft emissions and aircraft noise.

Airservices is taking action now to minimise greenhouse gas emissions and noise impacts. Indeed, improving performance in these areas are the central tenets of the organisation's approach to improving environmental performance over the next five years. Actions are underway to reduce emissions at high altitudes in airspace over oceans and central Australia. Increasingly attention is focusing on reducing emissions from aircraft operating close to major airports in highly populated areas. The major task for Airservices and our airline and airport partners will be to balance expectations of the community, government and industry regarding the need to reduce greenhouse gas emissions and the flight path noise affected community's demand for reduced noise impacts. The most efficient flight path in terms of fuel consumption may not be the one that has the lowest noise impacts for noise impacted communities.

## Aircraft emissions

Since the start of the jet age, aviation has reduced fuel consumption, greenhouse gas and water vapour emissions by 70% per passenger kilometre. While overall emissions have reduced, concerns over the level of greenhouse gas emissions from aviation remain an issue. Research and development may deliver less carbon intensive fuel over the long-term.

Over time aircraft engines have become more fuel efficient and produce less noise. However, as can be seen in figure 1, individual aircraft performance improvement has been offset by growth in air travel. As the number of flights grows, the impact (real or perceived) on communities in the vicinity of the airports has increased.

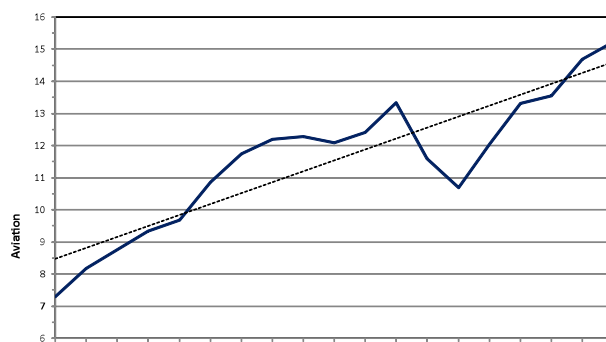
Estimates are that over the next 20 years air travel within the Asia Pacific region will grow on average by 6.5% per annum. By 2028 40% of the world's airline traffic will begin, end or take place within the Asia Pacific region (Boeing, 2009).

The Department of Infrastructure and Transport has provided analysis, as can be seen in figure 2, of the performance of Australia's aviation industry to International Civil Aviation Organisation's (ICAO) Committee on Aviation Environmental Protection (CAEP). It shows that fuel efficiency in Australia, when calculated on the basis of fuel burn per 100 Revenue Passenger Kilometres (RPK) has improved between 2008-09 and 2009-10 at a rate that is broadly comparable with long term industry trends.

Preliminary analysis suggests that fleet replacement, improved load factors and a shift toward a greater proportion of long haul flights have been factors in this improvement.

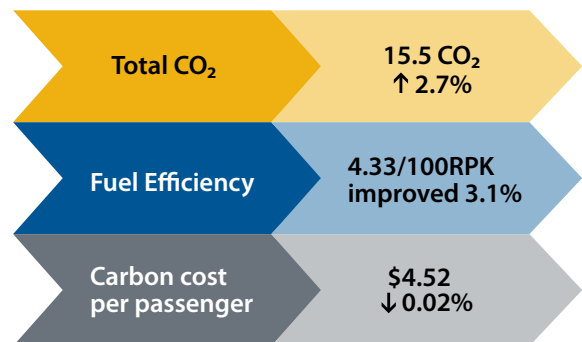
The Civil Aviation Navigation Service Organisation (CANSO) promotes the use of ATM system efficiency as a metric against which ANSPs should seek to measure their performance and

**Figure 1:** Growth in Australia's total carbon emissions from aircraft operations (1990-2008)



Sources: National Greenhouse Gas Inventory 2008, Department of Climate Change (<http://www.climatechange.gov.au/en/publications/greenhouse-acctg/national-greenhouse-gas-inventory-2008.aspx>)

**Figure 2:** Australian Aviation Carbon Footprint



Note: RPK=Revenue Passenger Kilometres  
Source: Department of Infrastructure and Transport

### International drivers to reduce the impact of aviation on climate change

In October 2010, the ICAO assembly which was attended by 176 member states made a series of resolutions which called for:

- improving fuel efficiency by 2% annually to 2050
- striving to achieve a collective medium-term goal of capping aviation's carbon emissions by 2020
- a global CO<sub>2</sub> standard for aircraft engines with a target date of 2013.

### Global CO<sub>2</sub> Emissions

Aviation contribution: 2%

Projected growth in CO<sub>2</sub> emissions from aviation each year: 3-4%

Source: ICAO Environment Report 2010

Air Traffic Management contribution: 0.3%

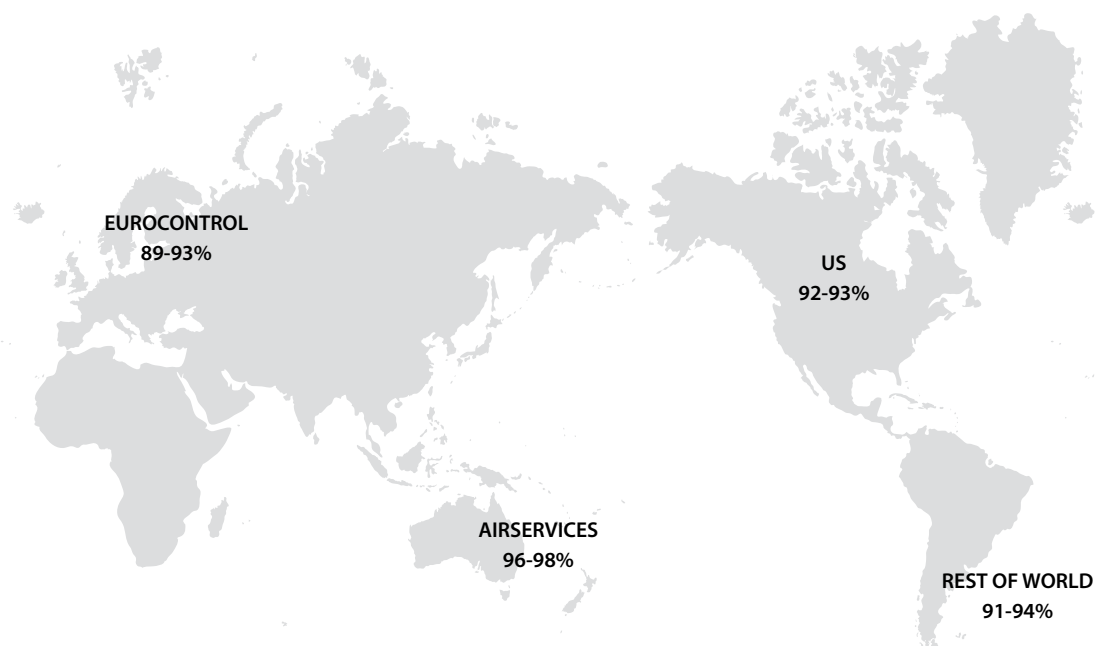
Source: CANSO ATM Global Environment Efficiency Goals for 2050

monitor progress. ANSPs have little control over passenger load factors or the selection of aircraft and their propulsion systems but can control the way they deliver services to customers. Airservices at present has a highly efficient Air Traffic Management (ATM) system in comparison to other regions as can be seen in figure 3.

Increases in traffic will, if not mitigated, impact on the overall efficiency of our services, and this in turn will lead to increased

fuel consumption through track extension and/ or holding. Greenhouse gas emissions are therefore likely to increase at a greater rate than would have been predicted from traffic growth, eroding the impact of fleet replacement and improved load factors. We must therefore take action to understand current system performance and identify and then address areas of inefficiency.

Figure 3: ATM System Efficiency Comparisons



Source: "ATM Global Environment Efficiency Goals for 2050" CANSO December 2008

## Aircraft noise

Aircraft noise is the most significant cause of adverse community reaction to the operation of airports. The significance of this issue was acknowledged by the Commonwealth Senate Enquiry on Airservices Management of Aircraft Noise and the National Aviation Policy White Paper leading to the establishment of the Aircraft Noise Ombudsman. Limiting or reducing the number of people affected by significant aircraft noise remains a key environmental goal for Airservices, ICAO and the entire aviation community.

Balancing the sometimes conflicting goals of minimising noise impacts and assuring reductions in emissions is a world wide issue. This is evidenced by ICAO's Balanced Approach to Aircraft Noise Management, which identifies four elements to address aircraft noise problems in an environmentally responsive and economically responsible way. These are:

1. Reduction of noise at source e.g. quieter aircraft, noise standards
2. Land-use planning and management e.g. zoning, easements, building standards
3. Noise abatement operational procedures e.g. noise preferred routes and runways, limited engine ground running
4. Operating restrictions on aircraft e.g. caps, curfews, quotas. Regarded as last resort and only to be used after first three have been exhausted.

To achieve the greatest environmental benefit for the Australian aviation industry, Airservices must work collaboratively with its industry partners. These partners include the airlines, airports, the government departments who oversight transport and

environment policy and all parts of industry. They all have a role to play in reducing the environmental impact of the aviation industry and building community awareness.

Impact reduction initiatives comprise both technological and operational initiatives that will improve environmental performance in terms of emissions, as well as noise amelioration programs. Examples include aircraft equipage for precision navigation technologies, high precision navigational aids, reviews of pilot and air traffic control operating procedures aimed at noise reduction, differential charging for noisier aircraft or operations during noise sensitive periods, and noise insulation programs. However, it must be noted that technological advances in aircraft navigation systems that enable aircraft to fly tracks more accurately, may place the industry at odds with communities around airports. It is important that appropriate information is available to communities, and in particular those communities directly impacted by noise.

Initiatives that are intended to build stakeholder awareness will focus on: effective management of change, providing fit for purpose information to stakeholders about aircraft noise and operations, and effective engagement with stakeholders. The Community Aviation Consultation Groups are a critical vehicle for these initiatives and are an opportunity for industry stakeholders to work collaboratively, and with the community on local issues. In addition, there are opportunities to improve the information provided to the community to make it more meaningful, informative, transparent and easy to understand. This will be an area of significant focus in the implementation of this Environment Strategy.

## Organisational context

Airservices Australia currently manages airspace covering 11 per cent of the world's surface, providing air traffic operations for around 63 million passengers on more than 4 million domestic and international flights every year.

Our service delivery requires a vast infrastructure network. The organisation owns or leases over one thousand sites which are spread across Australia, including outlying islands such as Cocos in the Indian Ocean and Lord Howe in the Pacific. Some of our facilities have already been recognised for their heritage value (eg Sydney Tower) and many sites are located in areas which are recognised for their unique biodiversity and fragile ecosystems.

The organisation is currently undertaking a major capital expenditure program. Over the next five years over \$900 million will be spent on new or upgraded infrastructure. Such a program poses both opportunities and risks from an environmental perspective. The organisation is also working with the Department of Defence to scope a new Air Traffic Management platform which will be capable of supporting the industry, with its associated environmental requirements.

Airservices employs approximately 3600 people who either directly or indirectly support the provision of services. Staff are employed in 31 geographic locations across Australia. Like the broader Australian community, we are placing increasing value on achieving environmental goals and improving our environmental performance.

# Environmental obligations

The *Air Services Act (1995)* enshrines the requirement for Airservices that it must exercise its powers and perform its functions in a manner that ensures that, as far as is practicable, the environment is protected from:

- (a) The effects of the operation and use of aircraft
- (b) The effects associated with the operation and use of aircraft.

Our Environmental Management System is designed to ensure that the organisation meets its compliance obligations with regard to federal, state and territory legislation. Airservices' obligations also include compliance with relevant buildings standards and obligations as a land-owner or lease-holder, such as Commonwealth and State airport planning and environmental regulations as well as relevant planning and building laws.

Our strategy also addresses obligations in relation to government policy including those presented in National Aviation Policy White Paper and the need to work with industry to meet Australia's international obligations. A major element is the way we engage with communities to ensure their expectations are incorporated within our decision making processes. This includes the opportunity for communities to raise concerns, complaints and compliments. We believe industry leadership in this area will facilitate better community engagement.

## Key Federal Environment Legislation

- Airports Act (1996)*
- Airport (Environment Protection) Regulations (1997)*
- Environment Protection and Biodiversity Conservation Act (1999)*

## Key Federal Environment Plans

- Australian Information and Communication Technology Sustainability Plan 2010-15
- Adapting to Climate Change in Australia: An Australian Government Position Paper (Feb 2010)

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## Explaining and embedding the strategy

The Environment Strategy has four core goals: services, infrastructure, operations and people. Underpinning each of the core goals is a series of focus areas. Each focus area has a specific objective with an independent program of work designed to assure that results:

- are compliant with regulatory and legislative requirements
- deliver a measurable benefit to the organisation or its stakeholders
- is aligned to government requirements and policy
- meet industry and/or community expectations.

All the areas of focus identified require action. In the majority of incidents actions are already recognised and are in progress. Focus areas will be prioritised for action ahead of others if they meet a business imperative or have been required by government.

The areas of immediate focus are: effective management of the impact of noise on the community; effective management of all sites which have been contaminated by fluorosurfactants; and the establishment of a range of lead and lag performance metrics. These and other initiatives are set out in the following Environmental Action Plan

For the potential of this Strategy to be realised, it will be incorporated into all elements of Airservices' business. The Strategy will influence how we deliver services, work with our stakeholders, regulators and the communities surrounding the airports which we service, and what we expect from our staff.

Objectives and initiatives will be embedded in the organisation's strategic and business plans. Each year, business groups will commit to actions to address particular facets of the Strategy, and these will be measured. Progress with initiatives will be reported regularly to the Minister and annually to the Parliament and the Australian people.

The Environment Strategy will be continually reviewed and evolved to assure that it keeps pace with legislative or regulatory requirements or the changing demands of industry.

Airservices' staff have demonstrated commitment to careful management of environmental impacts. We support an ethos of continuous improvement, searching for new ways to identify environmental risks and opportunities and resulting action. This ethos is encouraged by our commitment to effective education and training and rewards for effective contributions to our environmental performance.

# Current performance

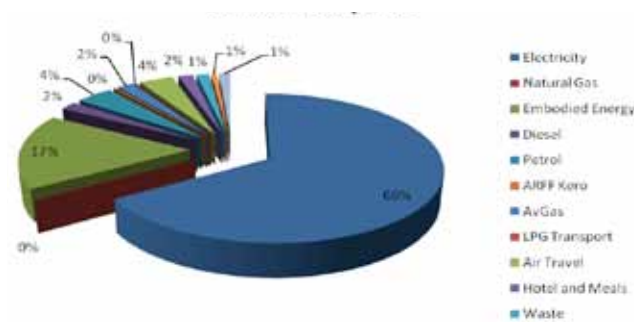
## Services

Sound environmental management is central to Airservices core business and is an important and critical part of our daily operations. Our Environment Management System (and its certification to International Standards Organisation (ISO) 14001) encapsulates how the organisation manages its environmental obligations and works to improve its risk profile.

Airservices has always been at the forefront of operational innovation. Recent innovations address calls from aircraft operators for access to expanded flight levels such as for example Reduced Vertical Separation Minima and more fuel efficient track miles through Flex Tracks. Reduced flight times deliver savings for airlines in terms of fuel burn, and reduce greenhouse gas emissions. Other initiatives such as Automatic Dependent Surveillance- Broadcast (ADS-B) have allowed Air Traffic Controllers to safely reduce separation requirements between aircraft, providing more aircraft with the optimum flight trajectory, and creating efficiencies in fuel consumption.

With regard to land contamination, the organisation has taken a proactive approach. Where land contamination has been linked to Airservices' activities or historical practices, we have endeavoured to ensure our obligations are addressed. We continue to monitor the use of chemicals and substances across the organisation.

**Figure 4:** Carbon footprint



**Note:** Embodied energy refers to the quantity of energy required to manufacture and supply to the point of use a product, material or service. Av Gas is used in support of Navaid inspections.

## Organisational Footprint

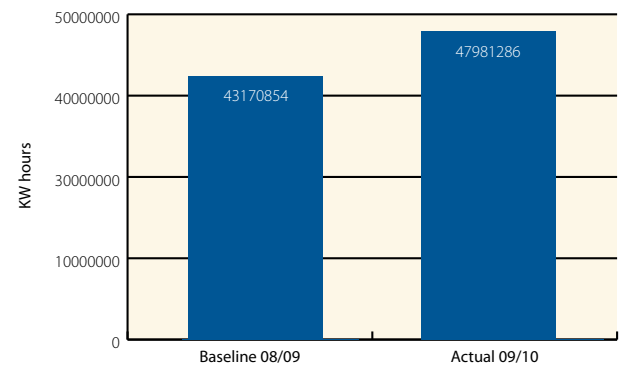
The following graph presents the organisation's carbon footprint as assessed in 2008. Total emissions were calculated as approximately 75,000 tonnes of CO<sub>2</sub>. Airservices consumption of electricity, the key component of our carbon footprint, continues to grow and this is expected to continue given that a number of new energy intensive facilities are planned.

In the 2009-10 Financial Year, Airservices staff flew approximately 19,000 flights covering approximately 24.6 million kilometres with carbon emissions of approximately 7.2 million kg CO<sub>2</sub>.

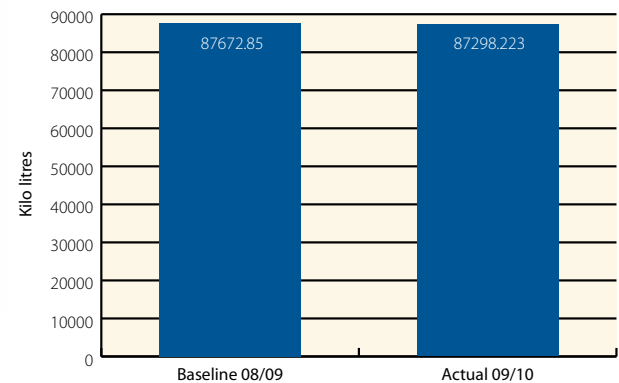
Efforts to reduce the organisation's foot print are ongoing and include:

- reducing our reliance on air travel through substitution with technology
- reduction in water consumption
- reduction in waste being sent to land-fill.

**Figure 6:** Electricity consumption



**Figure 5:** Water consumption



### **Case Study ASPIRE**

In 2008, a multi-lateral partnership was created which now includes Airservices Australia, Airways New Zealand, the US Federal Aviation Administration, Civil Aviation Bureau Japan and Civil Aviation Authority of Singapore. The ASPIRE work program addresses a range of initiatives which aims to improve the environmental efficiency of flights. These include: ASPIRE flight demonstration program, Dynamic Airborne Reroute Program Enhancement, User Preferred Route Expansion, Automatic Dependent Surveillance – Broadcast Oceanic and Remote, Oceanic Separation below 30/30 and Arrivals Optimisation (Continuous Descent Approach/Tailored Arrivals).

[www.aspire-green.com](http://www.aspire-green.com)



# Environmental Action Plan

Focus Area	Current Actions	Future Actions
Aircraft Emissions	<ul style="list-style-type: none"> <li>Optimise enroute flight paths:               <ul style="list-style-type: none"> <li>ASPIRE</li> <li>Flex Tracks</li> </ul> </li> <li>Implementation of more direct, fuel efficient approach and departure procedures</li> <li>Collaborative Decision Making and Approach and Departure Management tools to deliver reduced airborne holding and ground running</li> <li>Baseline Australian aviation emissions to measure future reductions</li> </ul>	<ul style="list-style-type: none"> <li>Work with government and industry partners locally and globally to learn from better practice, influence global progress and deliver on targets</li> <li>Expand more optimised enroute flight paths:               <ul style="list-style-type: none"> <li>User Preferred Routes (UPRs)</li> <li>User Preferred Trajectories (UPTs)</li> </ul> </li> <li>Further optimise emissions management at and around airports utilising techniques such as:               <ul style="list-style-type: none"> <li>Required Navigation Performance (RNP) arrivals</li> <li>Continuous Descent Approaches (CDA)</li> </ul> </li> <li>On ground holding, rather than in flight</li> </ul>
Aircraft noise	<ul style="list-style-type: none"> <li>Achieve worlds best practice in end-to-end environmental assessment process for route and flight path changes</li> <li>Substantially improve the provision of national noise enquiry services for communities</li> <li>Improve noise monitoring and information services</li> <li>Assist in the ongoing management, implementation and monitoring of existing noise policies such as the Sydney Airport Movement Cap</li> </ul>	<ul style="list-style-type: none"> <li>Optimise noise management at and around airports:               <ul style="list-style-type: none"> <li>programmed reviews of noise abatement procedure effectiveness and compliance</li> <li>systematic performance monitoring and reporting eg track keeping, corridor monitoring (lateral and vertical)</li> <li>noise and flight path monitoring system expansion</li> <li>enhanced noise modelling capability</li> </ul> </li> <li>Improved understanding of community attitudes to new noise exposure and impacts in relatively low volume overflight areas</li> <li>Review process for managing complaints from communities in line with recommendations from the Aircraft Noise Ombudsman</li> </ul>
Community consultation	<ul style="list-style-type: none"> <li>Further focus on community consultation tools and strategies – including involvement in Community Aviation Consultation Groups</li> <li>Improved reporting about noise and operations</li> <li>Improved complaints handling process</li> <li>Establishment of an industry working group on aircraft noise management to facilitate consistent community consultation</li> </ul>	<ul style="list-style-type: none"> <li>WebTrak enhancements to deliver more information about aircraft noise and operations</li> <li>Working with partner organisations locally and globally to learn from better practice</li> <li>Negotiation with Community Aviation Consultation Groups on monitoring or reviewing local issues of concern</li> </ul>
ARFF Services	<ul style="list-style-type: none"> <li>Water based training</li> <li>Centralised training ground</li> <li>Use of non-fluorosurfactant based foam</li> </ul>	
Infrastructure footprint	<ul style="list-style-type: none"> <li>Water saving design and water saving technologies (rain water capture, water efficient appliances)</li> <li>Earth hour participation</li> <li>Solar panels for head office building</li> <li>New facilities to 4 to 5 star rating</li> </ul>	<ul style="list-style-type: none"> <li>Further water saving design and water saving technologies</li> <li>Energy efficient buildings, technology and infrastructure (5 star buildings, green IT equipment, free cooling, efficient lighting, solar panels)</li> <li>Recycling of construction and demolition waste</li> <li>Conversion of remote monitoring equipment to solar power</li> </ul>
Biodiversity and Heritage	<ul style="list-style-type: none"> <li>Heritage Strategy</li> <li>Upgrading of environmental site manifests</li> <li>Management practices to maintain biodiversity (eg weed control, grass mowing to certain heights, control burns, wildlife permits)</li> <li>Due diligence studies when entering/exiting lease arrangements to risk assess impact on biodiversity</li> <li>Impact studies/site surveys for projects</li> </ul>	<ul style="list-style-type: none"> <li>Site selection consistent with sustainable and heritage values</li> </ul>

Focus Area	Current Actions	Future Actions
Pollution and Contamination	<ul style="list-style-type: none"> <li>• ARFF Environment Management Plan</li> <li>• Adequate maintenance procedures</li> <li>• Asbestos identification and management plan</li> <li>• National program to replace underground fuel storage tanks with above ground storages</li> <li>• Due diligence studies when entering/exiting lease arrangements identifying contamination issues</li> </ul>	<ul style="list-style-type: none"> <li>• Procedures to deal with PCBs and Lead Paints and Asbestos</li> <li>• Surveys of sites where known contaminants were used</li> <li>• Designs to feature solutions which minimise the risk of pollution and minimise impact</li> </ul>
Climate Adaptation	<ul style="list-style-type: none"> <li>• Proactive engagement with relevant Commonwealth agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Vulnerability assessments of facilities</li> <li>• Prepare for future government initiatives</li> </ul>
Business processes aligned to environment outcomes	<ul style="list-style-type: none"> <li>• Enhanced video/teleconferencing facilities to reduce air travel</li> <li>• ISO 14001 aligned Environment Management System</li> <li>• Early engagement in projects to assess environmental impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Selection of suppliers who support waste reduction</li> <li>• Centralised recycling stations</li> <li>• Disposal of IT equipment to companies who recycle</li> <li>• Green procurement</li> </ul>
Environment management processes and measurement	<ul style="list-style-type: none"> <li>• Resource monitoring to ascertain current emissions footprint</li> <li>• Aviation emissions modelling</li> <li>• Review of ATM environment assessment and reporting procedures and practices</li> <li>• Update legal requirements register</li> <li>• Enhancing environmental manifests</li> <li>• Improving procedures for environment management in TAS and ARFF</li> </ul>	<ul style="list-style-type: none"> <li>• Major review of our Environmental Management System to ensure it remains fit-for-purpose in supporting the organisation to meet its requirements</li> <li>• Establish targets for emission and water reduction</li> <li>• Develop resource management guidelines and plans for use at key sites to assure emissions and water targets are met</li> <li>• Legal compliance monitoring and reporting program</li> </ul>
Environmentally focused workforce	<ul style="list-style-type: none"> <li>• Enhancing legal compliance training</li> </ul>	<ul style="list-style-type: none"> <li>• Specific training in environment management for staff in TAS and ARFF</li> <li>• Improved induction training focused on the role which Airservices plays in assuring the sustainability of the aviation industry and how staff can contribute to assuring the sustainability of the organisation</li> <li>• Initiatives to <ul style="list-style-type: none"> <li>i. increase awareness and organisational engagement in the delivery of initiatives and</li> <li>ii. develop an organisational focus beyond environmental stewardship into a more efficient and resilient organisation and aviation industry</li> </ul> </li> </ul>

# Glossary

ATM	Air Traffic Management
ANSP	Air Navigation Service Provider
ASPIRE	Asia and South Pacific Initiative to Reduce Emissions
ARFF	Aviation Rescue and Fire Fighting
ATC	Air Traffic Control
CANSO	Civil Aviation Navigation Service Organisation
CDA	Continuous Descent Approach
CDMA	Collaborative Decision Making and Approach
EMS	Environment Management System
Flex Track	A non-fixed air traffic service route calculated on a daily basis to provide the most efficient operational conditions.
ICAO	International Civil Aviation Organisation
RNP	Required Navigation Performance
RPK	Revenue Passenger Kilometres
TAS	Technology and Asset Services
UPR	User Preferred Routes









**AIRSERVICES AUSTRALIA**

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