

## AIRPORT ENVIRONMENT STRATEGY

Overview	P379
Background	P381
Location	P383
Environmental Management Framework	P384
Environment and Sustainability Policy	P386
Environmental Initiatives of the Last Five Years	P394
Areas of Focus	P396



## **OVERVIEW**

The 2020 Environment Strategy outlines Brisbane Airport Corporation's (BAC) continuing commitment to world best practice in environmental compliance and sustainability and includes details of affirmative measures and actions to be implemented over the next five years at Brisbane Airport to ensure continuous improvement in all aspects of environmental management.

BACs commitment to environmental responsibility extends beyond ensuring rigid compliance with regulatory standards and controls. Maintaining long-term environmental sustainability is a fundamental tenet of the Corporation's operating philosophy.

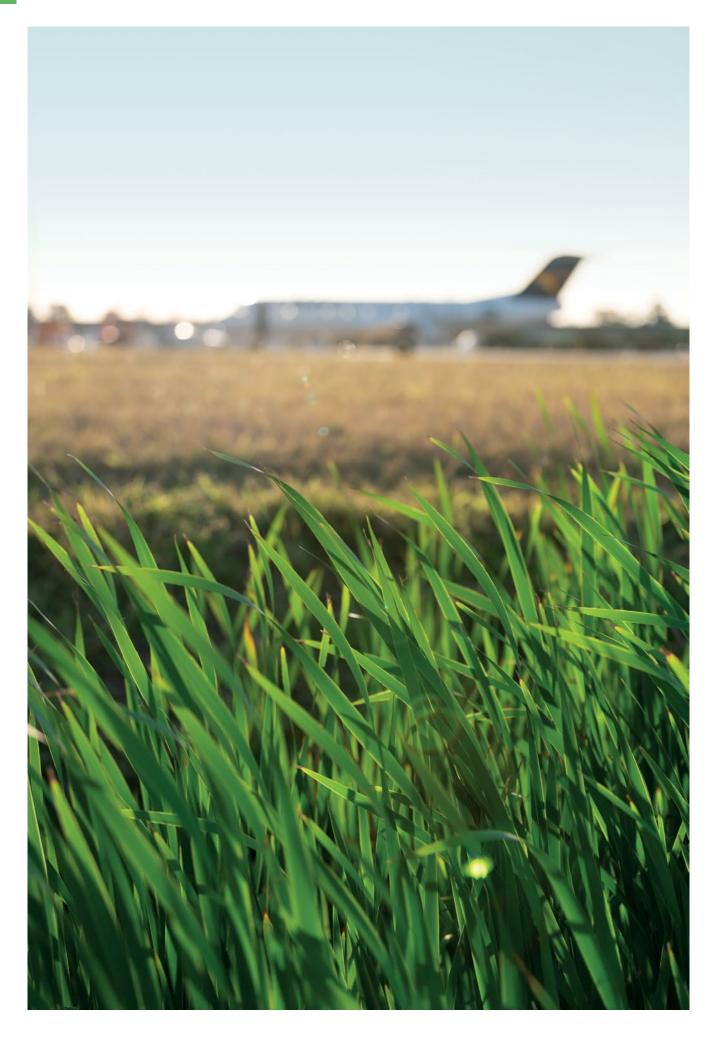
This Strategy includes twelve separate areas of focus and details of monitoring, audit and reporting programmes undertaken to ensure continued compliance with all legislative requirements.

For each area of focus, it details objectives, action plans and key achievements since the publication of the 2014 Master Plan.

The last five years have seen a range of new initiatives deployed across the airport, including a new electric bus fleet, a food recovery program and the installation of cardboard compactors that doubled the amount of cardboard recycled each year.

Brisbane Airport Corporation's carbon emissions continue to decline and for the new runway, a new recycled water pipeline saved the equivalent of 500 Olympic-sized swimming pools of potable water, with the construction project overall passing all environmental compliance tests over an eight year period.

The Environment Strategy plays an important role in making the airport a better place to work and visit. It continues to evolve to meet the challenges of the expansive version for the airport and the surrounding precinct.



## BACKGROUND

The 2020 Brisbane Airport Environment Strategy meets the regulatory requirements of the Airports Act 1996 and has been developed in consultation with stakeholders from industry, Government and the local community. Maintaining long-term environmental sustainability is a fundamental tenet of the airport's operating philosophy and intrinsically linked to the successful attainment of its economic, operational and social objectives

This Airport Environment Strategy has been prepared to meet the requirements of the Airports Act. In accordance with section 71(2)(h) of the Act it;

- Details objectives for the environmental management of Brisbane Airport.
- Identifies those areas considered to be environmentally significant.
- Includes a framework for effective environmental management at the airport.
- Lists achievements from the previous strategy that demonstrate the continual improvement of environmental management at the airport.
- Establishes five year action plans and active measures to be undertaken

The Strategy also addresses the assessment and management of potential environmental issues associated with the implementation of initiatives outlined in this Master Plan (Airport Act section 71(2)(f) and section 71(2)(g).

Tenants and contractors operating on Brisbane Airport are required to complete an Environmental Management Plan subject to regular inspection, based on the environmental risk of their activities.

This Strategy was developed through ongoing engagement with stakeholders including government agencies, airport tenants, Traditional Owners and members of the local community through meetings, workshops and other forms of community engagement.

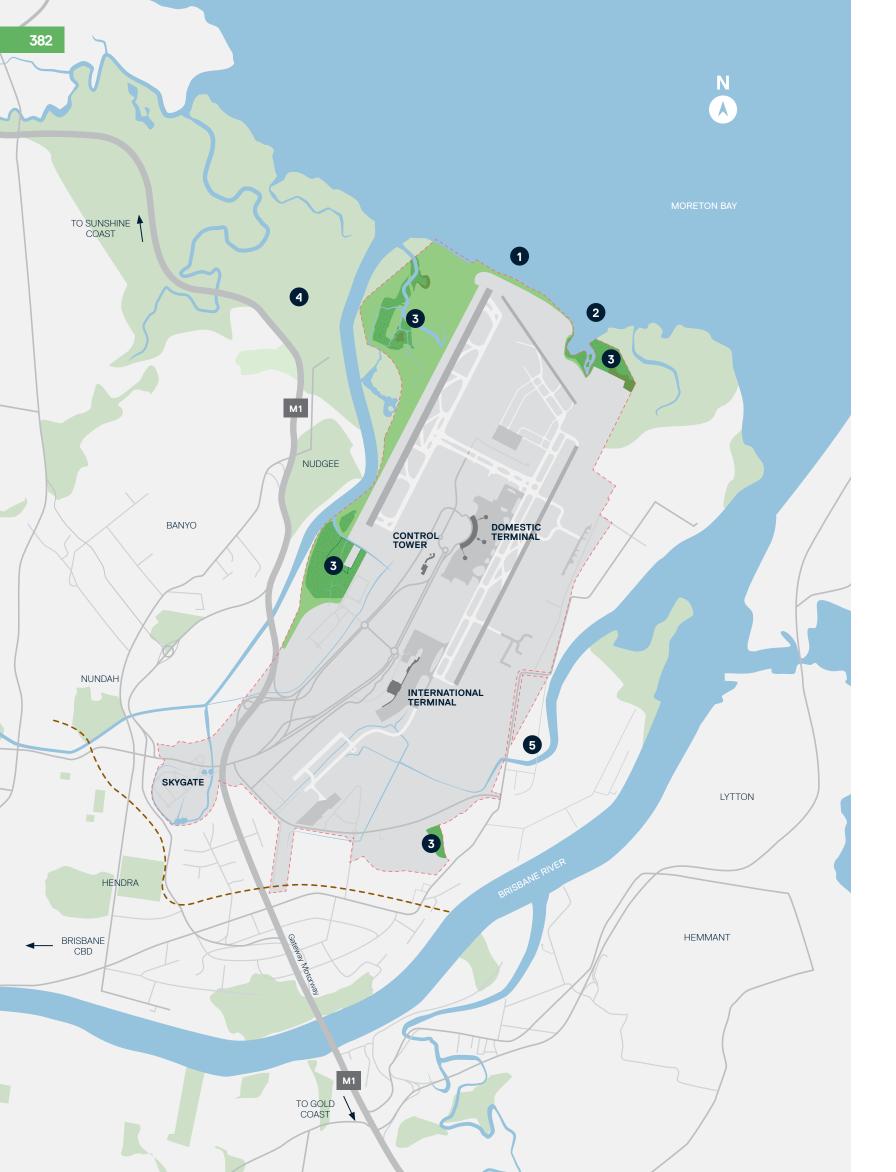
Informal meetings were held with the Airport Environment Officer and representatives of the Department of Infrastructure, Development and Cities, with outcomes incorporated into the final strategy.

Feedback was also recorded from meetings with Government agencies through the Brisbane Airport Area Round Table and with the local community via the Brisbane Airport Consultation and Advisory Group. Areas of interest were aircraft noise, local area drainage and natural asset management.

A formal workshop and informal meetings were held with airport tenants. Discussion points included requirements for use of firefighting foam, solar power generation, electric charging infrastructure, sustainable aviation fuels, climate change resilience, and waste management.

Consultation was undertaken with Traditional Owners as part of annual heritage compliance meetings with no matters of concern raised. Additional feedback was collected from community information exchanges, including fairs and festivals and via social media. Main areas of interest were regarding the reducing of waste and construction projects.

Information captured from each of these exchanges was used to develop actions across a range of environmental matters. The objectives and priorities outlined in the Strategy reflect the findings of those meetings and consultation.



## LOCATION

Brisbane Airport is situated on a reclaimed portion of a river delta at the mouth of the Brisbane River. The area surrounding Brisbane Airport is largely industrialised. With a coastal location the airport also contains and is adjacent to some areas of environmental importance.

More than 10 per cent of the 2,700 hectare Brisbane Airport site is dedicated to biodiversity conservation, including the foreshore, mangrove and saltmarsh communities, casuarina plantations and Phragmites wetlands/unmanaged grasslands that are home to locally significant bird species, the Lewin's Rail, Eastern Grass Owl and King Quail.

Areas of environmental value within and adjacent to the airport include:

- 1 Moreton Bay Marine Park a Wetland of international importance under the Ramsar Convention on Wetlands.
- 2 The Brisbane Airport foreshore feeding grounds for international migratory shorebirds.
- 3 Mangrove and saltmarsh communities around Serpentine Inlet, Jackson's Creek, Jubilee Creek and Pinkenba.
- The Boondall Wetlands listed under the Ramsar Convention as an internationally important wetland for international migratory shorebirds.
- 5 Bulwer Island and Boggy Creek wetlands.

The airport site is also seen as culturally and spiritually significant to the Traditional Owners of the land and has European historic heritage significance.

Aboriginal cultural and spiritual significance within and adjacent to the site include Dreaming Tracks and Dreaming Sites (an integral part of Aboriginal people's connection to country), the Nudgee to Eagle Farm Pathway (which connected ceremonial sites, hunting grounds and camp sites in the local area), ceremonial grounds, food and water resources, temporary campsites, isolated archaeological finds and a former burial site.

European historic heritage sites at Brisbane Airport include remnants of the former Cribb Island residential community, the former Cribb Island school site, the Kingsford Smith Memorial, Southern Cross aircraft, a memorial to the 460 bomber squadron from WWII, and an unofficial memorial garden for the scattering of ashes.

Significant industrial neighbours include the Port of Brisbane, the Luggage Point Wastewater Treatment Plant, the BP jet fuel import terminal at Bulwer Island, the Viva Energy fuel storage and distribution terminal at Pinkenba, Caltex oil refinery at Lytton and heavy industries including fertilizer and concrete manufacturing plants.

BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN

## ENVIRONMENTAL MANAGEMENT FRAMEWORK

## The regulatory framework for environmental management at Brisbane Airport consists of: • The Airport Legislation and other relevant legislation • The Brisbane Airport Master Plan which includes the Airport Environment Strategy

# • Regulatory representatives of the Commonwealth Department of Infrastructure, Regional Development and Cities including the Airport Environment Officer and Airport Building Controller

## THE BRISBANE AIRPORT ENVIRONMENTAL MANAGEMENT FRAMEWORK

This chart is a representation of the structure that Brisbane Airport Corporation, its tenants and contractors follow to ensure best-practice environmental management is undertaken at Brisbane Airport.

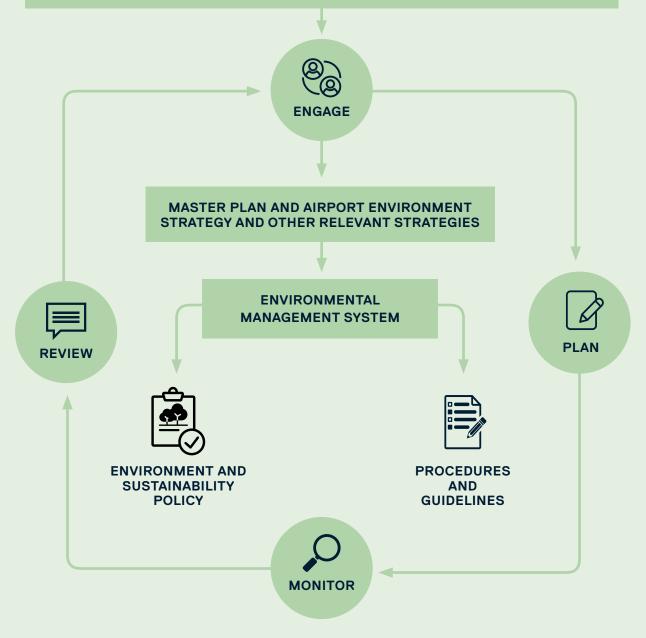
## **AIRPORT LEGISLATION**

- Airports Act 1996
- Airports Regulations 1997
- Airports (Environment Protection) Regulations 1997
- Airports (Building Control) Regulations 1996

## OTHER RELEVANT ENVIRONMENTAL LEGISLATION, POLICIES AND **NATIONAL GUIDELINES**

- Environment Protection and Biodiversity Conservation Act 1999 (Cth)
- National Greenhouse and Energy Reporting Act 2007 (Cth)

- Biosecurity Act 2015 (Cth)
- Environmental Protection Act 1994 (Qld)
- Environment Protection Regulations 2008 (Qld)
- Biosecurity Act 2014 (Qld)
- National Environmental Protection Measures
- PFAS National Environmental Management Plan (PFAS NEMP)
- Operational Policy Environmental Management of Firefighting Foam (Qld)
- State Planning Policy (Qld)
- Code for Self-Assessable Development
- MP02 (Qld)



386

## ENVIRONMENT AND SUSTAINABILITY POLICY

Brisbane Airport Corporation's Environment and Sustainability Policy is the foundation of an approach to ensuring long-term environmental sustainability. The policy represents a formal public undertaking to consider the potential environmental impacts and opportunities of all future activities and operations.





## **ENVIRONMENT AND SUSTAINABILITY POLICY**

Brisbane Airport is one of the busiest airports in Australia and is continuing to grow. It is located 13 km by road from the Brisbane CBD and in close proximity to Moreton Bay, industrial and residential areas, and the Gateway Motorway. Brisbane Airport Corporation (BAC) acquired the long-term lease in 1997 to manage, operate and develop Brisbane Airport.

BAC has an overall environmental responsibility for activities and operations undertaken at the airport, including airport operations and security, asset management, tenancy management and development projects. All other airport users have a responsibility for the environmental management of their activities.

## BAC is committed to:

- Operating, managing and developing Brisbane Airport in an environmentally responsible manner;
- Complying with the applicable environmental laws, policies and other legal requirements which pertain to its operation, and striving to meet and/or exceed these requirements;
- Fostering an environmentally responsible culture amongst BAC's employees;
- Minimizing adverse impacts on the environment caused by BAC's operations;
- \* Continually striving to reduce natural resource consumption, waste generation and prevent pollution;
- Working with government departments, agencies and airlines to manage impacts of aircraft noise and the impacts of aviation on the community;
- Constantly striving to achieve continual improvement in environmental and sustainability performance by implementation of an Environmental Management System (EMS) consistent with the international standard ISO14001:2015 and sustainability benchmarking evaluations.

## In fulfilling this commitment, BAC will:

- Take action to address potentially adverse environmental impacts;
- Communicate the Brisbane Airport Environment Strategy, policies and performance to employees, regulators, tenants and the wider community;
- Establish, implement and maintain an Environmental Management System which includes the setting and reviewing of environmental objectives and targets;
- Periodically review the effectiveness of the Environmental Management System, and identify opportunities for environmental, social, economic and operational sustainability performance improvements;
- Maximize energy, water and waste efficiencies;
- Manage noise impacts, pollutant emissions and the impacts of climate change on airport;
- Identify and seek to conserve objects and matters at the airport that have natural, Indigenous or historic heritage value;
- Achieve best practice in sustainable property development;
- Provide appropriate environmental training to BAC employees, and encourage our tenants and contractors to do the same;
- Build strong and active relationships with the wider community through engagement and sponsorship programs; and
- Provide the staff and resources necessary to meet these policy objectives.

All BAC managers are accountable to the CEO for ensuring that this policy is implemented.

Gert-Jan de Graaff

CEO, Brisbane Airport Corporation

## ENVIRONMENTAL MANAGEMENT SYSTEM





## KEY OBJECTIVES 2020-2025

- Maintain an Environmental Management System consistent with the International Standard AS/NZS ISO 14001:2015.
- ⊗ Review environmental performance indicators to benchmark and demonstrate continuous improvement.
- Maintain an ongoing program to identify and conserve objects and matters at the airport with natural Aboriginal, cultural or historic heritage value.

## **OVERVIEW**

The Brisbane Airport Corporation Environmental Management System (EMS) has been developed to be consistent with the internationally recognised EMS standard ISO 14001:2015 as a systematic approach to manage environmental issues across the business. Procedures and guidelines have been developed in alignment with specific aspects of the standard including:

- Risk and opportunities assessment
- · Compliance obligations.
- Training.
- Internal and external communications.
- Environmental auditing and document control.
- · Incident and emergency preparedness.
- Sustainable procurement.

ISO 14001 outlines the requirement to manage risks identified as 'significant'. Following this, an audit protocol and review process is implemented to allow for future amendments to the system and to ensure continuous improvement.

## ENVIRONMENTAL TRAINING AND PROFESSIONAL DEVELOPMENT

With dedicated resources looking after the management and implementation of the Environmental Management System, the highest level of environmental practices are maintained at Brisbane Airport.

All airport environment and sustainability staff are required to have appropriate qualifications and to undertake environmental training and professional development.

Other airport staff and contractors are also expected to participate in environmental training as required. Types of training include staff inductions and topic specific training covering spills clean up and departmental specific environmental awareness training.

The training program is administrated by Brisbane Airport Corporation's HR group with environment specific training administered by the airport's Environment and Sustainability Division.

## ✓ ACTIVE MEASURES FOR THE ENVIRONMENTAL MANAGEMENT SYSTEM

Undertake annual internal audits, maintain a register of follow-up actions, and ensure corrective actions are implemented.

Annually review and update the environmental induction for employees.

Brisbane Airport will submit and Annual Environment Report to DIRDAC, including details of any issues/incidents and progress of action items.

Quarterly or as required, Brisbane Airport will conduct regular meetings with the Airport Environment Officer to review progress of the Environmental Strategy.

	© TIMEFRAME
Implement the sustainable procurement policy.	2020
Develop and implement a supplier diversity strategy.	2020
Investigate opportunities to improve environmental and sustainability performance of contractors and suppliers.	2021
Undertake an external audit of the Environmental Management System.	2020, 2024



## MONITORING AND REPORTING

At Brisbane Airport, a program of compliance monitoring collects, records and reports data and results on the effectiveness of the Environmental Management System and the management of significant environmental impacts.

Key environmental performance indicators are developed for each objective and target to measure and monitor for ongoing performance improvement.

Environmental monitoring is undertaken by qualified professionals with relevant experience. Monitoring programmes are generally consistent with best practice and industry standards and reviewed in conjunction with the Airport Environment Officer and representatives of the Department of Infrastructure, Regional Development and Cities.

The purpose of compliance (and other) monitoring is to collect, record and report on the effectiveness of the Environmental Management System and the airport's management of significant environmental impacts.

Brisbane Airport Corporation also measures performance to assess whether continuous improvement is occurring across the organisation.

Key performance indicators are developed for each objective and target to measure and monitor for ongoing performance improvement. Environmental monitoring is undertaken by qualified professionals with relevant experience.

In addition, pollution incidents, environment related complaints and management of contaminated sites are reported to the Airport Environment Officer through regular meetings, and as required under legislation.

Monitoring programs at Brisbane Airport are governed by multiple documents detailing the types and frequency of monitoring and reporting with ongoing review of key performance indicators. The tables on the following pages list the Governing Documents for each aspect of Environmental Monitoring.

Detailed written reporting against all objectives and management actions in the Airport Environment Strategy is provided regularly to the airport management team with a comprehensive report demonstrating progress against all objectives, management actions and monitoring activities provided annually to the Australian Government.

## **ENVIRONMENTAL MONITORING AND REPORTING**

ENVIRONMENTAL ASPECT	ACTIVITY	GOVERNING DOCUMENT	MONITORING FREQUENCY	КРІ	MITIGATION MEASURE
GROUND- BASED NOISE	Engine ground running	Airside Operations Manual	As required	Zero complaints	Location and timing approved as per Engine Ground Run Procedure
	Construction activities	Construction Environmental Management Plans (CEMP) Noise Management Plans	Baseline monitoring for major projects with further monitoring complaint based	Zero complaints	Stakeholder engagement; correct maintenance and operation of plant and equipment; suitable working hours
	Performance track operations and major events	Auto Mall Operational Noise Management Plan; Tenant/ contractor OEMPs	Annually or as required	Zero complaints	Engineering design mitigation measures as needed; Operations limited from 9am to 10pm, Major events limited to twice/ year; Stakeholder engagement with affected receptors.
WATER QUALITY	Stormwater	CEMP – Water Quality Management Plans	Post rain events for major projects	No sedimentation of local waterways	Implementation of the Erosion and Sediment Control Plan
		Water Quality Monitoring Program	Automatic samplers collect seasonal data from apron run off	Understanding first flush impacts on local waterways	
SOIL AND GROUNDWATER QUALITY	Contaminated site management	Contaminated Site Register	Underground storage tanks every 2 years with integrity testing in between High risk sites - based on risk profile	Ecological and human health risks minimised	Remediation if required on a risk basis
	Construction activities	CEMP - Surface and Groundwater, and Soil Management Plans	Monthly during the duration of the project once activities commence	No offsite discharge or transport of unmitigated soil or waters	Implementation of Erosion & Sediment Control Plan; Acid Sulphate Soil Management Plan; Dewatering Management Plan

ENVIRONMENTAL ASPECT	ACTIVITY	GOVERNING DOCUMENT	MONITORING FREQUENCY	KPI	MITIGATION MEASURE
LOCAL AIR QUALITY	Construction activities	CEMP – air quality management planst	Monthly dust deposition monitoring during major earthworks	No visible emissions at site boundary	Onsite watering; speed reduction for plant movement; plant fitted with emission control devices
CARBON EMISSIONS	Consumption of energy	NGERs, NPI and ACA reporting procedure	Annually	Accurate and timely reporting of emissions	Energy efficiency and renewable energy programs; electric vehicles; correct maintenance and operation of plant and equipment
WASTE	Operation of terminals and buildings	Zero Waste Strategy	Monthly waste data	Minimisation of waste to landfill	Comingled and cardboard recycling bins and other waste reduction trials
	Construction activities	CEMP – Waste Management Plans	Monthly project reports including waste data	No waste impacting surrounding environment	Bin lids in place; waste disposal by a licensed contractor; implementation of the waste hierarchy
BIODIVERSITY	Management of Biodiversity Zone and Environmentally Sensitive Areas	Biodiversity Management Strategy	Annually (migratory shorebirds; Lewin's Rail; estuarine health)	No decline in habitat values or species presence	Woody weed removal in Lewin's Rail ESA; drainage maintenance; groundsel bush spraying as required
	Construction activities	CEMP – flora and fauna management plan	Daily during vegetation disturbance	No fauna mortality	Spotter/catcher assessment prior to disturbance
	Construction and landscaping activities	CEMP – fire ant management plan	Upon discovery	No import or export of fire ants	Assessment of materials prior to importation; engagement of Biosecurity Queensland if fire ants observed
HERITAGE	Construction activities	Heritage Management Plan and CEMPs	Upon discovery	No loss of heritage values	Implementation of stop works procedure

## **OVERVIEW OF** ENVIRONMENTAL INITIATIVES FROM THE LAST FIVE YEARS

At Brisbane Airport, maintaining long term environmental sustainability is a fundamental tenet of operating philosophy and intrinsically linked to the successful attainment of economic, operational and social objectives. The eight initiatives featured here represent the range and diversity of activities designed to meet those goals.



To date, Brisbane Airport Corporation's new runway project has successfully met in excess of eight hundred environmental approval conditions throughout the eight years of the construction program.

A range of proactive measures have seen Brisbane Airport Corporation's carbon emissions continue to decline since reaching a peak in 2013.

Projects include a combination of energy efficiency projects, onsite renewable energy generation, and carbon offsetting. As a result, airport growth has been effectively de-coupled from emissions growth.



Brisbane Airport's electric bus fleet commenced operations in 2018, reducing airport carbon emissions by 250 tonnes a year. At the time, Brisbane Airport's fleet was Queensland's first, and Australia's largest, electric bus fleet, with 11 electric buses in operation.

Brisbane's new runway will be the first runway system in the Southern hemisphere and Asia Pacific region with a 100 per cent fully addressable LED lighting solution on all CAT I Runway, Approach and Taxiway systems, saving 460 tonnes of carbon emissions each year, in comparison to a traditional incandescent system. Addressable airport lighting allows each individual airport navigation light to be remotely controlled and monitored for correct operation, maximising pilot safety.



A food recovery program introduced in 2014 has resulted in over 50 tonnes of food being redistributed to the community each year. This program is a voluntary initiative between OzHarvest, airport food catering companies and the Airport's Ambassador Program.

The installation of cardboard compactors at the Domestic Terminal in 2017 saw the volumes of recycled cardboard double from 150 tonnes per year to 300 tonnes. This saves waste to landfill and the reduces consumption of natural resources.



The installation of a new recycled water pipeline built during Brisbane's new runway project is estimated to have saved 1.125 gigalitres of potable water, the equivalent of 500 Olympic-sized swimming pools. This water was used in the concrete batching and landscaping of the new runway system and airfield.









## 01. CLEANER

## - AIR

Reducing the sources of ground-based air quality emissions and supporting sustainable transport and active living options.

## 02. BEST PRACTICE WATER — QUALITY MANAGEMENT

Protecting surrounding waterways and ecosystems from adverse stormwater run-off and pollution.

## 03. SOIL AND GROUNDWATER MANAGEMENT

Driving improvements in soil and groundwater quality through research, tenant engagement and risk management.

## 04. MINIMISING — GROUND-BASED NOISE

Ensuring sources of ground-based noise have minimal impact on airport workers, the local community and the environment through appropriate planning, design and operations.

## 05. SUSTAINABLE DEVELOPMENT

Minimising the impact on the environment, local community and airport workers from airport development through responsible planning, construction and procurement practices.

## 06. REDUCING GREENHOUSE GAS EMISSIONS

Reducing carbon emissions and taking steps to manage related issues across all airport operations.

## 07. CLIMATE CHANGE ADAPTATION

Addressing climate change impacts across all levels of normal airport operations and development activities.

## 08. WATER — CONSERVATION

Ensuring the reduction and efficient use of potable water and increased use of recycled water on airport.

## 09. REDUCING

WASTE

Reducing waste to landfill by encouraging recycling and the reuse of resources.

## 10. PROTECTING BIODIVERSITY

Maintaining the airport's biodiversity values and contributing to Brisbane's biodiversity.

## 11. PRESERVING AND PROMOTING OUR HERITAGE

Ensuring that the airport's heritage values are maintained and promoted.

## 12. TENANT AND CONTRACTOR OBLIGATIONS

Ensuring airport tenants and contractors are aware of their obligations to develop and implement Operational Environment Management Plans.

CHAPTER 10 AIRPORT ENVIRONMENT STRATEGY

**AREAS OF FOCUS** 

## **CLEANER AIR**



- 11 electric buses commenced operation on airport in 2018, resulting in zero tail pipe emissions.
- In phasing out of the use of diesel equipment, in 2018 three electric charging stations were installed on the International Terminal apron.
- New cycle paths and pedestrian links.
- Air quality monitoring was undertaken in 2018, as a result of aircaft auxilary power usage on aircraft bays at the International terminal.
- Odour investigations undertaken on all sewer pump stations in 2017, prompting the installation of filter systems and permanent odour monitoring.
- An ultrafine particle study was undertaken in 2018 to understand concentrations and particle sizes emanating from terminal aprons and baggage make-up areas.
- · In 2017, fuel tank dip recording procedures were amended to improve the accuracy of emergency generator emissions calculations.
- Two electric cars added to airport fleet.





## KEY OBJECTIVES 2020-2025

- Reducing the sources of ground-based air quality emissions.
- Supporting sustainable transport and active living options.

## **CLEANER AIR QUALITY MANAGEMENT**

Understanding and mitigating the sources and concentrations of air quality emissions is crucial to local air quality management. At Brisbane Airport, emission control has largely been undertaken through oversight of construction activities, but advances in electrification of vehicles and equipment will also become a contributor to improvements in air quality.

The airport is surrounded by heavy industry including the Port of Brisbane, a Viva Energy fuel storage and distribution terminal at Pinkenba, the Caltex oil refinery and and an Advanced Wastewater Treatment Plant at Luggage Point. Major roadways also border the site, impacting the local air quality.

Within the boundary, local air quality impacts associated with ground-based operations are regulated by the Airports (Environment Protection) Regulations 1997. Air quality associated with emissions from aircraft (excluding aircraft ground-running and idling on aprons) is regulated under the Air Navigation (Aircraft Engine Emissions) Regulations 1995.

Air quality outside the boundary is regulated by the Queensland Government in accordance with the National Environment Protection (Ambient Air Quality) Measure with with the nearest air quality monitoring stations located in the Wynnum area (including Lytton).

Air quality monitoring parameters include meteorological data, nitrogen oxides (one site only), sulfur dioxide, and particulate matter (PM10 and PM2.5).

Results of regional air quality monitoring are reviewed annually by Brisbane Airport with assessment undertaken in accordance with the regulations. There has been no recent exceedences of Schedule 1 of the AEPR limits from nearby monitoring stations.

## **CAUSES OF ADVERSE AIR QUALITY**

Operational activities that can generate adverse air quality:

- Aircraft operations (including ground-based movement, refuelling and electricity generation).
- · Industrial and commercial processes, including construction and demolition.
- Plant, equipment and vehicles (including storage tanks for fuel and chemicals).
- · Aircraft and airfield maintenance (including painting, cleaning and fire training exercises).

The potential environmental impacts of adverse air quality include the release of air pollutants, greenhouse gas emissions and ozone depleting substances, dust and smoke generation, reducing visibility, smothering ecological systems and infrastructure and offensive odours.

## MEASURES TO PREVENT, CONTROL OR **REDUCE ENVIRONMENTAL IMPACTS**

- · Increased use of electrical charging facilities.
- Regular compliance inspections, including mandatory CEMP's for operation and construction.
- Project specific CEMP's to include erosion and sediment control measures as well as dust suppression techniques and earthworks stabilisation.
- Increased dust monitoring on large earthworks projects
- The requirement for odour management plans for relevant development projects, including the modelling of potential odour producing activities.

## **S** ACTIVE MEASURES FOR CLEANER AIR

Ensure all dust management measures and techniques identified within Construction Environmental Management plans are implemented.

Odour dispersion modelling will be undertaken for new developments with the potential to produce odour

Investigate odour and air quality emissions from aircraft auxiliary power units for higher risk areas.

Support the phase out of diesel vehicles and equipment at the airport.

Encourage active living concepts at the airport.

## ACTION PLAN FOR CLEANER AIR

(S) TIMEFRAME

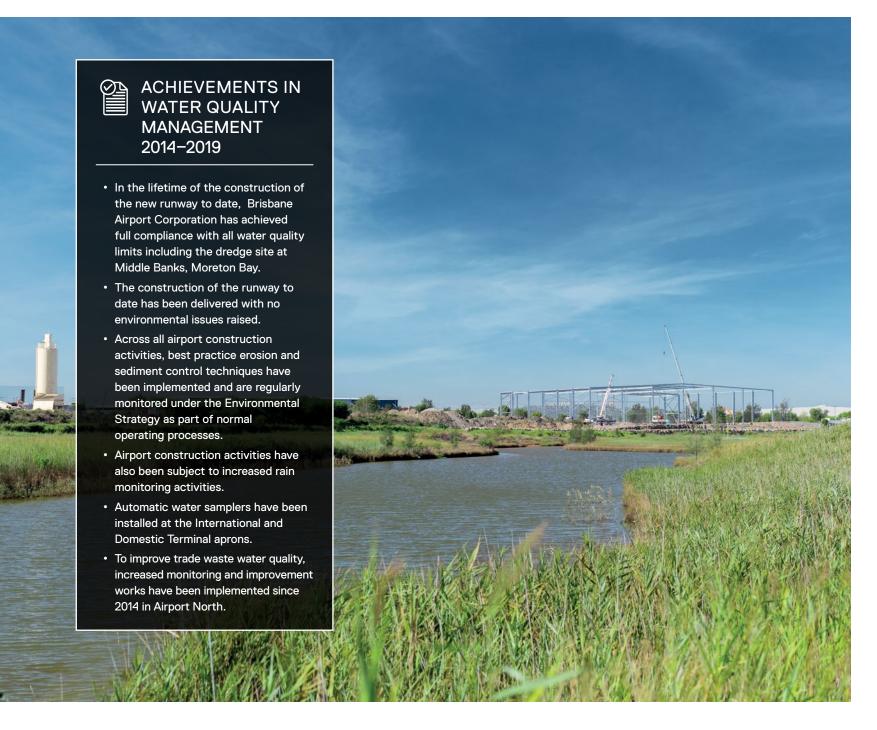
Investigate the installation of a fixed air quality monitoring station at the airport.

2023

BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN

**AREAS OF FOCUS** 

## BEST PRACTICE WATER **QUALITY MANAGEMENT**





## **KEY OBJECTIVES 2020-2025**

waterways and ecosystems from adverse stormwater runoff and pollution.

### MANAGING WATER QUALITY

Brisbane Airport is located beside Moreton Bay, a wetland of international importance. Moreton Bay is one of the largest estuarine bays in Australia and sits in an 'overlap zone' where both tropical and temperate species occur.

It supports extensive intertidal areas of seagrass, mangroves and saltmarsh that provide vital habitat for waterbirds, including significant populations of migratory shorebirds.

Brisbane Airport is situated in the lower Brisbane River and Kedron Brook catchments. Both catchments have been highly modified due to urban and commercial development although ultimately discharge into Moreton Bay.

## **CAUSES OF ADVERSE WATER QUALITY**

Activities at Brisbane Airport which have the potential to adversely impact the water quality of surrounding waterways and ecosystems include:

- · Construction and bulk earthworks activities.
- Run-off and pulse loads from an increase of impermeable surfaces associated with airport development.
- Spills from maintenance and refuelling activities and operation of ground support equipment.
- · Drainage maintenance works.
- · Landscape maintenance activities.
- · Fire training exercises.
- · Aircraft hangar firefighting foam discharges.
- Sewer and trade waste discharges.

The ongoing management of water quality at the source is vital to helping improve catchments flowing into Moreton Bay.

## POTENTIAL ENVIRONMENTAL IMPACTS

Potential impacts associated with stormwater runoff include:

- A reduction in water quality including sedimentation of benthic environments.
- · Eutrophication of water bodies from increased nutrient availability.
- Chemical pollution impacting aquatic organisms and beneficial reuse of biosolids from sewage treatment plants.

## MEASURES TO PREVENT, CONTROL OR REDUCE ENVIRONMENTAL IMPACTS

Potential environmental impacts are managed through:

- Implementation of the Stormwater Quality Management Strategy (including pollutant modelling) for new developments.
- Implementation of the Water Quality Monitoring Program.
- Implementation of best practice erosion and sediment control guidelines and project-specific inspections.
- Implementation of the drain maintenance guidelines.
- Establishment of an airport-wide site register for hazardous chemicals (including dangerous goods storage).
- Implementation of the Environmental Incidents and Emergency Response Procedure.
- Maintenance of water sensitive urban design infrastructure and pollution control devices.
- · Monitoring of trade waste discharges from both Brisbane Airport and tenant controlled facilities.
- Implementation of trade waste environmental improvement plans if required.

## ACTIVE MEASURES FOR WATER QUALITY MANAGEMENT

Implement the Stormwater Quality Management Strategy and incorporate water sensitive urban design principles for new projects.

Implement best practice erosion and sediment controls during airport construction activities.

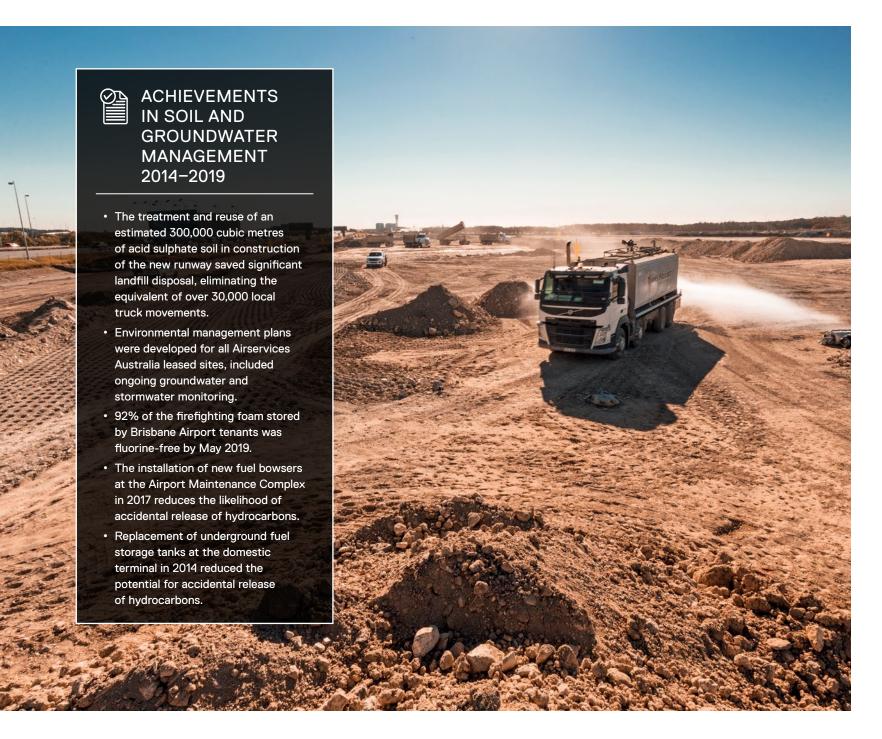
Seasonally, and as required, Brisbane Airport will implement the Water Quality Monitoring Program.

	(S) TIMEFRAME
Review effectiveness of automatic water sampling locations.	2020
Review existing trade waste obligations and monitoring requirements on airport.	2020
Review Water Quality Monitoring Program.	2022

402

**AREAS OF FOCUS** 

## 03. SOIL & GROUNDWATER MANAGEMENT





## **KEY OBJECTIVES 2020-2025**

- Manage known contaminated sites in accordance with relevant National and State guidelines.
- ᠃ To minimise the risk of soil and groundwater pollution through adherence to Brisbane Airport's Importation of Fill and Recycled Materials Policy and incorporation of best practice design principles.

## **MANAGEMENT APPROACH**

Brisbane Airport Corporation takes its general environmental duty of care seriously ensuring that all soil and groundwater investigations are meaningful through strict adherence to national guidance for the assessment of contamination. The duty of care also extends to the investment of time and resources to understand emerging contamination issues.

Maintenance and construction activities are required to comply with relevant national guidelines when needed, e.g. the PFAS National Environmental Management Plan (NEMP). NB: PFAS refers to a group of manufactured chemicals known as per-and poly-fluoroalkyl substances, explained in more detail in this chapter.

The Corporation recognises the benefits of responsible soil management and uses comprehensive planning, monitoring and management tools to avoid soil degradation, contamination or loss.

Soil management on Brisbane Airport has three main areas of focus, potential acid sulphate soils (PASS), spills, and historically contaminated sites.

## CAUSES OF CONTAMINATION

The airport is situated on a low-lying coastal plain, and PASS conditions exist across the airport site. Actual acid sulphate soils (AASS) occur when sulphide in PASS is exposed to oxygen in the atmosphere. Consequently, it is imperative that PASS/AASS conditions are identified at the preliminary stages of a development and managed accordingly.

In the daily operation of the airport, soil and groundwater pollution is mainly attributed to fuel and oil leaks or spills. A Contaminated Site Register (see next page) is maintained as an operational tool for the management of all suspected, confirmed and potentially contaminated sites on airport.

Sources of historical pollution at Brisbane Airport are varied with most relating to activities such as waste disposal, rubbish dumping, old underground fuel storage tanks, fire training activities or spills involving aqueous film forming foam (AFFF) and the burial of materials containing asbestos, which occurred prior to the development of the airport.

## POTENTIAL ENVIRONMENTAL IMPACTS

- Migration of existing pollution through rainwater, groundwater and significant storm events.
- · Pollution from leaks, spills and associated stormwater run-off.
- · Soil and sediment erosion from construction activities.
- Construction related disturbance of acid sulphate soil materials.

## MEASURES TO PREVENT, CONTROL OR REDUCE ENVIRONMENTAL IMPACTS

- Tenants are required to develop OEMPs for their activities
- Activities are undertaken in accordance with risk assessments
- Management of the Contaminated Site Register and sitespecific management plans.
- Training for emergency spill response.

## PFAS AND FIREFIGHTING FOAM

A contamination issue being managed on Brisbane Airport relates to a range of manufactured chemicals known as per- and polyfluoroalkyl substances (PFAS), in particular, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

The predominant known source of PFAS on Brisbane Airport is historic use of certain firefighting foams used by firefighting service providers during fire training and fire suppression exercises.

Other sources of PFAS on airport include fire suppression systems in airline operated aircraft hangars and fuel tank farms as well as self-contained portable hand-held fire extinguishers, and sites which have used/maintained such equipment.

Due to the widespread use of PFAS within a number of industrial, commercial and residential applications, there is potential that PFAS found on the airport site are from other sources, including those originating from off-site.

As PFAS is considered an emerging contaminant, Brisbane Airport's strategy will continue to evolve as relevant government guidelines continue to evolve.

## **AREAS OF FOCUS**

## **OBLIGATIONS OF BRISBANE AIRPORT TENANTS**

The Queensland Department of Environment and Science (DES) developed an Operational Policy for the Environmental Management of Fire Fighting Foams (2016) which establishes a framework for the environmental assessment of firefighting foam use in Queensland.

Brisbane Airport Corporation has determined, based on currently available evidence and consistent with the DES Operational Policy, that airport tenants must only use fluorine free firefighting foams at Brisbane Airport and in relation to those tenants with existing firefighting foam systems containing chemicals persistent in the environment long-term (e.g. PFAS), requires that they take steps to promptly transition to a fluorine-free system.

Full details of the obligations of tenants at Brisbane Airport are detailed at the end of this chapter.

## PROACTIVE MEASURES AT BRISBANE AIRPORT

From an operational and environmental perspective, Brisbane Airport Corporation has a vision for the airport to be PFAS product free.

As such proactive measures taken to not only identify and mitigate PFAS contamination present as a result of tenant activities, but also to actively encourage all Brisbane Airport tenants to phase out their use of PFAS products include the following activities;

- Determining where pollution is likely to be present.
- · Working to identify the source/polluter.
- Developing human health and ecological risk assessments, conceptual site models and cost-benefit analyses consistent with the National Environmental Protection Measure and the PFAS National Environmental Management Plan on a site-specific basis for relevant construction and maintenance projects.
- Engaging with Brisbane Airport tenants to reduce and remove known PFAS containing products such as firefighting foams containing PFAS from the airport.
- Developing improvement plans to monitor, mitigate and remediate existing contamination in airport infrastructure resulting from historical use of PFAS products if needed.

## **CONTAMINATED SITE REGISTER**

Brisbane Airport manages the contaminated sites listed in the Contaminated Site Register on a risk basis.

The Register uses a tiered risk approach to identify known existing contaminated sites as being of either low, moderate or high risk.

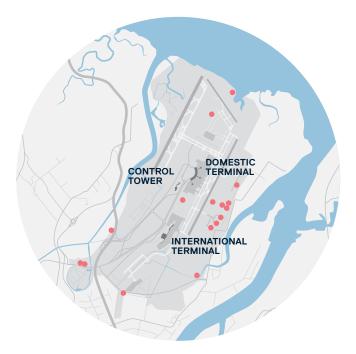
The risk assessment in the Contaminated Site Register considers both ecological and human health risks.

The Contaminated Site Register (shown below) is regularly reviewed to address new legislation and new guidelines and to monitor emerging contaminants, with new contaminated sites added to the register as required.

Changes to the Contaminated Site Register are reflected in any site management plans for individual sites.

## **CONTAMINATED SITE REGISTER**

Potential Higher Risk Sites



## **⊘** ACTIVE MEASURES FOR SOIL AND GROUNDWATER MANAGEMENT

Manage known contaminated sites as required by relevant guidelines/legislation.

Annually review Construction Environmental Management Plan Guidelines to ensure industry best practice and consistency with the PFAS National Environmental Management Plan.

As required, undertake PFAS risk assessments consistent to the requirements of the PFAS National Environmental Management Plan for all relevant maintenance and construction activities.

Ensure the importation of fill and recycled materials adheres to existing policy.

S ACTION PLAN FOR SOIL AND GROUNDWATER MANAGEMENT	○ TIMEFRAME
Develop an inventory of PFAS and other persistent organic pollutants used by tenants to inform an airport-wide phase out plan.	2020
Finalise the Contaminated Site Register review consistent with current guidelines/legislation.	2020
Develop an airport-wide PFAS management plan in consultation with DIRDC in accordance with the PFAS NEMP	2020
Phase out end of life underground fuel storage tanks for Brisbane Airport and tenants.	2025

**AREAS OF FOCUS** 

## MINIMISING GROUND -BASED NOISE





## **KEY OBJECTIVES 2020-2025**

impact on airport tenants, the local community and environment.

## APPROACH TO NOISE MANAGEMENT

Good planning and inter-government cooperation means Brisbane Airport enjoys the best aircraft noise buffer zone in Australia, enabling the airport to operate 24 hours a day.

Under the Airports Act and AEPR, issues related to groundbased noise are the responsibilities of the airport operator.

Noise generated by aircraft while flying, landing, taking off or taxiing is governed by the Air Services Act 1995, Air Navigation Act 1920, and Air Navigation (Aircraft Engine Emissions) Regulations 1995.

## POTENTIAL ENVIRONMENTAL IMPACTS

While the majority of noise issues relate to aircraft in the air, ground-based noise, if unmanaged, can potentially have an impact on the local community, airport tenants and the environment.

Examples of on airport activities which contribute to the level of ground-based noise include:

- Rail and road traffic.
- · Construction and demolition activities.
- · Operation of plant and machinery.
- · Operation of alarms or warning systems.
- Performance track operations and major events.
- · Ground-based aircraft operations which can include;
- Operation of auxiliary power units
- Ground based aircraft engine running,
- Test-bed running of aircraft engines on ground.

Localised impacts from ground-based noise can include:

- Nuisance complaints from local community and businesses
- · Damage to local ecology due to engine runs over blast pressure.

## **MEASURES TO PREVENT, CONTROL OR** REDUCE ENVIRONMENTAL IMPACTS

All new developments on Brisbane Airport are assessed to determine whether noise sensitive design and attenuation measures are required.

Complaints associated with engine ground-running or complaints from Auto Mall performance track operations and major events will be investigated in a timely manner.

Noise generated from aircraft ground-running is managed in accordance with the Brisbane Airport Aerodrome Manual.

Noise generated from operation of the Auto Mall performance track and major events will be managed in accordance with the Auto Mall Operational Noise Management Plan.

## ACTIVE MEASURES FOR MINIMISING GROUND-BASED NOISE

Monitor and mitigate noise impacts from higher risk construction projects.

Timely investigation of any complaint associated with engine ground-running or other ground noise generating activities.

Review engine ground-running procedure with regards to received complaints.

	○ TIMEFRAME
Implement the Auto Mall Operational Noise Management Plan 2021.	2021
Annual ground-based noise monitoring in accordance with the Automall Operational Noise Management Plan.	Annually

BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN

## SUSTAINABLE DEVELOPMENT



- 4-star (best practice) rating under the Green Building Council of Australia Communities PILOT rating tool for sustainable precinct planning.
- All vegetation cleared during construction of the new runway and Auto Mall was mulched and turned into topsoil to meet the majority of their landscaping requirements.
- The Airport Industrial Park and Auto Mall bulk earthworks project sites used 20,000 cubic metres of recycled concrete saving the equivalent amount in raw materials that would have been needed in construction.
- · Approximately 110,000 cubic metres of acid sulfate soils was treated and re-used on the Auto Mall project.
- The Hotel taxiway upgrade project deployed an innovative asphalt product to reduce the amount of subgrade material required in the asphalt.





## **KEY OBJECTIVES 2020-2025**

- O Consider environmental, economic and social costs and benefits in the development and use of resources, products and services.
- environmental resources to meet essential needs of present and future operations.

## SUSTAINABLE DESIGN PRINCIPLES

Brisbane Airport is one of South-East Queensland's largest single-owner sites with approximately 500 hectares of land for development.

Ecologically sustainable design considerations are embedded through all design and construction projects with the goal of building the Brisbane Airport of the future as a place that continues to reflect the best attributes of our city, state and country.

## POTENTIAL ENVIRONMENTAL IMPACTS

Geological conditions at Brisbane Airport can require the importation of fill materials to raise the land to a suitable height for development. Some areas of the airport require up to several metres of fill, which can have a significant impact on local natural resources.

Potential impacts from unsustainable development include:

- Vegetation loss and increased land degradation due to increased need for fill material;
- Increased vehicle movements increasing vehicle emissions;
- · Unintentional release of contamination from polluted soils;
- Decline in water quality in urban catchments from increasing sedimentation and nutrient runoff.

## MEASURES TO PREVENT. CONTROL OR REDUCE ENVIRONMENTAL IMPACTS

Initiatives in sustainable design include:

- Membership of the Infrastructure Sustainability Council of Australia (ISCA) to advance sustainability outcomes for Brisbane Airport infrastructure projects.
- · Developing and implementing ecologically sustainable development guidelines to ensure buildings and other projects are constructed sustainably. This includes initiatives that aim to:
- Maximise effective use of electricity, gas and water, Reduce local ecological impacts of development;
- Reduce emissions including greenhouse gases and stormwater run-off:
- Ensure future impacts from climate change are mitigated through design.
- Building above forecast sea level rise heights to ensure resilience of infrastructure over time.
- Assessing projects for potential registration with sustainability rating schemes.
- · Sourcing fill material from existing projects within the local area reducing the cost and the impact construction projects have on the environment.

## **⊘** ACTIVE MEASURES FOR SUSTAINABLE DEVELOPMENT

Investigate opportunities for construction projects to incorporate ecologically sustainable design and construction measures.

Annually review the implementation of ecological sustainable development guidelines to ensure buildings and other projects are constructed sustainably.

Support the use of recycled materials in construction projects.

Investigate the opportunities for sustainable procurement within development projects.

Investigate the feasibility of achieving sustainability ratings for projects through sustainability rating schemes.

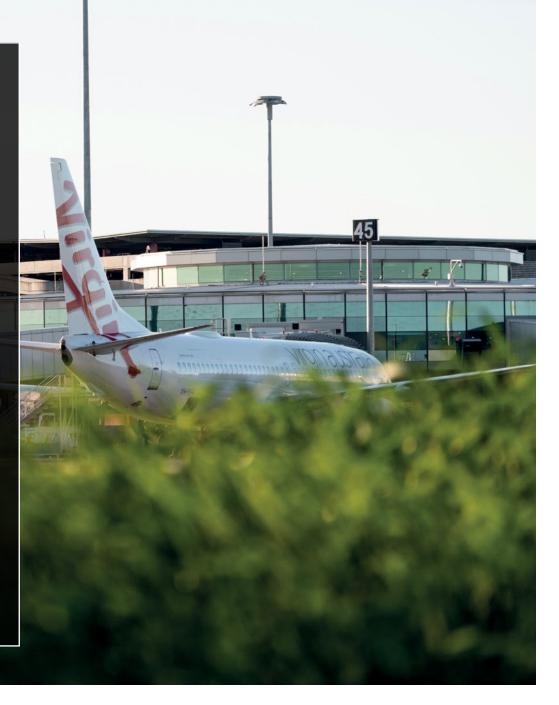
## **ACTION PLAN FOR SUSTAINABLE DEVELOPMENT** (S) TIMEFRAME Investigate the feasibility of upgrading to a 5-star rating under the GBCA Communities rating tool 2020 for sustainable precinct design. Review sustainability performance of airport buildings and terminals against sustainability rating schemes. 2022

BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN 410

# 06. REDUCING GREENHOUSE GAS EMISSIONS



- Brisbane Airport achieved carbon neutral growth from 2013 onwards through a combination of energy efficiency projects, onsite renewable energy generation and purchase of verified carbon offsets if needed.
- Maintained Level 3 (Optimisation) under the Airports Council International Airport Carbon Accreditation Program since 2015.
- Four electric vehicle charging stations installed plus two electric vehicles added to the airport car fleet.
- The new runway will be the first in the southern hemisphere with a 100% fully addressable LED lighting solution saving 460 tonnes of CO2/year.
- An electric bus fleet commenced operation in 2018, enabling a reduction of 250 tonnes of carbon emissions each year.
- Supported a Virgin Australia initiative to trial the importation of sustainable aviation fuels into Brisbane Airport's fuel hydrant installation system throughout 2018 and 2019.





## **KEY OBJECTIVES 2020-2025**

- Mitigate the airport's energy demand through energy efficiency projects that reduce base load, and through the generation of alternative methods of electrical energy to reduce peak demand.
- Manage and reduce carbon emissions from airport operations and engage airport partners to reduce their carbon emissions.

## **IMPROVING ENERGY EFFICIENCY**

Forecasts predict continued increases in energy demand. Understanding links between energy consumption and generation of greenhouse gases, energy efficiency management puts improving efficiency first with substitution of alternate energy supplies as appropriate.

94–98% of BAC's energy consumption is from scope 2 emissions. In 2015, BAC achieved Level 3 "Optimisation" in the Airports Council International Airport Carbon Accreditation program with engagement with airport stakeholders contributing to a reduction in emissions. 18 per cent of BAC's annual energy consumption is generated by solar photo-voltaic systems. An Energy Management Strategy developed in 2018 outlines the preferred mix of grid electricity and renewables to ensure energy security and quality while meeting emissions reduction commitments. An Emissions Reduction Strategy outlines a commitment to emission reduction through a low carbon sets a blueprint for continued improvement in performance.

## POTENTIAL ENVIRONMENTAL IMPACTS

Activities contributing to the potential environmental impacts of energy consumption and carbon emissions include:

- Aircraft operations and operation of buildings and terminals;
- Operation of vehicle fleets, maintenance and ground support equipment;
- · Back-up energy generators and refrigeration/air conditioning.

## MEASURES TO PREVENT, CONTROL OR REDUCE ENVIRONMENTAL IMPACTS

Energy demand forecasting considers one and five year horizons to identify the optimal mix, and ensure energy security, between grid-based and on-site renewable energy. Measures to prevent, control or reduce environmental impacts include:

- Ongoing upgrades to energy efficient fittings;
- Effective asset management programmes;
- Encouraging use of fixed or mobile ground power;
- Compliance with the energy requirements of Section
   J in the Building Code of Australia;
- Installation of solar PV to reduce grid electricity usage.

## SUSTAINABLE AVIATION FUELS

The largest source of carbon emissions come from the burning of fossil fuels in aircraft landing/take off cycles and aircraft auxiliary power units. Opportunities exist for progressing the supply of sustainable aviation fuels at Brisbane Airport given the airport's location and the access and proximity to the relevant supply chain.

Airlines can reduce fuel consumption by transitioning to newer, more efficient aircraft and further reduce their emissions from offtake agreements with sustainable aviation fuel suppliers. Brisbane Airport supports the supply and use of sustainable aviation fuels and encourages partners in their emission reduction efforts.

## **⊘** ACTIVE MEASURES FOR REDUCING GREENHOUSE GAS EMISSIONS

Identify tenant and retail opportunities for energy-saving measures and/or solar PV installation where eligible.

Support the production, supply and delivery of sustainable aviation fuels at Brisbane Airport.

Ongoing upgrades to energy efficient fittings.

Maintain Level 3 (Optimisation) Airport Carbon Accreditation under the Airports Council International program.

Maintain compliance monitoring and reporting for the National Greenhouse and Energy Report (NGER) and National Pollutant Inventory (NPI) and records of ozone depleting substances in use.

	○ TIMEFRAME
Review Brisbane Airport Corporation's emissions reduction targets.	2020, 2025
Review the Brisbane Airport emissions reduction strategy.	2023
Install up to 10MW of solar photo-voltaic panels on airport.	2025

## CLIMATE CHANGE **ADAPTATION**





## **KEY OBJECTIVES 2020-2025**

- ⊗ Identify and assess the risks that a changing climate may pose to current and future developments at Brisbane Airport.
- Observation Determine appropriate climate change adaptation planning responses to manage

Brisbane Airport recognises that actions and decisions today need to account for the predicted impacts of climate change. A Climate Change Adaptation Plan (CCAP) details potential risks and impacts and outlines actions needed to develop resilience against these risks.

## POTENTIAL ENVIRONMENTAL IMPACTS

Climate change adaptation planning at Brisbane Airport commenced in the 2000's, largely addressing sea level rise. The CCAP, updated since the 2014 Master Plan addresses all significant climate stressors and impacts. The latest version incorporates the Intergovernmental Panel on Climate Change (IPCC) Assessment Report 5 (AR5) and Special Report (SR15) recommendations and CSIRO and Bureau of Meteorology 2016 observations.

Emissions scenarios and their impacts on climate considered in the modelling are examples of a 'low' representative concentration pathway (RCP 4.5) and 'high' (RCP 8.5) case in the short term (2030) and long term (2090).

The 'low' case represents the pathway that current global agreements appear to be capable of achieving, whilst the 'high' case is based on business as usual. The more extreme scenarios are not considered relevant at this stage, although projections may be included where relevant for comparison.

- a) RCP 4.5 Second lowest emissions scenario <3 degrees Celsius above pre-industrial global mean temperatures by 2100.
- b) RCP 8.5 High emissions scenario and >4 degrees Celsius above pre-industrial global mean temperatures by 2100.

At Brisbane Airport, both scenarios are forecast to result in the following physical risks and impacts, with various levels of severity.

### Precipitation change

Airfield flooding, ground subsidence, reduction in airport throughput, inundation of underground infrastructure, inundation of ground transport access, loss of local utilities to airport surfaces, increased cooling loads, pressure on utilities providers (power and water), limitations for freight capacity.

## Changes in wind

Flight paths, route extensions due to convective weather, jet stream can increase en-route turbulence, changes to distribution of noise impact to surrounding areas.

### Sea-level rise

Loss of capacity, infrastructure and ground transport access.

## Extreme events

Disruption to operations, route extensions, disruption to ground transport access and supply of utilities. Specifically, potential impacts could include increased natural resource consumption, loss of flora and fauna, increased fire hazard or changes to aircraft noise impacts.

## **MEASURES TO PREVENT, CONTROL** OR REDUCE ENVIRONMENTAL IMPACTS

Actions taken to reduce the impact of climate change include: Adaptation measures incorporated into new infrastructure and precinct planning design with the application of minimum design levels for resilience to sea level rise and storm surge.

Working with airport operators to develop efficient and appropriate management plans for airside operators to action in severe weather events, including a technical standards review to ensure materials and designs consider future environmental factors.

## ACTIVE MEASURES FOR CLIMATE CHANGE ADAPTATION

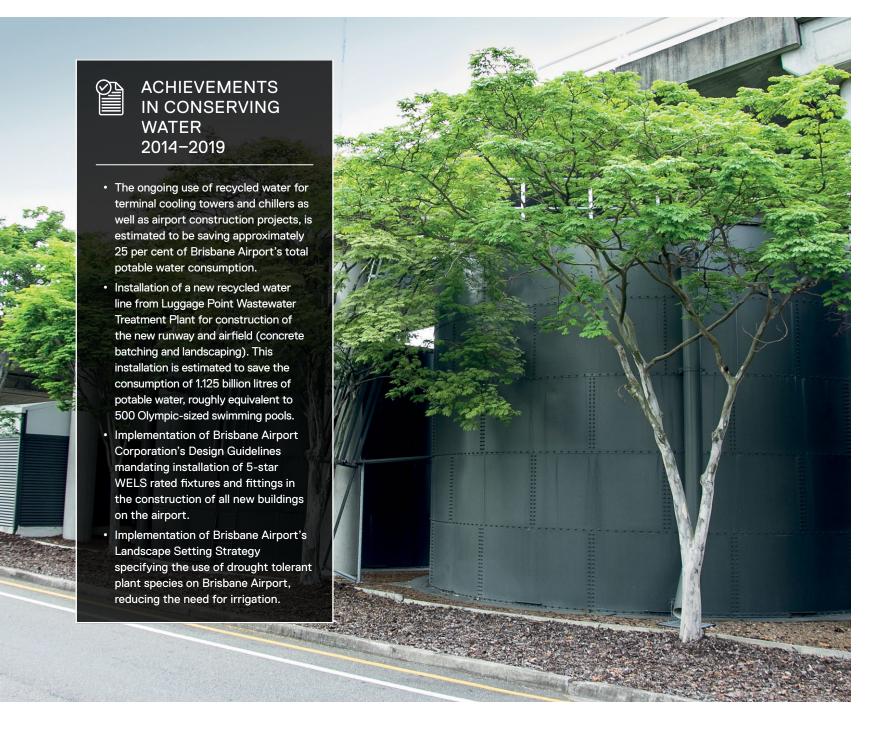
Ensure planning and design incorporates the impacts of climate change e.g. minimum design levels for sea level rise and storm surge.

Ensure airside operators develop efficient management plans for severe weather events.

	○ TIMEFRAME
Identify potential climate change risks and opportunities under 1.5 and 2 degree warming scenarios.	2020
Review the Brisbane Airport Climate Change Adaptation Plan against the 6th Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC).	2022
Implement actions to reduce high risk impacts outlined in the Climate Change Adaptation Plan.	2023

BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN BRISBANE AIRPORT 2020 PRELIMINARY DRAFT MASTER PLAN **AREAS OF FOCUS** 

## WATER CONSERVATION





## **KEY OBJECTIVES 2020-2025**

- S Ensuring the reduction and efficient use of potable water and increased use of recycled water on airport

## WATER MANAGEMENT AT BRISBANE AIRPORT

From 2020, Brisbane Airport is forecast to be consuming more than 950 million litres of water a year. Policies to properly conserve and reduce excessive use of potable water are an organisational priority.

Brisbane Airport has both a potable water and recycled water network. The recycled water network consists of;

- Class A water sourced from Queensland Urban Utilities (QUU) Gibson Island Wastewater Treatment Plant, and
- Class A+ equivalent water sourced from the QUU Luggage Point Wastewater Treatment Plant.

Stormwater is also captured for on-site reuse.

## POTENTIAL ENVIRONMENTAL IMPACTS

A high volumes of potable and recycled water is used by

- · Cooling towers/chillers.
- Construction activities.
- · Irrigation.
- · Toilets and bathrooms.
- · Cooking.
- · Drinking fountains.

Environmental impacts include depletion of local natural resources, particularly during drought conditions.

## MEASURES TO PREVENT, CONTROL OR **REDUCE ENVIRONMENTAL IMPACTS**

Water Efficiency in operations and construction.

Where recycled water cannot be substituted for potable water, efficient water use is essential.

Construction and design guidelines for buildings and other processes have been developed to ensure water is used efficiently.

## Potable Water

Management of water consumption remains a priority at Brisbane Airport with a strong focus on the increased use of recycled water and ongoing investigation of new opportunities and technologies to reduce potable water consumption.

Where use of recycled water is not possible, building design and planning guidelines are implemented to ensure fixtures and fittings are of the highest water efficiency standard possible.

## Recycled Water

Brisbane Airport benefits from the availability of recycled water from the local utilities supplier. In the mid-2000s, the airport installed infrastructure between Sugarmill Road and the Domestic Terminal to transport Class A water for irrigation and construction, with water then fed into a Nano-Filtration plant and treated for use in cooling towers.

Stormwater from the onsite lakes in Skygate was also connected to this network but discontinued due to operational inefficiencies to the Nano-Filtration plant.

In 2018, a new recycled water line from the Luggage Point Wastewater Treatment Plant was constructed with the primary purpose of providing water for the development of the new runway project.

Once completed it will be directed to the Domestic Terminal and International Terminal precincts, increasing the use of recycled water and reducing consumption of potable water.

It is envisaged that once this supply of recycled water is provided to the terminals, Brisbane Airport will decommission the Nano-Filtration plant.

## ACTIVE MEASURES FOR CONSERVING WATER

Investigate the upgrade of existing, less efficient cooling towers/chillers, wherever feasible

	○ TIMEFRAME
Investigate the upgrade of existing, less efficient cooling towers/chillers, where feasible	2020
Investigate the expansion of the recycled water network to incorporate other areas of the airport.	2022
Review the Brisbane Airport Recycled Water Management Plan	2021
Extend the Class A+ recycled water pipeline to the Domestic Terminal for supply of Class A+ recycled water	2022
Review and update planning and design guidelines to ensure all latest water efficiency technology is considered	2023

## REDUCING WASTE



## ACHIEVEMENTS IN REDUCING WASTE REDUCING WASTE 2014-2019

- The Brisbane Airport 2018 Zero Waste Strategy was developed to focus on reducing food waste and coffee cup waste with an increase in co-mingled recycling rates including glass and plastic bottles.
- · Oz Harvest now undertakes daily collections from Airport caterers, collecting and redistributing quality excess food. Food donations have increased five-fold since 2014 and now represent more than 50,000 kilograms a year.
- 1,000 aerosols donated by international passengers unable to take them on board are redistributed to women's and homeless shelters every year.
- A new cardboard compactor saw a doubling in recycling volumes from 150 tonnes to 300 tonnes in 2017.
- Dedicated coffee cup bins installed in the International Terminal in 2017 prompt coffee drinkers to separate the lids, cups and liquids.





## **KEY OBJECTIVES 2020-2025**

- ⊗ Reducing waste to landfill by encouraging recycling and the reuse of resources.
- Supporting Government policies on sustainable waste management.
- ᠃ Progress towards zero waste and circular economy operations.

## **WASTE MANAGEMENT RESPONSIBILITIES**

Changing patterns of consumption and recycling practices and continued passenger growth will see a steady increase in waste, requiring active management. Food waste, takeaway coffee cups, PET bottles and single use plastics are under the public spotlight due to the wide-reaching environmental impacts they are causing.

BAC has historically adopted a traditional waste management hierarchy focusing on resource conservation and prioritises practices from waste prevention to waste disposal.

In the 2017 Annual Sustainability Report, it committed to zero waste to landfill from its offices by 2025 and from all operations by 2030, encouraging a transition from a linear, waste hierarchy to a more circular, zero waste hierarchy.

The zero waste hierarchy was adopted to provide a more in-depth approach to the original waste management hierarchy. It provides a guide for businesses and individuals to move closer towards zero or minimal waste. Circular economy thinking and practices will be integral to the success of this goal.

BAC manages all waste generated in the terminals, Skygate Dining and Home and Life Centres, the Airport Service Centre, airport offices and maintenance areas.

Waste types generated and managed at Brisbane Airport Include: general waste, cardboard/paper for recycling, co-mingled recycling, quarantine waste, hazardous/regulated waste, trade waste, sharps/clinical waste, sanitary waste and construction and demolition waste.

## POTENTIAL ENVIRONMENTAL IMPACTS

Activities at Brisbane Airport which generate solid, non hazardous waste include:

- · Waste from aircraft cabins and quarantine.
- · Waste from construction and demolition activities.
- · Waste from retail, outlets, public areas and office activities.

Environmental impacts associated with waste include:

- · Land degradation.
- Biodiversity loss.
- · Air, surface and groundwater emissions.

## **BEST PRACTICE RESOURCE MANAGEMENT**

Best practice resource management actions fall into three areas; Airport controlled areas; tenant controlled areas and public areas. In airport controlled areas, staff and contractors are provided with the information to ensure appropriate segregation and minimisation activities are undertaken.

For the Oz Harvest waste reduction programme, Airport Ambassadors help sort unused food from the Q Catering facility enabling almost 50 per cent of annual food donations. Waste and procurement guidelines are available for retail tenants, and contractors have waste targets clearly outlined in leases and other management documents. In public areas, Brisbane Airport promotes Queensland Government's waste initiatives and actively seeks ways for reducing waste streams and identifying circularity projects.

## ACTIVE MEASURES FOR REDUCING WASTE

Improve recycling rates from BAC controlled areas and public areas.

Actively seek recycling and reuse opportunities that support the local community.

Identify additional food recovery sources for the OzHarvest food donation program across Brisbane Airport.

	○ TIMEFRAME
Investigate the implementation of circular economy principles in terminal operations.	2021
Engage with food and beverage retailers to manage and reduce back-of-house waste, particularly food waste.	2022
Investigate methods to reduce quarantine waste.	2023
Develop and implement initiatives to achieve zero waste to landfill from BAC offices.	2025

419

**AREAS OF FOCUS** 

# 10. PROTECTING BIODIVERSITY





## KEY OBJECTIVES 2020-2025

- ᠃ To minimise habitat for wildlife species that pose a risk to aircraft operations.

## MAINTAINING BIODIVERSITY VALUES

Environmentally Significant Areas (ESA) identified at Brisbane Airport in line with Airport Legislation, include

- Jubilee Creek/Serpentine Inlet ESA.
- Jackson's Creek ESA.
- Pinkenba ESA.
- Lewin's Rail ESA.

These areas are managed as part of a broader Airport Biodiversity Zone, comprising over 10 per cent of the 2,700 hectare site, designated in the 2009 Master Plan to maintain sites of high biodiversity conservation value. In addition, a 40 metre buffer zone occurs around key areas of the biodiversity zone to contain commercial development and conserve biodiversity features. A variety of terrestrial vertebrate species occur within or near the airport, with various degrees of conservation significance. BAC ensures that the management of airport biodiversity zone is at least consistent with the management of adjacent (off airport) conservation areas.

## **FLORA**

Conservation values of vegetation communities at the airport are low overall, with man-made habitats (mown grasslands, casuarina plantations and landscaped areas) having the lowest conservation value. Areas of higher conservation value include mangrove and saltmarsh communities and intertidal sandflats adjacent to the foreshore. There are, however no plant species of conservation significance at Brisbane Airport.

## Mangroves

With the exception of some remnant mangrove communities at Serpentine Creek Inlet and Jubilee Creek, mangroves on the airport are largely regrowth.

Consistent with other estuaries on the South-East Queensland coast, remnant and regenerating mangroves species at the airport are dominated by Grey Mangrove. (Avicennia marina)

## Saltmarsh mudflats

Saltmarsh and saltpan communities occur adjacent to mangrove communities and other areas associated with a saline environment. Typical species include Salt Couch (Sporobolus virginicus), Sea Purslane (Sesuvium portulacastrum), Ruby Saltbush (Enchylaena tomentosa), and Seablite (Suaeda australis).

## Phragmites wetlands / unmanaged grasslands

This vegetation community is dominated by the Common Reed (Phragmites australis), with a height of up to 2.5m. Other species include Juncus continuus, Fimbrisylis sp., Bunchy Sedge (Cyperus polystachyos) and pennywort (Centella asiatica), bindweed (Convolvulus erubescens) and kidney grass (Dichondra repens), with different height grasses/sedges including carpet grass (Axonopus fissifolius) and dianella (Dianella longolfolia)) and large grasses e.g. Brachiaria mutica, Bromus catharticus, Chloris gayana, and Holcus lanatus. Woody weeds are also present and are slashed periodically to maintain a wetland habitat.

## Casuarina plantations

These plantations consist of a planted monoculture of Swamp Oak (Casuarina glauca) chosen for its relatively poor fauna habitat potential and ability to exist within saline soils. Plantation understorey varies from non-existent, to weed infested, with the extent of weed infestation dependent upon Swamp Oak maturity, soil type, and salt water inundation. Casuarina plantations are not representative of regrowth or remnant vegetation communities.

## Mown grasslands

Regularly maintained mown grasslands surround the runway and taxiway systems with landscaped sections in built up areas.

## **VEGETATION COMMUNITIES**



### FAUNA

A variety of terrestrial vertebrate species occur within or near Brisbane Airport, with various degrees of conservation significance under international, Commonwealth, state and local levels.

Migratory species of significance include the 'Endangered' Eastern Curlew (Numenius madagascariensis) and Little Tern (Sternula albifrons); birds of prey such as the Whitebellied Sea-eagle (Haliaeetus leucogaster) and Square-tailed Kite (Lophoictinia isura); wader birds such as the Blacknecked Stork (Ephippiorhynchus asiaticus) and 'Endangered' Australasian Bittern (Botaurus poiciloptilus).

Species of local significance include the 'Least Concern' Lewin's Rail (Lewinia pectoralis), Eastern Grass Owl (Tyto capensis), King Quail (Coturnix chinensis) and Red-bellied Black-snake (Pseudechis porphyriacus). Terrestrial vertebrate species richness has been recorded as high as a total of 204 different species, comprising 8 amphibians, 19 reptiles, 151 birds and 26 mammals, exhibiting a relatively stable trend over time.

### Birds

A large variety of forest-dependent bird species are present in the casuarina plantations due to woody weed encroachment providing a micro habitat layer. Silvereyes (Zosterops lateralis), Mangrove Gerygones (Gerygone levigaster), Grey Fantails (Rhipidura albiscapa), Rufous Whistlers (Pachycephala rufiventris) and Olive-backed Orioles (Oriolus sagittatus) are common and breed within the plantations. Bird species found in the Phragmites wetland/unmanaged grasslands include Tawny Grassbirds (Megalurus timoriensis), Golden-headed Cisticolas (Cisticola exilis), Chestnut-breasted Mannikins (Lonchura castaneothorax), Brown Quail (Coturnix ypsilophora) and Lewin's Rail.

The Eastern Grass Owl and King Quail have also been located. Grassland bird species exist in the mown grasslands of the airfields ranging from Richard's Pipits (Anthus novaeseelandiae) and Masked Lapwings (Vanellus miles) up to wader birds such as Cattle Egrets (Bubulcus ibis) and ibis, with birds of prey such as Nankeen Kestrels (Falco cenchroides), Brown Falcons (Falco subniger) and Whistling Kites (Haliastur sphenurus).

### Mammals

Terrestrial mammals consist mainly of hares, foxes and black rats, however Northern Brown Bandicoots (Isoodon macrourus) and Australian Swamp Rats (Rattus lutreolus) are present, with flying foxes (including the 'Vulnerable' Greyheaded Flying Fox (Pteropus poliocephalus)) and microbats (e.g. the Southern Myotis (Myotis adversus)) transiting or foraging onsite. The 'Vulnerable' Australian Humpback Dolphin (Sousa sahulensis) has occasionally been recorded in the adjacent Kedron Brook Floodway.

## Reptiles and amphibians

Reptiles of significance include the locally significant Red-bellied Black-snake and occasional recordings of the 'Vulnerable' Green Sea Turtle (Chelonia mydas) in tidal creeks. Other reptiles include Eastern Brown Snakes (Pseudonaja textilis), Marsh snakes (Hemiaspis signata), and small skinks such as Calyptotis scutirostrum and Robust skinks (Ctenotus robustus). Amphibians include Striped Rocket Frogs (Litoria nasuta), Striped Marsh Frogs (Limnodynastes peronii) and Cane Toads (Bufo marinus).

## Finfish and benthic invertebrates

Finfish and benthic invertebrates occur within airport channels and wetlands. In general, finfish and invertebrates consist of species common to tidal drainages and foreshore habitats in the Moreton Bay region and comprise several species of prawn, crab and fish of commercial and recreational value, supporting habitats that contribute to fisheries production in the wider region. No 'threatened' species under Commonwealth or state legislation occur within or adjacent to the Brisbane Airport site.

## MIGRATORY SHOREBIRDS

Migratory shorebirds using intertidal mudflats on a 3km-long stretch of northern boundary foreshore have been monitored from September to April. Annually, between 1,000 to 2,500 birds have been recorded including large numbers of three critically endangered species (Curlew Sandpiper (Calidris ferrugin), Great Knot (Calidris tenuirostris) and Eastern Curlew) and two endangered species (Red Knot (Calidris canutus) and Lesser Sandplover (Charadrius mongolus).

## **AVIATION WILDLIFE HAZARDS**

Brisbane Airport is committed to ensuring the safety of aircraft. The Brisbane Airport Wildlife Hazard Management Plan defines the risk wildlife pose to air traffic, setting objectives, performance indicators and procedures for risk management.

Compliant with Civil Aviation Safety Regulations 1998, Manual of Standards Pt 139, Chapter 10.14, and Civil Aviation Safety Authority Advisory Circular 139-26 on Wildlife Hazard Management at Aerodromes, it aims to reduce the frequency and severity of strikes by focusing efforts on species and habitats constituting significant hazards to aircraft.

## POTENTIAL ENVIRONMENTAL IMPACTS

Potential impacts on local biodiversity include;

- Loss of significant flora and fauna species.
- · Reduced fauna diversity and abundance in local area,
- Increased sediment and nutrients into local waterways.

## MEASURES TO PREVENT, CONTROL OR REDUCE ENVIRONMENTAL IMPACT

The Biodiversity Management Strategy ensures appropriate management of the ESAs and Biodiversity Zone and aims to;

- Improve operational and construction activities that may be detrimental to species, ecological communities or ecological processes on airport land.
- Implement strategies to improve the airport's degraded biodiversity and ecological processes.
- Retain significant biodiversity values whilst simultaneously reducing the risk of aircraft wildlife strikes.

Ongoing commitments involving monitoring of key biodiversity values to ensure habitats remain viable over time, include;

- Lewin's Rail call playback to determine presence/absence and vegetation height/density assessments in the Lewin's Rail ESA to ensure habitat remains viable for the species.
- Mangrove and saltmarsh monitoring in all estuarine ESAs.
- Annual migratory shorebird monitoring at the airport foreshore and high tide roost sites.

## **⊗** ACTIVE MEASURES FOR PROTECTING BIODIVERSITY

Manage all pest and invasive exotic species incursions.

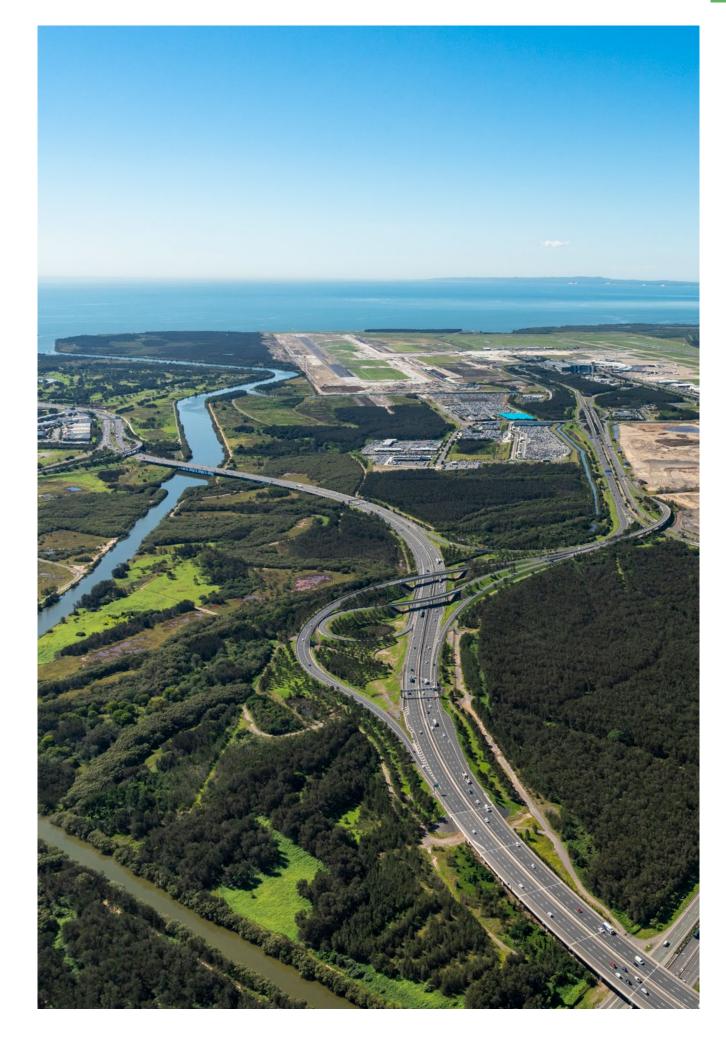
Engage with adjacent land owners regarding thr consistent management of on and off airport biodiversity zones.

Implement annual monitoring requirements in line with the Biodiversity Management Strategy.

 $\label{thm:condition} \mbox{Undertake woody weed removal in the Lewin's Rail Environmentally Significant Area.}$ 

Consider opportunities for new vegetation communities in new developments compatible with airport operations.

	○ TIMEFRAME
Review and update the Fire Management Plan to incorporate the operation of the new runway.	2021
Undertake review of airport-wide terrestrial fauna survey.	2024





## 1 LEWIN'S RAIL ESA

The Lewin's Rail ESA is an area of Phragmites wetland/unmanaged grassland on the central-western boundary. It is a modified, ephemeral, palustrine (swamp) wetland in low lying coastal and estuarine floodplains.

Constructed runnels capture rainfall, supporting organisms dependent upon water for at least part of their life cycle. It provides habitat for four locally significant fauna species, (Lewin's Rail, Eastern Grass Owl, King Quail and Red-bellied Black-snake). Woody weed encroachment occurred following a 2007 wildfire, with annual removal undertaken to maintain the vegetation community and habitat values of the site.



## 2 JACKSON'S CREEK ESA

Jackson's Creek ESA is a 30 hectare area of remnant mangrove habitat surrounding Jackson's Creek, located on the north-western boundary .

This ESA contributes to the wider habitat value, productivity, and fisheries values of Moreton Bay. The Grey Mangrove is dominant, however the River Mangrove (Aegicera corniculatum) and Yellow Mangrove (Ceriops tagal) also occur in dense stands, with saltmarsh mudflats on areas of higher ground.



## 3 PINKENBA ESA

Pinkenba ESA is a 5 hectare area of remnant mangrove habitat located on the western boundary of the Pinkenba community, forming part of the original floodplain of Boggy Creek. Saltmarsh communities are present within and adjacent to the ESA with the Grey Mangrove dominating the site.

While the ESA contains well developed and vigorous mangrove forest, there was also a large area of mangrove dieback in the north-western portion of the ESA that has since been rectified through drainage maintenance work.



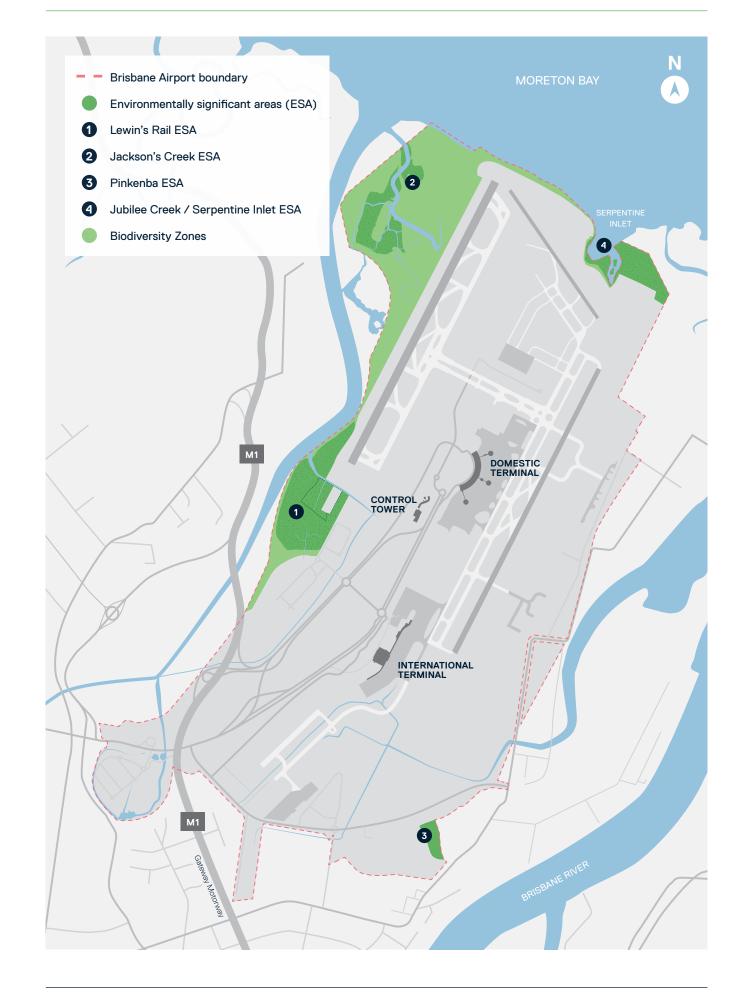
## 4 JUBILEE CREEK / SERPENTINE INLET ESA

Jubilee Creek/Serpentine Inlet ESA comprises 30 hectares of remnant and constructed elements of intertidal and subtidal wetland areas that historically formed the estuary mouth of Serpentine Creek.

Located along the northern boundary, it has very high conservation value. The community type is uncommon within Moreton Bay and is contiguous with the Luggage Point to Jubilee Creek mangrove community.

The Grey Mangrove (Avicennia marina) is dominant with sparse stands of Red Mangrove (Rhizophora stylosa), Yellow Mangrove (Ceriops tagal) and River Mangrove (Aegiceras corniculatum) also present.

## ENVIRONMENTALLY SIGNIFICANT AREAS AND BIODIVERSITY ZONES AT BRISBANE AIRPORT



**AREAS OF FOCUS** 

CHAPTER 10 AIRPORT ENVIRONMENT STRATEGY

KEY OBJECTIVES 2020-2025

- Solution Ensure airport management is guided by identified heritage values.
- $\, \odot \,$  Ensure identified heritage values at Brisbane Airport are understood and interpreted.

## 11. PRESERVING & PROMOTING HERITAGE



## PRESERVING HERITAGE

The cultural heritage of the airport is strongly tied to Aboriginal and Torres Strait Islanders connection to the land, and includes:

- Traditions, ideas, skills or rituals, passed through generations;
- Expressive activities including language, music, dance and drama;
- Sites, landscapes and areas of significance;
- Movable objects (artefacts).

## POTENTIAL ABORIGINAL HERITAGE RISKS

Aboriginal heritage risks and impacts include:

- Lack of recognition of Aboriginal heritage values and places resulting in loss of cultural heritage values;
- Lack of consultation with Aboriginal parties resulting in heritage values not being understood or interpreted, and;
- Risk of inadequate archaeological management resulting in loss of cultural heritage values.

## POTENTIAL HISTORIC HERITAGE RISKS

Historic heritage risks include the risk of redevelopment and demolition of heritage assets and inadequate archaeological management resulting in loss of historic heritage values.

## **ACTIONS TO PREVENT, CONTROL OR REDUCE RISKS**

Brisbane Airport has a regular and positive engagement and consultation process with Traditional Owners and other Aboriginal stakeholders. Training for management personnel is provided on the heritage values and management requirements of the airport site. For all earthworks, a stop works procedure is implemented for any suspected archaeological finds.

Brisbane Airport also continues to implement requirements of the Southern Cross Aircraft Warehousing and Display Agreement with the Commonwealth Government. The management of heritage on Brisbane Airport is conducted in accordance with the Brisbane Airport Heritage Management Plan developed in consultation with Traditional Owners in 2016.

## **⊘** ACTIVE MEASURES FOR PRESERVING AND PROMOTING HERITAGE

Host annual Heritage Management Plan compliance meetings with Traditional Owners.

Undertake annual training for management personnel on the heritage values and management requirements of the Brisbane Airport site.

Implement the stop works procedure for suspected archaeological finds.  $\label{eq:constraint}$ 

Implement requirements of the Southern Cross Aircraft Warehousing and Display Agreement between BAC and the Commonwealth Government.

Host airport tours to groups to convey the heritage values of the Brisbane Airport site.

Update website content on European historic heritage and Aboriginal cultural and spiritual significance of the Brisbane Airport area.

	○ TIMEFRAME
Investigate the potential to construct a heritage trail, linking the Auto Mall development site and the Kingsford Smith Memorial.	2021
Undertake a review of the Brisbane Airport Heritage Management Plan and incorporate the operation of the new parallel runway system into the plan.	2021
Undertake archival recording of the Cribb Island Complex.	2023
Prepare an interpretation strategy of the Cribb Island Complex and Kingsford Smith Memorial.	2024

## HISTORIC HERITAGE

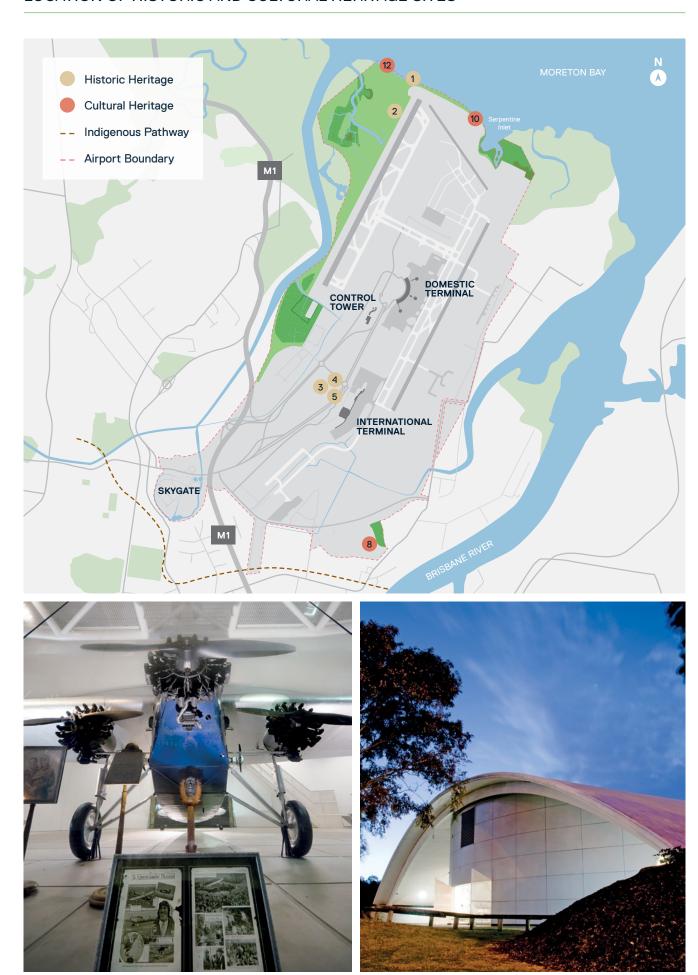
SITE ID	SITE NAME	COMMENTS	SIGNIFICANCE
1	Cribb Island Complex (the Jetty is located off airport land)	The complex provides physical evidence of the former Cribb island community and is considered significant at a local level for social reasons. There may be archaeological remains at the site in addition to the Cribb Island dressing shed foundations, the retaining wall, memorial plaques and former roads.	Low
2	Former Cribb Island School site	The former school site has low archaeological potential for the footings of the former school building, although this is under the terminal area radar station.	Low
3	Kingsford Smith Memorial including the Southern Cross aircraft	The memorial houses the plane that was flown by Sir Charles Kingsford Smith in 1928, which famously landed at Eagle Farm Aerodrome.  The memorial itself is significant as a museum but the key values of this site relate to the aircraft and artefact.	Moderate (building)  Exceptional (aircraft and artefacts)
4	No. 460 Squadron Memorial	As a memorial to the RAAF 460 bomber squadron of World War Two, the memorial is considered significant at a local level for social reasons.	Low
5	Memorial gardens at the KSM gardens	Unofficial garden for the scattering of ashes.	Low

## **CULTURAL HERITAGE**

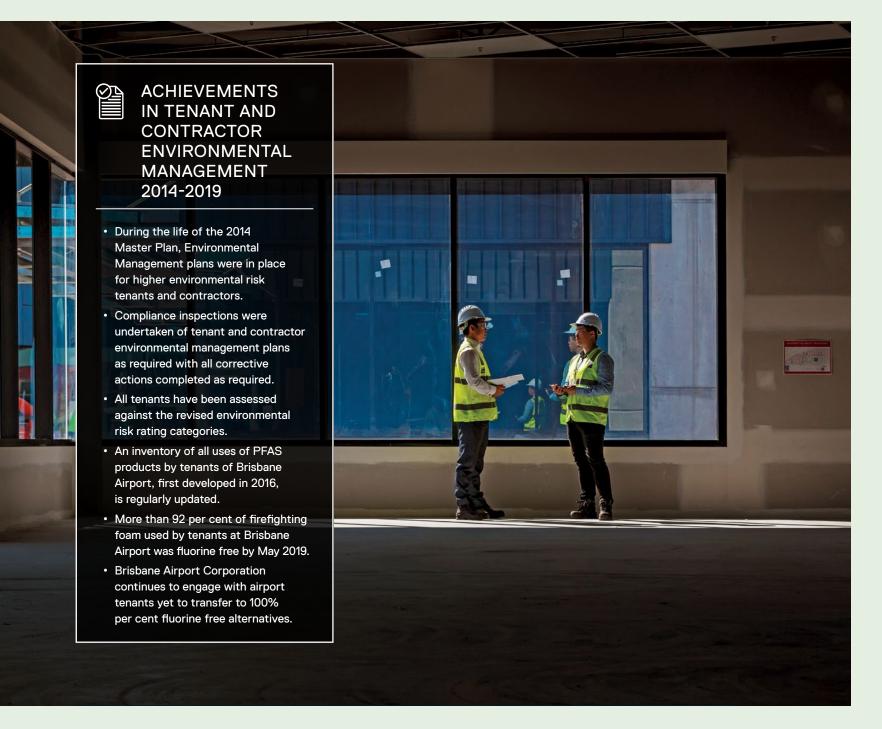
This section provides a summary of the Aboriginal cultural and spiritual significance of the Brisbane Airport area based on consultation with Traditional Owners, research, previous reports, and site surveys. The Brisbane Airport area retains cultural and spiritual significance for Traditional Owners. Some of the aspects listed are not able to be mapped.

NO.	ASPECT	COMMENTS
6	Dreaming Tracks & Dreaming Sites	An integral part of the Aboriginal people's connection to country, Brisbane Airport and surrounds are largely associated with  O1. Maiwar (Brisbane River) Dreaming Track  O2. Ballum Di (Brisbane River) Dreaming Song  O3. Murukutjin (Black swan) Dreaming Track
7	Pathways	The Nudgee to Eagle Farm pathway and connected Bora Rings, hunting grounds and campsites in the area. This pathway would have skirted around the very southern boundary of Skygate, cut across Viola Place on its way from Hedley Avenue to the army bulk stores, and continued on to the Brisbane River.
8	Ceremonial grounds	Possible Bora Ring at Pinkenba The existence of Bora Rings at the Nudgee Waterholes and elsewhere at Pinkenba indicate the cultural importance of the broader area in traditional times. Large-scale gatherings were an important aspect of Aboriginal culture in South East Queensland and bora grounds were often the meeting place used by groups for such gatherings.
9	Food & water resources	Wetlands, floodplains and swamps of the Brisbane Airport area provided a rich variety of food resources and useful materials and a sound base for a semi-permanent population.
10	Camp sites	A temporary campsite is said to have existed at the mouth of Serpentine Creek at Cribb Island on the beach (State Registered Site) and another near the rafting yards at Serpentine Creek (a State Registered Site which is no longer in existence).
11	Isolated finds	Relocation area for artefacts/pieces recovered during monitoring of Brisbane's new runway project. This site has not been identified to ensure protection of the artefacts kept in country within the Biodiversity Zone. Airport Burial Site – State Registered Site. The recorded location is now likely destroyed due to coastal erosion at the Brisbane Airport foreshore over time.
12	Burial site	Airport Burial Site – State Registered Site

## LOCATION OF HISTORIC AND CULTURAL HERITAGE SITES









## **KEY OBJECTIVES 2020-2025**

᠃ Provide direction to and measure how airport tenants manage their environmental responsibilities whilst undertaking operations and activities at Brisbane Airport.

## TENTANT AND CONTRACTOR MANAGEMENT

A large number of diverse businesses and organisations operate at Brisbane Airport. These businesses include tenants (and their subtenants), contractors (and their subcontractors), licensees and other operators.

As a key component of BAC's commitment to maintaining long term environmental sustainability, tenants and contractors working on the airport site are also required to ensure that environmental responsibilities and practices remain closely aligned with all levels of sustainability adopted by the Corporation.

To achieve that goal, BAC provides direction to, and closely monitors how, tenants and contractors manage their environmental responsibilities whilst undertaking operations and activities at Brisbane Airport.

In addition, BAC has established environmental risk rating profiles for all airport tenants through regular audits and monitoring with regular forums held to promote best practice environmental procedures to airport tenants.

## OVERVIEW OF ENVIRONMENTAL RISK RATINGS FOR AIRPORT TENANTS

## TENANT ENVIRONMENTAL RISK RATING SYSTEM

BAC assesses the potential environmental risk of all tenant activities . The level of risk assigned to each tenant is based on the highest rated activity undertaken by that tenant. Tenants are assessed prior to taking occupancy.

Assessment is based on the tenant's proposed 'Permitted Use' of the premises as detailed in the draft lease or letter of offer and any additional relevant information provided by the airport property manager.

## 'AA' Risk Tenants

- Includes those tenants with the potential to cause serious environmental harm (high impact and irreversible or creates substantial harm to health or safety or substantial damage to property).
- Bulk fuel storage and distribution facilities.
- Aircraft maintenance hangars that use firefighting foam containing chemicals persistent in the environment (notably PFAS).
- Facilities with large chemical/dangerous goods storage.

## 'A' Risk Tenants

- Tenants with potential to cause material environmental harm (significant impact OR harm to health or safety, or damage to property). For example:
- Aircraft maintenance hangars which have been proven to use fluorine-free firefighting foams.
- Facilities which have chemical/dangerous goods storage and regulated waste such as aviation hydraulic oils (e.g. aircraft maintenance hangars, fuel/chemical storage tanks).
- Large catering facilities.

## 'B' Risk Tenants

- · Tenants with potential to cause material or nuisance environmental harm (low impact, transient or interferes unreasonably with enjoyment). For example:
- Operation and maintenance of ground service equipment.
- Other maintenance workshops.
- Large warehouse facilities.

## C' Risk Tenants

- Tenants with potential to cause nuisance environmental harm (e.g. offices and retail stores).
- Tenants in this category are assessed based on lease entry and exit; in response to complaints; and to observations made during airport inspections made by BAC personnel. Tenants with a 'C' risk category are not required to submit audit results or provide operational environmental management plans.

## MEASURES TO PREVENT, CONTROL OR REDUCE ENVIRONMENTAL IMPACTS

## Operational Environmental Management Plans

Tenants with an environmental risk rating of AA, A or B are required to provide an Operational Environmental Management Plan (OEMP) and audit reports based on the environmental risk of their activities.

An OEMP is a tenant/site specific plan to ensure that appropriate environmental management practices are followed throughout the life of the tenancy.

An effective OEMP should ensure:

- Application of best practice environmental management.
- Compliance with environmental laws.
- That the environmental risk associated with the tenant's activities, and contractor activities, are properly managed.

Operational Environmental Management Plans must be consistent with Section 4 of AS/NZS ISO 14001 and include (but not be limited to) the following:

- Description of tenant's operations,
- Identification of environmental aspects and impacts,
- Determination of level of risk impacts,
- Management of impacts,
- List of standard operating procedures,
- Details of staff training and awareness,
- Details of the process to review and update the Plan,
- Identification of employees/positions responsible for environmental management on the site,
- Management of contractor's environmental risks and impacts,
- Environmental performance targets,
- Details of audit/review and improvement measures.

To assist tenants, Brisbane Airport has developed guidelines to assist in the development of an appropriate OEMP. The guidelines also contain an Activity Risk Register which provides guidance in determining an activity's risk rating and category.

Activities not included on this register will be assigned a risk category rating on a case-by-case basis.

## Use of Firefighting Foam

The Queensland Department of Environment and Science (DES) developed an Operational Policy for the Environmental Management of Fire Fighting Foams (2016) which establishes a framework for the environmental assessment of firefighting foam use in Queensland.

BAC determined based on currently available evidence and consistent with the DES Operational Policy, that Tenants must only use fluorine free firefighting foams at Brisbane Airport and in relation to those tenants with existing firefighting foam systems containing chemicals persistent in the environment long-term (e.g. PFAS), that they take steps to promptly transition to a fluorine-free system.

Tenants using mobile (wheeled or hand held) firefighting foam units must ensure they update their OEMPs to include a foam management plan in accordance with Brisbane Airport's Foam Management Plan Guidelines.

Tenants operating a fixed firefighting foam system of any type (deluge, canon or underwing) must ensure it is fitted with a fluorine free foam and update their OEMPs to include an Asset Management Plan for the firefighting foam system. This plan is to include, but is not limited to the following:

- 01. A description of the foam type used, its chemistry and effects if released into the environment, and the controls in place to prevent its release to the environment.
  - NB. Brisbane Airport must be notified of any proposed change in the type of foam used and its effect on the existing foam firefighting system, including equipment and system performance prior to implementation.
- 02. A risk assessment identifying how the firefighting foam system can fail and the likely points of failure. This is to be undertaken in collaboration with airport staff with relevant fire system experience.
- 03. Details on how the asset is being maintained in accordance with the manufacturer's specifications, including:
- A copy of the scheduled maintenance program for the foam system as detailed by Australian Standards, NFPA requirements and foam equipment manufacturers technical standards and data sheets.
- A copy of the capital replacement plan for the firefighting foam system.
- An indication of the annual operating expenditure for maintenance of the firefighting foam system.

In addition, tenants must submit annual Certificates of Maintenance in accordance with AS1851 to both the Airport Property Manager and the Queensland Fire and Emergency Service.

## **ENVIRONMENTAL AUDITING AND REPORTING REQUIREMENTS FOR TENANTS**

Based on their allocated risk category, airport tenants may be required to provide the airport with appropriate audit/review results as they become available. As part of this process, tenants must assess their progress to improve environmental performance of their operation by addressing environmental issues identified in previous internal and external audits and airport environmental inspections.

BAC undertakes scheduled and unscheduled tenant inspections based on audit findings. The inspections performed do not form the basis of an internal or external audit but are intended to assist airport tenants to comply with their obligations under Airports Legislation, Environmental Laws, Environmental Requirements and the requirements of their lease.

If a non-conformance is identified as a breach of the tenant's lease, they may be issued with a notice to remedy the nonconformance by the Brisbane Airport Property Manager. Depending on the nature and severity of the non-conformance, it may be necessary to seek legal advice. Certain incidents and non-conformances may require notification to the Airport Environment Officer from the Commonwealth Department of Infrastructure, Regional Development and Cities.

FREQUENCY OF AUDIT							
	'AA' TENANTS	'A' TENANTS	'B' TENANTS	'C' TENANTS			
External Audit	Annual	Biennial	As agreed by BAC	N/A			
Internal Audit	Annual	Annual	Annual	N/A			

## **AA AND A RISK TENANTS**

### Audits are to include:

- Assessment of environmental impact, including compliance with statutory requirements and conformance with the approved OEMP;
- Assessment of management practices and procedures relating to environmental performance targets (including waste management);
- Assessment of environmental safeguards in place to minimise risks and the level of environmental impact; and
- Assessment of emergency plans (relevant to environment only).

Findings of audits are to be presented in a format consistent with recognised standards for the reporting of environmental audits with all findings made available to Brisbane Airport by 31 July for the previous financial year.

## **B RISK TENANTS**

These audits require a less formal reporting structure but must address the same issues that 'AA' and 'A' tenants are required to address (see above). The results of audits are to be forwarded to Brisbane Airport by 31 July for the previous financial year.

## HAZARDOUS CHEMICALS AND DANGEROUS GOODS

Queensland Work Health & Safety Legislation regulates the storage and handling of hazardous chemicals and identifies manifest quantities of hazardous chemicals which, when exceeded, triggers notification requirements to Workplace Health and Safety, Queensland and the Queensland Fire and Emergency Service as well as placarding requirements.

Any new development or tenant proposing to store hazardous or flammable materials must be assessed and managed appropriately to address potential impacts on people, operations, and the environment.

Brisbane Airport engages an appropriately qualified contractor to act in the capacity of Dangerous Goods Advisors and to advise on the management of dangerous goods across Brisbane Airport, including tenanted areas where quantities stored have the potential to impact airport operations. Airport-wide audits of all areas are undertaken annually to identify facilities that meet placard and/or manifest requirements and ensure reporting, notification and emergency management requirements are maintained.

CHAPTER 10 AIRPORT ENVIRONMENT STRATEGY

CHAPTER 10 AIRPORT ENVIRONMENT STRATEGY

## CONTRACTOR OBLIGATIONS

## **⊘** ACTIVE MEASURES FOR ENVIRONMENTAL MANAGEMENT (TENANTS)

'AA', 'A' and 'B' environmental risk tenants must complete Operational Environmental Management plans for their activities and update as required.

Brisbane Airport will review tenant Operational Environmental Management plans for consistency with Guidelines.

Brisbane Airport will conduct annual inspections to assess compliance with tenant operational environmental management plans. (not including class C tenants).

Each quarter, or as required, through the tenant engagement program Brisbane Airport will communicate environmental matters of interest to airport tenants.

'AA', 'A' and 'B' environmental risk tenants must annually provide copies of internal and/or external audit reports.

Tenants must comply with the Queensland Firefighting Foam Policy (2016).

Tenants must ensure that firefighting foam management plans/asset management plans are included in Operational Environmental Management plans.

Tenants must ensure that annual Certificates of Maintenance (as per AS1851) of fire systems are submitted to airport property managers and to the Queensland Fire and Emergency Services.

Tenants must ensure regulated waste is managed in accordance with relevant state guidelines.

Tenants must remove and remediate end-of-life underground fuel storage tanks and replace with above-ground storage tanks or other alternatives (e.g. electrical charging stations).

BAC will continue to ensure airport-wide audits of dangerous goods are undertaken to identify facilities that meet placard and/or manifest requirements, and ensure reporting, notification and emergency management requirements are maintained.

BAC will continue to ensure that any tenant development proposing to store hazardous or flammable materials is assessed and managed to address potential impacts on people, operations, and the environment.



## **KEY OBJECTIVES 2020-2025**

- Implementation of environmental management plans to minimise potential environmental impacts from contractor activities.
- ᠃ To design, construct and manage construction projects in accordance with the

  Brisbane Airport corporate sustainability principles and performance criteria.

## **OVERSIGHT OF CONTRACTOR ACTIVITIES**

To ensure that BAC continues to uphold the highest standards of all aspects of environmental management, contractors working on the airport site, as a condition of their engagement, are required to follow BAC guidelines including the completion of an Environmental Management Plan.

## POTENTIAL ENVIRONMENTAL IMPACTS

Potential environmental impacts include;

- Degradation of soil, surface and groundwater quality,
- · Emissions to land, water and air,
- Vibration and noise.
- Sedimentation of waterways and increased nutrification,
- Waste generation and natural resource consumption, and:
- Loss of biodiversity and historic and cultural heritage values.

## MEASURES TO PREVENT, CONTROL OR REDUCE ENVIRONMENTAL IMPACTS

## **Operational Contractors**

Operational contractors typically include security, IT, cleaning, waste, car parking and facilities management. Contractors with the potential to cause material nuisance, environmental harm or above must develop and implement Environmental Management Plans in accordance with airport guidelines.

BAC will conduct inspections and audits of compliance with Environmental Management Plans as required.

### **Construction Contractors**

Construction/development projects with the potential to cause material nuisance, environmental harm or above are managed through a Construction Environmental Management Plan (CEMP). Developed by the contractor, the plan specifically addresses the risks associated with the construction phases of the project, in accordance with guidelines.

Brisbane Airport has developed specific Guidelines for the creation of a CEMP that assist contractors in achieving the high level of environmental management for projects and developments at Brisbane Airport.

These guidelines are reviewed annually to ensure they reflect industry best practice. Once the contractor's project-specific CEMP is reviewed by Brisbane Airport, regular inspections of the project is undertaken to ensure contractor compliance with the CEMP. Any potential environmental issues are identified and corrective actions assigned during Brisbane Airport inspections.

Outcomes of the project inspections are then communicated to the Regulator.

## **⊘** ACTIVE MEASURES FOR ENVIRONMENTAL MANAGEMENT (CONTRACTORS)

Contractors (operational and construction) must develop Environmental Management Plans for their activities in accordance with BAC Guidelines.

Contractors (operational and construction) must implement measures to prevent, control or reduce environmental impacts from their activities in accordance with Environmental Management Plans.

BAC will review contractor Environmental Management Plans (operational and construction) for consistency with Guidelines.

BAC will conduct inspections of contractor activities (for material/nuisance environmental harm or above) to ensure compliance with Environmental Management Plans.