Archerfield

Brisbane's Metropolitan Airport

MASTER PLAN
2017 - 2037

Archerfield Airport Master Plan 2017-2037

and

Airport Environment Strategy 2017

July 2017

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Foreword

Thank you for your interest in our planning for the future of Archerfield.

Archerfield is a significant place in the history of international aviation. It is a significant place also in the soul of our nation through its multifaceted role during World War II. Above all it remains the heart of our community.

We are mindful of the responsibility entrusted to us of guiding the restoration and renewal of this precious resource.

This Master Plan and Environment Strategy sets the strategic framework for the continued development of Archerfield as Brisbane's metropolitan airport.

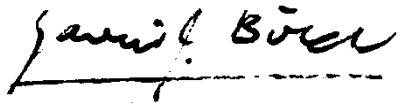
It is the fourth in a series of airport master plans prepared by Archerfield Airport Corporation since 1998. The plan provides a modest pathway to a sustainable future. It seeks to further embed the future of Archerfield within the South East Queensland (SEQ) region. It complements the SEQ Regional Plan.

The plan represents the earnest endeavours of the Archerfield Airport Corporation team to respond to the expectations of a diverse range of involved and interested parties, including our clients and our surrounding community.

The plan has been prepared having regard to the input of representatives of Brisbane City Council; and the State Department of Infrastructure, Local Government and Planning, Department of State Development, and other Departments of the Queensland Government over many years, and we are grateful for their guidance of our discernment in this regard.

The plan that is presented to you is considered in direction and deliberate in substance. It provides a sound platform for the next phase of regeneration of the national treasure that is Archerfield.

I commend the plan to you for your consideration.



Gavin J. Bird AM
Managing Director
Archerfield Airport Corporation
July 2017

Summary

INTRODUCTION

The *Archerfield Airport Master Plan 2017-2037* ('Master Plan') is the fourth master plan prepared for Archerfield Airport Queensland by Archerfield Airport Corporation ('AAC'). It was approved by the Minister for Infrastructure and Transport on 15 July 2017.

The location of Archerfield Airport is shown in Figure 1.

PURPOSE OF THE MASTER PLAN

The Master Plan describes the planning framework for development of the airport over the next 20 years.

The Master Plan must address a range of issues specified in the *Airports Act 1996*, and these are summarised in Chapter 1.

It provides the basis for the timely and coordinated development of aviation facilities and infrastructure, aviation and non aviation land use, and for appropriate management of the airport environment.

The Master Plan sets out the key issues facing the airport, concepts or options for addressing these issues, and defines the consultative and decision making processes that will be followed as the airport develops over the coming years.

Key development initiatives, and the catalyst for these, are described in Chapter 15.

This Master Plan includes in Chapters 13-16 and 18 the *Archerfield Airport Environment Strategy 2017*.

ACHIEVEMENTS: 1998-2016

AAC has over the period 1998-2016 implemented a number of projects that were foreshadowed in the first three Master Plans.

These include:

- road network improvements including an extension to Beaufighter Avenue, the redevelopment of Wirraway Avenue, and the creation of the Barton Street link (between Balham Road and Beatty Road, across the north of the airport);
- relocation of Queensland Government Air Wing (QGAir) to a new purpose built facility on Wirraway Avenue;
- decommissioning of the former QGAir helipad (in the south east part of the Airport) and a second helipad north of the Control Tower;
- purchase and refurbishment of the historic Airport Terminal building which is now the headquarters for AAC administration;
- restoration of the former Shell building;
- continued support for the conservation works by Friends of God's Acre cemetery;
- overlay of Runway 28L/10R.
- part reconstruction and overlay of taxiways Alpha, Bravo and Juliet, and aircraft parking areas;
- overlay of Qantas Avenue, Ditchmen Avenue and Lores Bonney Drive;
- reconstruction of the airport turbine pad;
- upgrading of airport security, including additional measures to control access to airside areas;
- construction of a long-term car park;
- development of major stormwater management basins and related infrastructure in the central, south-west and western parts of the airport;
- upgrading of electricity supply to the airport and development precincts;
- ongoing grounds and building maintenance including asbestos removal and building/hangar upgrading and regeneration;
- completion of a heritage study of the airport;

- development of corporate hangars, adjacent to the main runway and accessible from Wirraway Avenue;
- development of a new office and warehouse on Beaufighter Avenue;
- purchase of a number of hangars, and construction of a new hangar complex (site 235);
- remediation of known contaminated sites;
- implementation of rainwater collection measures in new developments (QGAir, corporate hangars and office/warehouse), changes to irrigation practices, upgraded water meters, and installation of water efficient fittings in new developments and refurbishments (including the Airport Terminal) in accordance with a *Water Efficiency Management Plan* (WEMP) prepared in consultation with tenants and Brisbane Water;
- specification of energy efficient services (air conditioning, lighting, etc) in new and refurbished developments;
- major refurbishment of two storey Building 9 to incorporate the Airport's first on site student accommodation and training operations;
- major upgrade and renewal of Hangar 6, including a new domed roof and offices, for LifeFlight Group Heavy Maintenance;
- upgrade and renewal of Hangar 5, including a new domed roof and improvements to drainage on southern side, for Archerfield Jet Base Fixed Base Operations (FBO);
- Transition Logistics Estate works;
- Fly Neighbourly program launched November 2015;
- transition from Registered Airport to Certified Airport on 12th April 2013; and
- optimisation of the Airport's airspace to cater for instrument approaches/departures and Category C Aircraft.

Further details are provided in Chapter 2.

AIRPORT CONTEXT

Location

The Airport is located approximately 11 kilometres by car south west of the Brisbane City Centre. The airport site covers approximately 257 hectares, and is generally flat and slopes gently west and south west to Oxley Creek.

History

Archerfield Airport served as Queensland's main airport between 1931 and 1949 and played a strategic role during World War II.

After the war, Eagle Farm dominated aviation activity and resources in the Brisbane Basin, and Archerfield assumed secondary significance.

Lack of investment caused a gradual decline in serviceability, such that by the late 1980s much of the infrastructure had declined towards disrepair. Environmental standards had deteriorated, and commerciality had eroded.

Throughout the 1990's determined efforts were made by the Federal Airports Corporation to restore the airport to viability, but a lack of investment capital hindered those endeavours.

In 1998, Archerfield was privatised.

It now operates as the major general aviation airport in Queensland, and the metropolitan airport for greater Brisbane. More detail on the history and heritage of the site is provided in Chapter 16 of the Master Plan.

Land use

The airport is surrounded to the north, north-west, east and south by mostly industrial and related uses. Some residential areas are located at Acacia Ridge to the south-east, Durack and Oxley (to the west side of Oxley Creek), and to the north in Rocklea and Salisbury.

To the west and south west is the Oxley Creek. This, in conjunction with the nearby Blunder Creek forms part of a regional habitat link and waterway running through the south west urban area of Brisbane, to the Brisbane River. The land use context is shown in Figures 3 and 10.

The Archerfield/Acacia Ridge area is one of the fastest growing industrial areas of Brisbane, and is part of the *South West Industrial Gateway* which is Brisbane's second most important industrial area (after the Australia TradeCoast).

As identified during the privatisation process, there remains over 75 hectares of undeveloped land on the airport that can be developed for non-aviation, aviation and

aviation compatible purposes. There are also opportunities for infill developments and the progressive renewal of some of the established parts of the airport, to better meet existing and future needs.

Accessibility

The airport is highly accessible to ground transport. It is close to the Ipswich Motorway (with a full interchange at Granard Road 600 metres to the north, and an on ramp for south-west bound traffic at Boundary Road, which is 500 metres to the west).

Access is also available from Beaudesert Road, which is between 900m and 1.3km to the east of the airport (via Boundary Road, Kerry Road or Mortimer Road).

The regional road system provides arterial linkages north to Brisbane via South East Freeway or Gateway Motorway, south east to the Gold Coast via the Pacific Highway or inland to Sydney via Ipswich.

The airport is also 1.6 km from the main National Rail freight intermodal terminal on the Brisbane to Sydney line. The rail and truck intermodal is located to the east of the airport, at the end of Kerry Road. The rail line provides freight access linking the Port of Brisbane to Sydney's freight and port network.

The airport is also serviced by a number of bus routes, and is close to the Coopers Plains railway station. The railway is part of the metropolitan passenger network, carrying services north to the Brisbane CBD, and the Airtrain that links Brisbane Airport to the Gold Coast.

THE VISION

Archerfield Airport Corporation strives to nurture the dynamic potential of Archerfield as a superior aviation destination.

Its vision is for the airport to be the focus of general and corporate aviation in South East Queensland and a sustainable aviation and enterprise hub, integrated with and serving the growing needs of Brisbane.

Archerfield is Brisbane's metropolitan airport. It will always be the focus of general aviation in Queensland. It will continue to develop as a centre of excellence for aeronautical and related activities, catering for corporate aviation, flying training, charter, freight, aeromedical and emergency services; supported by a range of allied businesses.

The airport infrastructure will be developed progressively to meet the changing needs of aviation and associated growth in Queensland. AAC will continue to work with existing aviation businesses on the airport to encourage their long-term sustainability, and will seek to attract new viable aviation businesses, where these are compatible with the vision for Archerfield.

Archerfield will also play a strategic role in the development of the *South West Industrial Gateway* of Brisbane, which has been designated by the Queensland State Government and Brisbane City Council (BCC) as one of the most important industrial areas in South East Queensland.

AAC will seek to build on the strengths of existing enterprises, facilities and infrastructure; and facilitate the development of industrial and appropriate commercial activities on land that is not required for aviation purposes.

AAC will work with BCC and the State Government to identify opportunities to attract and foster business investment that is complementary to the airport, and meets the emerging needs of the metropolitan and rural community and economy of Brisbane. These initiatives will be complementary to the continued development of the regional growth corridors which extend to the south and west of the airport.

DEVELOPMENT OBJECTIVES

AAC has set the following overarching objectives for development of the Airport:

- to nurture, maintain and develop airport facilities;
- to establish a complementary balance between aviation, aerospace, industrial and commercial developments;
- to enhance, promote and support the aviation image of the airport;
- to achieve best practice with significant developments;
- to be a good neighbour;
- to complement key objectives identified by State and Local Government authorities;

- to work with government and the local community to achieve the ecologically sustainable development of airport land;
- to attract commercially viable developments to aeronautical and non-aeronautical sites;
- to facilitate the regeneration of the South West Industrial Gateway of Brisbane by providing additional land required for industrial developments, compatible with the continued operation and growth of the airport; and
- to advocate for the enhancement of the surrounding road network.

LAND USE ZONES

The five land use zones proposed for the airport to the Year 2037 are shown in Figure 17 and discussed in Chapter 12.

The zones are:

- SP5 Special purpose (Airport)
- General Industry
- Light Industry/low Impact Industry
- CF3 Community facilities (Cemetery) (Gods Acre Cemetery)
- Conservation.

The land use plan for the airport is generally consistent with the strategies and policies of Brisbane City Council and the State Government and the wider South East Queensland regional plans.

The land use and zoning provisions generally follow those in the Brisbane City Plan.

AVIATION, LAND USE AND DEVELOPMENT PRECINCTS

The Master Plan divides the airport into eight precincts as shown in Figure 19 and discussed in Chapter 12.

These precincts are:

- **Runway**—which comprises all of the land used for runway and primary taxiway purposes.
- **Beatty**-this comprises land generally fronting Beatty Road, between the eastern most end of Runway 28/10 and Boundary Road.
- **Mortimer**—which is in the south east corner of the airport and extends to both sides of Beatty Road.
- **Beaufighter**—including land along Mortimer Road and Lores Bonney Drive, west to Oxley Creek, and north to the main runway complex.
- **Wirraway**—which is on the north side of the main runway complex and west of the secondary runways.
- **Boundary**—located along the south side of Boundary Road, between Beaufighter Avenue and the secondary runways;
- **Ashover**—located along the east side of Ashover Road, and bounded to the north by Balham Road and to the east by the secondary runway complex; and
- **Barton**-extending along the Barton Street frontage, and south along Beatty Road.

The primary functions and future plans for each of these precincts are discussed in Chapter 12.

AVIATION FACILITIES AND FUTURE NEEDS

Existing facilities

The airport has a multi-runway configuration comprising two parallel runways in two directions. Helicopter operations are facilitated with two helipads and separate parking areas (including one heliparking area for QGAir). Aircraft parking is currently available for 200 fixed wing aircraft in sealed and grass tie down spaces.

There are 72 hangars on the airport (most being able to accommodate multiple aircraft), 72 other buildings for aviation and non-aviation uses, and over 115 businesses on site employing hundreds of people. These features are shown in Figure 4.

Forecast aviation needs

The Master Plan forecasts that by Year 2037, Archerfield Airport will be catering for between 170,000 and 260,000 aircraft movements per year. More detail on trends, influences and assumptions behind the forecast is provided in Chapter 5.

Aviation projects

The Master Plan identifies a number of projects planned to improve the operation of the airport over the next 20 years.

The Master Plan does not commit AAC to implementing all of these projects, but rather sets out its vision and intentions based on its current understanding of the airport, the aviation and non aviation activities, and the emerging trends that impact on its operation.

Details of these proposals are given in Chapters 7 and 8.

Visual and non visual navigational aids

Global Positioning Systems (GPS) are becoming a primary navigational aid for aircraft operations. Two GPS approach procedures RNAV-$Z_{(GNSS)}$ have been prepared for airport operations.

The Non-Directional Beacon was decommissioned by Airservices Australia in May 2016 and replaced by a RNAV-$Z_{(GNSS)}$ procedure for Runway 10L (Cat C). Runway 28R has an existing RNAV-$Z_{(GNSS)}$ procedure.

To improve the quality of aviation facilities, consideration will also be given to introducing new technology to assist landing in poor meteorological conditions for the 28R/10L runway.

It would also provide to the flying training industry a more marketable product when promoting the airport as the preferred location to learn to fly.

All existing runway and taxiway lighting facilities are subject to cyclical inspection and will be renewed as required.

Details of these aspects are given in Chapters 6 and 7.

Opportunities to improve the district and regional road network

The State Government and Brisbane City Council are developing a strategy for progressive improvements to the regional and district road network, to better cater for growth in the region. AAC is participating in this process.

As discussed in Chapter 10, there is also scope to improve the efficient operation of the road network in the vicinity of Archerfield Airport, and these possibilities have been incorporated into the Precinct Structure Plans described in Chapter 12.

The earlier master plans foreshadowed the creation of a new east-west road link between Balham Road and Beatty Road. Barton Street has now been implemented and has addressed a significant shortcoming in the district road network.

The Master Plan also identifies a number of existing shortcomings of Beatty Road. AAC is concerned about the capacity of the road to carry existing (and increasing) through traffic, and the impacts these flows have on the safe and efficient access to the airport and to other properties along the road.

The solutions include road widening, construction of an appropriate road cross section (with appropriate lane widths, drainage and other infrastructure, to reflect the important role of this road), and upgrading of intersections, to better handle traffic passing the airport.

Where these solutions involve the airport, there is also the opportunity to consider how they could be fairly and reasonably implemented, and the role (if any) that Archerfield Airport could play in this.

AIRSPACE PROTECTION

Prescribed airspace

Prescribed airspace at Archerfield is shown in Figure 11—*Current Obstacle Limitation Surfaces (OLS) and Procedures for Air Navigation Services—Operations surfaces (PANS-OPS)* (OLS/PANS-OPS). The OLS and PANS-OPS for the reconfigured runways is shown in Figure 12.

Chapter 9 describes how AAC will seek to ensure the continued protection of the airport airspace, consistent with the *National Airports Safeguarding Framework* prepared by the National Airports Safeguarding Advisory Group (NASG) and adopted for implementation by all levels of government in 2012.

Restricted Light Zones

These zones are shown in Figure 13 and have been mapped consistent with CASA guidelines.

Forecast noise impact—ANEF and N70

A Practical Capacity ANEF (Figure 14) has been approved for Archerfield.

The Practical Capacity ANEF is based on an annual capacity estimate of 425,000 fixed wing and 35,200 helicopter movements. The ANEF takes into account current standards, the projected aircraft movement patterns, and likely aircraft mix.

The ANEF illustrates noise associated with significantly more air traffic than the maximum that is forecast for the 20 year planning period.

AAC has also prepared N70 mapping, which illustrates the distribution of noise levels over 70 dB(A). This mapping (Figure 15) assists with assessing the potential noise effects of aircraft on land around the airport.

More details on the ANEF and the N70 mapping are provided in Chapter 9.

Current and proposed noise management initiatives and procedures adopted by AAC are discussed in the *Airport Environment Strategy* (starting at Chapter 13, and including 16.10 and 18.10).

Public Safety Areas

State Planning Policy calls for the identification of public safety areas (PSAs) at the end of the main runways at 13 airports in Queensland including Archerfield.

Within these areas which extend over neighbouring land 1000m from each end of the runway, planning decisions need to take into account the higher risk of aircraft accidents.

The PSAs for Archerfield are shown in the *Master Plan Vision* (Figure 2) and the *Practical Capacity ANEF* (Figure 14).

ENVIRONMENT STRATEGY

AAC recognises the importance of restoring, maintaining and where practical, enhancing the quality of the environment on Archerfield Airport and neighbouring areas.

These matters are addressed in the Airport Environment Strategy (AES) in Chapters 13-16 and 18.

It sets out AAC's environment policy and management arrangements, describes existing environmental conditions and issues, achievements over the past 18 years, and future plans and priorities.

REALISING THE VISION AND IMPLEMENTING THE MASTER PLAN

The ways in which this vision can be achieved are explored in more detail in the various concepts presented in the Master Plan.

Plans are in place for projects including:

- lengthening and strengthening of the main runway and taxiways to cater for freight, corporate, aeromedical/emergency rescue and RPT aircraft;
- realignment of the secondary grass runways to provide greater access to the main runway complex, accommodate future expansion for aviation and related development, and improve usability;
- creation of new aviation opportunities in the Wirraway, Beatty, Barton, and Mortimer precincts; close to existing and proposed improvements to the runway complex;
- provision for widening of Beatty Road, and improvements to access to the airport from adjacent roads;
- further improvements to stormwater drainage; and
- creation of serviced lots suitable for a range of industrial, and aviation compatible purposes in the Boundary, Ashover, Barton, Beatty, Mortimer and Beaufighter precincts.

The success of these ideas will be underpinned by AACs philosophy of pragmatic commercial management, and to sound environmental management.

In conjunction with servicing agencies and relevant development interests on airport and in the district, AAC will develop progressively the airport infrastructure.

This will facilitate the continued safe and successful operation of the aviation and non-aviation aspects of the airport enterprise.

To assist with the implementation process, AAC facilitates the *Archerfield Airport Community Aviation Consultation Group*, and the *Planning Coordination Forum*. More details on the role and function of these is provided in Chapter 18 (section 18.11).

Archerfield
Brisbane's Metropolitan Airport

Archerfield Airport Master Plan 2017-2037

Figure 1 **Airport location**

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Planning Environment Strategy Design

1 Introduction

1.1 ARCHERFIELD AIRPORT

Archerfield Airport is Brisbane's metropolitan airport and is located only 11kms from the Brisbane city centre. It hosts a wide variety of aviation services including fixed and rotary wing operations, general and corporate aviation. The airport is used primarily for flight training, air transport, charter, medical retrieval, emergency rescue and jet bases.

Today it remains Queensland's largest general and corporate aviation airport, and it has a strategic and growing role in the network of aviation facilities serving Queensland.

This role is complementary to the activities of Brisbane Airport. Archerfield provides relief for Brisbane Airport from smaller aircraft, and valuable aviation services to the City. The Airport operates 24 hours per day, throughout the year and is positioned to remain one of Australia's premier metropolitan airports. The Master Plan will guide our growth over the next 20 years with the capability to attract and host aviation businesses.

1.2 ARCHERFIELD AIRPORT CORPORATION

Archerfield Airport Corporation (AAC) has operated and managed Archerfield Airport, Brisbane since 19 June 1998 and actively governs the strategic and day-to-day direction of the airport.

AAC, as Airport Leasing Company (ALC), is a wholly owned subsidiary of Miengrove Pty Ltd.

AAC has injected over $38 million into the repair, restoration and renewal of the airport since 1998 supporting our vision for continuous improvement in capacity and capability.

Today, the airport business is a robust economic entity. It contributes hundreds of thousands of dollars to public coffers through rates paid to BCC and payments in lieu of State land taxes.

These contributions will continue to rise as more of the available land mass is brought to commercial purpose, and wider use is made of the existing aviation infrastructure.

This will be achieved by encouraging 'best practice' for both aviation and non aviation activities, by progressively improving the aviation facilities, operations

and airspace and by the Corporation being proactive in attracting complementary developments, uses and activities to Archerfield.

1.2.1 Objectives

AAC is committed to:

- expand the aviation activities capacity and capability of the airport;
- provide facilities that enhance the safety and reliability of airport operations;
- encourage and work with the aviation community to ensure that Archerfield Airport is recognised as an aviation centre of quality and is positioned to experience its share of healthy growth;
- apply appropriate pricing policies for recovery of aviation related costs;
- restore, protect and where possible enhance the airport environment;
- attract quality commercial developments to land that is not required for aviation purposes in the long term, consistent with land use planning for this part of Brisbane; and
- build partnerships with government, industry and the local community to facilitate the realisation of this vision.

These core values underpin the vision for Archerfield Airport, and the actions proposed to implement the features of this Master Plan.

1.3 PURPOSE OF THE MASTER PLAN: A FRAMEWORK FOR THE FUTURE

The Master Plan is a high level, strategic business plan that sets the overall direction for the efficient and economic development of the airport for the next 20 years (2017-2037) with some elements planned to ultimate capacity.

A key purpose of it is to demonstrate to the public AAC's intended uses of the land at the airport. It describes also priority actions for the initial planning period.

It provides the basis for the timely and coordinated development of aviation facilities and infrastructure, aviation and non aviation land use, and for appropriate management of the airport environment (in conjunction with the 2017 *Airport Environment Strategy*).

It indicates to the public and other stakeholders the intended uses of the airport site, and its relationship to the surrounding area. It seeks to minimise where possible conflicts between uses on the airport site, and between the airport and surrounding land. It also seeks to highlight opportunities for compatible use and development to the mutual benefit of the airport and the wider community.

The Master Plan:

- describes the overall vision and development objectives for the airport;

- looks back on the past eighteen years, and the emerging factors that are shaping the future of the airport;
- sets out the key issues and opportunities facing the airport;
- identifies ways for addressing these issues and embracing these opportunities;
- describes key development initiatives, and the catalyst for these; and
- defines the consultative and decision making processes that have been, and will continue to be, followed as the airport develops over the coming years.

This is the fourth master plan prepared by AAC, and was approved by the Minister for Infrastructure and Transport on 15 July 2017. The first was approved in 1999 and was revised in 2000 to incorporate an updated ANEF. The second master plan was approved in 2005, and addressed the period 2005-2025. The third master plan was approved in 2012 for the period 2011-2031.

1.4 LEGISLATIVE FRAMEWORK

Commonwealth laws and regulations about land use planning and development controls, environmental management, airspace protection and building and construction approvals apply to Archerfield Airport.

In summary:

- the *Airports Act 1996* (and regulations) and the *Airports (Protection of Airspace) Regulations 1996* provide the regulatory framework for Federally Leased Airports;
- the *Airport Master Plan* provides a framework for land use and aviation infrastructure development decisions according to a 20 year vision;
- the *Airport Environment Strategy* identifies the environment protection issues that relate to the airport, and actions and procedures that will be followed to ensure that the environment is restored and managed appropriately;
- there are clearly defined roles and responsibilities for AAC and the Airport Building Controller (ABC) to ensure that all development meets relevant standards and is consistent with the long term vision for the airport.
- major developments require additional approval in the form of a *Major Development Plan* (MDP). A MDP is prepared in consultation with the public and other stakeholders and is ultimately assessed by the Minister responsible for the *Airports Act*.

1.4.1 Airport operators and airport regulators

The *Airports Act 1996* establishes the framework for the regulation of leased Federal airports.

The Act provides a system for separating the roles of the airport operator and airport regulator.

In the case of Archerfield Airport, the Commonwealth Department of Infrastructure and Regional Development (DIRD) and the Civil Aviation Safety Authority (CASA) provide the regulator role.

AAC being the Airport Leasing Company (ALC) undertakes the airport operator role. It is primarily responsible for activities that take place on the ground and within airport confines and the protection of the airport airspace.

The principal responsibility for airspace management is held by Airservices Australia (AsA). AsA provides terminal services from the Archerfield Tower and en route services around the airport from Brisbane Centre.

Operational issues are addressed jointly by AAC and AsA, and AAC is proactive in identifying relevant aspects and potential solutions as appropriate to ensure the ongoing safety and operational efficiency of the airport for users.

Following the sale and privatisation of Archerfield Airport under the *Airports Act 1996*, the Commonwealth became both the landlord with responsibility for facilitation of the businesses it had transferred to private ownership, and the regulator of those same businesses.

Moreover, the Commonwealth established a common framework for the future operation of those businesses. The framework was designed with sufficient robustness to control the national interest at the major ports of Sydney, Melbourne, Brisbane and Perth. During the sale process, it was projected that a light handed regulatory regime within the framework would apply to lesser economic entities like Tennant Creek, Archerfield, Alice Springs and Parafield.

1.4.2 Scope and content of the Master Plan

Section 71 of the *Airports Act 1996* and *Regulation 5.02* stipulate that an airport master plan must address the following matters:

- AAC's development objectives for Archerfield Airport (Chapters 2, 3, and 12);
- AAC's assessment of the future needs of civil aviation users of the airport, and other users of the airport, for services and facilities relating to the airport (Chapters 2-7, 10 and 11);
- AAC's proposals for land use and related development of the airport site, where the proposal embraces airside, landside, surface access and land planning/zoning aspects (Chapters 2, 7, 10-12, and 16; and Figures 2, and 17-24);
- an Australian Noise Exposure Forecast (ANEF) for the areas surrounding the airport (Chapter 9 and Figure 14);
- flight paths at the airport (Chapter 6 and Figures 5-9);

- AAC's plans, developed following consultation with the airport industry and local government bodies in the vicinity of the airport, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels (Chapters 9 and 13-16; and Figures 14 and 15);
- AAC's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the master plan (Chapters 13-16);
- AAC's plans for dealing with any identified environmental issues (Chapters 14-16 and 18);
- A ground transport plan for the initial term of the master plan (as specified in the Act) (Chapters 10, 12 and 18; and Figures 2-4, 16, and 20-24) describing a ground transport system on the landside of the airport that details:
  - a road network plan;
  - the facilities for moving people and freight at the airport;
  - the linkages between those facilities, the road network and public transport system at the airport and the road network and public transport system outside the airport; and
  - the arrangements for working with the State or local authorities or other bodies responsible for the road network and the public transport system;
  - the capacity of the ground transport system at the airport to support operations and other activities at the airport;
  - the likely effect of the proposed developments in the master plan on the ground transport system and traffic flows at, and surrounding, the airport;
- detailed information on the proposed developments in the initial term of the master plan that are to be used for:
  - commercial, community, office or retail purposes;
  - any other purpose that is not related to airport services; (Chapter 12)
- the likely effect of the proposed developments in the initial term years of the master plan on:
  - employment levels at the airport; and
  - the local and regional economy and community, including an analysis of how the proposed developments fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport;
- an environment strategy (Chapters 13-16 and 18) that details:
  - the airport-lessee company's objectives for the environmental management of the airport;

- the areas (if any) within the airport site which the airport-lessee company, in consultation with State and Federal conservation bodies, identifies as environmentally significant; and
- the sources of environmental impact associated with airport operations; and
- the studies, reviews and monitoring to be carried out by the airport-lessee company in connection with the environmental impact associated with airport operations; and
- the time frames for completion of those studies and reviews and for reporting on that monitoring; and
- the specific measures to be carried out by the airport-lessee company for the purposes of preventing, controlling or reducing the environmental impact associated with airport operations; and
- the time frames for completion of those specific measures; and
- details of the consultations undertaken in preparing the strategy (including the outcome of the consultations); and

- if an environment strategy has been approved—the date of that approval (Chapters 1, 13 and 14);
- any other matters (if any) as are specified in the regulations.

The approved master plan relates to a planning period of 20 years. It remains in force until a fresh master plan is approved by the Minister.

1.4.3 Additional approval requirements for major projects

For major projects, the *Airports Act 1996* requires the preparation and approval of a *Major Development Plan* (MDP). The types of projects requiring a MDP include:

- constructing a new runway;
- extending the length of a runway;
- constructing a new passenger terminal building greater than 500 square metres in area;
- extending a passenger terminal, where the extension increases the building's gross floor space by more than 10%; and
- development that is likely to have significant environmental or ecological impact, including one which affects an area identified as environmentally significant in the *Airport Environment Strategy*.

A MDP is also required for projects that have a value in excess of $20 million (or an alternative prescribed amount) and involve construction of:

- a new building; or
- construction of a new taxiway or extensions to a taxiway, a new road or new vehicular access facility (or extensions), a new railway or new rail handling

facility (or extensions), that significantly increase the capacity of the airport to handle movements of passengers, freight or aircraft.

The requirement for a MDP applies also to:

- a development of a kind that is likely to have significant environmental or ecological impact; or
- a development which affects an area identified as environmentally significant in the environment strategy; or
- a development of a kind that is likely to have a significant impact on the local or regional community; or
- a *sensitive development* in relation to which the Minister has given an approval under section 89A.

The *Airports Regulations* (made under the *Airports Act 1996*) can also specify the kinds of development requiring approval via a MDP.

If a MDP is required, it is prepared by the airport leasing company, in consultation with a range of stakeholders and must cover a wide range of matters as set out in the Act. The Minister responsible for the Airports Act makes the final decision on whether to approve a proposed MDP.

1.4.4 Airport Environment Strategy (Chapters 13-16 and 18, and Appendix D)

Scope

The *Archerfield Airport Environment Strategy 2017* (AES):

- sets out AAC's objectives for the environmental management of the airport;
- identifies environmentally significant areas within the airport;
- identifies sources of environmental impact associated with airport operations;
- defines studies, reviews and monitoring to be carried out in relation to the environmental impact of the airport;
- sets timeframes for completion of audits and reviews;
- sets out specific measures to be implemented by AAC to address existing or potential impacts, and timeframes for completion of these; and
- provides details of consultation undertaken in preparing the AES.

Contents of AES

The AES was approved on 15 July 2017 and remains in operation until replaced by another approved AES.

In accordance with the *Airports Act*, the AES planning period commences simultaneously with the Master Plan.

The AES comprises:

- a statement of environmental responsibilities that apply to Archerfield Airport;
- a description of the Airport Environmental Management System, including the process by which AAC will implement the AES and related environmental management procedures;
- the AAC corporate environment policy;
- a summary of existing environmental issues, management responses to those issues and an action plan to address them; and
- details of the ongoing consultative processes AAC will adopt in implementing and reviewing the AES.

Principal environmental management issues

The principal environmental management issues at Archerfield Airport are:

- management of new development works to minimise and ameliorate impacts on the environment;
- conservation of any significant flora and habitat values along Oxley Creek;
- protection of storm water and groundwater quality from contamination by pollutants from the airport;
- encouraging the efficient use of water and energy;
- ensuring that all chemicals on airport are appropriately stored, handled, used, and disposed of;
- encouraging the prevention, containment and management of spills;
- appropriate containment and handling of all asbestos in buildings and plant on airport (as identified in the asbestos register and management plan);
- protection of any cultural and heritage values (pre and post contact); and
- ensuring that airport tenants are aware of their environmental obligations and comply with all relevant requirements.

1.4.5 Aviation Transport Security Act 2004 and Aviation Transport Security Regulations 2005

This legislation, administered by DIRD, requires AAC to take account of security requirements in its planning processes. A summary of the security measures implemented at Archerfield in recent years is provided later in the Master Plan.

1.4.6 Airspace Protection and National Airports Safeguarding Framework

The airspace around leased Federal airports is protected under Part 12 of the *Airports Act 1996* and the *Airports (Protection of Airspace) Regulations 1996*.

The *National Airports Safeguarding Framework* adopted by all levels of government in 2012 provides guidance for planning and development decisions that could affect aviation operations.

The framework applies to all airports in Australia, and land around airports. The framework promotes a consistent approach to assessing and managing land use and development in the vicinity of all airports.

AAC aims to minimise the potential encroachment of activities and development in the vicinity of the airport, where these have the potential to impact on airport operations, capacity and capability, now and into the future.

It will continue to work with BCC and other authorities to ensure that land use and development in the vicinity of the airport is undertaken such that:

- noise sensitive land uses are only carried out in areas subject to aircraft noise impacts if they are sited in accordance with the relevant standards and include appropriate noise protection measures;
- there are no intrusions into the protected operational airspace;
- the potential for wildlife strikes is minimised;
- the potential for distractions to pilots from lighting is minimised;
- building generated wind shear and turbulence is addressed in the siting and design of nearby development; and
- public safety is addressed, in accordance with the relevant policies and standards, including State Planning Policy.

With this in mind, the Master Plan includes:

- mapping of the approved Practical Capacity ANEF for Archerfield;
- mapping showing the current and future airspace for the airport, which is protected under the *Airports (Protection of Airspace) Regulations* and the *Airports Act 1996*. This mapping shows the maximum allowable height of any structures, objects (including trees) or other features to protect the airspace from any intrusions that could compromise the safe and efficient operation of the airspace;
- mapping of the public safety areas for each end of the main runway, in accordance with State Planning Policy; and
- zones where light emissions need to be restricted, to avoid dazzling pilots or confusing them about the location of approach or runway lighting.

More detail is provided in Chapter 9.

1.4.7 Civil Aviation Safety Regulations (CASR) 1998

CASR 139.165 and 139.355 specify that aviation facilities and obstacle limitation surfaces (OLS) at a Certified aerodrome must meet the standards set out in the associated *Manual of Standards Part 139-Aerodromes* (MOS 139).

1.4.8 Other government planning policy requirements and guidelines

Other government policy and planning requirements and guidelines impacting on the preparation of this plan are considered in Chapter 3.

2 The vision for Archerfield Airport

2.1 THE VISION-AN AIRPORT WITH A SUSTAINABLE FUTURE

Archerfield plays a significant role in Queensland. It is Queensland's primary general aviation airport, a major airport in south—east Queensland, and is Brisbane's metropolitan airport.

AAC's corporate mission is to strive to nurture the dynamic potential of Archerfield Airport as a superior aviation destination.

The airport will become a sustainable aviation and enterprise hub, integrated with and serving the growing needs of Brisbane. The *Master Plan vision* is illustrated in Figure 2.

2.1.1 A centre of aviation excellence

Archerfield will continue to develop as a centre of excellence for aeronautical and related activities.

It will continue to be the base for significant flying training activity, corporate, charter, aeromedical and emergency services. It will also serve the needs for aircraft maintenance, sales, insurance and specialist aviation businesses.

The aviation infrastructure will be developed progressively to meet the changing needs of the airport. AAC will continue to work with existing aviation businesses on the airport to encourage their long-term sustainability, and will seek to attract new viable aviation businesses, where these are compatible with the vision for Archerfield.

2.1.2 Diverse aviation activity

To attract investment for development, AAC will promote growth and diversification in aviation activity by planning facilities for:

- heavier general and corporate aviation aircraft;
- operations under instrument flight rules (IFR);
- aeromedical and emergency rescue aircraft;
- RPT; and/or

- specialist air freight activity.

2.1.3 Serving the growing needs of Brisbane and regional Queensland

AAC's vision includes catering for niche corporate aviation including business, charter, aeromedical/emergency rescue, fixed base operations (FBO) and Regular Public Transport (RPT) service providers seeking to take advantage of the airport's unique position in one of Brisbane's most important industrial and commercial growth centres, its position close to the newly designated western and south western growth corridors, and its proximity to the Brisbane City centre, hospitals and commercial hubs.

These additional activities will require improvements to the aviation infrastructure, including the runways, taxiways, navigation aids, airspace and tenant occupation requirements.

These improvements can be made progressively, and can be accommodated in a manner which is compatible with the airport's existing range of services.

2.1.4 A place for enterprises to grow

Archerfield will also play a strategic role in the development of the *South West Industrial Gateway* of Brisbane. The Gateway has been designated by the Queensland State Government and Brisbane City Council (BCC) as one of the most important industrial areas in South East Queensland.

AAC will work with BCC and the State Government to identify opportunities to attract and foster new industrial and commercial business investment that is:

- complementary to the airport and its users;
- meets the emerging needs of the community and economy of this part of Brisbane and the designated regional growth corridors which extend to the south and to the west; and
- is consistent with the aviation activities and the use and development of land in the surrounding area.

The promotion and development of new aviation and non-aviation business at Archerfield is necessary to discharge the responsibility entrusted by the Commonwealth to AAC and to underpin growth in aviation and the efficient provision of improved infrastructure at the airport.

It will strengthen the facilities and services that are provided, and the contribution that the airport makes to the community, environment and economy of Brisbane and South East Queensland.

It will also help to harmonise the airport with off-airport development and appropriately integrate the airport with the rest of the south-west gateway to Brisbane.

ROCKLEA

Ipswich Motorway

Boundary Road

Transport related support services (fuel, food, repairs etc)

Potential secondary cycle route (as shown in Brisbane City Plan)

Larger industrial sites for manufacturing, warehousing, transport etc.

New intersections for access to aviation and industrial developments

Balham Road

Ashover Road

New intersection for access to Barton Precinct

Barton Street

Development oriented to face Barton Street and Beatty Road

Beatty Road

Smaller industrial, commercial, and service tenancies serving the surrounding area

Multi purpose hangars and industrial tenancies

Boundary Road extended into airport

Boundary Road

Potential secondary cycle route (as shown in Brisbane City Plan and SEQ Principal Cycle Network Plan)

New road entry to airport created by extending Kerry Road

Kerry Road

Archerfield Square providing a range of retailing, service, accommodation and other support uses for the airport community and visitors.

Future runway extension if required for RPT, specialised freight, or larger aircraft (design and approval to be resolved through a MDP)

Light industry, storage, parking

Mixed use zone providing an interface to neighbouring residential and open space areas. Potential for light industry, display, office, flying student and short term accommodation, convenience and support services

Road

Beaufighter Avenue

BP Truck Stop

Future stormwater treatment facilities

Stormwater treatment facilities

New access road for aviation and industry

Potential for some smaller lots fronting Wirraway Avenue

Drainage from central sub catchment conveyed to new basins

Wirraway Avenue

Additional aviation capacity on north side of main runways for corporate and specialised aviation (emergency services, RPT, freight, etc)

'Public Safety Area' as defined in State Planning Policy and related guideline

Future aviation capacity

Future aviation capacity

Potential site for RPT

Potential long term car parking (~800 cars)

Provision made for public transport access to RPT

Taxiways duplicated and upgraded for 28/10 runway system as required to meet emerging needs

Aircraft parking

Taxiway Bravo widened to 15m (Code O)

New 10.5m wide Code A, B taxiway

Relocated central helipad

Runway 28R/10L

Runway 28L/10R

Taxiway Alpha

Taxiway Bravo widened to 15m (Code C)

Proposed Runway 18R/36L

Proposed Runway 18L/36R

Taxiway Charlie

Taxiway Delta

New secondary runways providing increased useability

Relocated northern helipad

Aircraft parking

Taxiway Hotel extended north

Aircraft parking

Drainage from central sub catchment conveyed to new basins

Airport Terminal Building

Fuel farm

'Public Safety Area' as defined in State Planning Policy and related Guideline

OXLEY CREEK

Buffer to Oxley Creek (incorporating stormwater management facilities and other infrastructure, conservation of riparian vegetation, and grazing/slashing of cleared land) No public access

Basin 8

Potential court off Lores Bonney Drive

Lores Bonney Drive

Archerfield Speedway

Control Tower Optimal location to be reviewed when secondary runway complex is realigned

Industrial sites, suited to a range of manufacturing, warehousing, transport etc.

Lombank St

Mortimer

The design of new intersections with external roads will be determined in consultation with BCC

SEQ Principal Cycle Network

N

0 500 m

Archerfield

Brisbane's Metropolitan Airport

Archerfield Airport Master Plan 2017-2037

Figure 2 **Master Plan vision**

PlannedFX Planning Environment Strategy Design

2.1.5 An environmentally sustainable airport

AAC will also pursue sustainability principles, in the operation and management of the airport, and in new development.

These address:

- protection of the Oxley Creek habitat corridor;
- protection of air quality;
- capturing and reuse of rainwater;
- appropriate management of stormwater to protect downstream areas from excessive peak discharges, and from water quality impacts;
- protection of soil and groundwater from contamination;
- handling and storage of hazardous materials and waste;
- conservation of heritage values;
- efficient use of potable water;
- efficient use of energy by AAC and its tenants; and
- management of noise from land based activities at Archerfield.

These matters are addressed in the AES and in AAC's Environmental Management Procedures (EMPs).

2.2 REALISING THE VISION

The Master Plan shows how the current and long term aviation development will be accommodated.

It describes the proposed improvements to aviation infrastructure that AAC has identified in consultation with stakeholders over the past eighteen years as being desirable to foster sustained aviation activity at Archerfield.

The aviation infrastructure development proposals have been designed to be implemented progressively as the airport develops.

The Master Plan also details the plans for areas that were identified by the Commonwealth prior to privatisation as being available for complementary new business development. It shows how this will be integrated with the other activities (existing and planned) on the site, and land use and development in the surrounding area.

2.2.1 Aviation infrastructure development

Proposed aviation infrastructure development includes:

- strengthening the current main 10L/28R runway to cater for higher performance/larger aircraft and potential corporate, aeromedical/emergency rescue, government and RPT operations;
- increasing the length of the main 10L/28R runway by approximately 160 metres (at the eastern end) and upgrading the associated taxiways, to facilitate larger aircraft;
- maintaining an option to construct a new, longer runway between the existing 10/28 parallel runways, potentially crossing Beaufighter Avenue;
- realigning the secondary grass parallel runways to avail approximately 500m of land immediately adjacent to the main runway for high-end aviation uses and at the same time to improve overall runway usability, particularly for flying training;
- augmenting the taxiway system to maximise runway capacity and efficient ground movement of aircraft;
- strengthening and expanding apron facilities to cater for increased aircraft numbers, and potentially heavier aircraft;
- relocating facilities such as the fuel farm and control tower, if, because of their locations, they constrain future aviation development or their relocation would improve airport operations;
- upgrading visual and navigation aids to provide an improved flying training environment and improve access in poor metrological conditions;
- consolidating helicopter activity so as to improve safety by separating rotary from fixed wing operations;
- identifying and reserving terminal and apron facilities for potential niche RPT operations;
- making new, improved bases available to tenants currently occupying ageing premises, to facilitate future growth and expansion of their businesses; and
- replacing or rejuvenating ageing premises.

2.2.2 New business development

AAC will seek to attract new business to the airport that will complement the existing aviation uses on the site and be compatible with State and BCC planning for the Archerfield area.

Potential new uses that could take advantage of the airport's unique location and facilities include:

- manufacturing industries (specialised fabrication and engineering, servicing and repair, refinishing, etc.);
- industries associated with waste reduction and materials recycling;

- research and development (equipment testing, prototype development and evaluation etc.);
- transport and logistics enterprises (distribution centres, container services, bulk handling, warehousing, fleet management, servicing etc.);
- education and training for aeronautical and transport related sectors (flying schools, vehicle driver training and assessment, etc.);
- retailing of the type currently conducted in the vicinity of the airport, and retail outlets that serve the growing needs of the airport community;
- recreation and leisure, including aeronautical, entertainment and other land based recreation activities;
- office and administration uses;
- accommodation for flying training students, tourism and visitor support services;
- aeromedical and emergency services operations and training; and
- fixed base operations.

The Master Plan identifies a range of opportunities for the expansion of existing businesses, and the introduction of new business to the airport.

2.2.3 Implementation strategies

AAC will undertake the proposed developments in response to demand triggers and/or timeframes described in Chapter 18.

AAC will be proactive in attracting complementary developments, uses and activities to Archerfield to strengthen the viability of the airport in the short to medium term, and secure its long term success.

In conjunction with servicing agencies and relevant development interests on airport and in the district, AAC will develop progressively the infrastructure serving the airport. This will facilitate the continued successful operation of all aspects of the airport enterprise.

The planning and timely delivery of the required infrastructure will involve a commitment from a variety of organisations, including BCC and the State Government. AAC will work with these agencies to realise the vision.

All initiatives will be underpinned by AAC's philosophy of pragmatic commercial management.

2.3 OVERVIEW OF ACHIEVEMENTS 1998-2016

Over the period 1998-2016, AAC has implemented significant projects foreshadowed in the successive airport master plans.

These initiatives have contributed to the realisation of AAC's vision for the airport. Key achievements over the planning period include:

Table 1: Summary of achievements 1998-2016 (AMP)

Activity	Date
Aviation infrastructure	
Repairs and reseal of aircraft parking area adjacent to Gate 1	1999
Repairs and reseal of Taxiways Alpha 1-9, Alpha to Bravo, and Bravo 2 to 5	2001
Repair and reseal to shoulders of Taxiway Alpha 1-5	2002
A triple interceptor has been installed to treat water from the aircraft washdown bay. The washdown bay has been signed to encourage its use.	
The second wash down bay (at the eastern end of Taxiway Bravo) is no longer in use. Signage has been removed and pilots are advised to use the alternative, central facility.	
Repairs to Apron Hotel tie down area.	2004
Reprofiling and resurfacing of Runway 28L/10R with a high quality hot bitumen cement seal, and overlay of Taxiways Alpha 1 to 5.	2005
Reconstruction of the airport turbine pad.	
Repairs to northern taxiways and Taxiway Juliet.	2006
Installation of new security fencing, automated gates, optical fibre cabling and CCTV around the perimeter of the airside area.	2007
Reconstruction of Taxiway Juliet.	2008
Reseal of 28R run up bay.	2008
Repair and reseal of Taxiway Echo, Taxiway Alpha 7 and the engine test pad.	2009
Reconstruction of apron drainage (west) near Hangar 113.	2010
Construction of a new stormwater drain running along taxiway hotel adjacent to the terminal building	2011
Repairs and reseal of Taxiways Alpha 8 to 9	2013
Installation of Movement Area Guidance signs beside the major runways and taxiways to assist trainee pilots conduct ground operations	2013
Profiling and asphalt overlay of Taxiway Juliet (concrete section)	2014
Reseal of Central Helipad	2015
Replacement and installation of new lighting control system with future capacity for Runway, Taxiway and Apron LED and approach lights	2015
Crack sealing of concrete joints outside Hangar 6	2015
Reconstruction of apron drainage (east) near Hangar 113	2016
Complementary development	
Construction of a new hangar and headquarters for QGAir (previously known as EMQ) on Wirraway Avenue.	2003
Development of new corporate hangars on Wirraway Avenue	2006
Construction of Site 235 hangar complex.	2006
Development of a new warehouse, office and hardstand on Beaufighter Avenue by AAC.	2008
Repair and seal Access A at the 500 sites.	2008
Refurbishment by AAC of the top floor of the Airport Terminal building, which is now the headquarters for AAC, reinstating it once again as a key feature of the airport.	2009
Construction of a new purpose-built office and aviation parts storage facility for Aviall	2012
Relocation of the high pressure gas transmission pipeline to the verge adjacent Transition Logistics Estate in preparation for Boundary Rd widening	2012
Civil works for Transition Logistics Estate including new fill for lots 1.08 and 1.09 to bring them above Q100 flood level, relocation underground of existing	2013

Activity	Date
overhead powerlines along Boundary Rd entry statement walls, pylon signage, diplomat fencing, installation of drainage and Gross Pollutant Trap and construction of stormwater detention basins 3, 4 and filtration basin 5	
Purchase and refurbishment of two-storey building 9, transforming it into the airport's first aviation student accommodation facility	2014
Refurbishment of Hangar 6 for LifeFlight helicopter maintenance including a new domed roof, internal offices, refurbished windows and painting internally and externally.	2015
Refurbishment of Hangar 5, including a new domed roof, refurbished windows and drain along the southern side for Archerfield Jet Base's Fixed Base Operations (FBO)	2016
Environmental management system	
Preparation of new airport *Environmental Management Procedures* (EMPs).	2003
Flora and fauna	
Fire Ant control has been undertaken by helicopter and motorcycle broadcasting.	2001 onwards
Creation of a conservation zone in the south west part of the airport, adjacent to Oxley Creek to provide a permanent buffer.	2009
Groundwater	
The annual groundwater monitoring program by AAC has continued, with progressive updating and enhancement of the sampling wells, and ongoing review of findings.	Ongoing
Hazardous materials and waste management	
AAC has maintained since 2003 an up to date register of asbestos in AAC buildings on the airport. Buildings have been added to the register as they come into AAC ownership.	2003 onwards
A management plan and risk assessment was added to the asbestos register.	2006
AAC has included in its tenant inspections consideration of materials storage, handling, waste management, and disposal.	Ongoing
Heritage	
AAC has supported the restoration works by Friends of God's Acre Inc, including with donation of funds and provision of maintenance services over the past 18 years.	1998 onwards
AAC restored the Shell building	2001
The *Cultural heritage assessment and management plan* for the airport was completed.	2001
AAC purchased in 2000 and refurbished the 2nd floor of the neglected Airport Terminal building and relocated its administration offices to the upper floors of the building	2009
Brisbane Regional Commendation awards for both Heritage and Interior Architecture for refurbishment of the middle floor of the Airport Terminal building.	2015
Refurbishment of the ground floor public areas, and painting and waterproofing of the exterior of the Airport Terminal building in preparation for Brisbane Open House.	2015
Infrastructure	
Electricity supply has been upgraded to better cater for existing users, and new projects on the airport.	
Installation of new Fire Pump Station to service the Corporate Hangars	2012

Activity	Date
Installation of new 300mm water main to cater for Corporate Hangar fire pump station and service future tenants in Transition Logistics Estate	2012
Installation of new fire hydrants opposite Building 9 adjacent to the main carpark, opposite the Airport Terminal building and adjacent to the carpark beside the Shell building.	2015
Noise	
The former QES (now QGAir) helipad and the second helipad previously located in the central part of the Beaufighter precinct (near the Control Tower) were decommissioned. The new helicopter landing pad is located near Wirraway Avenue, which is at least 1.2km away from the nearest residential properties in Mortimer Road and more than 1.4 km from the nearest house to the south-west (on the other side of the Oxley Creek/Blunder Creek valley). One of the former helipads was 150 m from the nearest house.	2003
Noise emissions from tenancies on airport are managed in accordance with the EMPs and any site environmental management plan in place for their operation.	Ongoing
Implementation of Archerfield's *Fly Neighbourly* Program	2015
Roads and car parking	
Wirraway and Beaufighter Avenues were reconstructed and extended and stormwater drains and underground piping were installed to cater for surface water runoff.	2000
Barton Street was created, linking Beatty Road to Balham Road across the north of the airport. The land was gifted by AAC to BCC with the agreement of the Commonwealth.	2007
The long-term carpark was constructed	2007
Qantas Avenue, Ditchmen Avenue and Lores Bonney Drive were resurfaced.	2008-9
Street lights installed on Lores Bonney Drive, Beaufighter Avenue and Wirraway Avenue	2008
Extension of Beaufighter Avenue for approximately 100m to the east	2012
Expansion of car park area outside Hangar 6 for LifeFlight	2015
New power and telecommunications infrastructure installed and High Pressure Gas Transmission Pipeline in Boundary Road relocated in preparation for the construction of the initial stage of Transition Drive	2015
Soil contamination	
The underground storage tanks at the Shell Building were decommissioned and the site remediated. These works followed on from the closure and remediation of the former Airport Rescue and Fire Training Area (1994) and the former battery recycling site (1997).	1998
Underground fuel tanks at the BP Truckstop have been replaced by BP and remediation undertaken (with ongoing monitoring in place)	2006
Surface water management	
The former open drainage line through the Beaufighter, Boundary, Runway and Beatty precincts (which was subject to significant scouring) has been piped, and silt traps and dissipation structures installed to moderate peak flows and manage water quality prior to discharge to Oxley Creek.	2001
A significant new stormwater detention basin was constructed in the Beaufighter precinct, treating stormwater prior to its discharge to the Oxley Creek.	2001
A sedimentation basin was incorporated in the Alex Fraser Group facility on Beaufighter Avenue to treat runoff from the stockpile areas prior to discharge to the main drainage system on airport. Water is recycled for dust suppression and irrigation purposes.	2001

Activity	Date
The open drain running north-west from the Runway precinct, under the 04/22 runways to Boundary Road has been upgraded with the piping of the section near the runways, and the creation of new basins 3, 4 and 5 in the Boundary precinct (adjacent to Transition Drive and Boundary Road). This modulates peak flows, and treats water quality entering the drainage system through Rocklea, which ultimately discharges to Oxley Creek approximately 2 km downstream of the airport.	2008
Stormwater tanks have been provided for the new corporate hangars and EMQ premises on Wirraway Avenue, and the new warehouse constructed by AAC on Beaufighter Avenue to retain stormwater for use on site, and assist with reducing peak discharge volumes to Oxley Creek.	2007-8
Basins 3,4 and 5 constructed (in Transition-Archerfield Logistics Estate)	2014
Construction of headwall north of Site 205 to assist stormwater flows along Qantas Ave	2015
Small rock landscaping has been introduced to localised sections of open drains showing evidence of minor soil erosion.	Ongoing
Surface water quality monitoring in open drains and at drain outlets has been undertaken on an annual basis.	Ongoing
Sustainable use of natural resources and energy	
The airport has secured a number of businesses that recycle materials and equipment for reuse in construction and manufacturing. These include Veolia Environmental Services, and Alex Fraser Group, which has a concrete recycling operation in the Beaufighter/Mortimer Precinct. These operations promote the reuse of resources, and reduce the energy required to produce construction materials.	1998 onwards
Rainwater tanks have been installed by AAC for the corporate hangar development and QGAir premises on Wirraway Avenue, and the warehouse and office on Beaufighter Avenue.	2007-8
Efficient water fittings have been installed in AAC buildings, including the refurbished Airport Terminal.	2008
Water meters have been upgraded to improve monitoring of consumption.	2008
AAC developed a *Water Efficiency Management Plan* (WEMP) in accordance with Queensland Water Commission requirements, in consultation with tenants and Brisbane Water. Efficiency measures were implemented progressively.	2008
AAC implemented energy efficient air conditioning, lighting, and specified low VOC paint and sustainable floor coverings for its refurbishment of the Airport Terminal.	2009
Installation of rainwater tank for new Aviall facility	2012
AAC's Airport Foreman, Donald Foy was chosen from a field of 40 nominees to be named Australian Airports Employee of the Year by the Australian Airports Association – Australia's peak industry body representing airport operators.	2012
Installation of movement activated lights in the public area and toilets of the Airport Terminal building	2015

3 Regional context

This chapter describes the strategic context of the airport; and highlights the factors that influence its role and function as part of the national aviation network, and a significant land use and transport hub in South East Queensland.

3.1 AIRPORT LOCATION

The airport is located close to the heart of Brisbane, and is approximately 11 kilometres south-west of the Brisbane City Centre.

The airport is also in close proximity to major hospitals, Griffith University, sporting fields and technology centres.

It is in one of the larger, mainly industrial areas of Brisbane, at the south—west gateway to the City.

The location of Archerfield in a regional context is shown in Figure 1 *Airport location*. The airport and its surroundings are shown in Figure 3 *Airport context*. Surrounding land use is shown in Figure 10 *Airport land use context*.

3.2 ROLE AND FUNCTION RELATIVE TO OTHER SOUTH EAST QUEENSLAND AIRPORTS

The airfields within approximately 100 km of Archerfield Airport are shown in Figure 1 *Airport location*.

Archerfield is a strategic resource of irreplaceable value to greater Queensland.

As a reliever of the congestion of incompatible aircraft operations at Brisbane, and to a lesser extent at Gold Coast and Sunshine Coast airports, it plays a vital role in the integrated operation of aviation within the region.

Experience shows that Archerfield rarely receives aircraft originally destined for Brisbane, Gold Coast or Sunshine Coast airports, and when it does, the aircraft are not larger than a 20 seat commuter plane.

As Brisbane's metropolitan airport, Archerfield ensures that smaller aircraft traffic is reduced at Brisbane Airport. This complementary role allows Brisbane Airport to utilise to maximum efficiency its airspace for larger aircraft involved in domestic and international travel thereby improving on time arrivals and departures.

Archerfield
Brisbane's Metropolitan Airport

Archerfield Airport Master Plan 2017-2037

Figure 3 **Airport context**

PlannedFX
Planning Environment Strategy Design

3.2.1 Brisbane Airport

Brisbane Airport is the capital city and main airport for the region. It is located on the north—eastern side of Brisbane, and is 14 kilometres from the Brisbane City Centre.

The airport operates as a hub for interstate, intrastate and international airline routes. The airport is a significant gateway to South East Queensland and is also a major business centre, consistent with its vision as being both a 'city airport' and an 'airport city'. It is also the Australian base for Virgin Airlines with their head office at Bowen Hills. Brisbane Airport is primarily driven by tourism as a destination for South East Queensland and attracts increasing international markets.

Archerfield is vital to the efficient operation of Brisbane Airport and is an essential component to the Brisbane aviation basin. This complementary role allows Brisbane Airport to reduce congestion and ensure better performance for scheduled domestic and international travel and freight.

Brisbane Airport is currently in the process of constructing a new 3,300m runway parallel and to the west of the existing main runway with completion expected around 2020.

3.2.2 Gold Coast Airport

This airport is located at Coolangatta on the Gold Coast, approximately 80 kilometres south of Archerfield. It caters for domestic services and low cost carrier international passenger and commuter services.

Gold Coast Airport has plans to install a new Instrument Landing System (ILS) on runway 14 to provide vertical and horizontal guidance to pilots when landing in low visibility weather conditions, reducing flight delays and diversions including at peak tourism times. The Airport is in the process of resolving the approvals required for that project.

3.2.3 Sunshine Coast Airport

Sunshine Coast Airport is located near Maroochydore some 107 kilometres north of Archerfield and is the gateway for holiday destinations. It currently carries significant commuter traffic between Brisbane Airport and the Sunshine Coast and interstate providing connections to domestic trunk services and to a lesser extent international services.

The airport is planning for construction of a 2,450m Code E second runway to enable direct flights to more destinations across Australia, Asia and the Western Pacific.

3.2.4 RAAF Base Amberley

Amberley is a Commonwealth Defence facility for the RAAF located approximately 30 kilometres south-west of Archerfield. It is currently expanding the air base to accommodate and provide services for the rapid expansion of air power capability.

3.2.5 Wellcamp (Brisbane West) Airport

Wellcamp is located approximately 15km west of Toowoomba, 130km west of Brisbane City Centre, and 120km from Archerfield.

The airport caters for RPT services to regional Queensland and interstate (Cairns, Sydney and Melbourne), general aviation to a lesser degree and domestic and international freight with Code F aircraft.

3.2.6 Small airports to the north and north-west of Archerfield

Small airports servicing recreational and general aviation activity are located at Redcliffe (41km north of Archerfield), Watts Bridge (75km north-west), Caboolture (55km north), and Caloundra (85km north).

Redcliffe, Caboolture and Caloundra airports are owned and operated by their local councils. Watts Bridge is privately owned and operated and its focus is on recreational and sports aviation.

3.2.7 Small airports to the west and south-west of Archerfield

Toowoomba and Warwick airports and Boonah airfield are also council owned and operated. They service recreational and general aviation activity.

3.3 STRATEGIC INFLUENCES

The current and future form, role and operation of Archerfield Airport are shaped by:

- the overall objective that the airport provides a key aviation service as part of the network of metropolitan airports across Australia;
- demand in aviation services and growth opportunities for expansion outside of capital city airports;
- State policies for aviation; road, sea and air transport; the development of communities in Queensland; and for land use and development (in SEQ in particular);
- regional and local planning policies, strategies and controls;
- the site conditions, opportunities and constraints;
- the history of the development and use of the airport (landside and airside), and current occupation/leases of airport land;

- any constraints arising from surrounding land use, or environmental conditions;
- changes arising from the environment, including the influence of climate change on the site and the airport operation; and
- market opportunities, in aviation, and in land use and development including emerging possibilities for growth in various aviation services, and development of new enterprises that will contribute to Archerfield being a strategically significant airport with a sustainable future.

The following describes the relevant provisions of state, regional and local planning policies and strategies, and highlights the implications these have for the airport now and into the future.

3.4 QUEENSLAND STATE GOVERNMENT

3.4.1 Aviation strategy

Queensland Government has adopted a statewide aviation strategy, which is expressed in the following plans:

- Economic Directions Statement Queensland Airports 2013-2023
- Queensland Tourism Aviation Blueprint to 2016
- Queensland Tourism and Commercial Aviation Plan;
- Queensland Aerospace Industry Development Plan; and
- Queensland Airports and Regulated Air Transport Plan.

The *Economic Directions Statement Queensland Airports 2013-2023* (EDS) sets out the Queensland government's view of the critical role of airports in supporting Queensland's economic growth. It describes the actions government will continue to take to enable airports and the businesses that rely on them to seize new market opportunities.

The Queensland Government has identified Archerfield Airport as one of the 40 metropolitan and regional airports in Australia (of a total of 191 airports) which have strategic significance for economic growth.

These airports link Queensland industries to workforces and national and international supply chains, markets and customers. They have been identified based on a threshold of activity in functions that are integral to the state's economy, such as the volume of aircraft and passenger movements, and hosting of aerospace activities such as maintenance and training for fixed and rotary wing aircrafts, both civil and military.

The Government is also reviewing the *Queensland Aerospace Industry Development Plan* and is preparing plans for development of aviation and aerospace. In May 2016, it released a discussion paper which will inform the

Queensland Aerospace 10 Year Roadmap and Action Plan, due for release later in 2016.

The discussion paper suggests the following vision:

> *By 2026, the Queensland aerospace industry will be recognised as the leading centre in Australasia and South-East Asia for aerospace innovation; manufacturing; maintenance, repair and overhaul (MRO); and training for military and civil markets.*

These strategies and action plans build on the previous *Queensland Aviation Strategy* (2002), the *Queensland Commercial and Tourism Aviation Plan*, and the *Queensland Airports and Regulated Air Transport Plan*.

The *Queensland Airports and Regulated Air Transport Plan* describes the following vision for aviation in Queensland:

> *This plan envisages an air transport system that is responsive to the market, has the capability of competing effectively, is supported by appropriate planning and is able to serve the social, economic and access needs of communities in Queensland.*

The plan includes the following objectives:

Support for rural and remote air services

> *To ensure the provision of air services to meet accessibility and mobility needs of rural and remote transport- disadvantaged communities in Queensland.*

Support for rural and remote airports

> *To facilitate the provision of sustainable and cost effective air transport infrastructure to meet basic access and regional development needs in rural and remote communities.*

Planning for air transport facilities

> *To influence regional and local planning around significant airports and aviation facilities.*

Stakeholder involvement

> *To enhance the contribution of key stakeholders in the delivery of our air transport requirements.*

From the master planning perspective, the second, third and fourth objectives are most relevant, and these also tie in to *State Planning Policy.*

3.4.2 State Planning Policy and related 'state interest guideline' (2016)

The *State Planning Policy 2016* (SPP) and related guideline includes provisions that seek to protect airports and aviation facilities.

The SPP describes the importance of airports as follows:

> *Strategic airports and aviation facilities play a key role in facilitating economic growth in Queensland. All sectors of the Queensland economy including tourism, trade, logistics, commercial business and extractive industry rely on the efficient movement of people and freight through strategic airports. The continued growth and development of Queensland's aviation industry is also dependent on access to strategic airports.*

Strategic airports are also a vital part of Queensland's passenger transport infrastructure network, ensuring communities can access employment and recreation opportunities, and vital services such as health and welfare.

.....

The strategic airports and aviation facilities to which the SPP applies are essential elements of the national and state air transport network and the national defence system. Ensuring development does not impact on the safe and efficient operation of these facilities will support continued growth of the state's economy, regional communities and national defence.

Archerfield is a 'strategic airport' under the SPP.

The SPP guideline highlights that:

Strategic airports and aviation facilities play a key economic, tourism, social and defence role in Queensland. The Queensland Government recognises the need to protect aviation assets to support growth of the state's economy and tourism industry, regional communities and national defence. Protection of strategic airports and aviation facilities also supports Commonwealth, state and local government investment in aviation infrastructure assets and public passenger transport flights.

The purpose of the SPP with respect to aviation is summarised in the SPP and associated guideline as:

Planning protects the operation of strategic airports and aviation facilities, and enables the growth and development of Queensland's aviation industry

The SPP requires that planning schemes must integrate the State interest by:

(1) identifying strategic airports and aviation facilities, and associated obstacle limitation surface (OLS) or height restriction zone, public safety areas, lighting area buffer zones, wildlife hazard buffer zones, Australian Noise Exposure Forecast (ANEF) contours, and building restricted areas, and

(2) facilitating development surrounding strategic airports that is compatible with, depends upon or gains significant economic advantage from being in proximity to a strategic airport, or supports the airport's role as a freight and logistics hub, and

(3) protecting strategic airports by ensuring:

(a) development and associated activities do not create incompatible intrusions or compromise aircraft safety in operational airspace, and

(b) development avoids increasing risk to public safety in public safety areas, and

(c) development mitigates adverse impacts of aircraft noise and is compatible with forecast levels of aircraft noise within the 20 ANEF contour or greater of strategic airports, and

(4) protecting aviation facilities by ensuring development and associated activities within building restricted areas do not affect their functioning, and

(5) identifying and protecting key transport corridors (passenger and freight) linking strategic airports to the broader transport network, and

(6) including the SPP code: Strategic airports and aviation facilities (Appendix 5) or similar development assessment requirements.

The policy applies to land in the vicinity of Archerfield Airport and in particular:

- the operational airspace (including as shown in the OLS/PANS-OPS);
- land in the vicinity of the aviation facilities that are located on and off airport;
- within the area defined by the 20 ANEF; and
- within public safety areas defined at the ends of each main runway.

The policy does not however apply to the airport itself (which is Commonwealth land), or to aviation facilities off the airport.

The policy is applied in relation to:

- assessment of development applications;
- making or amending of planning schemes; and
- designation of land for community infrastructure.

Planning schemes are required to show the airport location, and include an Airport Environs Overlay that shows the following (where known):

- operational airspace (OLS/PANS-OPS);
- lighting area buffer zone, including lighting intensity zones;
- wildlife hazard buffer zone;
- building restricted areas for aviation facilities (communication, navigation or surveillance), protecting against physical obstructions, competing radio transmissions or significant electrical/electromagnetic emissions;
- public safety areas; and
- ANEF contours.

The policy seeks to ensure that planning schemes and development approvals for land around airports protect airport efficiency and viability, avoid limitations to aircraft operations, protect development (and occupiers) from adverse effects of airport operations, and protect public safety.

The policy requires that planning schemes have regard to the approved ANEF for each airport. In this regard the use of a practical capacity ANEF by AAC better depicts potential effects and therefore allows for better planning decisions to be made in relation to the land-use around the airport.

The policy guideline also seeks to ensure that planning schemes show key transport infrastructure and corridors (including key freight routes) linking a strategic airport to the broader transport network, and protect these from development which would compromise the function of the transport route.

The State Minister for Infrastructure, Local Government and Planning needs to be satisfied that planning scheme changes and development approval decisions reflect this policy.

3.4.3 South East Queensland Regional Plan 2009-2031

From a regional perspective, the *'South East Queensland Regional Plan (2009-2031)'* (SEQRP) provides the principles and priority actions to protect and enhance the region's environmental, social and economic assets. The State government is expected to release a new draft SEQRP for public consultation in 2016.

SEQRP is the Queensland Government's plan to manage growth and protect the region's lifestyle and environment. It has been prepared in consultation with the Commonwealth, and Local Governments in the region (including BCC).

The vision for the region is a future that is sustainable, affordable, prosperous, liveable and resilient to climate change.

The plan provides the framework for managing growth, land use and development in the region. It responds to issues such as continued high population growth, traffic congestion, climate change and employment generation. The plan balances population growth with the need to protect the lifestyle that residents of South East Queensland value and enjoy.

From the perspective of Archerfield Airport, the regional plan includes important guidance on such matters as the preferred location of urban growth in the SEQ region, planning for efficient freight services, and coordinated air and sea transport.

Growth corridors

Urban development will be confined within a defined footprint which will contain urban growth and promote a higher density urban form.

The regional plan identifies the need to cater for 156,000 additional dwellings in the Brisbane City Council area by the year 2031.

The majority of this additional growth will be focused on regional activity centres outside the Brisbane City Centre, however the plan also identifies opportunities for additional infill development.

Outside the Brisbane Council area the plan identifies two major growth corridors being the Western Corridor and the South Western Corridor.

The Western Corridor extends from Goodna (which is less than 10 km to the south west of Archerfield) to Grandchester (approximately 30 km beyond Ipswich).

In this corridor, approximately 118,000 new dwellings will be required by the year 2031, with the Ipswich CBD strategically located to function as the principal administrative, cultural and community centre. The growth area will be supported by employment at Springfield, Ripley, Ebenezer-Willowbank, Swanbank, New Chum, Bundamba, Wulkuraka industrial area, Carole Park, the RAAF Base Amberley, and the Amberley aerospace and defence support centre.

The South Western Corridor is located to the south of Archerfield Airport in Logan City. It is between the existing urban area of Logan and the southern boundary of Logan City. This growth corridor is adjacent to existing urban services, the Mount Lindesay Highway and the Brisbane to Sydney rail corridor. It is expected to cater for regionally significant levels of residential and employment growth, in a series of communities linked by a subregional public transport network and roads to Greater Logan, Brisbane, the Gold Coast and Ipswich. The plan estimates that 70,000 additional dwellings will be required by 2031.

These corridors will make use of significant areas of available land and reduce development pressure on the coast. New development in these areas is expected to incorporate significant new employment precincts.

Archerfield Airport is well placed to accommodate the aviation requirements for these growing areas, and the transport and other business needs that will be generated.

Employment

The plan seeks (in part 9.1) a diversified regional economy that retains local jobs and builds on regional and subregional competitive advantages and specialisations.

It also seeks to provide sufficient land for business and industry to enable diversified, broad-based, future economic and employment growth across the region (part 9.3).

The plan includes the following policies that are relevant to Archerfield (and the surrounding employment area):

- protect sites and areas suitable for enterprise location from incompatible development;
- protect and ensure the long-term security of transport terminals (including ports), other utilities and special uses; and
- encourage the relocation of large-scale industrial, warehousing, transport and storage businesses from inner suburbs to release these sites for higher and better use.

The supporting discussion highlights the importance of strategically located land in areas with good motorway, regional arterial, airport or rail access. This is a description that fits comfortably with Archerfield Airport and the surrounding employment precinct. It says that this land should be secured for business and industry serving the wider region, or importing and exporting goods and services outside South-East Queensland.

The plan identifies the Archerfield/Acacia Ridge/Rocklea employment area as the *South West Industrial Gateway*, which is one of four 'enterprise opportunity areas' in the City of Brisbane.

Infrastructure

Supporting infrastructure will be developed progressively, in accordance with the *South-East Queensland Infrastructure Plan and Program* (SEQIPP).

There are plans for further upgrading of the Ipswich motorway (which passes Archerfield), and providing additional capacity for the Ipswich railway line.

The State (through the Department of Transport and Main Roads) is also investigating the feasibility of developing additional rail capacity between Salisbury and Wooloowin that would enable significant improvements to south east Queensland's regional rail network.

Known as the Cross River Rail project, the current scope includes:

- a new north–south rail line in Brisbane's inner city including a tunnel under the Brisbane River connecting to the existing southern rail network south of Fairfield and to the existing northern rail network via the Exhibition loop;
- additional above ground tracks and infrastructure to allow for increased frequency of passenger and freight movements;
- new underground inner city train stations in lower Albert Street, Roma Street Station, Woolloongabba and the Boggo Road Urban Village precinct; and
- a possible upgrade to the surface Exhibition Station.

The project has the potential to enhance rail access to the South West Industrial Gateway.

Transport and freight

The plan seeks to enhance South East Queensland's position as the major national and international freight logistics centre servicing the Australian east coast.

It recognises that freight movements across Queensland are forecast to double by the year 2020 and that there will be rapid growth in South East Queensland with expanding import and export activities in the Australia TradeCoast area (including Brisbane Airport and Port of Brisbane). It notes that the ability to easily move freight into and around South East Queensland will be essential for economic growth.

The rail freight initiatives (in part 12.5 of the plan) include expanding the capacity of the Acacia Ridge rail terminal, and increasing rail capacity through the metropolitan network to the Port of Brisbane. The Acacia Ridge rail terminal is approximately 1.6 km to the east of Archerfield Airport.

The initiatives for coordinated air and sea transport in part 12.6 of the plan seek to provide efficient air and sea transport to service both freight and passenger needs in South-East Queensland.

The policies that underpin it include:

- supporting development of regional airports as significant economic and social links for regional communities;
- providing transport infrastructure to support the primary role of regional air and sea ports; and
- protecting and enhancing the freight routes to the Australia TradeCoast.

The plan recognises the important role that airports play in the economic and social fabric of South-East Queensland, and that increasingly the airports are a focus for a range of employment and land use activities.

South East Queensland Principal Cycle Network Plan

The State government in 2016 published a plan showing the existing and desired future principal cycle network in South East Queensland.

Principal routes form the spine connecting local cycle networks. They link residential areas to major trip attractors such as public transport nodes, universities, schools, shopping and commercial centres, industrial areas, and regional recreational facilities.

At the regional scale, they provide key connections between activity centres or towns.

The Plan shows the most important routes and known missing links for cycling within the region. These are represented as 'desire lines', that indicate generally the connections that are sought to encourage safe and efficient movement of cyclists. The routes are therefore indicative only, and guide further planning and design that will determine the precise route and design of cycle facilities.

The existing and future principal routes in the vicinity of the airport are shown in Figure 16 Ground transport plan. Council has further refined this network in the *Bicycle Network Overlay Map* in the City Plan.

3.4.4 Consistency with the State plans and policies

The Queensland Government is committed to the continued operation and growth of Archerfield Airport. It has identified the airport as being of State significance and recognises that it is an important part of the aviation/transport infrastructure of South East Queensland.

The State Planning Policy seeks to protect the continued operation of the airport. It encourages a cooperative approach between airport operators, all levels of government and other relevant stakeholders. It recognises the need to balance airport activities with surrounding land use, taking into account both local safety and amenity issues, and the safety and operational requirements of the airport operator.

Principles underpinning the State agenda include:

- BCC is expected to consult with Archerfield Airport Corporation, airline operators, adjacent local authorities, other government agencies and the community when considering planning scheme provisions for land adjacent to Archerfield;
- any strategic plans, planning schemes or amendments, or development approvals relating to land around Archerfield should provide for adequate control over land use and development to protect the ongoing operation of the airport. These should take into account issues such as height control and noise so that the present and future operational requirements of the airport and the safety and amenity of the community are not compromised;
- Council is expected to safeguard through its strategic planning, sites for future aeronautical facilities based on an assessment of future needs and roles;
- Council is expected to provide for aviation-related industries and services to locate on land adjoining aerodromes. In the case of Archerfield, past planning initiatives by Council have ensured that there are many opportunities for industry and related activities to establish around the airport.
- As was foreshadowed by the Commonwealth and the FAC prior to privatisation, the industrially zoned land in the Acacia Ridge/Rocklea/ Archerfield industrial precinct is now largely developed (or otherwise committed), and the opportunity has emerged for non-aeronautical land on the airport to be developed for these complementary purposes;
- BCC and neighbouring councils are also expected to take into account Archerfield's operational requirements, including obstacle clearances, safety, protection from light emissions, protection from wind turbulence (from buildings, structures, and emissions from facilities), management of wildlife, and provision of appropriate buffers from noise when considering planning applications (for rezoning, land use, development or subdivision); and
- Local authorities are required under SPP to ensure that the planning scheme includes appropriate provisions to ensure that any adverse effects of aerodrome operations on adjacent residents or other sensitive uses are minimised.

The Master Plan is consistent with the State and regional planning framework.

The Master Plan:

- provides for the sustainable future of the airport as a base for aviation, with an emphasis on flying training, corporate, charter, emergency rescue, aeromedical, RPT and related aviation activities; supported by a range of complementary land uses;
- will add essential economic stimulus to the airport business;

- provides a strategic framework for the timely and efficient development of airport infrastructure, yet retains the flexibility to respond to future developments in aviation that will emerge in the volatile marketplace over the 20 year planning horizon;
- promotes an integrated approach to airside and non-airside land use planning;
- includes information about the operational requirements and effects of the airport, including details concerning airspace protection, public safety areas and anti-aircraft noise management, to assist Council with the responsible management of surrounding land use;
- has full regard to conservation of the natural and built environment; and protection of soil, air and water quality (in conjunction with the AES);
- facilitates environmental awareness by all who conduct business on the airport (through the AES and related procedures);
- sets out the airport protection requirements, including the prescribed airspace, restricted light zones, and forecast noise mapping, to ensure that landholders and authorities proposing or undertaking off airport development can avoid encroachment of activities and development in the airport vicinity that could impact on airport operations; and
- will ensure environmental accountability for actions on site, through the Environmental Management Procedures, Environmental Management Plans and regular reviews and reporting to the Commonwealth Government.

This Master Plan identifies the planned airside facility requirements for Archerfield. It confirms that there is no immediate requirement to expand the aeronautical facilities beyond the current airport boundaries. It also clarifies the planned long term role and function of Archerfield as a major general aviation airport in a state and national context, and a significant hub for transport, industrial and related commercial enterprises serving the south east region of Queensland.

AAC is committed to maintaining a good working relationship with the Queensland Government, to ensure that there is a full appreciation of all relevant issues, and a coordinated approach is taken on matters of common interest.

Archerfield Airport will continue to work cooperatively with State Government in applying the latest relevant Queensland State Planning Policy on planning for aerodromes and other aeronautical facilities, and associated guidelines, where these are generally consistent with the principles and concepts underpinning the Master Plan.

3.5 BRISBANE CITY PLAN AND LOCAL PLANS

The Brisbane City Plan 2014 provides a performance based planning scheme for the City, and is prepared under the Queensland *Sustainable Planning Act 2009*.

3.5.1 Structure of the City Plan

The City Plan adopts the relevant Queensland Planning Provisions, including all of the State Planning Policy. It describes the strategic framework for Brisbane, identifies priority infrastructure, zones, overlays and development codes.

The *Strategic framework* sets the policy direction for the planning scheme. It states the vision for the City and broad policy, and sets the parameters for general development policy.

The policy intent is described under five themes being:

- Brisbane's globally competitive economy;
- Brisbane's outstanding lifestyle;
- Brisbane's clean and green leading environmental performance;
- Brisbane's highly effective transport and infrastructure; and
- Brisbane's CityShape.

It identifies for each theme, the strategic outcomes sought.

The effective operation of airports and the importance of major transport infrastructure to economic activity are reflected in City Plan's *Strategic Framework*.

Element 2.1 of City Plan, *Brisbane's industrial economy*, recognises that adjacent development must optimise and integrate with airport airspace and limit sensitive land use in proximity to the airport approaches.

The *Airport Environs Overlay* in City Plan ensures that new development is consistent with this land use strategy.

The *Priority Infrastructure Plan* (PIP) integrates land use planning and infrastructure planning, with the objective of ensuring that trunk infrastructure is planned and provided in an efficient and orderly manner.

The requirement for the approval of specific development and use is set out in the *tables of assessment*. The outcomes sought for development and use is described in the *zones*, *overlays*, and applicable *codes*.

Neighbourhood Plans provide a local vision for an area. They identify and address local issues and detail the desired character for the area.

3.5.2 Implications for Archerfield

For the avoidance of any confusion or doubt, it is important that all parties understand that the Commonwealth has the power and responsibility for all planning decisions on the site.

These decisions are guided by the Master Plan, which includes a framework for land use and development. The land use and development aspects of the Master Plan have regard to the City Plan, as well as other State, regional and local provisions.

Key aspects of the City Plan of relevance to the Master Plan are summarised below.

Land use

The majority of the airport is designated SP5 *Special purpose (Airport)*.

This zoning recognises that the airport is a special mix of activities and development which does not conform to a single land use classification (such as 'industrial' or 'business'). Placing this zone on the airport gives flexibility for the airport to develop and evolve as its business and operational needs change.

The section of the airport at the southern end of Beatty Road (on the north-east corner of Beatty Road and Mortimer Road) is designated *'Low Impact Industry'*, and allows for industry and related uses that are compatible with the industrial land along the east side of Beatty Road, the neighbouring residential area on the south side of Mortimer Road (adjacent to the south-east corner of the airport), and the public open space to the east.

The land to the south-west of the airport, that forms the wedge between Oxley Creek and Blunder Creek, is part of a rural area that extends south from the Brisbane River, widening towards the southern outskirts of the urban area of Brisbane.

All other land abutting the airport is designated for industrial purposes, consistent with its current use. The surrounding land use zoning is shown in Figure 10 *Airport land use context*.

The Brisbane City Plan identifies the Brisbane-Ipswich corridor and the Australia TradeCoast as the two major industrial areas for Brisbane. The Brisbane-Ipswich corridor extends to the south west of the City and includes Archerfield, Acacia Ridge and the developing areas of Wacol and Darra.

BCC has in recent years made provision for expansion of the South West Industrial Gateway at Lower Oxley Creek (to the south of the airport).

In 2013, it adopted the Lower Oxley Creek South neighbourhood plan which applies to an area commencing 4km south-east of the airport. It provides for industrial development in locations where land use conflict can be avoided. In 2016 BCC adopted the Lower Oxley Creek North neighbourhood plan which

provides for low and medium impact industry in an area commencing 2.5km south of the airport.

Multi purpose centres (which include retailing, office, community facilities and other compatible activities) in the Acacia Ridge/Archerfield areas include:

- the Elizabeth Street Shopping Centre (at the intersection with Beaudesert Road, approximately 2 km from the airport)
- the Acacia Market Place Shopping Centre (on the east side of Beaudesert Road, approximately 1.2 km from the airport).

There is also a bulky goods complex 1km west of the airport on Ipswich Road. This includes Harvey Norman, Bunnings, JB Hi, Fi, Super Amart, R.T. Edwards, The Good Guys, Officeworks, and other similar retail outlets.

Local, smaller convenience centres in proximity to the airport include the shops on the south-west corner of Mortimer and Beaudesert Roads; the corner of Granard and Beatty Roads; and at Boundary Road, Coopers Plains (at the railway station).

There are no convenience or multi-purpose retail facilities within walking distance of most of the airport.

Transport

The City Plan includes a road hierarchy overlay map. The road network serving Archerfield is categorised as follows:

Motorways which include Ipswich Road, to the north west of the airport, Logan Motorway (further afield to the south) and South East Freeway (to the north east of the airport).

Ipswich Motorway, Granard/Riawena Road and the Gateway Motorway are National Highways under the management of the Queensland Department of Transport and Main Roads (DTMR) and provide a strategic link to the Port of Brisbane. Their strategic importance to south-east Queensland is also highlighted in the *South East Queensland Regional Plan 2009-2031*.

Arterial roads provide intra-city connections between the major designations within Brisbane and surrounding areas including the principal regional activity centres and major employment areas. These carry 20,000+ vehicles per day and in the vicinity of the airport are:

- Granard/Riawena Road;
- Beaudesert Road;
- Boundary Road, east of Beaudesert Road;
- Blunder Road;
- Inala Avenue/Learoyd Road.

Suburban roads, which connect arterial roads through and around suburbs constitute a lower order of road to the arterial routes, and carry 10,000 to 20,000 vehicles per day, include:

- Boundary Road, between Beatty Road and Beaudesert Road;
- Boundary Road, on the west side of the airport;
- Mortimer Road, between Beatty and Beaudesert Roads;
- Kerry Road;
- Barton Street;
- Balham Road;
- Ashover Road; and
- Beatty Road.

District roads which carry through traffic between suburbs and provide access between minor roads, local centres and suburban and arterial roads include:

- Mortimer Road/Lombank Street west of Beatty Road, and
- The north-south section of Balham Road (from the intersection with Barton Street).

With respect to freight movement in the vicinity of the airport, the road hierarchy map identifies the following 'primary freight routes' (direct road connections for non-standard vehicles between regionally significant industrial areas and inter-regional destinations):

- Ipswich Motorway,
- Granard Road, and
- Beaudesert Road;

and the following roads that are 'primary freight access' routes (connecting primary freight routes and freight dependant development):

- Boundary Road (east and west of the airport),
- Ashover Road,
- Balham Road,
- Barton Street,
- Beatty Road (north of Mortimer Road),
- Kerry Road, and
- Mortimer Road.

Council is pursuing an integrated approach to transport, including addressing road network requirements, provision of improved public transport (including public transport interchanges), increasing the proportion of cycling and pedestrian trips (by encouraging the provision of bikeways and pedestrian ways linked to centres and public transport), and management of car parking.

It seeks also to protect Archerfield Airport and other major strategic transport infrastructure from incompatible development and land use, and to ensure that Brisbane's industrial areas have a high degree of connectivity for people and freight (including by road, air, rail, and sea).

The City Plan includes guidance for the development of three major Queensland Government projects:

- the Intermodal freight terminal (rail and road);
- the Postle Street logistics sub precinct which is envisaged as an extension to the Intermodal Freight Terminal as an industry/warehousing precinct; and
- the Technical and Trades Training (SkillsTech) Campus.

Pedestrian and cycle network

Existing and potential cycle routes are shown in in the *Bicycle Network Overlay Map* in the City Plan.

These are intended to facilitate access to retail and commercial services, public transport, education and recreation facilities.

The main routes are along Ipswich Road, Granard Road, and Beaudesert Road. Secondary cycle routes are shown along Beatty Road, Mortimer Road (east of Beatty Road), Boundary Road, Barton Street/Balham Road, and Ashover Road.

The overlay map shows also a 'potential' route through the south-west corner of the airport, near Oxley Creek. AAC has considered this proposal and found that it is not feasible for a number of reasons. This is addressed in section 10.4.

Heritage

The City Plan encourages the conservation of heritage places and heritage precincts to retain their significance for the benefit of present and future communities.

Council has a city-wide heritage register, and a *Heritage Overlay* that applies to heritage places. The Overlay identifies the airport site (apart from the land on the east side of Beatty Road) as a 'local heritage place'.

However, Commonwealth retains jurisdiction to decide heritage matters on airports, and this is administered under the Airports Act and regulations and the *Environment Protection and Biodiversity Conservation* (EPBC) *Act*. This has been done to facilitate the regeneration of airport infrastructure. Under this system, God's Acre Cemetery and the Airport Administration Building/Terminal are identified as places of historic significance. More information about heritage management is provided in section 16.2 of the AES.

Environment

The City Plan identifies a network of waterway corridors and wetlands.

The principal elements of relevance to the Master Plan are the main diagonal drainage system that runs south-east to north-west through the middle of the airport, and the Oxley Creek open space system that abuts the airport to the south west.

AAC recognises that the Oxley/Blunder Creek system is a regionally important open space and fauna habitat and has included in the Master Plan an open space buffer on airport land adjacent to the creek. The boundaries of the buffer area were determined in consultation with the Commonwealth departments of Infrastructure and Transport (now DIRD); and Sustainability, Environment, Water, Population and Communities (DSEWPC) during the preparation of the 2010 version of the Airport Environment Strategy.

The land has been designated as an 'open space buffer' in Figure 2 *Master Plan vision*, and zoned 'Conservation' in Figure 17 *Airport land use zoning*. The cleared land in the buffer area will continue to be used for grazing. The area will also continue to accommodate important stormwater management works including a major detention basin. This will provide an appropriate long term interface between airport activities and the Oxley Creek open space corridor.

3.5.3 Airport environs overlay and code

BCC has included in the City Plan an *Airport Environs Overlay* and related code.

The outcomes sought are:

(a) Development protects the safety and functioning of operational airspace of the Brisbane and Archerfield airports.

(b) Development protects the functioning of aviation facilities from incompatible land uses, buildings, structures and works.

(c) Development for a sensitive use within the vicinity of the Brisbane and Archerfield airports is appropriately located to prevent exposure to very high levels of aircraft noise and designed to adequately attenuate expected aircraft noise to protect the health and wellbeing of occupants.

(d) Development ensures that operational airspace of the Brisbane and Archerfield airports is not put at risk from light sources or wildlife interference generated by development.

(e) Development minimises potential hazards to the safety and functioning of airport operations resulting from emissions from smoke, dust or any other airborne particulate or the creation of air turbulence.

(f) Development does not materially increase the number of people or the storage and handling of dangerous goods or combustible liquids within public safety areas.

(g) Development minimises the potential hazard to safety of airport operators resulting from reflection of sunlight, and other potential threat of interference to pilot vision.

(h) Development avoids increased risks to public safety near airport runways.

The code includes assessment criteria that if satisfied will ensure consistency with the State Planning Policy, airspace protection, ANEF contours, lighting restrictions, public safety areas and other requirements.

Noise attenuation measures are required to be provided in new developments where a site is within a noise exposure contour of 20 ANEF or greater in accordance with *AS2021 Acoustics—Aircraft Intrusion—Building Siting and Construction*.

The overlay mapping and code reflect the endorsed Australian Noise Exposure Forecast (ANEF) for the airport for the purpose of determining the limitations of aircraft noise on land use and buildings. The current ANEF for Archerfield is shown in Figure 14.

It is understood that the dangerous light zones that apply to the areas around the airport, on the alignment of the main runways are consistent with the restricted light zones shown in Figure 18.

AAC supports the inclusion of these provisions in the City Plan and will continue to work with BCC to ensure that these requirements are implemented.

3.5.4 Acacia Ridge-Archerfield Neighbourhood Plan

The *Acacia Ridge - Archerfield Neighbourhood Plan* is part of BCC's planning scheme *Brisbane City Plan 2014*.

The Neighbourhood Plan describes the area as being:

> *....comprised of a number of distinctive established areas of industrial uses and residential communities. The industrial uses include a variety of manufacturing, transport, light aircraft and commercial airport operations and technical and trades training employment opportunities of regional significance. Established residential areas consist of households with a strong emphasis on affordable homes, accessible parks and a strong community character.*

It describes the airport as:

> *Archerfield Airport provides a focus for light aircraft and commercial aircraft activities*

The plan acknowledges the ongoing operation of Archerfield Airport and related aviation activities and services.

It highlights that the airport is within an industrial and transport services corridor of regional significance. Future industrial development that has a nexus with and supports the function of the airport and surrounding industrial/transport services corridor is supported.

It recognises also that the Airport is privately operated under an agreement with the Commonwealth Government and the site is regulated by Federal legislation.

The provisions relevant to the airport are summarised below.

Industry

With respect to industry, the plan notes that this area supports a major industrial and freight transport node of citywide and regional significance that provides a broad range of industrial and transport employment.

It supports future industrial development that supports the function of the airport and has a nexus with the surrounding industrial/transport services corridor.

The plan acknowledges the need to provide appropriate buffers between industrial and more sensitive uses (such as residential).

This is of particular relevance to the south-east corner of the airport, where there are existing houses on Mortimer Road, opposite the airport industrial areas and the vacant airport land that is on the north east corner of Mortimer Road and Beatty Road.

Activity centres

The plan highlights two suburban activity centres near the airport. These are:

- a convenience centre on the east side of Beaudesert Road between Kerry Road and Mortimer Road (approximately 1.2 km from the airport); and
- the higher order centre developed around the intersection of Elizabeth Street and Beaudesert Road, approximately 2 km to the south-east of the airport.

There are no activity centres shown in the areas immediately adjacent to the airport, including the employment areas to the north (to Granard Road) or to the north-west and west (to Ipswich Road).

Given the distance separating the airport from these centres, and the plans for growth in employment and visitors to the airport (and to the surrounding employment areas), there may be scope for some retail facilities on the airport to cater for day to day needs of the airport, and the adjacent employment and residential areas.

Oxley Creek

The City Plan highlights the importance of Oxley Creek as a regional open space and habitat corridor.

This is addressed in the designation in the Master Plan (and the AES) of a buffer zone along Oxley Creek, the stormwater management measures that have been implemented by AAC in recent years, and the ongoing environmental management initiatives that are included in the AES and EMPs.

3.6 STRATEGIC STRENGTHS OF ARCHERFIELD AIRPORT

3.6.1 Aviation

- Archerfield is soundly positioned as the vibrant airport hub for flying training, corporate aviation, charter, aeromedical, emergency rescue and related services, specialised freight, and privately operated aircraft in South East Queensland;
- the range of aviation uses at Archerfield complement those at Brisbane Airport;
- the scale and quality of airside facilities and the opportunities for expansion provide the flexibility to accommodate a range of aviation and aerospace activities for government and private sectors;
- it has long established airspace protection measures in place to ensure that the operation is not constrained by surrounding land use or development (including measures to maintain obstacle clearances, protect the airport from adverse light impacts, and clearly indicate potential noise impacts);
- the metropolitan location attracts aircraft operators and their clients, pilots, instructors and trainees, and aviation business operators; due to the central location, the amenities, and access to high quality aviation facilities;
- there are a number of opportunities to develop more accommodation for trainee pilots on the airport site, further strengthening the attractiveness of the airport to interstate and overseas students;
- Griffith University is linked both traditionally and by proximity. Undergraduate and postgraduate aviation courses, like the Bachelor of Aviation, are offered at the nearby Nathan campus;
- its proximity to the Brisbane CBD hospitals and other facilities, and excellent road access makes it an attractive base for aeromedical and emergency services;
- it is the home of established aviation businesses and organisations which all contribute to the richness of the airport community;
- the airport has unique characteristics that make it an appropriate base for niche RPT services which may not require access to, or may not be welcomed at, the major airports in the region. It is in a convenient location close to the Brisbane CBD, and to the substantial existing enterprises in the South West Industrial Gateway;
- it is on the 'inboard' side of the Western and South Western growth corridors of Brisbane, which will accommodate the planned growth of Brisbane over the next 20 or more years. It is positioned to service the air transport needs of a growing residential population, as well as the transport and business needs of the range of enterprises that are being sought in these areas; and

- AAC is committed to driving growth in sustainable aviation activity at Archerfield, and to attracting compatible activities that will underpin this.

3.6.2 Sustainability

- The potential environmental impacts of the airport are well managed, in accordance with the AES;
- The airport is addressing sustainability aspects in new development, and in its own projects involving refurbishment and reuse of historic buildings;
- The airport can be accessed by public transport, and BCC has in place plans to further improve this through enhancement of the cycling and pedestrian network throughout the Acacia Ridge/Archerfield area, and links to Coopers Plains railway station, which in turn connects to greater Brisbane; and
- The airport is close to significant open space areas, including the Oxley Creek corridor (to the south) and the main district scale open space on Mortimer Road, that serves the Archerfield area.

4 Economic significance

4.1 ECONOMIC IMPORTANCE AND POTENTIAL OF ARCHERFIELD AIRPORT

Archerfield is a strategic aviation airport serving Greater Brisbane.

It serves as the base for corporate and private flying, a number of pilot training schools, charter flight companies, QGAir, Polair, LifeFlight, Royal Queensland Aero Club, Archerfield Jet Base (FBO), and a range of supporting businesses.

The airport is a significant transport infrastructure asset for Brisbane and South East Queensland. It provides economic benefits to the state and regional economy, including:

- providing key economic infrastructure to enable other industries;
- reducing the pressure of General Aviation on RPT airports, allowing for more efficient and safe passenger management;
- providing vital community aviation services such as aeromedical, rescue and emergency services helping to facilitate better patient outcomes;
- creating aviation jobs to sustain a skilled workforce for industry;
- facilitating efficient trade of goods and logistics;
- supporting economic development through efficient intermodal transport; and
- supporting regional and offshore resource development through freight logistics and fly-in, fly-out workforces.

The airport has an important role as a transport hub that facilitates regional and remote development.

Archerfield is considered by the Queensland State Government in its *Economic Directions Statement Queensland Airports 2013-2023* (EDS) as an airport of strategic significance to the state's economic growth.

The Government has clearly identified Archerfield Airport as playing a critical role in industry development, and in the resources, tourism, construction and agriculture sectors in particular.

The EDS also highlights Archerfield Airport's current and future role in industry development of aviation and aerospace, at the forefront of training and skills delivery, and its location in close proximity to industrial precincts with the potential to attract businesses and aviation links to industries that require air services.

Businesses at Archerfield Airport fulfil significant maintenance, repair and overhaul (MRO) functions. This sector provides an important contribution to the state economy, and also to exports.

The *Queensland Aerospace 10-Year Roadmap* discussion paper released by the State government in 2016 states that over 30% of Australian aircraft manufacturing and repair businesses are in Queensland. In 2014–15 aerospace generated approximately $1.3 billion of revenue and contributed around $600 million to the Queensland economy. The sector currently provides over 4500 direct jobs in aircraft manufacturing and repair services and indirectly supports many more across the state.

Queensland airports are clearly seen as strong catalysts for education, resources, agriculture and construction industries.

Air training is expected to grow as a share of industry revenue and strengthen the contribution of airports with a focus on training. Archerfield Airport is a key player in the economic growth of Queensland and provides opportunities to attract innovation, technology, education, training and specialist aviation and aerospace services.

4.1.1 Airport enterprises

The airport currently accommodates over 115 businesses employing hundreds of people.

The flying training activities cater for both domestic and international flying students.

The international flying students are estimated to contribute approximately $3.5M per annum in export earnings for the state, and for Australia.

There are also many external businesses that provide services to the enterprises based on the airport, and to the people working or visiting Archerfield.

4.1.2 Investment as a catalyst for growth

AAC has made significant capital investments totalling $38m in the airport since privatisation. These investments have improved aviation infrastructure, attracted new enterprises to the airport, and strengthened its role as Brisbane's metropolitan airport.

The experience at metropolitan airports around Australia is that this investment leads to growth in on-airport employment, and increased indirect employment.

The Australian Airports Association, in its report *Securing the future of Australia's Metropolitan Airports* (November 2014) summarised the amount of capital investment made by the ALCs of metropolitan airports since

privatisation. The report also provided on-airport employment figures as follows:

- Archerfield Airport-$38m, and 668 staff in aeronautical businesses (total staff in non aeronautical not available)
- Bankstown /Camden Airport-$37m, and 2070 on-airport staff
- Essendon Airport- $200m, and 4200 on-airport staff
- Jandakot Airport- $251m, and 1950 on-airport staff
- Moorabbin Airport- $250m, and 3300 on-airport staff
- Parafield Airport-$21m, and 850 on-airport staff.

4.1.3 South West Industrial Gateway

In conjunction with the preparation by AAC of the 2011 Master Plan, BCC undertook an analysis of the role of Archerfield as part of this strategic industrial area of Brisbane.

The analysis found that the airport is a key asset to the South West Industrial Gateway. It complements the freight connections at the Acacia Ridge rail freight terminal (which are to be upgraded) and the expected growth of industrial activity in this part of Brisbane.

The Gateway area overall is considered by BCC to be a strategically important area for future industry serving the needs of Brisbane and the region. Further industrial development in the Gateway is also seen as being complementary to the economic performance of Australia TradeCoast.

The strategic role of the airport as part of this industrial area is assessed by BCC as being complimentary to the planned expansion of flying training and passenger services at Archerfield.

BCC has advised that the airport is well placed to cater for freight and short haul business travel services that would be attractive to existing enterprises in the Acacia Ridge/Archerfield/Rocklea area, and investors looking for strategic industrial locations in Brisbane.

The airport therefore has the potential to contribute to Brisbane's long-term economic growth and development by increasing the attractiveness of the City to domestic and overseas companies looking to invest in Brisbane.

5 Aviation activity and forecasts

5.1 AVIATION ACTIVITY AT ARCHERFIELD

Archerfield caters for all types of general aviation fixed and rotary wing aircraft operations including:

- flying training;
- charter, for passengers and freight;
- aerial work;
- aeromedical;
- emergency rescue;
- corporate and business aviation;
- private and business flying;
- recreational and sports aviation; and
- emergency services flying.

Flying activity is supported by a range of established on-airport businesses which provide:

- fuel supply services;
- student accommodation;
- aircraft maintenance (civil, emergency services, and military);
- non destructive testing and shot peening;
- hangarage;
- warehousing;
- aircraft, components and materials sales;
- aircraft painting and refurbishment;
- communications;
- insurance services;
- fixed base operator services;
- facilities for clubs and organisations;
- office based services; and
- food and other supporting retailing.

5.2 AIRCRAFT MOVEMENTS

Aircraft movements have been adopted throughout the western world as one of a number of yardsticks to indicate the "busyness" of aviation facilities when the usual criterion of passenger numbers can't readily be applied.

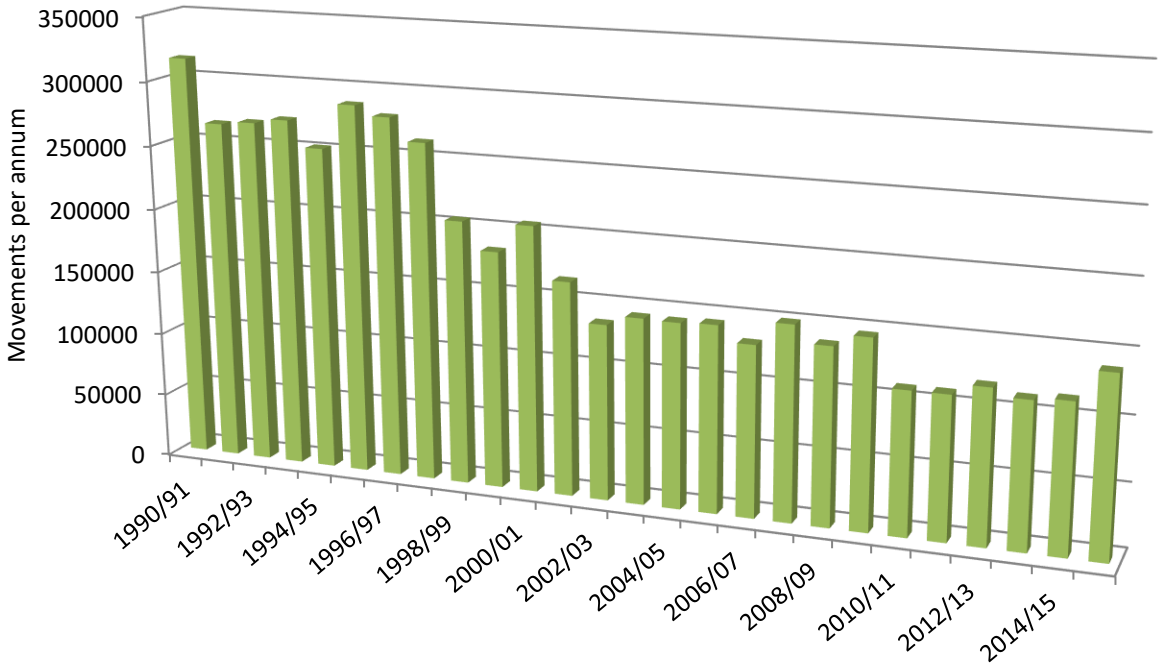
Aircraft movement figures alone are fairly limited in their usefulness for airport master planning. Aggregated annual figures do not show changes in the composition of the aircraft fleet over the years, or changes in the type or purposes of flights. Indeed, until the introduction of Location Specific Pricing for full stop landings at Archerfield in 1998, there was no need or incentive to verify any of the data.

An independent analysis of official movement figures after the advent of Location Specific Pricing found that they consistently exceeded recorded movements by significant margins, so comparisons of pre-privatisation and post privatisation figures need to be conducted with circumspection.

At the time of privatisation (19th June, 1998), there were 226 aircraft recorded on the field. In February 2016 there were 288, so with that in mind as a moderator, there is still value to be gleaned from the records that are available.

Airport records show that in the late 1980's through to 1991 the annual aircraft movements at Archerfield peaked at over 300,000.

The annual rate fluctuated between 250,000 and 300,000 flights per annum during the 1990s, and has ranged between 111,000 and 151,000 over the period 2005 to 2015.



Annual 24 hour aircraft movements, 1990-2016

The graph above shows total movements for each year over the past 25 years.

In 2002, AAC started recording aircraft movements on a 24 hour basis. Prior to then, movement data was only collected during tower hours.

To assist with comparing the data, the 1991-2001 tower counts have been adjusted by adding 10.4% to produce the estimated 24-hour count for each year over the period 1990 to 2002. This percentage increase is the average difference between 24 hour movements and the tower records since 2002.

Factors that have impacted on flight numbers over the past 25 years have included:

- the Asian economic crisis in 1997 and the Global Financial Crisis in 2008;
- the introduction of location specific pricing for Tower services by Airservices Australia (AsA) in 1998, coinciding with privatisation;
- airport privatisation in 1998, and the necessity for Airports Act airports to recover costs for services provided and to comply with more comprehensive and ongoing requirements for airport planning, environmental management, and community consultation;
- the Mobil Avtur fuel contamination event in early 2000 resulting in the grounding of 1000's of piston engine aircraft across eastern Australia;
- the emergence of terrorism and related security concerns in the aviation industry following the September 2001 attacks on the USA World Trade Centre buildings and the Pentagon;
- the increasing use of simulators for pilot training;
- the quite remarkable growth of an interconnected network of low cost carrier services throughout the nation;
- the increase in recreational aircraft and licensing costs has meant a relocation of those aircraft and pilots to country airports with lower cost bases;
- volatility in the value of the Australian dollar (which has impacted on the attractiveness of Australia as a location for training of overseas pilots); and
- changes in the types of aircraft flying at Archerfield.

Since the 2011 Master Plan was approved, the unpredictability of annual flight numbers has continued.

Fixed wing movements between 2009/10 and 2010/11 reduced by approximately 40,000 (following the Global Financial Crisis), and then remained relatively steady (in a range of 100,000 to 109,000/annum) to 2014/15. Fixed wing movements strengthened considerably in 2015/16 with a total of approximately 125,000.

Over the same period, helicopter movements have increased from an average of around 4000-5000 movements per year to around 13,000 per annum over the past 5 years. This is largely due to an increase in operations conducted by QGAir for rescue/aeromedical services and Polair for crime prevention.

Table 2: Aircraft movements

Year	Fixed wing	Helicopter	Other	Tower Hours	AAC 24 hour
1990/91	248,997	36,694	136	285,827	316,000
1991/92	217,394	23,943	52	241,389	266,000
1992/93	213,404	29,842	567	243,813	269,000
1993/94	231,172	15,553	657	247,382	273,000
1994/95	217,249	10,652	1,399	229,300	253,000
1995/96	241,585	18,778	805	261,168	288,000
1996/97	233,080	20,702	712	254,494	281,000
1997/98	218,862	18,862	1,044	238,768	264,000
1998/99	159,615	26,355	682	186,652	206,000
1999/00	147,682	19,566	336	167,584	185,000
2000/01	176,928	9,960	840	187,728	207,000
2001/02	147,360	3,358	724	151,442	167,000
2002/03	126,348	3,376	548	130,272	137,276
2003/04	119,660	2,748	552	122,960	144,942
2004/05	140,888	3,528		128,777	144,416
2005/06	141,548	4,060		127,403	145,608
2006/07	127,976	5,640		119,465	133,616
2007/08	147,018	4,687		135,502	151,705
2008/09	134,991	3,490		119,276	138,481
2009/10	142,718	5,062		125,137	147,780
2010/11	102,952	8,810		95,250	111,762
2011/12	100,863	11,035		97,832	111,898
2012/13	108,690	11,534		101,425	120,224
2013/14	101,323	12,934		95,362	114,257
2014/15	103,190	13,364		100,485	116,554
2015/16	125,133	13,004		120,311	138,137

NOTE: The 'AAC 24 hour movements' for the period 1991-2001 (shaded light green) are estimated and are provided for illustrative purposes only. The 'tower hours' figures shaded blue are from AAC records.

The global economic conditions prevailing since late 2008 affected aviation worldwide. It constricted discretionary spending, particularly on travel and leisure activities.

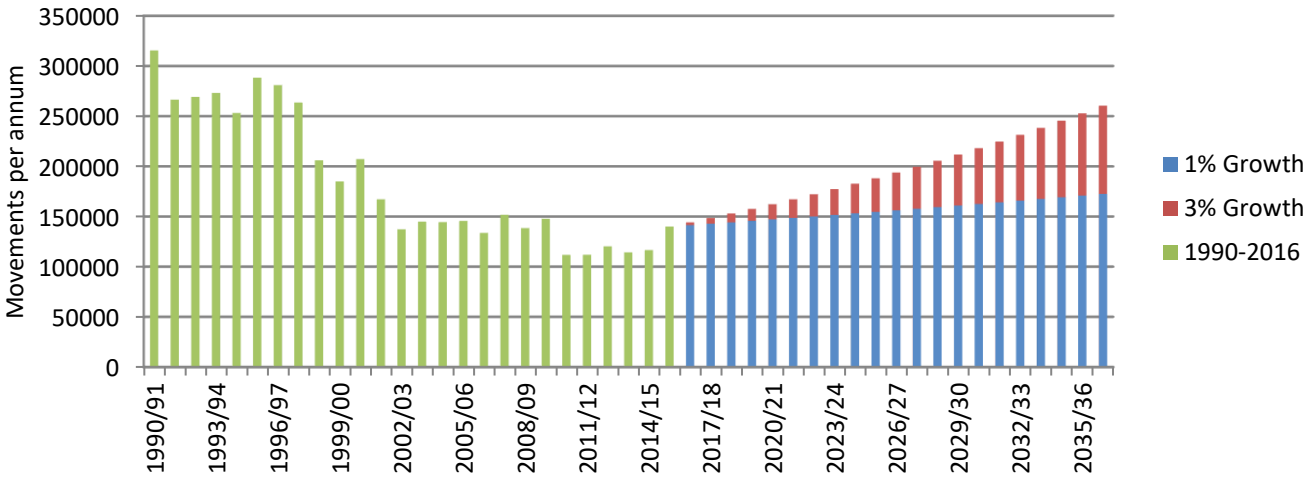
The reduced availability of capital has also had significant impacts on business investment, for both existing and new enterprises. It has constrained investment in aviation, and for non-aviation developments.

5.3 FORECAST AIRCRAFT MOVEMENTS

The significant variation in flight numbers over the past 25 years shows how difficult it is to forecast future activity at Archerfield (or any other general aviation airport). The overall trend of movement figures at Archerfield since 1990 has been downward, however the variation in the flight numbers has levelled off and fluctuated over a narrower range over the past 15 years.

The growth trends are sensitive to domestic conditions, and changes in the global, national and regional aviation industry.

Many of the factors influencing the activity levels are unpredictable, and it is conceivable that the historic trend will reverse. The airport is a rare and irreplaceable resource. The Master Plan seeks to preserve its capacity to cater for growth in aviation, and to ensure that future potential remains protected. With this in mind, AAC has developed two growth scenarios as illustrated below.



Forecast annual aircraft movements, 2017-2037

Data from 1990 to 2016 is shown in green. A low growth scenario (at an annual rate of 1%) is shown in blue, and a higher growth scenario (at 3%) is shown in red.

For master planning purposes, the higher growth rate has been adopted for the assessment of any external effects of aviation activity. This is particularly

relevant to the assessment of the potential noise exposure from aircraft in flight over the 20 year planning period.

5.3.1 Influences

Some of the significant variables that could influence the forecast for aircraft movements for the airport are:

- global and regional economic conditions;
- changes to Government regulations for the licensing of aircraft and operators;
- the pricing policy of Airservices Australia for control tower services at Archerfield;
- investment by existing flying schools in expansion and upgrading of their training fleet, and in other equipment including simulators;
- the strength of the flying training market, and the attractiveness of Archerfield to overseas students;
- the attractiveness of Archerfield for helicopter flying training, and for other helicopter use;
- growth in aeromedical and emergency services operations at Archerfield; and
- other regional, local and community airports may wish to compete for the general aviation business that currently exists at Archerfield Airport.

AAC is committed to facilitating the continued success of the airport for the long term.

It has in place a number of strategies to strengthen the aviation business, attract appropriate airport users, and foster complementary uses of the airport where these will positively contribute to the improved viability of the airport.

In 2014, AAC invested over $4M in the airport's first ever student accommodation complex. Located in a prime location on the airport, the fully refurbished, two-storey building (Building 9) accommodates up to 40 aviation students with motel style rooms on the top floor and a commercial kitchen, dining and lounge rooms, and four offices/training rooms on the ground floor.

The complex also includes a purpose-built viewing platform offering 360 degree views of the surrounding airspace to facilitate student's situational awareness and familiarity with radio procedures. The initiative was included in the 2011-31 Master Plan and reflects AAC's vision for the ongoing development of the airport into a world-class aviation facility.

AAC has also installed Movement Area Guidance signs beside the major runways and taxiways to assist trainee pilots conduct ground operations and plans to enhance the existing grass runways by relocating them away from flood-prone areas.

5.4 AIR FREIGHT

With its metropolitan location, positioned amidst a substantial and growing industrial area (and one of the largest in Brisbane), the airport is well placed to provide specialised air freight.

Accessible to the main road links to Brisbane and interstate, and the rail freight terminus at Acacia Ridge, the airport also has the potential to act as a transport interchange for land and air freight.

AAC, in consultation with BCC has identified an opportunity for growth in freight that services the needs of remote regional areas, including the mining industry. These customers require rapid response from expert technicians and a quick supply of replacement parts for plant and machinery breakdowns.

The *Practical Capacity ANEF* has allowed for 80 freight movements per week in recognition of this and other similar uses.

The Master Plan also provides the opportunity for the progressive development of freight and supporting uses, in a number of the development precincts on the airport.

5.5 REGULAR PUBLIC TRANSPORT

In the early days of Archerfield Airport, it was Brisbane's main regular public transport (RPT) airport. With the establishment of Brisbane Airport in its current location, the role of Archerfield as a RPT facilitator was phased out.

Over the past 18 years a number of operators have proposed bringing RPT back to Archerfield. Their plans have included linking capital city secondary airports.

In line with previous master plans, the 2017 Master Plan continues to make provision for the introduction of RPT services. It is anticipated that aircraft capable of carrying up to 80 passengers could operate from the airport.

In line with the 2011 Master Plan, the *Practical Capacity ANEF* (Figure 14) allows for a maximum of 12 arrivals and 12 departures a day, or around 9000 movements per year, by aircraft similar to the Dash 8-Q400 and Embraer 170. If RPT is to occur at Archerfield, all RPT movements will be confined to the main runway.

Passenger numbers for a RPT service could be around 400,000 to 500,000 per annum. This would represent less than 2% of the total airport flying activity, but would contribute significantly to the aviation services provided at Archerfield.

Consultation with affected stakeholders, including through means such as the Community Aviation Consultation Group, would occur prior to the introduction of any RPT services operating with aircraft larger than a 40 seat capacity. This consultation would provide an opportunity to address any potential implications including for aircraft noise, ground access and use of surrounding

roads, adequate provision for on-airport parking, and any effects on other airport operations.

5.6 CORPORATE AND BUSINESS

At present the airport has a small but significant volume of passenger traffic from charter and corporate operations provided by existing businesses on the airfield.

Passengers are typically construction or mining crews travelling to a remote location, or small teams of executives travelling regionally or interstate. Politicians and VIPs also take advantage of the services provided by the businesses at Archerfield, and the convenient and readily accessible location of the airport.

5.7 AEROMEDICAL AND EMERGENCY SERVICES

In recent years, Archerfield has played an increasing role as the base for aeromedical and emergency services operations and maintenance for Brisbane and the greater region.

This is consistent with the experience of other metropolitan airports that have the capacity to cater for these uses, freeing the major capital city airports to facilitate RPT services carrying large volumes of international and domestic passengers.

Archerfield is well placed to cater for additional growth in aeromedical and emergency services operations and maintenance functions. A variety of opportunities are provided in the Master Plan for further development of these facilities, now and following the realignment of the secondary runways.

5.8 IMPLICATIONS FOR THE MASTER PLAN

The Master Plan preserves the opportunity for RPT traffic and growth in air freight, aeromedical and emergency services, and corporate and business air operations.

It includes measures for the progressive upgrading of runways, taxiways, aprons and related facilities if justified by a commitment by a viable RPT operator or other significant aviation user, along with a desire for such services by the community.

The Master Plan gives also the flexibility for a RPT operator to run the service from either the existing terminal building, or potentially from a new purpose built terminal facility and car parking area. This could be developed adjacent to (and on the north side of) the main 28R/10L runway, following the realignment of the secondary grass runway complex which would open up additional land for aviation related developments alongside it. This is shown in the *Master Plan Vision* (Figure 2), the *Beatty and Mortimer Precinct*

Structure Plan (Figure 20) and the *Boundary and Wirraway Precinct Structure Plan* (Figure 22).

The *Practical Capacity ANEF* and the N70 plans include provision for RPT traffic and freight.

It should be noted that the types of aircraft used for RPT services and freight will not use the secondary grass runways, so will not contribute to the forecasted noise exposure of the secondary grass runway complex after they are realigned.

6 Aviation facilities

6.1 EXISTING AVIATION FACILITIES

The existing airport layout is shown in Figure 3 *Airport context* and Figure 4 *Existing airport layout.*

6.1.1 Runways

Archerfield Airport has two sets of parallel runways. The 10/28 parallel runways (approximately east-west) and full-length parallel taxiways have sealed pavements. Runway 10L/28R and the supporting taxiway are equipped with pilot activated lighting.

The secondary direction 04/22 parallel runways (approximately north-east/south-west) and taxiways are unsealed except for the runway thresholds.

The runway facilities are summarised as follows:

- runway 10L/28R is sealed, 1481 m long, 30 m wide and has a Pavement Classification Number (PCN) of 6;
- runway 10R/28L has an unrated pavement, 1100 m long and 30 m wide, the central 18 m of which is sealed with 6 m of gravel on either side;
- runway 04L/22R has an unrated natural surface, 1245 m long and 30 m wide; and
- runway 04R/22L has an unrated natural surface, 1100 m long and 30 m wide.

Runway thresholds are displaced as follows:

- 10L by 10 m;
- 28R by 51 m; and
- 22R by 290 m.

While aircraft with an Aircraft Classification Number (ACN) greater than 6 can operate on runway 10L/28R subject to a pavement concession from AAC, continual use by such aircraft will significantly reduce the life of the runway and associated taxiway and apron surfaces.

Ipswich Motorway
Boundary Road
Existing pipe under road
Existing pipe under road
Ashover Road
Balham Road
Barton Street
Beatty Road
'300' tenancies
Northern helipad
BP Truck Stop
'500' tenancies
Stormwater basins
Beaufighter Avenue
Wirraway Avenue
Runway 04L/22R
Runway 04R/22L
Charlie
Delta
Golf
Hotel
Juliet
Aircraft parking
Aircraft washdown bay
Boundary Road
ARCHERFIELD
Corporate hangars
QGAir
ARP
Central helipad
Foxtrot
Airport terminal and administration
Bravo
Echo
Fuel farm
Turbine parking
Aircraft parking
Runway 28R/10L
Runway 28L/10R
Alpha
10L
10R
28R
28L
QUU sewer pump station
OXLEY CREEK
Drain discharges to Oxley Creek via dissipation structure
Beaufighter Avenue
'600' tenancies
Q-Crete
Veolia
Alex Fraser Group
Stormwater detention basin
Archerfield Speedway
Go kart track
Control tower
Lores Bonney Drive
Colebard Street West
Lombank St
Mortimer Road
God's Acre cemetery
Grenier Drive (main entry)
Kerry Road

Key
- Piped drains
- Open drains
- External drainage network
- Buildings
- Heritage features
- Airport boundary
- Sealed runway
- Grass runway

0 500 m

Archerfield
Brisbane's Metropolitan Airport

Archerfield Airport Master Plan 2017-2037

Figure 4 **Existing airport layout**

PlannedFX
Planning Environment Strategy Design

Due to their location in the low lying part of the airport, the natural surface 04/22 runways, particularly the central section of 04L/22R become wet and affected by heavy rainfalls, thereby rendering them unserviceable more than 25% of the time.

This is particularly evident of the 04L/22R runway which has steep grades at its southern end and its central section sits in one of the lowest areas of the airport.

AAC is seeking to address this issue with the proposed realignment of the 04/22 runways.

6.1.2 Primary taxiways

Parallel taxiways serve each runway and there are connecting taxiways to other parts of the airfield. The taxiway network is shown in Figure 4 and caters for Code A aircraft.

The key dimensions of the primary taxiway system are set out in the table below.

Table 3: Primary taxiways

	Length (m)	Width (m)
Alpha	1,881	7.5
Bravo	1,482	7.5
Charlie	1,340	7.5
Delta	1,361	7.5

6.1.3 Aprons

There are two main apron areas on the airport. Apron Hotel has an area of 14,000 m^2 and has an asphalt sealed surface. It has 32 aircraft tie down parking positions provided with steel cable supports, two with chain supports and two without supports.

Apron Juliet is 7,000 m^2 in area and is of concrete construction with an asphalt sealed surface in places. This is the higher strength pavement. There are 67 grass aircraft tie down positions adjacent to Apron Juliet and 17 aircraft parking positions on asphalt/concrete along Juliet with 7 of these provided with steel cable supports and three with chain supports.

6.1.4 Aircraft parking

Aircraft parking with tie downs is currently available for 200 fixed wing aircraft. These parking areas include both sealed pavement and grass areas.

6.1.5 Helicopter facilities

There are two helipads on the airport. The central helipad is located south of Taxiway Foxtrot and the northern helipad is located adjacent to the north eastern end of Runway 04R/22L. QGAir has its own helicopter facility on Wirraway Avenue, and other parking areas for helicopters exist throughout the airport.

6.1.6 Engine run-up locations

Helicopters are directed to pod Tango for run-up.

Jet engine testing is only allowed at the run-up bay to Runway 10L.

In dry weather truck based dynamic engine testbeds are directed to pod Tango, and in wet weather to the threshold of Runway 04R (via Taxiway Bravo).

6.1.7 Visual and navigational aids

Runway 10L/28R is equipped with pilot activated, medium intensity runway lighting. There are two illuminated wind indicators.

In May 2016, AsA decommissioned the Non-Directional Beacon (NDB) previously located on land adjacent to the airport at the corner of Beatty and Kerry Roads. The NDB was part of a national network of 180. It previously operated as an aid for Archerfield and the outer locator for Brisbane Airport instrument landing system (ILS) approach.

Following the decommissioning of the NDB, AsA introduced a new Visual Segment Surface (VSS) for Instrument procedures and RNAV-$Z_{(GNSS)}$ approach procedure for runway 10L. These procedures will complement the pre-existing approach and departure procedures for runway 28R.

6.2 AIRCRAFT CHARACTERISTICS

6.2.1 Based Aircraft

There are on average around 230 aircraft based on the airport. The number can vary and in early 2016 the total number reached 288.

Currently the type of aircraft that use the airport ranges from the small Cessna 152 to Citation X craft. In the future it is expected that aircraft ranging from Jabiru to the ATR 72-600 and even the Embraer Commuter aircraft and Cirrus VLJ could operate out of Archerfield.

Over the coming years, it is also anticipated that the aircraft fleet at Archerfield will be modernised progressively by users.

It is expected that, consistent with trends around the world, as newer models replace old aircraft there will be an improvement in reduced operating noise and fuel consumption.

6.3 AIR TRAFFIC MANAGEMENT

6.3.1 Airservices Australia

Air Traffic Control (ATC) services are currently provided from Archerfield Control Tower from 7 am to 5 pm daily.

Tower operation allows for maximum usage of the runways, and its continuation is a key issue for the sustained success and growth of general aviation activity at Archerfield, and flying training in particular.

6.3.2 General Aviation Airport Procedures to Class D

On 3rd July 2010 Archerfield Airport transitioned to Class D Airspace. Prior to this, the airport operated under GAAP since the early 1980's. A number of minor changes were associated with this transition including the requirement for pilots to seek ATC approval before entering the manoeuvring area.

Fixed wing aircraft approach and departure paths are shown in Figures 5 and 6. Helicopter approach and departure paths are shown in Figures 7 and 8. Training circuits are shown in Figure 9.

6.3.3 Common Traffic Advisory Frequency

Outside of ATC hours Common Traffic Advisory Frequency (CTAF) procedures apply which allow only one runway to be active.

6.3.4 Future changes to Brisbane airspace

A number of changes to Brisbane airspace are currently being considered by AsA and CASA due to the increase in aircraft and changes to aviation infrastructure in the region over the coming few years.

Some of the changes requiring consideration include the New Parallel Runway at Brisbane Airport, an increase in aircraft types and numbers at RAAF Base Amberley, the introduction of an ILS at Gold Coast Airport, the construction of a new runway at Sunshine Coast Airport, and the increase in aircraft and aircraft types at Wellcamp Airport.

Brisbane Airport Corporation has highlighted that changes to the airspace around Archerfield will be required when the New Parallel Runway commences around 2020.

Training areas at Archerfield Airport will be affected with the lowering of airspace base altitude from 3,500 ft and 4,500ft to 2,500ft. Arrivals and departures will not be affected. Arriving aircraft may benefit from having Class C protection for longer on descent. Currently aircraft leave Class C at 3,500ft and will be in controlled airspace until 2,500ft with the airspace changes.

AAC has been involved in a number of recent discussions with AsA and CASA regarding the proposed changes to airspace design. AAC seeks to ensure the airspace surrounding Archerfield is not inadvertently contracted to such an extent that future expansion opportunities for Archerfield to cater for larger aircraft, and to assist Brisbane Airport as a reliever for some of their smaller aircraft, is lost.

To this effect, AAC anticipates that within the coming couple of years the following airspace changes will be implemented:

- the existing RNAV-$Z_{(GNSS)}$ missed approach to runway 28R will be optimised to reduce the potential conflict with other traffic from Brisbane Airport by re-directing aircraft to the south;
- the recently introduced Category C RNAV-$Z_{(GNSS)}$ for runway 10L will be complemented with the redesign of the existing RNAV-$Z_{(GNSS)}$ for runway 28R to also cater for category C aircraft;
- circling areas for category C aircraft will be realigned and implemented;
- Standard Terminal Arrival Routes (STARs) that connect to applicable initial approach fixes of each RNAV-$Z_{(GNSS)}$ procedure will enable progressive clearance along a pre-planned path with appropriate lateral/vertical separation from other aircraft; and
- the existing Standard Instrument Departures (SIDs) will be reproduced to enable progressive clearance along a pre-planned path with appropriate lateral/vertical separation from other aircraft so that Instrument Flight Rules aircraft wishing to depart Archerfield outside ATC tower hours will be able to do so without waiting for a clearance from Brisbane ATC.

6.4 AIRPORT CERTIFICATION AND STANDARDS

Archerfield Airport is a Certified aerodrome, having met the relevant CASA requirements in April 2013.

It has a long history operating as an RPT airport and is currently available for use by aircraft used in RPT or charter operations.

Aviation facilities have generally been provided to meet the standards required for Code 3A aircraft, which cater for aircraft with a reference field length between 1200 and 1800 m, a wingspan of up to 15 m and an outer main gear wheel span up to 4.5 m.

Aircraft up to Code 3C standard, such as the Douglas DC-3, have operated at the airport in the past providing passenger and freight services. This Master Plan preserves capacity for Code 3C aircraft should the need arise in the future.

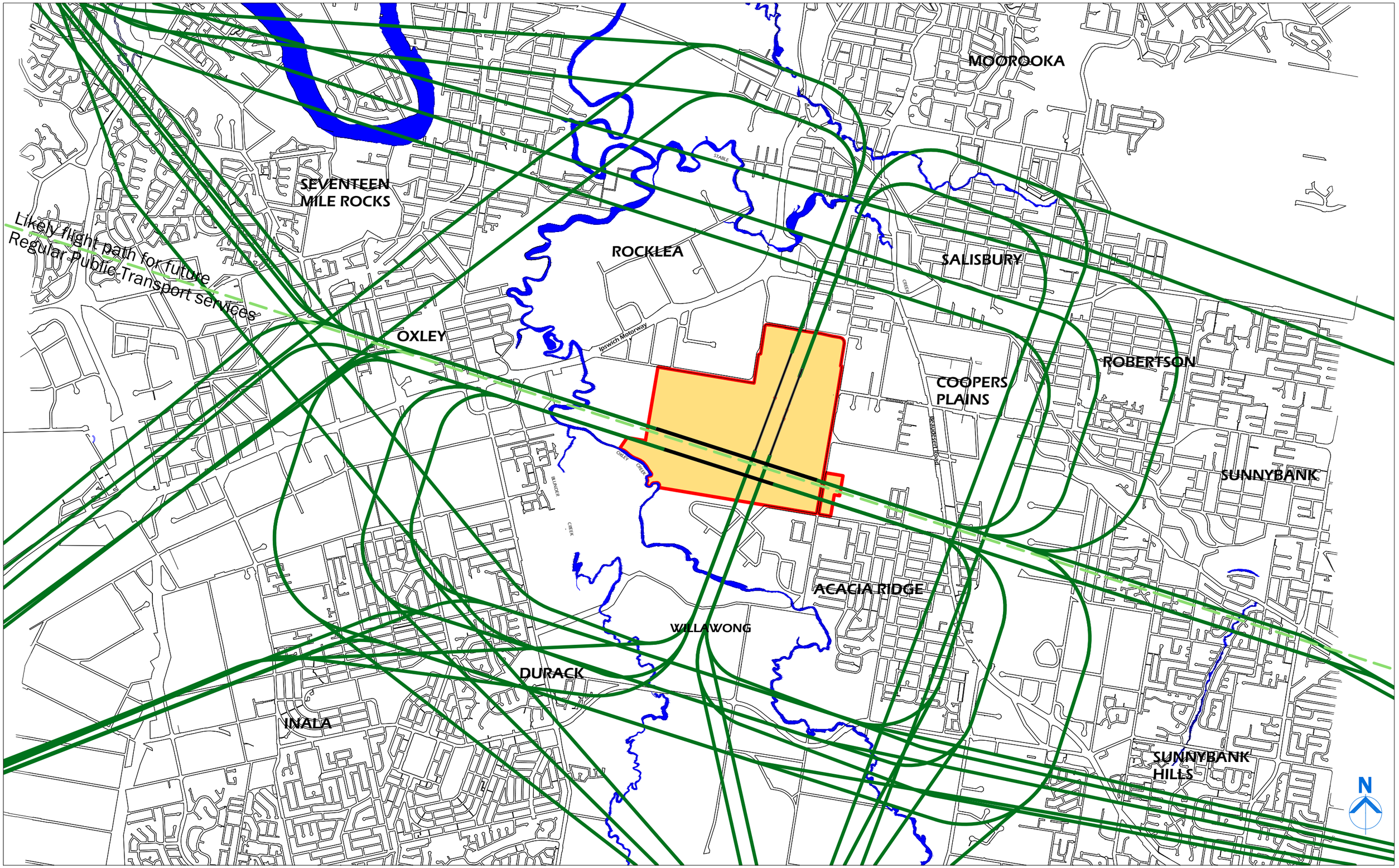
6.5 AIRPORT SECURITY

AAC has undertaken a risk assessment and developed and implemented a Transport Security Program (TSP) for the airport in accordance with the *Aviation Transport Security Act 2004.*

A number of security measures have been put in place including:

- 1.8 m high chainwire fencing topped with 3-strand barbed wire surrounding the entire airside area;
- 11 high security pedestrian gates;
- 4 high security automatic vehicle gates;
- closed circuit television (CCTV) day/night security cameras;
- optical fibre cabling; and
- intelligent mobile phone pin code retrieval system.

On 10th March 2005, Archerfield Airport was gazetted as a security designated airport.



Archerfield

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Figure 5 **Fixed wing approach flight paths**

PlannedFX Planning Environment Strategy Design

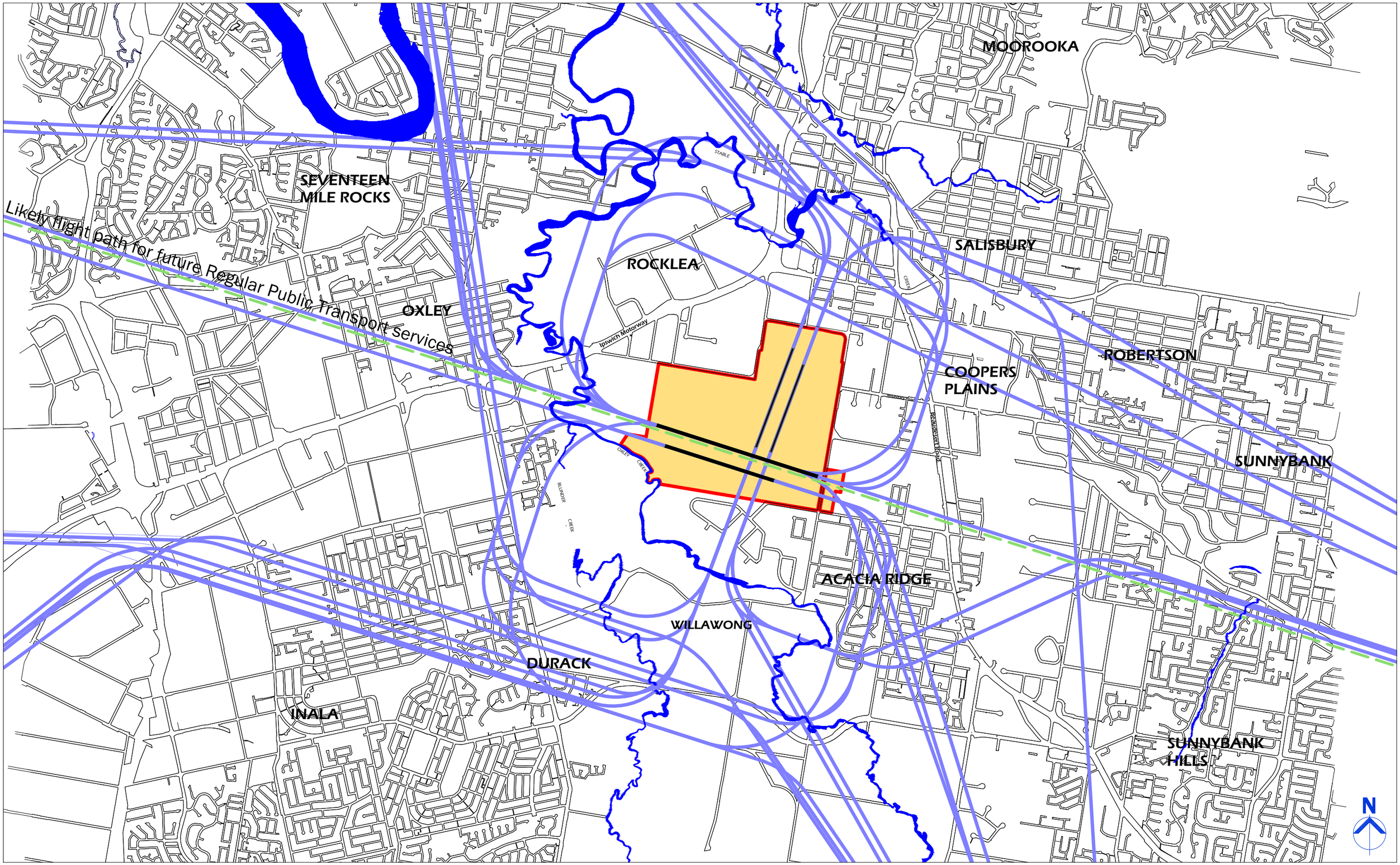

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Figure 6 **Fixed wing departure flight paths**

PlannedFX Planning Environment Strategy Design

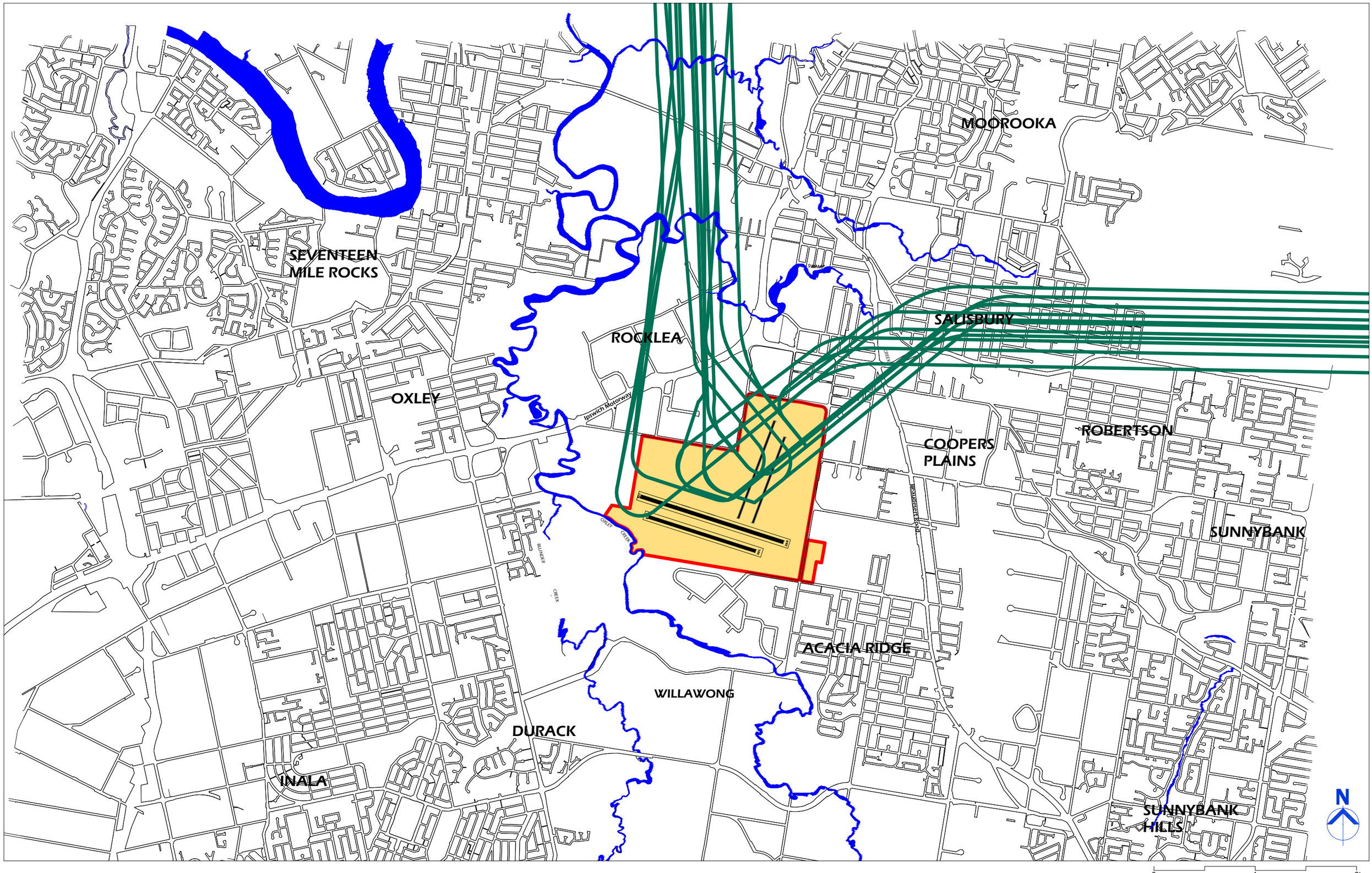

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Figure 7 **Helicopter approach paths**

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Planning Environment Strategy Design

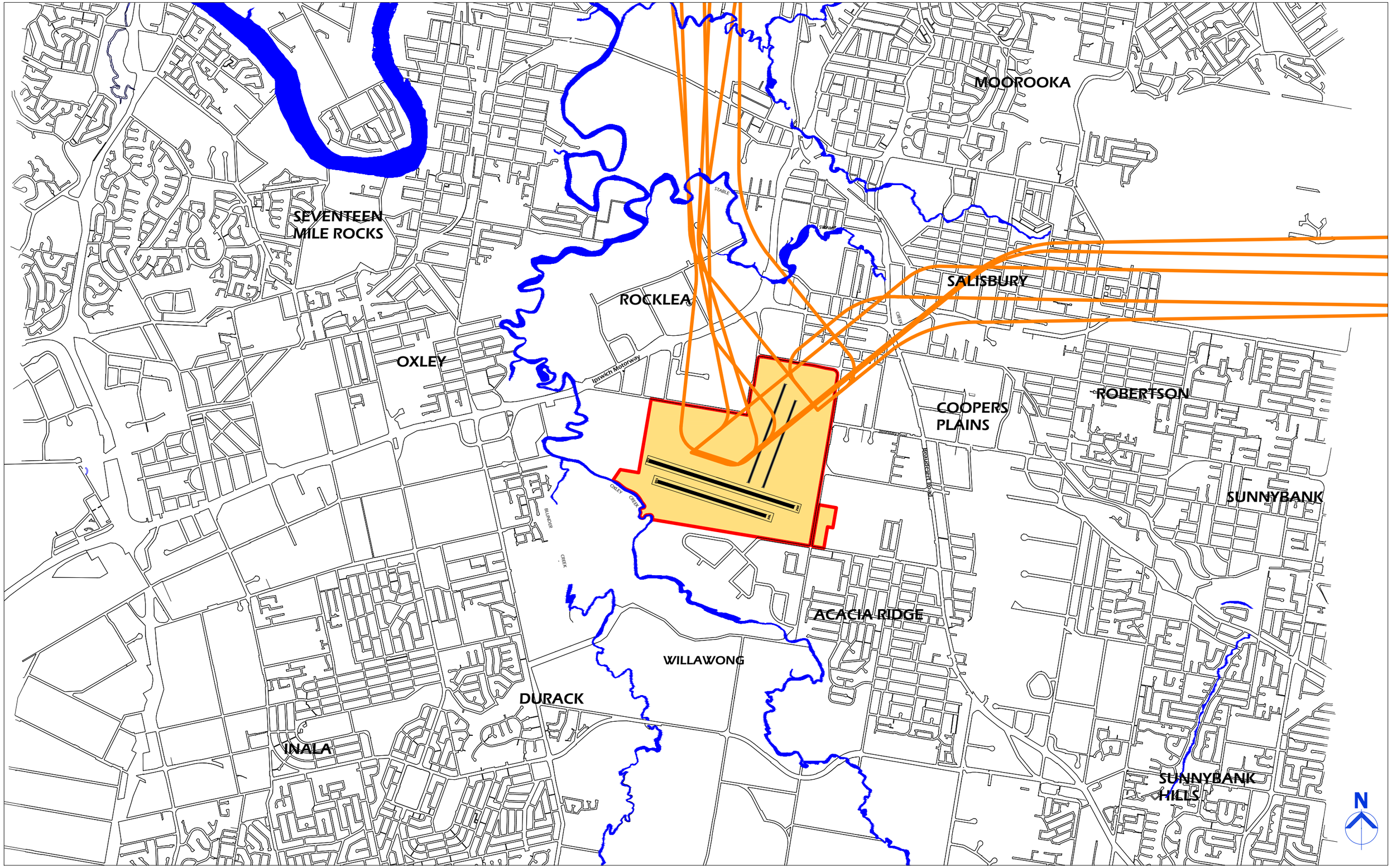

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Figure 8 **Helicopter departure paths**

PlannedFX Planning Environment Strategy Design

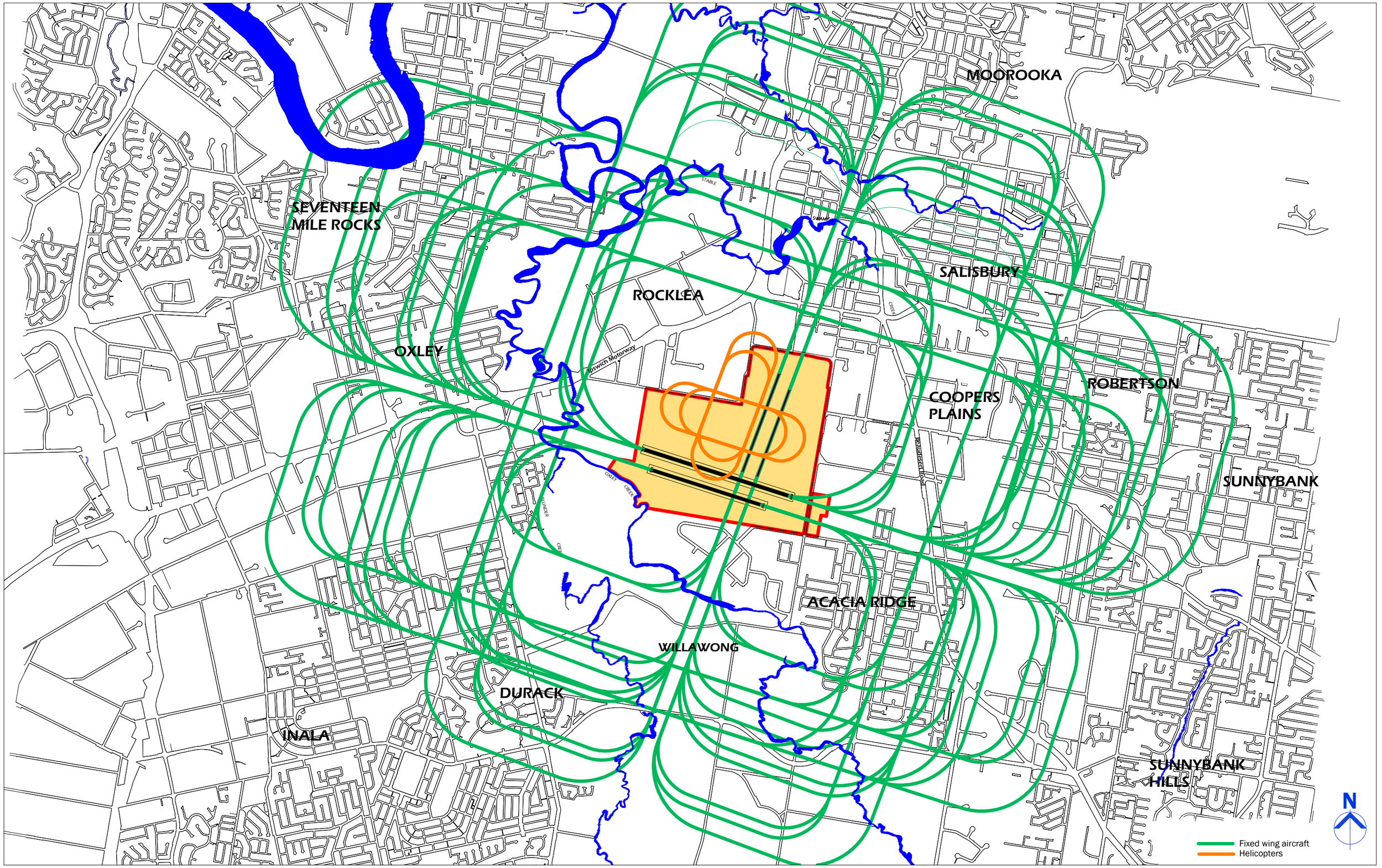

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Figure 9 **Training circuits**

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Planning Environment Strategy Design

7 Aviation development

7.1 PROGRESSIVE IMPROVEMENTS

The Master Plan provides for the progressive development of the aviation facilities at the airport, consistent with the vision for the airport.

The vision for Archerfield Airport is summarised in Figure 2.

A series of improvement projects has been identified. Each project will support one or more initiatives that will strengthen the capacity of the airport to serve the changing needs of Brisbane and the growing SEQ region.

Proposed aviation infrastructure development includes:

- realigning the secondary grass parallel runways to avail approximately 500m of land immediately adjacent to the main runway for high-end aviation uses and at the same time to improve overall runway usability;
- augmenting the taxiway system to maximise runway capacity and efficient ground movement of aircraft;
- strengthening and expanding apron facilities to cater for increased aircraft numbers, and potentially heavier aircraft;
- investigating the feasibility of relocating facilities such as the fuel farm and control tower, if, because of their locations, they constrain future aviation development or their relocation would improve airport operations;
- upgrading visual and navigation aids to provide an improved flying training environment;
- consolidating helicopter activity so as to improve safety by separating rotary from fixed wing operations;
- identifying and reserving terminal and apron facilities for potential niche RPT operations or other significant aviation users;
- expanding the facilities for aeromedical and emergency services, including for operations and maintenance;
- strengthening the current main 10L/28R runway to cater for larger aircraft and potential niche RPT operations or other significant aviation users;

- Increasing the length of the main 10L/28R runway pavement and upgrading the associated taxiways, to facilitate larger aircraft and to incorporate modern Runway End Safety Area standards;
- maintaining an option to construct a new longer runway between the existing 10/28 parallel runways, potentially crossing Beaufighter Avenue;
- making new, improved facilities available to tenants currently occupying ageing premises and/or allowing them to expand their businesses.

These initiatives are shown in Figure 2 *Master Plan vision*.

The timing of specific projects is dependent on the need being demonstrated and further investigations and design. The triggers for the main projects are set out in Chapter 18 *Implementation*, and will be monitored by AAC on an ongoing basis.

The detailed design and any approvals required for a specific project will be resolved in accordance with the processes described in Chapter 18, and the relevant provisions of the AES. In a number of cases, the proposals will be subject to approval by the Minister of a Major Development Plan.

7.2 SECONDARY GRASS RUNWAYS

The secondary grass runway system is provided for the amenity of a minority of cross wind limited, light aircraft when prevailing wind conditions prevent their safe use of the main runways.

Analysis of wind conditions shows that a secondary runway alignment is required for approximately 12% of the time, during daylight hours only by these aircraft. However, the existing grass runways have historically been closed for approximately 27% of the time due to rain.

The susceptibility of the runways to being rain affected has implications for the light aircraft usage of the airport and for the flying schools in particular. There are times when the schools are unable to fly due to the combined effects of unfavourable wind and waterlogging or scouring of the grass runways.

In combination with providing more efficient aviation services, AAC has identified this as a significant issue, impacting on the sustainable growth of flying activity and access to the main runway complex.

The limitation of the existing runways has been highlighted by recent downpour and flood events. During the flood peak in January 2011, a portion of runway 04L/22R (to 9.25m AHD) was submerged (see Figure 17 *Site drainage*).

In conjunction with the 2011 flood, prolonged periods of heavy rain from 2010 to 2012 caused significant erosion and degradation of the grass runways complex. Continued rain prevented reconstruction works throughout this period, rendering the grass runways and taxiways unserviceable for all but two weeks between December 2010 and September 2012. In effect this

quarantined approximately 60 hectares, or nearly one-quarter, of the airport's total land mass for almost two years.

AAC has investigated various options for improving the usability of the secondary grass runways and to decrease the likelihood of their closure following heavy downpours.

The preferred solution, developed in consultation with stakeholders including the flying schools, CASA and AsA, is to improve runway usability by moving the grass runways out of the low lying flood prone areas and realigning them to better cater for local wind conditions.

The realigned and improved runways should provide an increase in overall runway usability of 3.1 percentage points (to 99.43% or an additional 11.3 days per annum) for light aircraft.

Due to the high degree of variance across their longitudinal surfaces, the existing grass runways do not conform with current ICAO standards. The proposed realignment to a bearing of 01/19 (to be designated 18/36 to avoid confusion with the new parallel runway at Brisbane Airport) will improve their usability, bring them up to current standards, move them away from low lying areas, decrease the likelihood of heavy rainfall induced degradation and reduce the effects of crosswinds.

Additionally, the realignment will increase the amount of land usable for high end aviation purposes alongside the main runway, and will enhance access to the aviation areas along the east side of the secondary runway complex. The plans show that with the realignment, approximately 500m of usable land adjacent to (and fronting) the north side of the main runway will be released for high-end aviation uses, capitalising on direct access to the airport's most valuable asset. This will create efficiencies for operators in terms of reduced taxiing times, reduced fuel usage and subsequently reduced emissions.

The realigned runways will also be a catalyst for the development of new aviation facilities adjacent to the north end of the grass runway complex, and the more efficient use of land along the east side of the runways.

Furthermore, it will create opportunities for complementary industrial uses in the Ashover and Barton precincts to offset the costs required to improve drainage in this area and relocate the grass runways, and strengthen the economic activity on the airport. An ongoing return from this area of land, which is currently underutilized, will provide additional capital required to improve existing facilities and to ensure the growth of the airport into the future.

Following realignment, the grass runways will continue to only be used by light aircraft, and only during daylight hours. If RPT aircraft are to once again operate at the airport, they will be confined to the main sealed (10/28) runway only.

The proposed realignment of the secondary grass runways will be further examined when a Major Development Plan (MDP) is prepared for this project.

The MDP process will include additional investigations and design, and further consultation with potentially affected stakeholders.

More information about the benefits associated with the realignment can be found in Chapter 17.

7.3 LONGER TERM PROJECTS

The Master Plan also foreshadows the longer term option for a new runway aligned parallel to the existing main runway, to cater for larger aircraft should the need arise in the future.

This would replace a similar runway that was in place earlier in the airport's history, and may potentially extend west over Beaufighter Avenue which is an AAC road located on airport land.

Any new or extended runway will be confined to land under the control of AAC.

The opportunity for an extension further to the west onto BCC owned land exists, however this would only be possible if all three levels of Government, AAC and the community determined it appropriate and feasible.

Before any new runway could be constructed, a Major Development Plan would have to be prepared and be approved by the Minister. Detailed plans and assessments would be required, and the plans would be subject to consultation with a range of stakeholders, including BCC.

8 Airport land use

8.1 LAND USE CONTEXT

8.1.1 Existing conditions

The airport site has an area of approximately 257.7 hectares.

It is an important part of the Archerfield/Rocklea/Acacia Ridge area, in an industrial and transport services corridor of regional significance.

Surrounding land use is shown in the *Airport context* drawing (Figure 3) and the *Current airport land use context* plan (Figure 10). Existing conditions on the airport are shown in Figure 4.

The majority of land use around the airport is industrial or commercial.

Industrial areas are located to the north, north—west, east and south of the site. Along the northern and western boundary is a general and heavy industrial area that runs parallel with the Ipswich Motorway. Industrial estates are also adjacent to the eastern boundary of the airport, along Beatty Road.

The industrial estate of Archerfield is adjacent to the southern boundary. In addition to industrial uses, this area also houses a speedway and extends to the open space along the Oxley Creek.

The residential area of Acacia Ridge is located to the south-east of the airport, across Mortimer Road.

The residential suburb of Salisbury is located to the north east of the airport, beyond the industrial area. Some of the dwellings in Salisbury are located on a hillside facing the airport and are under the flight paths for the existing secondary grass Runways 04L and 04R. The closest dwellings are about 1km from the north-east corner of the airport.

To the west and south are the Oxley Creek and associated floodplains. This, in conjunction with the nearby Blunder Creek forms part of a regional habitat link and waterway running through the south—west urban area of Brisbane, to the Brisbane River. Also in this area are the Queensland Urban Utilities (QUU) Sewer Pumping Station, and the Woolsheds located on Boundary Road.

The area between the Oxley and Blunder Creeks is an important sand resource, and there is active sand extraction underway on the south side of Oxley Creek, on Bowhill Road approximately 800 metres from Mortimer Road (to the south of the airport).

ROCKLEA
Industry/employment

SALISBURY
Residential

Rail link to Brisbane, Port of Brisbane, and Brisbane Airport via Air Train

Existing drainage outfall from airport through industrial area to Oxley Creek

Existing drainage outfall from airport through industrial area to Stable Swamp Creek

East-west road link

Existing drainage outfall from airport through industrial area to Stable Swamp Creek

ARCHERFIELD
Industry/employment

Bulky goods retailing

Oxley Ridge estate

Medium density housing

Existing drainage outfalls from airport to Oxley Creek

Open space and land extensive uses

Remnant vegetation in floodplain of Oxley and Blunder Creeks

Forest Place retirement village

Sand extraction

Existing drainage outfall from airport to Oxley Creek

ACACIA RIDGE
Residential

Rail marshalling yards

National Rail link to Sydney

Wool store

BP Truck Stop

Stormwater detention basin

Archerfield Speedway

Control tower

Airport terminal and administration

QUU sewer pump station

Runway 04L/22R

Runway 04R/22L

Runway 28R/10L

Runway 28L/10R

Motorway

Ipswich

Boundary Road

Oxley Road

Ashover Road

Balham Road

Beatty Road

Granard Road

Kerry Road

Mortimer Road

Beaudesert Road

Wirraway Avenue

Beaufighter Avenue

Foxtrot

Echo

Bravo

Lores Bonney Drive

Colebard Street West

Colebard Street East

Lombank St

Bowhill Road

OXLEY

BLUNDER

CREEK

STABLE SWAMP CREEK

Blunder Road

N

Land use

- Low impact industry
- General industry
- Heavy industry
- Residential
- Community use
- Convenience centre
- Rural area
- Parkland
- Conservation
- Sport and recreation

0 500 m

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Figure 10 **Current airport land use context**

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The airport has been operating in this location since the 1930's and has been well protected by the aviation, land use, transport and economic development policies, strategies and controls administered by Queensland State Government, and Brisbane City Council.

8.1.2 Pre-existing leases, licences and easements

When Archerfield Airport Corporation became the airport-lessee company for Archerfield Airport in 1998, it assumed certain pre-existing obligations under various leases and easements.

While some of those pre-existing interests have now expired, others remain. In particular, Archerfield Airport Corporation notes that there are pre-existing interests in the form of leases with some general aviation and other tenants at the airport; statutory authorities; and easements for other utilities and works.

The easements include those related to the QUU sewer pump station adjacent to Oxley Creek; and an easement for an earthen flood protection bund constructed along the west side of Beaufighter Avenue as part of the woolshed development on the neighbouring land (off airport).

With regard to other pre-existing interests at the airport, AAC will for the remainder of their term or earlier termination, and subject to their terms, comply with them to the extent it is legally obliged to do so.

8.2 AVIATION DEVELOPMENT

Aviation developments at Archerfield include 72 hangars (most being able to accommodate multiple aircraft), with some privately owned and the remainder owned by AAC.

The facilities are mainly used as aircraft hangars and workshops. Facilities also include flying schools, the recently renovated historic passenger terminal/administration building, and the control tower which is located mid way along the southern boundary (off Lores Bonney Drive).

There are over 115 aviation and non-aviation businesses on site employing hundreds of people.

9 Airport protection

9.1 BACKGROUND

The Commonwealth *National Airports Safeguarding Framework* provides guidance for planning and development decisions that could affect aviation operations.

The framework was developed by the National Airports Safeguarding Advisory Group (NASAG), comprising Commonwealth, State and Territory Government planning and transport representatives, the Australian Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA).

The framework applies to all airports in Australia, and land around airports. The framework promotes a consistent approach to assessing and managing land use and development in the vicinity of all airports.

The framework was adopted by the relevant Ministers in 2012 and now comprises a set of principles for airport safeguarding, and guidelines. It is being implemented by all levels of government.

There are seven principles;

> *Principle 1. The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance.*
>
> *Principle 2. Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning.*
>
> *Principle 3. Governments at all levels should align land use planning and building requirements in the vicinity of airports.*
>
> *Principle 4. Land use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations.*
>
> *Principle 5. Governments will protect operational airspace around airports in the interests of both aviation and community safety.*
>
> *Principle 6. Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures.*
>
> *Principle 7. Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements.*

The principles acknowledge the importance of airports to national, state, territory and local economies, transport networks and social capital.

The framework includes guidelines on managing:

- aircraft noise (including application of the ANEF)
- building-generated windshear
- wildlife strike risk
- wind turbine risk to aircraft
- pilot lighting distraction
- protected airspace intrusion (interpretation and application of OLS/PANS-OPS to prevent intrusions by for example trees, buildings, poles, signs, or other structures).

The Commonwealth requires the adoption of the Australian Noise Exposure Forecast (ANEF) system for determining land use compatibility around Australian airports.

In addition, the maximum height of obstacles allowed in proximity to each airport is defined in the prescribed airspace for the airport.

9.2 PRESCRIBED AIRSPACE

Prescribed airspace is defined under the *Airports (Protection of Airspace) Regulations* as airspace above any part of either the *Obstacle Limitation Surfaces* (OLS) or the *Procedures for Air Navigation Services—Operations* (PANS-OPS) surfaces, whichever part represents the lower airspace, for any airport.

Figure 11 identifies the current OLS/PANS-OPS for the airport. Figure 12 shows the OLS/PANS-OPS for the airport once the secondary runways have been realigned.

For the continued safe operation of the airport surrounding development must comply with the height maxima specified in the OLS/PANS-OPS.

Any existing incursions into the OLS/PANS-OPS, are documented in appropriate publications for pilots.

Brisbane City Plan 2014 includes in the Airport Environs Overlay mapping of the OLS/PANS-OPS, and other provisions for airport protection as set out in the State Planning Policy.

Future requirements

Protection of airspace from unacceptable intrusions is of fundamental concern to AAC.

Accordingly, AAC will continue to work closely with BCC and the State Government to identify any intrusions into the airport airspace, ensure that the planning controls relevant to areas around the airport contain sufficient safeguards, and that any specific development applications are assessed for potential impact on the airport.

AAC will continue to provide to these agencies and to the proponent of any proposal advice on airport operational aspects, design and development requirements to ensure that all future development complies with these requirements.

Where intrusions into airspace are identified, AAC will work with the relevant authorities and landholders to confirm the airspace protection requirements and the actions that will be taken to rectify any incursion.

BCC is required under State Planning Policy to ensure that current airspace protection requirements are reflected in the planning scheme, and that any requirements specified in the planning scheme are enforced. Should there be any change to the airspace AAC will advise BCC.

9.3 RESTRICTED LIGHT ZONES

CASA has included in section 9.21 of *Manual of Standards Part 139-Aerodromes* (MOS 139) advice on lighting in the vicinity of aerodromes. The standards aim to minimise the potential hazard to aircraft operations from lighting systems by protecting pilots from being dazzled or distracted by lights, or being confused by light patterns that look similar to approach or runway lighting. Potential light sources include security lighting, illuminated signs, street lights and illuminated sports fields.

The standards address the design, installation and ongoing operation of lighting in defined zones extending from the ends of the main runway, and also the area within 6km radius of the airport. Maximum allowable lighting intensities are specified for each zone, and these are shown in Figure 13.

Additional information about lighting is also contained in the airport environs overlay in the *Brisbane City Plan 2014*; and in relevant Australian Standards including AS4282-1997 *Control of the obtrusive effects of outdoor lighting* and AS 2560- 1994 *Guide to sports lighting*.

Future requirements

AAC will continue to work with BCC, CASA and landholders to minimise the potential hazard to aircraft operations of light emissions in the vicinity of the airport.

9.4 FORECAST NOISE IMPACT—ANEF

9.4.1 ANEF mapping for Archerfield

Noise impacts are illustrated by Australian Noise Exposure Forecast (ANEF) mapping, prepared for the larger metropolitan and regional airports Australia-wide.

The ANEF system is the basis of Australian Standard AS 2021-2015 *Acoustics-Aircraft noise intrusion-Building siting and construction.*

RWY 28R
Standard Instrument Departure

RWY 10L RNAV

RWY 10L
Code 3 NPA
RL 202.3m AHD

Cat C aircraft circling area RL 227m AHD

Cat A/B aircraft circling area RL 187m AHD

Conical Surface

Reference elevation datum 14.0m

59m

Inner Horizontal Surface
RL 59m AHD

134m

RWY 28R RNAV
RL 141.4m AHD

RWY 10L
Standard Instrument
Departure

RWY 28R
Code 3 NPA
RL 208.6m AHD

N

0 5 10km

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Figure 11 **Current OLS/PANS-OPS surfaces**

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RWY 28R
Standard Instrument Departure

RWY 10L RNAV

Cat C aircraft circling area RL 227m AHD

Cat A/B aircraft circling area RL 187m AHD

RWY 28R RNAV
RL 141.4m AHD

RWY 10L
Standard Instrument
Departure

RWY 10L
Code 3 NPA
RL 199.7m AHD

Conical Surface

Reference elevation
datum 14.0m

59m

59m

59m

Inner Horizontal Surface
RL 59.0m AHD

134m

RWY 28R
Code 3 NPA
RL 206m AHD

N

0 5 10km

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Figure 12 **Future OLS/PANS-OPS surfaces**

PlannedFX
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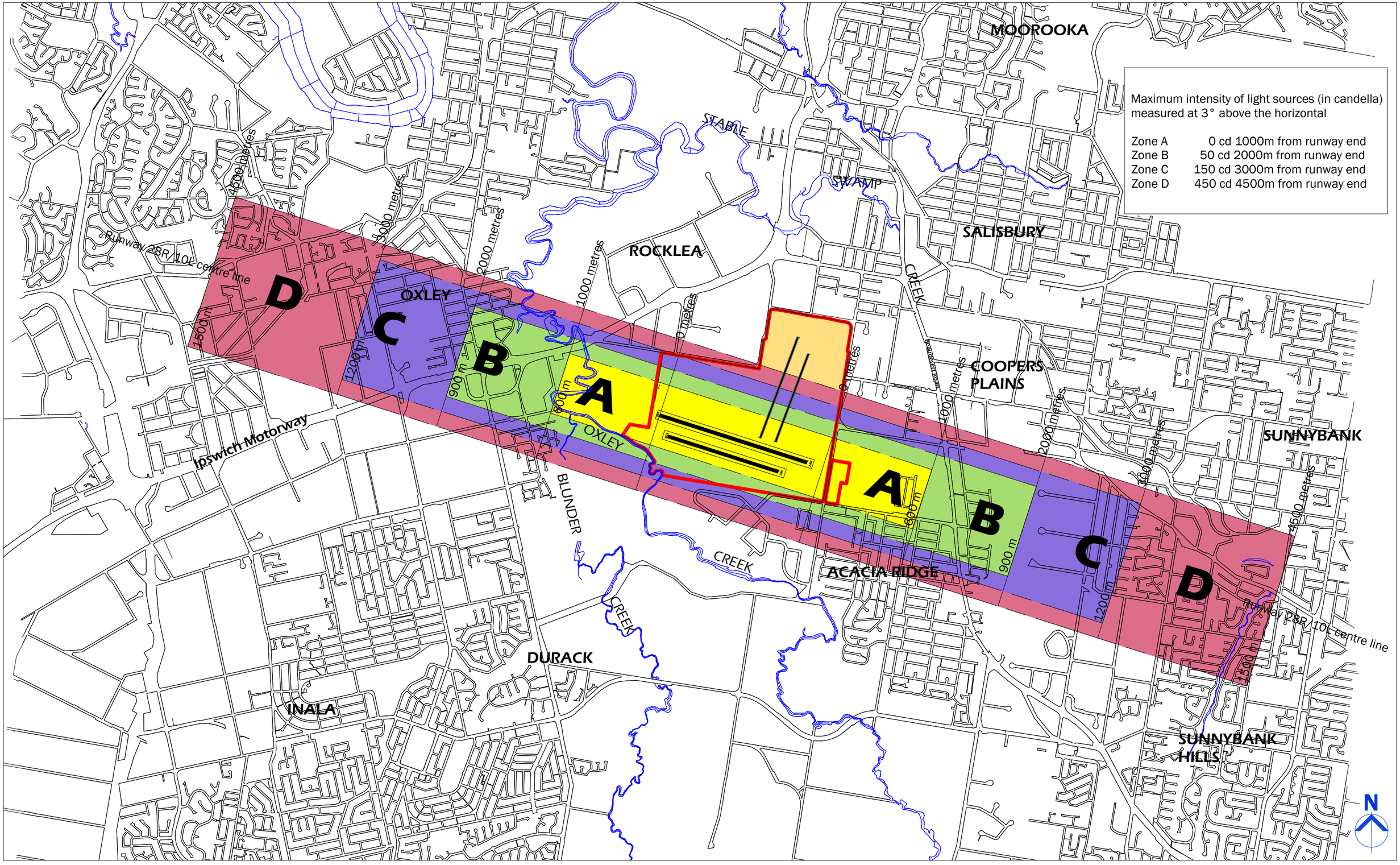

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Figure 13 **Restricted light zones**

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The ANEF for each airport is reviewed and endorsed by Airservices Australia as a measure to guide land use planning around airports. The modelling takes into account:

- the intensity, duration, tonal content and spectrum of audible frequencies of the noise of aircraft take offs, landings and flyover;
- the forecast frequency of aircraft types and movements on the various flight paths, including flight paths used for circuit training; and
- the average daily distribution of aircraft arrivals and departures in both day time (7:00am to 7:00pm) and night time (7:00pm to 7:00am).

Forecast noise levels are mapped as a series of contours extending out from the runways. The ANEF contours show land areas that are expected to be exposed to aircraft noise. The higher the ANEF value, the greater the noise exposure expected.

9.4.2 Practical capacity ANEF

For the 2011 Master Plan, AAC prepared a *Practical Capacity ANEF* and this is shown in Figure 14. The ANEF was endorsed by Airservices on 6 August 2010.

The ANEF which it replaced was approved in 2000 and showed forecast noise impacts to the year 2019 only.

AAC took the decision to prepare the *Practical Capacity ANEF* (rather than an ANEF based on forecast air traffic for the next 20 years) as it illustrates the noise contours that could be generated by aircraft flights in the very long term, and is therefore a more reliable and robust basis for land use planning and development decisions for the land surrounding the airport.

BCC, State government and Commonwealth representatives during the preparation of the 2011 Master Plan, agreed that this was the most appropriate approach to take.

The current ANEF takes into account existing standards, the projected aircraft flight numbers at practical airport operating capacity, the projected movement patterns (including the planned re-alignment of the secondary runways, anticipated by 2020), and likely aircraft mix.

It is based on the assessment of practical capacity undertaken by Randl Pty Limited, rather than on any projections for usage derived from modelling of growth.

The ANEF contours reflect the practical flight capacity of the airport, which has been assessed by Randl Pty Limited as 460,200 flights per annum (with 425,000 of these being fixed wing aircraft and 35,200 being helicopters).

The airport is currently catering for approximately 140,000 flights per annum, and over the course of the next 20 years is expected to handle between

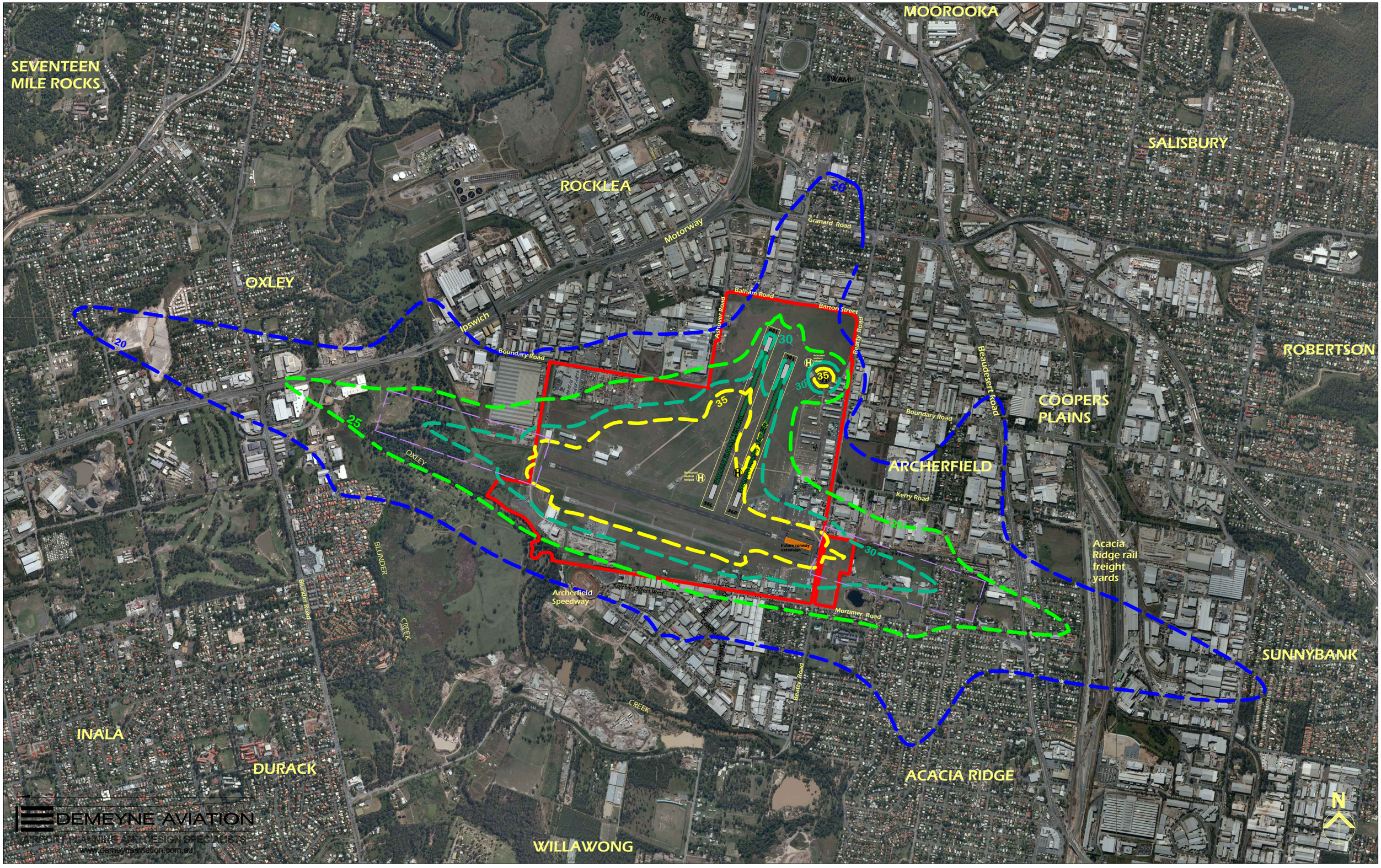
170,000 and 250,000. At that time the aircraft movements will be up to about 54% of the airport's practical capacity.

The ANEF is therefore a very conservative illustration of the likely noise from aircraft by the year 2037, as the noise contours protect a greater area of land than is likely to be required, having regard to aircraft movements forecast by the end of the planning period.

The ANEF also assumes that:

- the realignment of the grass runways occurs around the time that the airport is catering for approximately 175,000 movements per annum;
- Runway 10L/28R (the main runway) will be extended around 160 metres to the east, while retaining the 28R threshold in its current location (at the eastern end of the runway), a displacement of 212 metres. The timing of the runway extension will be determined by AAC according to aviation requirements;
- the central helicopter landing pad will be relocated to the west of the realigned secondary runway complex. It will be more central to the airport and within the Wirraway precinct, which is designated for future aviation development;
- the new grass runways will be used during the day and by light aircraft only. No night movements will be associated with these runways;
- the noise emissions from any aircraft flights at night-time (7pm to 7am) are multiplied by a factor of four in the ANEF modelling, in recognition that people are generally more sensitive to aircraft operations at night;
- freight and potential Regular Public Transport (RPT) movements are included in the modelling for the 10/28 runways only (these aircraft will not use the secondary grass runways);
- allowance has been made for a slight increase in the proportion of night General Aviation movements when the airport is operating at maximum capacity. The night movements are forecast to increase from 5.7% to 6% of total movements at practical capacity; and
- the aircraft fleet will progressively be modernised, and the ANEF reflects the reduced noise emissions from the newer aircraft.

The possibility of a new 10/28 runway was not included in the ANEF model as it is a long-term (> 20 years) preliminary concept only, and it is not possible to be definitive at this time about the location or length of the runway. The 20 ANEF would however not be expected to change significantly, given the alignment of the existing runways and the types of aircraft that will be operating at Archerfield.



Archerfield
Brisbane's Metropolitan Airport

Archerfield Airport Master Plan 2017-2037

Figure 14 **Practical capacity ANEF**

Extent of *Public Safety Area* as defined in State Planning Policy

PlannedFX
Planning Environment Strategy Design

9.5 N70 MODELLING

To assist with interpreting potential noise impacts from aircraft, an 'N70' model has also been prepared, for both the existing runway configuration and the realigned secondary runways. These are shown in Figure 15.

The 'N70' mapping shows the predicted average number of noise events per day above 70 dB(A) for a particular location.

The 70dB(A) level is the industry standard for assessing noise events that are likely to cause interruptions to conversation or with listening to the radio or the television.

Australian Standard AS2021 *Acoustics—Aircraft noise intrusion—Building siting and construction* specifies 60 dB(A) as the indoor design sound level for normal domestic dwellings. External noise will be reduced by approximately 10 dB(A) by the fabric of a house with open windows.

Typical conversations occur around the 60-65 dB(A) range. Aircraft noise is less likely to be noticeable where background noises are present, for example from domestic air conditioners, nearby traffic, or during winter when windows typically are closed.

N70 modelling shows the expected frequency of noise events in excess of 70dB(A) for:

- the practical capacity with the existing runway configuration; and
- the practical capacity with the proposed realignment of the secondary runways.

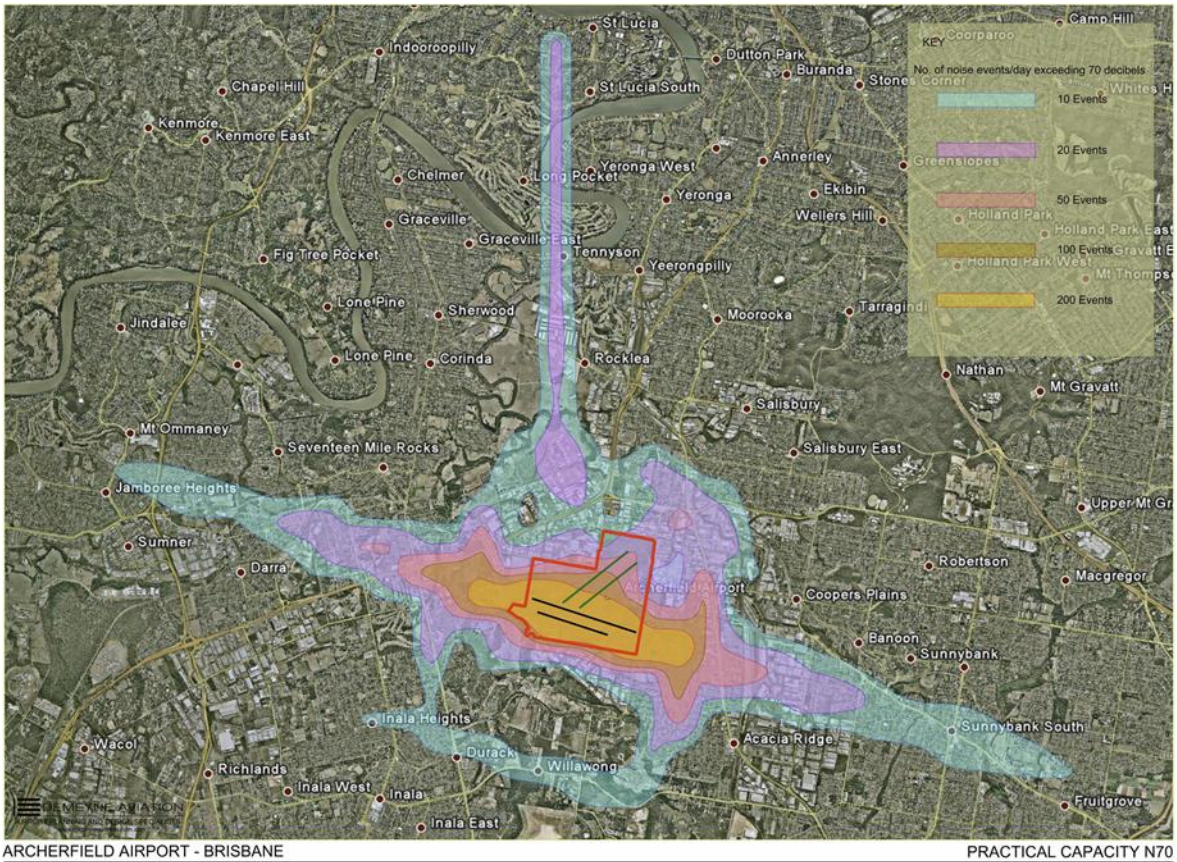
The mapping shows the number of times in any 24 hour period that noise in excess of 70 dB(A) is expected to occur.

In addition, any aircraft flights conducted at night-time (7pm to 7am) are assigned a four-fold increase in noise levels within the design of the ANEF. This ensures that noise issues associated with night-time movements are taken into account and given due representation in the final contours.

It is important to note that there will not be any night-time noise associated with the secondary grass runways, as these runways are not lit and therefore are not used outside daylight hours. These runways will also not be used by larger aircraft, such as for RPT or freight. The northern corridor that appears on both N70 maps relates to the helicopter flights (by QGAir) between Archerfield and Brisbane CBD.

Potential changes to noise patterns and other aspects of the proposed realignment of the secondary grass runways will however be further examined when a Major Development Plan is prepared for this project.

The MDP process will include additional investigations and design, and further consultation with potentially affected stakeholders, in accordance with the Airports Act. Further discussion regarding the benefits associated with the realignment can be found in Chapter 17.



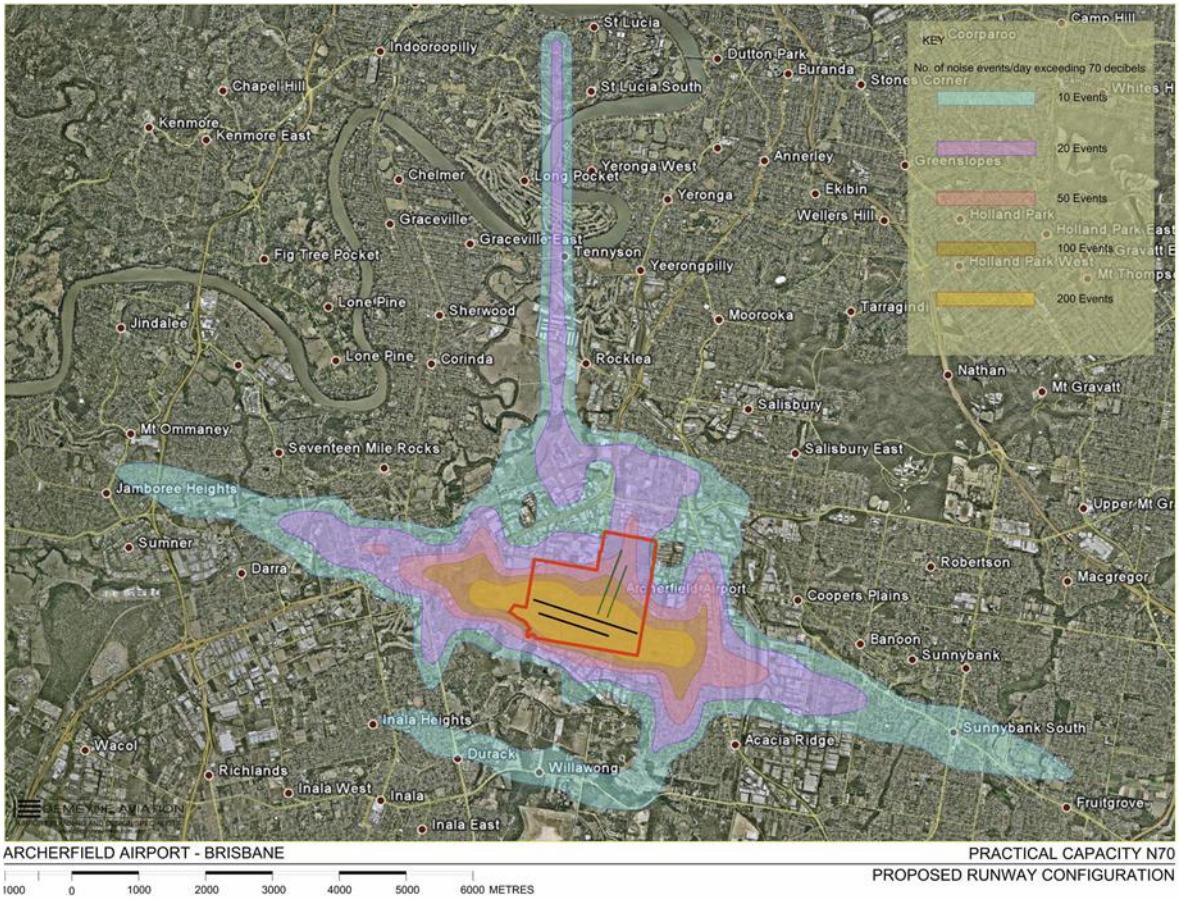


Figure 15. **N70 contours**

9.6 OTHER NOISE SOURCES

Noise from an airport (other than discussed above) may be caused by a number of activities.

Issues that have been addressed in the AES include:

- ground running of aircraft;
- noise from aircraft parked near buildings;
- operation of engine test cells;
- construction operations; and
- road traffic movements.

These may affect the area immediately surrounding the airport.

9.7 MANAGEMENT

Current and proposed noise management initiatives and procedures adopted by AAC are discussed in section 16.10.

Initiatives that AAC will take associated with airport noise issues include:

- implementing the Archerfield 'Fly Neighbourly' program and code of conduct;
- educating aircraft operators and pilots through the airport Safety Management System;
- assisting residents with a greater understanding of airport users and impacts on local areas;
- working with AsA to identify and implement solutions to any noise complaints, where these relate to AAC's areas of direct responsibility as airport operator;
- directing ground running aircraft and testing activities to appropriate locations to minimise potential impact on surrounding areas;
- monitoring and reviewing airport facilities with the view to minimising the noise impact on the community;
- ensuring if a significant issue arises that appropriate consultation processes are put in place to resolve the issue;
- working with BCC and other relevant government agencies to ensure that structures built near the airport have taken noise into consideration and that off airport land is appropriately zoned, consistent with the noise exposure anticipated around the airport; and
- assisting neighbouring landholders with advice on airport operations, and in particular, options for minimising potential noise impacts on the use or development of their land.

10 Ground transport

10.1 OVERVIEW

The airport is highly accessible to ground transport, including roads and the passenger and goods rail network (Figure 3 *Airport context*).

It is roughly in the middle of a triangle bounded by Beaudesert Road, Granard Road, the Ipswich Motorway and the Oxley Creek.

It is within 500 m of the Ipswich Motorway (to the west and north west) which is part of the national highway network and connects to Brisbane City, and to Ipswich (and ultimately to Sydney and beyond).

The airport is also approximately 1.6 km to the west of the National Rail main rail freight terminus at Acacia Ridge, on the Brisbane to Sydney line.

The existing and planned landside transport network within and surrounding the airport is shown in Figure 16 *Ground transport plan*. The road hierarchy is described in City Plan, and the relevant provisions are summarised in section 3.4.2 of this master plan.

10.2 ROAD NETWORK

10.2.1 Regional roads

The regional road system comprises Beaudesert Road (to the east), Granard/Riawena Roads (to the north), and Ipswich Motorway (to the west). These are shown in Figure 3.

Granard Road and Ipswich Motorway are part of the National Highway system. These highway corridors are of national strategic importance and are funded by the Commonwealth Government. Granard Road and Beaudesert Road are designated in the Brisbane City Plan as 'arterial roads' , and 'primary freight routes'. The 'arterial roads' provide intra-city connections between the major designations within Brisbane and surrounding areas including the principal regional activity centres and major employment areas. These carry 20,000+ vehicles per day

The regional road system provides linkages north to Brisbane via South East Freeway or Gateway Motorway, south east to the Gold Coast via the Pacific Highway or inland to Sydney via Ipswich.

ROCKLEA

Ipswich Motorway

Boundary Road

Potential secondary cycle route
(as shown in Brisbane City Plan)

Transport related support services
(fuel, food, repairs etc)

Balham Road

New intersection for access to Barton Precinct
(Location and design is subject to further investigation, and consultation with BCC)

Barton Street

Ashover Road

Beatty Road

Road widening investigation area (east side of Ashover Rd and south side of Balham Rd)

New intersection at Transition Drive
(for access to developments in Wirraway and Boundary Precincts)

New intersection at Ashover Rd
(Design is subject to further investigation, and consultation with BCC)

New road to provide access to aviation, industrial, commercial, and service tenancies
Investigate feasibility of incorporating local cycle route through new development

Relocated northern helipad

The location and design of the northern access New intersection for access to Barton Precinct
(road widening investigation area shown hatched)

Road widening investigation area
(shown hatched, north of Boundary Road)

Boundary Road extended into airport

Beaufighter Avenue

BP Truck Stop

Industrial sites

Transition Drive

Stormwater basins

Potential future widening of Wirraway Avenue

Wirraway Avenue

New access roads for aviation and industry

Potential new long term car park

Proposed Runway 18R/36L

Proposed Runway 18L/36R

Long term car park
56 spaces

Car park
68 spaces

Aircraft parking

Indented parking Qantas Avenue
104 spaces

Boundary Road

Potential secondary cycle route
(as shown in Brisbane City Plan & SEQ Principal Cycle Network Plan (TMR))

Future aviation capacity

Future aviation capacity

Aircraft parking

Potential site for RPT

Provision made for public transport access to RPT

Relocated central helipad

Taxiway Bravo widened to 15m (Code C)

New 10.5m wide Code A, B taxiway

Airport Terminal Building

Fuel farm

New entry to airport created at Kerry Road

Kerry Road

Archerfield Square,
Airport Terminal and administration
110 car spaces and taxi passenger drop off/pick up

Indented parking Ditchmen Avenue
21 spaces

Bus stop

Runway 28R/10L

Runway 28L/10R

Taxiway Alpha

Taxiway Bravo

OXLEY CREEK

Buffer to Oxley Creek
(no public access)

Beaufighter Avenue

Industrial sites

Control Tower

Lores Bonney Drive

Archerfield Speedway

Potential court off Lores Bonney Drive

Lombank St

Mortimer Road

Light industry, storage, parking

Road widening investigation area
(shown hatched, east side of Beatty Road)

Mixed use

20 spaces

30 spaces

24 spaces

12 spaces

Car park (existing)
Car park (proposed)
Access road (existing)
Access road (proposed)
BCC existing/proposed secondary cycle route (from Brisbane City Plan)
Potential local cycle route
SEQ Principal Cycle Network

N

0 500 m

Archerfield
Brisbane's Metropolitan Airport

Archerfield Airport Master Plan 2017-2037

Figure 16 **Ground transport plan**

PlannedFX
Planning Environment Strategy Design

10.2.2 District and local network

From a district and local perspective, the road network has developed around the airport and the natural feature of the Oxley Creek.

The airport has direct access to Barton Street; and Mortimer, Beatty, Balham, Ashover, and Boundary Roads. With the exception of Mortimer Road (which is a 'district road'); all of the roads adjacent to the airport are designated as 'suburban roads' in the City Plan. 'Suburban roads' that connect arterial roads through and around suburbs constitute a lower order of road to the arterial routes, and carry 10,000 to 20,000 vehicles per day. 'District roads' carry through traffic between suburbs and provide access between minor roads, local centres and suburban and arterial roads.

On the east side of the airport, Kerry Road and Boundary Road provide additional direct routes east to Beaudesert Road. These roads are also designated as 'suburban roads' in the City Plan.

10.2.3 Freight routes

BCC has in the City Plan identified the following roads as 'primary freight routes':

- Ipswich Motorway,
- Granard Road, and
- Beaudesert Road.

These routes provide direct road connections for non-standard vehicles between regionally significant industrial areas and inter-regional destinations.

With respect to freight movement in the vicinity of the airport, the road hierarchy map in City Plan categorises all of the roads surrounding the airport as serving a primary freight access function, connecting primary freight routes and freight dependant development.

In 2015 Council closed the eastern section of Mortimer Road to use by B-Double trucks. This closure has resulted in the increase of B-Double truck movements along Kerry Road.

10.2.4 Network traffic volumes and distribution

Table 4 shows two-way traffic volumes on the road network in the vicinity of the airport.

The right-hand column summarises 12 hour traffic volumes from counts taken on a mid week day in 2015. These counts ran from 6am to 6pm. Data from 2005 (BCC 24 hr counts) and 2010 and 2015 (DTMR Annual Average Daily Traffic) is also shown.

Table 4: Two-way traffic volumes on surrounding road network

	Total vehicles (both directions)			
Location	**2005 (BCC 24hr)**	**2010 (DTMR 24hr)**	**2015 (DTMR 24hr)**	**2015 (DTMR 12hr)**
Beaudesert Road (at Mortimer Road)	29,638	31,014	35,140	29,548
Granard Road (at Beaudesert Road)	36,599		40,439	36,585
Granard Road (at Balham Road)		42,185	40,439	38,665
Mortimer Road east of Beatty Road	12,500			8,620
Mortimer Road west of Beatty Road*				5,512
Kerry Road east of Beatty Road	9,700			5,445
Beatty Road south of Mortimer Road				10,129
Beatty Road north of Mortimer Road				15,441
Beatty Road north of Kerry Road				16,558
Beatty Road north of Boundary Road				19,709
Beatty Road north of Barton Street				11,274
Boundary Road at Beatty Road (east of airport)	8,750			9,197
Barton Street				10,752
Balham Road west of Barton Street				8,615
Balham Road north of Barton Street				5,617
Ashover/Boundary Road (west of airport)	4,190			
Ipswich Motorway (south of Granard Road)		55,443	81,617	
Ipswich Motorway (at Boundary Road Rocklea)		69,982	88,474	

NOTE: * In 2015, BCC closed Mortimer Road east of Beatty Road to B-Double trucks

Land used for the creation of the Barton Street link between Beatty Road and Balham Road was gifted by AAC to BCC with Commonwealth approval. The road link has provided significant improvements to east-west connectivity in the vicinity of the northern part of the airport, facilitating in excess of 10,700 vehicle movements between 6am and 6pm on a mid week day in 2015.

This project was implemented with the involvement of AAC, BCC, the State Department of Transport and Main Roads (DTMR) and the Commonwealth (as owner of the land required for the road).

This has been beneficial to traffic movements through the Archerfield area, particularly in providing some relief to the heavily congested Granard Road. It has also provided additional options for access to Ipswich Motorway. East-west traffic can now access the motorway at either Boundary Road (to the west of the airport) or at Granard Road (to the north-west).

Whilst this improvement is welcome, there are other existing shortcomings in the surrounding road network that AAC would like to see addressed.

Beatty Road in particular is carrying high traffic volumes, and these continue to grow due to factors external to the airport including an increase in urban development to the south and east.

The current road configuration (including the road cross section and intersection treatments) is inadequate and raises concerns about safety and efficiency particularly with regard to access to the airport and other properties along Beatty Road.

10.3 PUBLIC TRANSPORT

10.3.1 Bus services

The airport is served by a number of bus routes including:

- the 110 and 115 CityXpress bus services which run from Sunnybank Hills and Forest Lake via Salisbury Train Station to the City;
- the 122 service that runs from Inala to Garden City Shopping Centre via Coopers Plains Train station and Griffith University, with a bus stop in Kerry Road near the intersection of Beatty Road; and
- the 117 service which runs from Acacia Ridge along Mortimer Road and Beaudesert Road to the City.
- There is an existing bus stop on Beatty Road, adjacent to the main airport entry at Grenier Drive for the 110 and 115 bus routes.

Depending on the needs of workers and visitors to the airport, passenger numbers, and the operational requirements of the bus operators, there may be scope for these routes to be extended into the airport.

AAC will consider any feasible proposals for this, and will take into account bus access requirements in the design of new roads on the airport where these are identified as being appropriate for bus services.

For example, the Boundary and Wirraway Precinct Structure Plans (PSPs) highlight the opportunity to provide public transport access to RPT, in a location immediately to the north of the proposed expanded aviation area on

the north side of the main runway complex. This could be used for bus services, charter vehicles, or taxis.

10.3.2 Passenger rail

The Beenleigh Rail Line passes approximately 2km to the north east and east of Archerfield Airport, and the closest stations are at Salisbury and Coopers Plains. This rail provides access to the Gold Coast, Brisbane CBD and to Brisbane Airport (via the regular Airtrain service).

10.4 PEDESTRIAN AND CYCLE NETWORK

The Brisbane City Plan identifies priority cycle routes in the vicinity of the airport. These accord generally with the routes shown also in the *South East Queensland Principal Cycle Network Plan* (DTMR, 2016), which are shown in Figure 16.

In the area to the west and north of the airport, Ipswich Motorway and Granard Road are shown as primary cycle routes. Beaudesert Road is also shown as a primary cycle route. Beatty Road, Barton Street, Balham Road, Ashover Road and Boundary Road (on the west side of the airport) are shown as 'secondary cycle routes'. This classification applies also to both Mortimer Road and Boundary Road, east of Beatty Road.

The east-west routes along Boundary Road and Mortimer Road will facilitate cycle movement through the Archerfield and Acacia Ridge neighbourhood, and have the potential to also provide links to Coopers Plains railway station, 2km to the east.

AAC has identified with BCC the opportunity to encourage pedestrian and cycle access to, and within the airport.

AAC has considered options for extending paths within the airport. The runway complex and airside areas provide a constraint to north-south or east-west connections through the middle of the airport site, so it is not feasible to develop cross-airport linkages. Any cycling access within the airport would therefore be for trips from the surrounding road and path network, into sections of the airport. This would be achieved through the existing road and path network within the airport, and can also be considered on a precinct by precinct basis in new developments.

The City Plan shows also a proposed 'secondary cycle route' through Archerfield Speedway and the south-west corner of the airport (adjacent to Oxley Creek).

AAC does not consider that it is practical to provide a link along this part of Oxley Creek, having regard to airport security requirements, topographic features, existing land use (on the airport, and adjacent land), the substantial stormwater and flood management basins and associated drainage works, environment conservation, and runway protection issues.

There is however the opportunity to incorporate pedestrian and cycle access along the upgraded road network planned around the airport perimeter and within some parts of the airport.

These opportunities have been highlighted in the Precinct Structure Plans in Chapter 12.

AAC will as part of the more detailed planning and design for each precinct, consult with BCC to clarify Council's proposals for developing cycle routes along the roads adjacent to the airport.

The consultation will seek to confirm the intended location and type of any new cycling facilities (such as on road lanes or segregated paths), any anticipated land requirements (eg for road widening to accommodate the facilities), and the likely timing of the land acquisition and works.

Consideration will also be given to including local cycle lanes in appropriate locations in the Barton, Ashover and Boundary precincts, when more detailed planning and design is undertaken for airport developments.

10.5 RAIL FREIGHT SERVICES

The national freight line between Brisbane and Sydney runs to the east of the airport. The main National Freight rail yards are located at Acacia Ridge, approximately 1.6 km to the east of the airport. There is an existing main truck access point to the rail yards, off the eastern end of Kerry Road.

The airport has some freight activities, but these are at present not a significant component of the airport business. There is potential for this to grow. The location, flat topography and good road access available to the airport provide opportunities for development of freight storage, handling and distribution facilities.

The airport, and the rail yards are both designated as 'critical assets' in the *Critical infrastructure and movement network overlay map* in the Brisbane City Plan.

10.6 INTERNAL ROAD NETWORK AND SITE ACCESS

The existing road network on the airport, and the main intersections to surrounding roads are shown in Figure 4 *Existing airport layout* and Figure 16 *Ground transport plan*.

These roads include:

- Grenier Drive, which forms a loop road off Beatty Road, just south of the intersection with Kerry Road. It provides access to the Airport Terminal building and the main car parking area, in addition to Gods Acre Cemetery and the range of tenancies in this part of the airport. It is fully constructed with kerb and channel and an asphalt sealed carriageway;

- Lores Bonney Drive, which extends west from Mortimer Road to the control tower and also provides access to the tenancies in the eastern part of the Beaufighter precinct is constructed and sealed;
- Beaufighter Avenue, which extends south from Boundary Road and then south east into the middle of the Beaufighter precinct, and is fully constructed with kerb and channel and an asphalt sealed carriageway;
- Wirraway Avenue, which provides access to the Wirraway aviation precinct (which includes the corporate hangars and the QGAir facility) and the south side of the Boundary Road Precinct is fully constructed with kerb and channel and an asphalt sealed carriageway. Shortly following privatisation, AAC reconstructed and resurfaced the road and installed stormwater drains and underground piping to cater for surface water runoff. New infrastructure services (including upgraded power and water) have also been provided;
- Qantas Avenue, which forms a service road along the west side of Beatty Road, and north of Grenier Drive is fully constructed with kerb and channel and an asphalt sealed carriageway; and
- Ditchmen Avenue which is a service road along the west side of Beatty Road, south of Grenier Drive is fully constructed with kerb and channel and an asphalt sealed carriageway.

Qantas Avenue and Ditchmen Avenue run parallel to the Beatty Road frontage of the airport, adjacent to the more intensively developed areas. These roads function as a service road and provide frontage access to the tenancies along Beatty Road.

They allow for development to face to Beatty Road without constraining property access, congesting the main thoroughfare with parked vehicles or causing traffic safety problems along Beatty Road. They also cater for a large number of indented car parking spaces.

AAC develops and maintains the internal roads. The roads are constructed and sealed and provide all-weather access to the airport facilities, tenancies and parking and loading areas.

10.7 CAR PARKING

The airport currently has eight main on site car parking areas, in addition to parking within individual tenancies.

These are:

- the long-term carpark, accessed from Qantas Avenue (approximately 56 cars);
- the off street car park adjacent to Hangar 1 in Qantas Avenue (68 spaces);

- 'on street' parking, particularly in Qantas Avenue and Ditchmen Avenue (currently comprising indented bays for about 125 cars, and room for additional parking if necessary);
- between the Airport Terminal building and God's Acre cemetery (approximately 110 cars and space for taxis with a drop off zone adjacent to the Terminal);
- 12 cars in Grumman Place (adjacent to tenancies 640-643), accessed off Beatty Road;
- in Victa Avenue, adjacent to Buildings 612 and 618 (approximately 24 cars);
- in the parking area between tenancies 621 and 632 (24 spaces accessed from Lores Bonney Drive); and
- in Bonanza Avenue, off Lores Bonney Drive, (approximately 30 cars).

Notwithstanding the above facilities, irregular parking on footpaths and public areas occurs. This matter is being reviewed and options to regularise this are being considered including the introduction of paid parking.

10.8 FUTURE REQUIREMENTS AND TIMING

10.8.1 Future requirements for regional road access

The sustainable growth of the airport is reliant on there being direct, safe and efficient road access to the site.

AAC will continue to work with BCC, the State and Commonwealth to encourage improvements to the regional road network to enhance the accessibility of the airport.

10.8.2 Future requirements for the district and local road network

The airport master planning process, investigations underway by the State Department of Transport and Main Roads and the recent review of the Acacia Ridge/Archerfield Neighbourhood Plan (by BCC) have provided an opportunity for government, AAC and others to identify potential solutions to current network limitations.

Upgrading of Beatty Road

In the late 1990's, BCC identified a key opportunity for Beatty Road to be upgraded to cater for existing and projected traffic through widening and intersection improvements.

Beatty Road adjacent to Archerfield Airport is an undivided two-way road. The road pavement width varies, and some sections have kerb and channel, while others have gravel shoulders.

As the majority of airport land along Beatty Road was fully developed prior to privatisation, airport traffic utilising Beatty Road to access this part of the airport has remained relatively unchanged since the 1970/80's. This is not expected to change significantly unless RPT once again begins operating from the current Airport Terminal building.

The adjacent industrial area on the east side of Beatty Road is now largely developed and Beatty Road is well used by local and district traffic making its way through the Archerfield area. Recent residential and industrial developments to the south of the airport have substantially increased traffic along Beatty Road, making it difficult and sometimes hazardous for airport users and visitors to access the site.

In recent years, there has been renewed interest from the local community in upgrading Beatty Road. The Priority Infrastructure Plan (PIP) in the Brisbane City Plan identifies the '*Beatty Road/Sherbrooke Road (King Avenue to Granard Road) AFD-RC-001'* road corridor upgrade as a trunk infrastructure project estimated for completion in 2021-2026.

AAC supports the implementation of works to improve the traffic capacity and operation of Beatty Road, and is keen for this to realised in the short term to cater for existing through traffic, and to maintain an acceptable standard of access to the airport.

In addition to road widening, AAC anticipates that the Beatty Road upgrade works may require improvements to the intersections at Boundary Road, Kerry Road and Mortimer Road. Such works could have implications for the development and use of airport land.

With this in mind, AAC has engaged with BCC to identify how this can be achieved in a timely and equitable manner.

Issues still to be resolved include:

- determining the appropriate design of the upgraded road, to cater for current traffic and the ultimate development envisaged for the airport and surrounding areas;
- ensuring appropriate access to each of the airport precincts that are adjacent to or accessed from Beatty Road, consistent with the structure plans that AAC has prepared for each precinct; and
- equitable funding of land acquisition and road construction.

As a key landholder in the locality, AAC will participate in any properly convened process to progress this much needed upgrading to an equitable solution.

In terms of the potential land requirements, AAC will ensure that any necessary road widening is taken into account in the more detailed planning to be undertaken for the precincts along Beatty Road.

Opportunities for widenings on airport land have been identified in the *Beatty and Mortimer Precinct Structure Plan*, and the *Barton Precinct Structure Plan*, and are discussed in Chapter 12. The precinct plans show also opportunities for safe and efficient access to the developing areas of the airport, from the surrounding road network.

BCC has in the current City Plan anticipated that the upgrading of Beatty Road/Sherbrooke Road (from Kings Road (south of the airport) to Granard Road (to the north)) will be completed in 2021-26. AAC will continue to work with BCC to progress these road improvements.

Widening of Boundary Road, Ashover Road, Balham Road and Barton Street

There is scope to improve the operation of the road network in the vicinity of Archerfield Airport to cater for growth in through traffic, and for airport access.

The Master Plan identifies longer term opportunities for road widenings on Boundary Road (west side of airport), Ashover Road, Balham Road and Barton Street.

These possibilities have been highlighted in the Precinct Structure Plans (Chapter 12), and their implementation will be subject to further assessment and negotiations by the relevant authorities and AAC.

Progress has been made on improvements to Boundary Road (west) with BCC and AAC reaching agreement on the location and extent of land required for future widenings.

In consultation with BCC, AAC has facilitated the reservation of land for road widening purposes along the airport frontage to Boundary Road. This widening will in the short term allow for the construction by AAC of the new intersection and associated turning lanes at Transition Drive. It will also enable BCC to undertake further road upgrading in the future to cater for traffic growth in the wider area.

Potential east-west arterial link

During the process of preparing the 2011 Master Plan, the State DTMR discussed with AAC the possibility of creating an arterial road linking Boundary Road across the airport by means of a tunnel underneath the secondary grass runways. This option was discussed in the 2011 plan.

Previous master plans had included an at grade link across the airport at the request of BCC, however this option was removed from the 2011 plan as it was not reflected in the *Acacia Ridge/Archerfield Neighbourhood Plan* (BCC 2010), and had not been proposed by either BCC or State Government in any of the forums convened to discuss the emerging 2011-2031 plan.

Recent discussions with State DTMR and BCC during a Planning Coordination Forum confirmed that neither of them have any further interest in either option, so both options have been removed from this Master Plan.

Future improvements for access to new airport developments

AAC recognises that there may be a need to upgrade access points to roads servicing the airport to cater for increased traffic generated by developments proposed on the airport.

The Precinct Structure Plans in Chapter 12 include concepts for providing new and upgraded access to the airport from the adjacent road network.

The detailed design and timing of these proposed works will be resolved in consultation with BCC and other relevant authorities.

Airport entry from Beatty Road

AAC, in conjunction with BCC is planning to reconfigure the main entry to the Airport Terminal and Archerfield Square, off Beatty Road. The objective is to improve ease of access for vehicles, and simplify traffic flows (and turning movements) in this part of Beatty Road.

In the 1990's the Airport confirmed with BCC that the preferred location for the new entry was at the signalised intersection at Kerry Road. This is to the north of the existing access at the northern leg of Grenier Drive, and is shown in Figure 2 *Master Plan Vision* and Figure 19 *Beatty and Mortimer Precincts*.

AAC has subsequently assembled airport land opposite Kerry Road to facilitate the creation of a new western leg to the Kerry Road/Beatty Road intersection.

AAC will continue to work with BCC to progress the intersection design and resolve the timing and funding of the required works.

Priority actions

For the next five years, AAC anticipates that the main focus for road access improvements will be on the progressive development of the Transition-Archerfield Logistics Estate, on Boundary Road.

In that regard, AAC has reached agreement with BCC on the extent of land that Council will require for road widening in Boundary Road and the design and funding of intersection works for Transition Drive.

AAC has obtained from BCC approvals for the initial stages of the roadworks for the intersection.

The first stage, comprising services relocations, installation of underground conduits for power, traffic signals and telecommunications, construction of drainage works, construction of boundary fencing and the entry treatment, and improvements to drainage have been completed. In addition, AAC has relocated a high pressure gas transmission pipeline, to facilitate the widening of Boundary Road.

In 2017 AAC will fund and undertake the construction of the remaining intersection works at Boundary Road and Transition Drive. This will include the initial stage of Transition Drive and associated turning lanes, traffic islands, landscaping, street lighting and signage along Boundary Road.

The next priority for works is the construction by AAC of the remainder of Transition Drive which will eventually link up with Wirraway Avenue. Traffic signalisation will be installed at the new Boundary Road and Transition Drive intersection when Transition-Archerfield Logistics Estate is around 65% occupied.

In the next 2 to 8 years AAC anticipates implementing the new airport entry at Kerry Road, and the internal road linking to Grenier Drive. The timing of this is subject to the completion of further engineering investigations by AAC and BCC, and preparation of the design of the intersection at Kerry Road.

Where there is a direct link between an AAC development proposal and the need for adjacent road upgrades, AAC will negotiate an appropriate contribution towards the improvement works. This contribution could include the setting aside of land required for road widening and intersection upgrades, subject to the agreement of the Commonwealth.

10.8.3 Internal roads

The existing internal roads provide appropriate access to existing tenancies, and have the capacity to cater for planned development in the majority of precincts (or can be extended to do this).

AAC will continue to monitor the condition of the internal roads and will implement maintenance works as required to ensure serviceability.

Existing internal roads will be upgraded progressively, when required to carry traffic generated by new developments in the airport precincts.

Priority actions

AAC will continue to identify and implement appropriate internal road improvements as required to provide for access to existing and new developments.

The Precinct Structure Plans in Chapter 12 show conceptually the layout of internal roads anticipated to be required for each precinct. These layouts are subject to more detailed planning and design which will confirm the optimum format to meet the needs of tenancies.

The detailed design of road access requirements for each development precinct will be resolved in consultation with BCC. This will be undertaken as each precinct is nearer to being developed.

At this stage the primary focus is on developing Transition Drive and the associated intersection at Boundary Road, to meet the needs of the new Transition - Archerfield Logistics Estate and enhance access to the aviation areas along the north side of the main runway and Wirraway Avenue.

Transition Drive, which will provide road access to Transition-Archerfield Logistics Estate from Boundary Road is being developed by AAC in stages.

The extension of Transition Drive to Wirraway Avenue is dependent on market demand but is anticipated by 2020. The timing will be subject to progress with development of the Transition Estate and/or significant aviation developments being completed in the Wirraway Precinct.

Signalisation of the intersection of Transition Drive and Boundary Road will be undertaken once 65% of the lots in Transition-Archerfield Logistics Estate are developed (and will be completed prior to their occupation).

This timing might need to be brought forward if it is found that the Transition Drive intersection is carrying significant traffic movements from other developments proposed in the Boundary or Wirraway precincts (as foreshadowed in the PSPs). AAC will monitor traffic volumes and review the timing of signalisation if warranted by measured traffic movements.

With respect to the development planned for the Barton Precinct, the road access improvements, including:

- provision of a new road access from Beatty Road aligned with Boundary Road (east); and
- provision of vehicle access from Barton Street (east of Beatty Road);

are anticipated in the next 5-9 years. The timing is subject to completion of the realignment of the secondary runway complex, and market demand for the tenancies in the precinct.

10.8.4 Car parking

Additional on site car parking will be provided to service new developments, as required.

AAC has in recent years included car parking in the lease for the new student accommodation facility in Grenier Drive (Building 9), and also in the LifeFlight facility (Hangar 6) which has resulted in a net increase in parking spaces in that part of the airport.

Priority actions

Future development will need to include appropriate provision for car parking for staff and visitors. Options, including for shared car parking facilities will be explored in any future developments.

Consideration will need to be given to additional long-term car parking if RPT services or other aviation activities that generate extended stays are introduced to the airport. The location and scale of any additional parking areas will be resolved when there is a commitment to a RPT operation (or other use generating significant vehicle parking requirements), and the operating requirements are able to be confirmed.

The Boundary and Wirraway PSP identifies opportunities for creation of substantial parking areas for RPT or other aviation uses that are developed in the Wirraway precinct, and envisages that these would be accessed either via

Transition Drive, or a southward extension from Ashover Road. The location of these parking areas will depend on the operational requirements of the users, and the timing of the secondary runway realignment project.

AAC will continue to monitor car parking activity on the airport to optimise the use of available spaces by airport workers and visitors. AAC will consider management measures, including paid and/or time restricted parking, to achieve this.

10.8.5 Improvements to pedestrian and cycle access

AAC welcomes the proposals for improved pedestrian and cycle movement that BCC has identified, and will encourage BCC to develop these as part of an integrated access plan for the neighbourhood.

To supplement these initiatives and encourage safe and efficient access to the airport by visitors and workers, AAC has shown in the Master Plan opportunities to incorporate cycle paths along roads adjacent to the airport, and where possible along key roads within development precincts.

AAC will ensure that where appropriate pedestrian and cycle paths are incorporated in the developments envisaged in the Master Plan. These routes are shown diagrammatically in the Precinct Structure Plans. The details of these will be resolved in consultation with BCC as the plans for each precinct are further developed.

11 Services infrastructure

11.1 STORMWATER DRAINAGE

11.1.1 Catchment context

The airport is located in the middle to lower reaches of the Oxley Creek catchment, just upstream of the confluence of Oxley Creek and Blunder Creek. Oxley Creek discharges ultimately to Brisbane River.

The middle and lower reaches of the Oxley Creek catchment are highly urbanised. Stormwater management on the airport site needs to avoid causing detriment to water quality or flood conditions in Oxley Creek.

The airport location relative to the Brisbane River is shown diagrammatically in Figure 1. The location of Oxley and Blunder Creeks, and the alignments of the main drainage outfalls from the airport to these waterways are shown in Figure 2 *Airport context* and the *Site drainage* drawing (Figure 17).

11.1.2 Site sub catchments

Surface water runoff from the airport falls generally into one of six main sub catchments and these are shown in Figure 17.

The boundaries of the sub catchments are indicative only, as there are few clearly defined watersheds across the site. In some cases, drainage infrastructure has been constructed such that stormwater flows will cross between the sub catchments as currently shown.

All surface water from the airport is discharged ultimately to Oxley Creek, and from there flows to Brisbane River and Moreton Bay. The northern and eastern part of the airport drains to Stable Swamp Creek (to the north) which enters Oxley Creek on the north side of the Rocklea industrial area.

1: Southern sub catchment

This sub catchment includes:

- grassed areas;
- sealed Runway 28L/10R and taxiways;
- hangars and businesses;
- open storage; and
- the control tower.

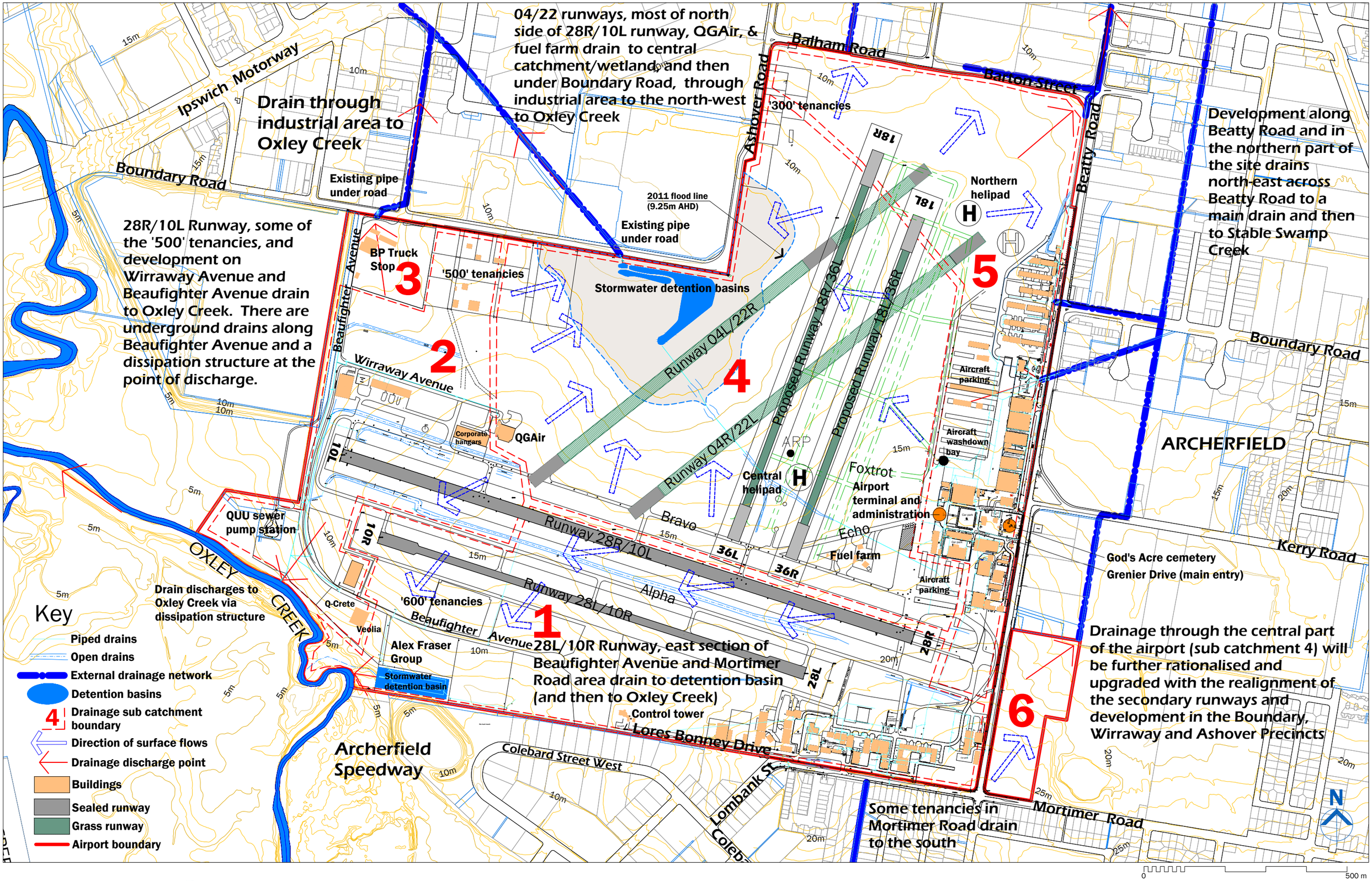


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Figure 17 **Site drainage**

PlannedFX Planning Environment Strategy Design

This stormwater drains to the main detention basin (basin 8) that is located between the Alex Fraser Group facility and the neighbouring Archerfield Speedway. The detention basin then discharges to Oxley Creek.

A small part of this sub catchment (fronting Mortimer Road) drains south under Mortimer Road, and through the neighbouring industrial area to Oxley Creek. This drain collects water from the eastern end of Lores Bonney Drive, and from the adjacent tenancies.

2: Beaufighter Avenue and Wirraway Avenue sub catchment

This sub catchment includes:

- the western end of the 28R/10L runway and associated taxiways;
- the majority of the '500' tenancies on Boundary Road;
- part of the Transition--Archerfield Logistics Estate
- development along Wirraway Avenue; and
- development along Beaufighter Avenue, generally west of Alex Fraser Group.

Stormwater in this sub catchment is conveyed via a piped drainage system along Beaufighter Avenue to a concrete end wall and dissipation structure prior to entering Oxley Creek.

3: BP Truckstop

Stormwater from the BP Truck Stop site on the corner of Beaufighter Avenue and Boundary Road discharges to a drain at Boundary Road that runs north through the Rocklea industrial area before joining to the main drain to Oxley Creek.

4: Central sub catchment

This sub catchment comprises the grassed areas associated with the 04/22 runway complex, most of the northern half of the 28R/10L runway, the fuel farms, and aircraft parking positions.

The majority of storm water in this sub catchment is collected by an on airport drainage system that falls north-west under the 04/22 runways to detention basin 3, which then runs into basin 4, and then passes under Boundary Road. From there the drainage runs through the neighbouring industrial area, under the Ipswich Motorway to Oxley Creek.

These basins replace a much smaller facility that was previously to the west of the grass runways. The new basin complex has significantly increased capacity to cater for stormwater runoff. It is designed to manage peak storm flows and will also treat water quality through a combination of bio retention and gross pollutant traps.

5: Eastern sub catchment

The fifth catchment on airport is the eastern and north eastern area fronting Beatty Road and Barton Street.

The stormwater run-off from this area is carried by the BCC drains that run to the east of, and parallel with Beatty Road. At three locations along Beatty Road there are drains under the road that take stormwater to the east and then north to Stable Swamp Creek.

This part of the sub catchment is reasonably intensively developed, with extensive impervious areas (building roofs, roads, sealed aircraft parking, and manoeuvring areas).

The balance of the sub catchment has at present less impervious surfaces. Stormwater from development planned for this area could potentially discharge to points on Barton Street and Balham Road (subject to design investigation, and approval by BCC).

6: Beatty Road South

The vacant airport land on the north-east corner of Beatty Road and Mortimer Road drains to the north-east. It discharges to the existing main drainage line that runs parallel to Beatty Road, to Stable Swamp Creek, and then to Oxley Creek.

11.1.3 Future requirements

Substantial drainage works, including new open and piped drains, and basin 8, in the south western part of the airport have been implemented to cater for the scale of development envisaged for the Beaufighter precinct, and the western half of the Boundary Road precinct.

The recent construction of basins 3 and 4 in the Boundary precinct will cater for existing drainage from the central sub catchment, and additional flows from the initial stages of the Transition-Archerfield Logistics Estate.

Preliminary engineering designs have been prepared for additional basins and associated works in the Boundary precinct. These are shown in the *Master Plan Vision* drawing, and the Boundary & Wirraway Precinct Structure Plan, and include:

- a new sand filtration basin (basin 5) adjacent to basins 3 and 4
- three basins (basins 2, 6 and 7), along Boundary Road (and west of Transition Drive)
- a new basin (basin 1) south of the BP Truck Stop.

The concepts also provide for the reconfiguration of basin 3 as part of the secondary runway realignment project. Specific drainage requirements of any new development will be assessed at the development planning stage, prior to approval being given.

Issues to be addressed in detailed design for each precinct, and in approvals for individual developments will include:

- ensuring that there is adequate capacity in drainage facilities to cater for peak flows following storm events, without causing unacceptably high storm flows in downstream areas off airport;
- ensuring that there is appropriate provision for protecting water quality in downstream areas (and the Oxley Creek/Blunder Creek system in particular), from potential sources of pollution including sediment laden runoff, or runoff from areas that could hold contaminated material such as oil or grease; and
- providing appropriate spill control procedures to ensure that in the case of a spill incident, discharges off site can be intercepted.

For the 'greenfield' development precincts, AAC will monitor the adequacy of its overall drainage concept for each precinct. It will ensure that main drainage paths through each precinct are protected, and identify in each instance the location and function of any additional stormwater detention, water quality or spill interception facilities.

The specific drainage requirements for the proposed realigned secondary runways will be determined during the further, detailed design of the runway complex. The drainage design will be evaluated in consultation with BCC and other stakeholders over the course of the assessment of the Major Development Plan for these works.

During construction of developments, actions will be taken to manage construction activities to avoid discharging sediment or other pollutants to the Oxley Creek. These matters will be addressed in *Environment Management Plans* prepared in accordance with the Airport Environment Strategy.

11.2 SEWER

The airport is serviced with reticulated sewer and is connected to the metropolitan network (including for trade waste).

QUU has a sewer pump station in the south-west corner of the airport, adjacent to Oxley Creek. This services the majority of the site.

At this stage the undeveloped area along Ashover Road and Balham Road in the north-west corner of the airport is not sewered. Due to topography, this area appears to fall into a different sewer catchment from the balance of the airport.

Liquid waste is managed and disposed of in accordance with Trade Waste requirements.

Future requirements

Sewerage requirements will be resolved with QUU for each development, having regard also to the ultimate scale and distribution of development envisaged in the Master Plan.

The specific requirements for the currently unsewered area in the north-west part of the airport will be resolved in conjunction with QUU prior to any development requiring sewer connections.

Trade waste requirements are addressed in the AES, and in EMPs for new developments that require these services.

11.3 ELECTRICITY

The airport is connected to the Brisbane grid. Electricity is supplied directly to the airport substations, and the airport distributes the electricity to tenants on serviced sites.

Infrastructure includes:

- a 500 kVA transformer substation at the BP Truckstop on Boundary Road;
- a 300 kVA transformer serving developments in Wirraway Avenue;
- a 500 kVA transformer substation at the Veolia Environmental Services site, serving developments in Beaufighter Avenue;
- a 300 kVA supply to the BCC sewage pump station near the Oxley Creek;
- a 200 kVA and a 300 kVA transformer in the south east of the site, near Mortimer Road;
- a 300 kVA transformer at the fuel farm;
- a 750 kVA substation and a 60 kVA diesel powered standby generator (for essential power only) to the east of the Airport Terminal building; and
- a 200 kVA substation serving the tenants on Beatty Road, opposite Boundary Road (on the east side of the airport).

AAC has as part of the Transition-Archerfield Logistics Estate development invested in improvements to electricity infrastructure, including relocating overhead powerlines in Boundary Road underground, and installing conduits for reticulation of power to the new developments.

Future requirements

Electricity services to the airport will be extended progressively to cater for developments highlighted in the Master Plan.

Energex has advised that in order to cater for the proposed increase in industrial density in the area, a substation will be required. The provision of this will be resolved with Energex when required.

The Airport Building Controller (ABC) will require certification of compliance by the electrical services engineer or contractor responsible for additions or modifications to the tenant's electricity services (within their individual tenancy) when the ABC is involved in sign off of a development application.

11.4 TELECOMMUNICATION SERVICES

Telstra provides telecommunications to the airport, and the reticulation is the responsibility of AAC. There are no known capacity constraints that would impede the progressive implementation of development of the airport.

Future requirements

Telecommunications infrastructure including optical fibre is progressively being upgraded to meet the needs of airport developments. AAC has installed conduits along Boundary Road to service the Transition Estate.

11.5 GAS

There is no reticulated gas supply at Archerfield Airport.

AAC has as part of the Transition Estate works relocated the existing high pressure gas transmission pipeline along Boundary Road to facilitate the widening of the road. The transmission pipeline is a significant part of the regional gas transmission network.

11.6 WATER SUPPLY

Brisbane City Council supplies water to fixed points on the boundary of the airport. AAC then distributes it via an infrastructure network that it owns and maintains.

Future requirements

Water supply requirements for developments will be planned and provided in consultation with Brisbane City Council.

11.7 SUSTAINABLE USE OF NATURAL RESOURCES AND ENERGY

Efficient use of energy and water at Archerfield will become increasingly important in coming years.

Water scarcity is expected to be more prevalent due to climate change and increasing demand for water to serve population and economic growth in South-East Queensland.

Energy usage will also become a significant issue, from the perspectives of cost, and carbon emissions in particular.

Future requirements

AAC is committed to:

- achieving best practice efficiencies in water and energy use in new enterprises;
- promoting the use of renewable energy (including on site generation where feasible); and
- encouraging progressive improvements in existing AAC operations and tenancies.

The unmetered extraction of potable water from fire mains for grass runway watering ceased immediately after privatisation. Subsequently the practice by some tenants of tapping into fire mains to wash aircraft and clean hangar floors has been stopped.

An irregularity with aircraft wash-down bays was also identified after privatisation. Residue from each of the two bays drained directly to stormwater. To address this a central aircraft wash down facility was equipped with triple interceptor diversion to sewer, and all aircraft washing activity is now conducted at this service point.

In 2008 AAC commissioned a *Water Efficiency Management Plan* (WEMP) for the airport. The WEMP included a detailed assessment of past and existing water usage, and identified opportunities for more efficient use of water.

AAC has subsequently implemented a range of works to reduce potable water consumption including installation of water efficient fittings in its own facilities; and provision of rainwater tanks in the new developments it has undertaken including the corporate hangar complex, the Aviall building and the office and warehouse on Beaufighter Avenue.

AAC will work with existing and new tenants to achieve greater efficiencies in the use of natural resources where practicable.

The provisions for this are addressed in section 16.9 and in the airport Environmental Management Procedures.

12 Airport developments

12.1 GENERAL

This section of the Master Plan describes the planning approach and proposed developments. Building on the vision described in Chapter 2 (and illustrated in Figure 2), it sets out:

- AAC's airport development objectives;
- the land use zones for the airport;
- the eight airport precincts, and the development and use focus for each;
- airside improvement projects for the Runway, Wirraway, Mortimer, and Beatty precincts, including the proposed realignment of the 04/22 runways to provide for improved useability of the runways and the surrounding land, and longer term plans for further enhancement of the 28/10 runways;
- the use and development parameters for each of the other four development precincts; and
- infrastructure provision required to support these initiatives, and proposals for improvements to ground access.

Precinct Structure Plans (PSPs) have been prepared for each part of the airport. These illustrate how the Master Plan vision could be achieved, and how the plans can be integrated with other proposals on, and off the airport.

The PSPs provide for the efficient development of aviation facilities and more than 75 hectares of land that is not required in the long term for airside or aviation purposes. The concepts shown in the PSPs will be further developed as commitments are made to specific proposals and designs are prepared for assessment and approval.

12.2 DEVELOPMENT OBJECTIVES

AAC has set the following overarching objectives for development of the airport:

- to nurture, maintain and develop airport facilities;
- to establish a complementary balance between aviation, aerospace, industrial and commercial developments;
- to enhance, promote and support the aviation image of the airport;

- to achieve best practice with significant developments;
- to be a good neighbour;
- to complement key objectives identified by State and Local Government authorities;
- to work with government and the local community to achieve the ecologically sustainable development of airport land;
- to attract commercially viable developments to aeronautical and non aeronautical sites;
- to facilitate the regeneration of the *South West Industrial Gateway* of Brisbane by providing additional land required for industrial developments, compatible with the continued operation and growth of the airport; and
- to advocate for the enhancement of the surrounding road network.

12.3 LAND USE ZONES

Figure 18—*Airport Land Use Zoning Plan* shows the five land use zones proposed for the airport to the Year 2037.

The provisions for each of the zones are generally consistent with the Brisbane City Plan.

The following additional commentary outlines the specific requirements or proposals for each zone.

12.3.1 SP5 Special purpose (Airport)

This designation applies to the airside and related parts of the airport, and extends east towards Beatty Road.

The principal purpose of this zone at Archerfield is to provide facilities for the safe and efficient operation of the airport. In designated aviation movement areas (focused on the runways, taxiways and other airside facilities) there may be supporting infrastructure such as fuel storage, navigation aids and air traffic control facilities provided.

Within this zone the following aviation and related industries and services are expected:

- flying school operations;
- RPT and charter operators;
- high technology aviation industries;
- aircraft servicing, maintenance and development enterprises;

Ipswich Motorway
Boundary Road
Ballham Road
Barton Street
Ashover Road
Beatty Road
'300' tenancies
BP Truck Stop
'500' tenancies
Beaufighter Avenue
Wirraway Avenue
Corporate hangars
QGAir
18R
18L
Relocated northern helipad
Proposed Runway 18R/36L
Proposed Runway 18L/36R
Charlie
Delta
Aircraft parking
Aircraft washdown bay
ARP
Foxtrot
Relocated central helipad
Airport terminal and administration
Bravo
Echo
Fuel farm
Runway 28R/10L
Runway 28L/10R
10L
10R
36L
36R
28L
28R
Alpha
Aircraft parking
ARCHERFIELD
Boundary Road
Kerry Road
God's Acre cemetery
Grenier Drive (main entry)
QUU sewer pump station
OXLEY CREEK
'600' tenancies
Q-Crete
Veolia
Alex Fraser Group
Beaufighter Avenue
Stormwater detention basin
Control tower
Lores Bonney Drive
Archerfield Speedway
Colebard Street West
Lombank St
Mortimer Road
A range of potential uses is proposed, including short term accommodation
N
0
500 m

Key

- SP5 Special purpose (Airport)
- General industry
- Low impact industry
- Conservation
- CF3-Community facilities (Cemetery)

The configuration of SP5 and Low impact/General Industry zoning is dependent on the realignment of the grass runways. The rezoning will take effect when the new alignment is finalised.

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Figure 18 **Airport land use zoning**

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Planning Environment Strategy Design

- fuel services;
- hangars;
- campus or motel style accommodation for flying training;
- aviation sales and services;
- aircraft manufacturing and assembly;
- convenience retailing and supporting services;
- aircraft parking; and
- supporting car parking and service vehicle areas.

Accommodation will be segregated from industrial activities both on and off airport, and will support the flying schools and other training and emergency services uses.

As has occurred at the airport for many years, land within this zone will be available for interim uses when not required for aviation activities. Uses may include those similar to those in the General Industry and Light Industry zones.

Assuming similar terms and conditions with any non-aviation related proposals, priority will be given to aviation related tenancies when leases expire within this zone.

12.3.2 General Industry

AAC will facilitate the progressive development of this land for aviation and complementary uses, industrial and related commercial uses, educational, recreational or other activities appropriate to the location and site characteristics, in accordance with AAC's vision for Archerfield. For the majority of the land, the General Industry zone is appropriate.

This zone will facilitate the development of a range of facilities and industries with particular emphasis placed on developments associated with:

- aviation industry;
- transport industry;
- manufacturing industry;
- industries and other uses (recycling etc) requiring buffer distances to more sensitive uses (such as residential);
- major warehousing and storage;
- accommodation services;
- small industrial units;
- high technology industries including aviation developments;
- commercial and retail uses required to support the airport uses, and land use in the surrounding area;

- aviation and related education and training; and
- recreation, leisure and tourism.

The location of the airport, the mix of land uses on airport, and the opportunities provided by the scale and style of development envisaged in the Master Plan point to an opportunity to also develop some commercial and retailing facilities.

AAC sees these as including:

- convenience retail and food shops for airport visitors and personnel;
- factory outlets for discontinued stock, product seconds and other items not normally available in retail stores;
- direct sales from businesses locating on airport due to their aeronautical, technical, engineering, research or development focus;
- businesses selling aircraft, heavy machinery, motor vehicles, boats, timber or other building materials; and
- other like facilities.

It is envisaged that such activities will be provided either in open sites, or in large industrial/warehouse 'shells' and/or smaller premises appropriate to the type of goods sold.

These retailing uses will be of a type and scale that complements, rather than transforms, the retail hierarchy of the region.

A high standard of building quality and presentation will be required by AAC for any developments of this nature.

12.3.3 Low impact industry

The land in the south eastern part of the airport is close to residential and open space areas. This area provides a transition between the airport activities and the more sensitive neighbouring uses. The Precinct Structure Plan suggests a range of potential uses for the sections closest to Mortimer Road.

These include the possibility of providing flying student accommodation or other short term accommodation, which whilst it might not be consistent with light industrial zoning in normal circumstances, could be appropriate. This will be resolved when specific plans are prepared for this part of the precinct.

12.3.4 Conservation

The 'Conservation' designation has been applied to approximately 4.3 ha of land adjacent to the Oxley Creek.

Due to airport security requirements, this area cannot be made accessible to the public. Instead, it will serve as a buffer between the Oxley Creek and the airport developments.

The area contains a major stormwater detention basin constructed by AAC in 2001, and includes a mix of vegetation along the banks of the Oxley Creek which will be retained.

The balance of the land above the creek banks has for many years been managed by grazing and slashing, and this will continue.

12.3.5 CF3 Community facilities (Cemetery)

The Brisbane City Plan includes a zone specifically for cemeteries. This has been applied to God's Acre, on Beatty Road.

12.3.6 Zone boundaries

Where there is a boundary between the SP5 Special purpose (Airport) and other zones, some flexibility will be exercised where required to cater for appropriate aviation uses and developments.

12.4 AIRPORT PRECINCTS

The Master Plan divides the airport into eight precincts as shown in Figure 18.

These precincts are:

- **Runway** — which is all of the land used (or proposed) for runway and primary taxiway purposes;
- **Beatty** — the land generally fronting Beatty Road, between Boundary Road and the main 28/10 runways;
- **Mortimer** — land in the south-east corner of the airport, including the section on the east side of Beatty Road;
- **Beaufighter** — including land along Mortimer Road west to Oxley Creek, and north to the main runway complex;
- **Wirraway** — comprising all of the existing and future aviation land between Wirraway Avenue and the main and secondary runways;
- **Boundary** — (containing Transition — Archerfield Logistics Estate) located on the south side of Boundary Road, and bordered to the west by Beaufighter Avenue, to the south by Wirraway Avenue, and to the east by the secondary runway complex;
- **Ashover** — all of the land between Ashover Road and the realigned secondary grass runways, and north of the Wirraway Precinct; and
- **Barton** — the land on the corner of Barton Street and Beatty Road.

Ipswich Motorway
Boundary Road
Ballham Road
Ashover Road
Barton Street
Beatty Road
Boundary Road
'300' tenancies
BP Truck Stop
'500' tenancies
Beaufighter Avenue
Wirraway Avenue
Corporate hangars
QGAir
Relocated central helipad
Relocated northern helipad
Proposed Runway 18R/36L
Proposed Runway 18L/36R
Charlie
Delta
ARP
Aircraft parking
Aircraft washdown bay
Foxtrot
Airport terminal and administration
Echo
Fuel farm
Aircraft parking
ARCHERFIELD
God's Acre cemetery
Grenier Drive (main entry)
Kerry Road
QUU sewer pump station
OXLEY CREEK
Runway 28R/10L
Runway 28L/10R
Bravo
Alpha
Q-Crete
Veolia
Alex Fraser Group
'600' tenancies
Beaufighter Avenue
Stormwater detention basin
Control tower
Lores Bonney Drive
Archerfield Speedway
Colebard Street West
Lombank St
Mortimer Road

Key
- Runway
- Beatty
- Mortimer
- Beaufighter
- Wirraway
- Boundary
- Ashover
- Barton

0 500 m

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Figure 19 **Development precincts**

PlannedFX
Planning Environment Strategy Design

The primary functions and future plans for each of these precincts are discussed below and are illustrated in the Precinct Structure Plans.

12.5 RUNWAY PRECINCT

This precinct includes all of the land required for the existing main 28/10 runways and realigned secondary runway complex.

The Runway Precinct is included in a SP5 Special purpose (Airport) zone.

12.5.1 Concept

Runway 28R/10L

In 1996 this runway was reprofiled and resurfaced for the purpose of shape correction and to limit the occurrence of surface bubbles protruding following heavy rain events. On completion of these works and after an engineering assessment the runway was given a PCN rating of 6.

The runway can currently accommodate aircraft up to 5,700kgs Maximum Take-off Weight (MTOW) on a frequent basis. Aircraft over 20,000kgs MTOW currently operate on this runway however they can only do so on an infrequent basis, under strict conditions, and only following an approved pavement concession from AAC.

If the current aircraft traffic mix continues to operate this runway is not expected to require resurfacing within the next five years. An increase in the frequency of aircraft types over 5,700kgs MTOW however, will most likely require an overlay or reconstruction of this runway to accommodate them. Operational efficiencies will also be improved by negating the requirement for pavement concession approvals prior to them conducting each operation.

The current length and width is considered adequate for the present aircraft mix, however, the sustained increased usage by larger aircraft types (for example due to the introduction of RPT, additional larger freight or corporate aircraft, emergency services aircraft or similar changes) may warrant further investigation.

To this extent the Master Plan includes plans for lengthening and strengthening this runway, in the event the larger type aircraft commence regular operations at Archerfield.

There will also be the probability that the overrun area identified as Alpha 10 will be widened to suit the runway width. Appropriate Runway End Safety Areas (RESAs) may be established within the design and the possibility of a blast barrier at the eastern end will be considered dependent on the proximity to Beatty Road. There will also be the need to update/upgrade the runway lighting in the future with the possible installation of a PAPI system.

Runway 28L/10R

This runway was reprofiled and resurfaced in March 2005. The surface is of a high quality. AAC monitors the surface integrity and condition on an ongoing basis. At the time of writing it had commissioned the application of a spray treatment to enrich and rejuvenate the runway surface.

Primary Taxiway Bravo

When larger aircraft operate at the airport there is a concern that taxiway Bravo which runs parallel to runway 28R/10L is not wide enough.

Aircraft wishing to avoid using taxiway Bravo conduct a tight 180-degree 'U-turn' at the end of the main runway and then use the runway for taxiing. When larger aircraft do a 'U-turn' the aircraft's nose wheel causes rapid wear to the runway surface.

To improve the functionality of the runway it is therefore envisaged that within the 20 year program of works, taxiway Bravo and connecting taxiways/holding points Bravo 2, Bravo 3, Bravo 4 and Bravo 5 will have the sealed sections strengthened and widened to 15 metres (Code C).

Secondary grass runways

Runways 04L/22R and 04R/22L are grassed and unrated. The runways are only used in dry weather conditions, as they are not useable following wet weather.

It is AAC's intention to progress the realignment of the secondary runway complex within the next five years. Doing so will avail approximately 500m of land immediately adjacent to the main runway for high-end aviation developments and at the same time improve the usability of the runway system for flying training in particular.

Technical studies undertaken for the 2011-31 Master Plan recommended the construction of two new grass runways, aligned to approximately 01/19 (but designated 18/36 to avoid confusion with Brisbane Airport's main runway). One has a planned length of 920m and the other, 1020m.

The preliminary concept for the proposed alignment and supporting taxiways is shown in the *Master Plan vision*, and in the precinct plans. Further information about the design is provided in the technical studies undertaken for AAC in the development of the 2011-31 Master Plan.

Under the current provisions of the *Airports Act*, the realignment of the secondary grass runways will be subject to assessment and approval by the Minister via a Major Development Plan (MDP).

The final runway configuration and dimensions will be determined in the detailed design that will be undertaken for the MDP. The proposals for the Wirraway and Beatty precincts, including changes to land zoning are dependent on the successful implementation of the runway realignment project.

Related developments

The *Master Plan vision* (Figure 2) and the relevant precinct plans show also the following proposals for improved aviation facilities, tied to the realignment of the secondary grass runways, growth in aircraft movements and/or the operation of larger aircraft:

- the Wirraway Precinct will more than double in size, providing additional capacity for new facilities with the release of land having a frontage of approximately 500m to the main runway complex, to the east of the existing QGAir hangar. This may be suitable for RPT, corporate, aeromedical, emergency services, or specialised freight aircraft benefitting from direct access and short taxiing times to the main runway;
- the northern and central helipads will be relocated to be compatible with the new runways and taxiway network;
- Taxiway Bravo will be widened to 15 metres (Code C)
- a second parallel taxiway (Code A/B, 7.5/10.5m wide) will be developed to the north of Taxiway Bravo if required;
- opportunities will be provided for the development of additional aircraft parking and hangarage, responsive to demand;
- Taxiway Hotel will be extended north to link to the new 18L threshold;
- capacity for the development of new hangars will be provided in the north, adjacent to the new northern helipad, and the multipurpose industrial units proposed in the Barton Precinct; and
- consideration will be given to the relocation of the fuel farm, if required.

12.5.2 Visual and non visual navigational aids

Global Positioning Systems (GPS) are becoming a primary navigational aid for light aircraft operations. GPS approach procedures (RNAV-$Z_{(GNSS)}$) for runways 10L and 28R have been designed for airport operations in recognition of this technological evolution.

To assist with visual approaches in poor conditions and to improve the quality of aviation facilities provided at the airport consideration will be given to providing a visual slope indicating system (either a Precision Approach Path Indicator (PAPI), or other system) for the 28R/10L runway. These tools aid pilots during instrument flight at medium to short final approach to landing, especially at night.

The installation of a PAPI (or similar system) in combination with expected growth in GPS procedures would not only improve the accessibility of the airport in poor meteorological conditions but would also provide to the flying training industry a more marketable product when promoting the airport as the preferred location to learn to fly.

All existing runway and taxiway lighting facilities are subject to cyclical inspection and renewal as required.

Before any new navigation system is introduced at the airport, the Civil Aviation Safety Authority (CASA) must approve the facilities and procedures.

12.6 BEATTY PRECINCT

The Beatty Precinct extends along the Beatty Road frontage of the airport and is bounded by the main runways to the south, the proposed secondary runways to the west, and the Barton Precinct to the north (Figure 20).

This precinct is currently zoned General Industry but will be rezoned to SP5 Special purpose (Airport) following the realignment of the secondary grass runways.

The Precinct contains a substantial number of aviation businesses, and is also home to the Airport Terminal, and God's Acre Cemetery.

12.6.1 Concept

This land has exposure to both aeronautical and non-aeronautical areas, and offers a wide range of possibilities for growth of existing aviation uses and other tenancies, and new development focused on enhancing the airport. It is a primary address for the airport.

The 'gateway' location of the Precinct (interfacing the land and air aspects of the site) means that the Precinct is likely to contain the most diverse mix of land use.

The appearance of buildings and landscaping in the precinct warrant upgrading and improvement, commensurate with the important role this precinct plays in setting the standard for the image and atmosphere of the airport.

During the past 5 years, AAC began this process by refurbishing a number of buildings and providing landscaping. The projects have included the redevelopment of building 9 (adjacent to the Airport Terminal Building) to create the airport's first ever on site student accommodation complex, refurbishment of Hangar 6 to house LifeFlight helicopter maintenance, and refurbishment of Hangar 5 to accommodate Archerfield Jet Base and FBO. AAC has also begun tree planting works along Ditchmen Avenue and Grenier Drive and installed new illuminated signage at the main entrance to the airport.

From the southern end of Ditchmen Avenue to the northern end of Qantas Avenue there are a number of other structures, ranging from several years to over sixty years old.

Proposed Runway 18R

Proposed Runway 18L/

35 ANEF

30 ANEF

25 ANEF

20 ANEF

Runway prec

Beatty precinct boundary

Controlled vehicle access to airside

Boundary

Qantas Avenue

Car park

Aircraft parking

Aircraft parking

Taxiway Hotel

Taxiway Juliet

Apron Juliet

Drainage
discharged to existing network

Taxiway Charlie

Taxiway Delta

13m

14m

11m

15m

Aircraft parking

Aircraft washdown bay

Anson Place

Dakota Place

Rapide Place

Qantas Avenue

Investigate possible relocation of main airport entry/exit to align with Kerry Road. If feasible, consideration will be given to rationalising the intersections of Grenier Drive and Beatty Road.

Taxiway Foxtrot

Potential future RPT operation

Visitor aircraft parking

Airport terminal and administration

Car park
60 spaces

Grenier Drive

Gods Acre

Kerry Road

Archerfield Square:

a focus for convenience retailing, food and service uses for the airport

Student accommodation

Car park

Hudson Place

Taxiway Echo

Turbine pad

Fuel farm

Precinct boundary

Run up

Aircraft parking

Ditchmen Avenue

Potential secondary cycle route in BCC upgrading of Beatty Road (as shown in Brisbane City Plan and SEQPCNP)

36R

Taxiway Bravo widened to 15m (Code C)

35 ANEF

30 ANEF

28R

Drainage
discharged to existing network

Light industry, storage, parking

Road widening investigation area
(25m overall width shown)

Future runway and taxiway extension

(when required for increased RPT, specialised freight, or larger aircraft)

28L

21m

Precinct boundary

35 ANEF

Precinct boundary

30 ANEF

Former helicopter landing area

22m

23m

24m

Car park

Bonanza Ave

AAC works depot

General aviation and support uses

Grumman Pl

Car park

Car park

Car park

Victa Ave

Beatty Road

Uses in southern section (both sides of Beatty Road) provide interface to neighbouring residential and open space areas.

Potential for light industry, display, office, flying student and short term accommodation, convenience and support services

20m

Lores Bonney Drive

Mortimer Road

Lombank St

Where feasible, BCC proposals for future upgrading of Mortimer Road/Beatty Road intersection to be taken into account in new development

N

0 100 200 300m

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Figure 20 **Beatty & Mortimer Precincts**

PlannedFX
Planning Environment Strategy Design

It is envisaged that a number of these structures will be redeveloped to accommodate larger aircraft or to provide more modern facilities for existing and future tenants.

To this end, AAC will over the 20 year horizon of the Master Plan facilitate the progressive upgrading or redevelopment of many of the existing buildings, and creation of a number of new high standard aviation facilities.

An overall upgrade of the standard and presentation of buildings is planned. Options for this could include replacement of Buildings 101 through to 117 on Ditchmen Avenue with new structures, or refurbishment of serviceable buildings. Hangars could be redeveloped with new office accommodation or totally relocated.

Specific areas include:

- the area from Hangar 1 to Hangar 4, which is likely to be ultimately redeveloped or refurbished to provide quality, modern accommodation with a high standard of presentation;
- the area to the north of the proposed Boundary Road intersection (extending into the Barton Precinct) will eventually be totally redeveloped. All existing hangars will in time be removed or relocated; and
- the Ditchmen Avenue frontage to Beatty Road will be rejuvenated.

AAC will respect and where appropriate conserve historic elements in the overall redevelopment of the airport. Particular attention will be paid to the Airport Terminal and Administration building and God's Acre Cemetery.

AAC will continue to work with God's Acre Restoration Committee and BCC (lessee of the Cemetery) and the broader community in improving the cemetery and promoting it to the local community and visitors.

AAC is also sensitive to the need to retain other historic landmarks where adaptive uses can be found or their removal would otherwise contribute to the significant loss of past history.

AAC also recognises that a number of older buildings on the airport are no longer suited to modern aircraft and are inefficient in terms of their location, layout, or size for modern aviation related purposes.

In order to ensure Archerfield continues to attract aviation tenants of a high calibre and the airfield continues to regenerate, development options will be canvassed when approached by prospective aviation tenants.

Each development will be assessed on an individual basis, taking into account the tenant's requirements, the historic significance of the building, its potential for adaptive reuse, refurbishment, removal or relocation. Buildings containing asbestos will be handled in accordance with the AES.

Existing uses will remain, in accordance with lease conditions. In cases where leases expire, or new proposals are put forward, priority will be given to aviation-related tenancies, and for tenancies that provide services required by

airport businesses, users and visitors. Examples include convenience retailing and service businesses (eg food, etc) that are inadequately catered for on the airport or in the surrounding area.

Leases in the SP5 area will be negotiated on commercial terms (as at present). As has occurred at the airport for many years, land within this zone will be available for interim uses when not required for aviation activities. Uses may include those similar to those in the General Industry and Low Impact Industry zones.

12.7 MORTIMER PRECINCT

The majority of this precinct is currently zoned General Industry but will be rezoned to SP5 Special purpose (Airport) following the realignment of the secondary grass runways.

The sections adjacent to Beatty Road have been included in the Low Impact Industry zone.

12.7.1 Concept

At the north east corner of Mortimer and Beatty Roads there is a 5.8 ha site severed from the balance of the airport by Beatty Road (Figure 20).

This land has some limitations because of topography, safety clearances at the eastern end of the runways, noise impacts from aircraft, and height restrictions required to maintain acceptable obstacle clearance to the airspace. The balance of this land which is opposite the end of the main runway could suit light industry, storage, or parking.

This land is close to the residential area (south of Mortimer Road) and the open space to the east of the precinct. It is also abutted to the north by industrial uses along Beatty Road, and a substantial open space to the east (Mortimer Park).

The potential impacts on these areas of proposed developments will be identified and addressed by consideration of building design and landscaping at the planning and development stage.

Development will be required to comply with height limitations, due to its proximity to the end of the main runway. Depending on the proposed uses of the land, it might also be necessary to incorporate acoustic treatment of buildings.

The section fronting Mortimer Road, on the west side of Beatty Road would also be suitable for uses that are compatible with the adjacent residential area, and also with the established aviation and industrial uses in this part of the airport.

The southern part (fronting Mortimer Road, and the Beatty Road corner) has the potential to be developed for a range of purposes that are compatible with

the residential area to the south, and the open space to the east. Options include accommodation for flying students (or other short term visitors to the airport), light industry/display uses, offices, or convenience retail and other support uses.

As discussed in Chapter 10, BCC is in the process of developing plans to widen Beatty Road to cater for growth in traffic volumes on the network.

Any widening in proximity to the main runways would need to be located on the east side of the road. The PSP shows a potential road widening area 5m wide along the Beatty Road frontage. AAC will work with BCC to determine the feasibility of the widening, and the terms of any transfer of land to enable Council to undertake the road widening.

12.8 BEAUFIGHTER PRECINCT

The Beaufighter precinct is zoned in two parts.

The majority of the precinct is sited between the main runway complex and the adjacent industrial area (including Archerfield Speedway) to the south of the airport (Figures 2 and 21).

The south western section of land adjacent to Oxley Creek has been identified in the AES and the Master Plan as a buffer zone to Oxley Creek. It has an area of approximately 4.3 ha and is included in the Conservation zone.

The balance of the land, which is in the process of being developed for industrial purposes, is included in a General Industry zone.

12.8.1 Concept

Stages one and two of the Beaufighter estate have been completed with the following being provided:

- Beaufighter Avenue has been extended south and east with all underground services provided;
- nine, 2 hectare development sites have been released; and
- major tenants are Alex Fraser Group, Q-Crete and Collex Waste Management.

This area of the airport requires special attention to ensure that developments, and activities carried out on the land do not have any detrimental impacts on the visual qualities or habitat value of nearby Oxley Creek.

An open space buffer, incorporating land along the Oxley Creek and the main stormwater detention facility, has been established along the southern edge of the precinct.

Road vehicle access is provided from both the east and the north, as shown in Figure 21.

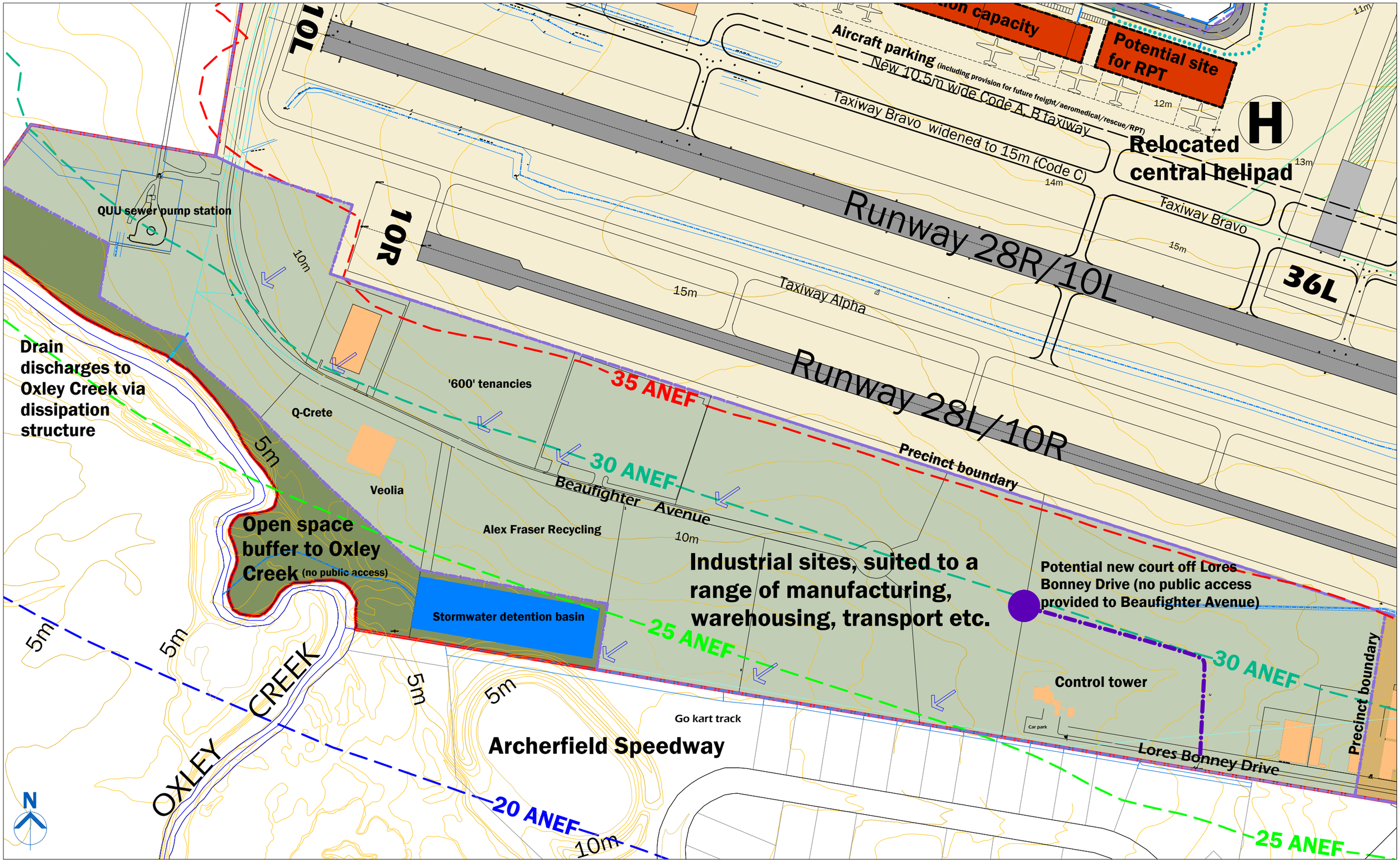

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Figure 21 **Beaufighter Precinct Structure Plan**

PlannedFX Planning Environment Strategy Design

Access from the east will be via Lores Bonney Drive (which extends currently from the western end of Mortimer Road). Access from the north is via Beaufighter Avenue, which can be further extended as required to service new developments.

The road access to the additional development proposed in the PSP will be implemented once the requirements of future tenants have been determined.

Given the proximity of this precinct to the Oxley Creek environs, appropriate stormwater management measures have been put in place to protect the creek from undue increases in peak stormwater flows following storm events.

The works now completed include upgraded drains (piped and open swales) throughout the airport sub catchments, and construction of a substantial detention basin adjacent to the Alex Fraser Group site.

12.9 WIRRAWAY PRECINCT

This precinct is included in the SP5 Special purpose (Airport) zone. It is immediately adjacent to the main runway (Figure 22).

Since the first master plan, development in this locality has included the new QGAir hangar development, the Flying Fighters hangar, and the corporate hangar complex developed by AAC.

The upgrading of Wirraway Avenue has also provided road access to this part of the airport, and improvements to drainage have enhanced the potential for further development of this land.

12.9.1 Concept

This area is designated for further development for specialised aviation purposes, compatible with the established uses.

Opportunity for additional aviation developments currently exists to the west of the QGAir hangar. This could include facilities for aeromedical, government, corporate, freight, and charter operations. Associated offices and car parking could be located on the southern side of Wirraway Avenue or on the northern side within Transition if required.

The Wirraway Precinct will more than double in size following the realignment of the secondary grass runways to 36L/18R. This will provide substantial additional opportunities for aviation operators to establish facilities immediately adjacent to the main runway, to the east of the QGAir hangar. This area would be suited to aeromedical, government, RPT, corporate, charter or specialised freight aviation hubs/terminals.

Wirraway Avenue will be extended eastward along the northern side of the precinct, and will link ultimately to Boundary Road and Ashover Road. The road network will provide direct access to the main roads around the airport, and to the regional network including Ipswich Motorway.

An area has also been designated for long term car parking, in addition to parking that is shown adjacent to the planned developments. This parking area could be expanded if required.

The relocated central helipad is shown adjacent to the potential RPT site. There is scope for helicopter parking and the provision of supporting services in conjunction with this new facility.

The realignment of the secondary grass runways provides a number of opportunities to cater for aviation growth in this precinct. These are discussed in more detail in Section 17.2.

12.10 BOUNDARY PRECINCT

The precinct is included in the General Industry Area.

12.10.1 Concept

At present this precinct includes the BP Truck Stop on the corner of Beaufighter Avenue and Boundary Road. There are also a number of short-term tenancies developed along Boundary Road.

There is scope for the land in this precinct to be developed with quality tenancies providing a range of commercial and industrial uses including support services to the transport and aviation industries.

The Precinct Structure Plan for the Boundary and Wirraway precincts (Figure 22) shows that the precinct is at present accessed via Boundary Road, Beaufighter Avenue and Wirraway Avenue. This access will be augmented by the creation of Transition Drive. When the estate has reached 65% occupancy, the intersection of Transition Drive and Boundary Road will be fully signalised.

The realignment of the secondary runway complex will allow the release for development of the south-eastern part of the precinct. Access to that land (and the expanded aviation area at the eastern end of the Wirraway Precinct) will be provided by a new road extending south from Ashover Road, and an easterly extension to Wirraway Avenue.

The future intersection at Ashover Road is intended to cater for all required turning movements. The final layout and design will be determined in consultation with BCC and may involve the use of slip lanes or a roundabout to give the maximum flexibility for access, without unduly impacting on the traffic on the external roads.

Larger industrial lots are proposed within the Boundary Precinct, utilising road frontage along Boundary Road, Beaufighter Avenue, Transition Drive, Wirraway Avenue, and the extension to Ashover Road. There is the potential for these lots to be either amalgamated (for larger scale uses) or further subdivided according to market needs.

Existing pipe under road

Boundary Road

Frontage access to lots from Boundary Road

10m

New intersection at Boundary Road/Transition Drive

Existing pipe under road

Road widening investigation area
(Overall width of 30m shown, measured from north side of road)

Ashover Road

9m

New intersection
(design subject to further investigation, and consultation with BCC)

30 ANEF

Runway precinct boundary

BP Truck Stop

2

25 ANEF

6

7

4

5

8m

Intersection design to be resolved with BCC

Stormwater basins

Basin 3

Beaufighter Avenue

Provision made for future widening if required

1

30 ANEF

Ridge line

Transition Drive

New access road for aviation and industry BCC
standard 22.5m wide road reserve shown with capacity for 14m carriageway and 4.25m verges on each side

0.4 ha

0.4 ha

0.4 ha

35 ANEF

Drainage from central sub catchment conveyed to new basins

9m

Potential long term car parking for RPT (~800 cars)

Wirraway Avenue

400

401

403

404

405

Wirraway Avenue widened

Future aviation capacity

Reference point

Corporate hangars

QGAir

Future aviation capacity

Potential site for RPT

10m

Provision made for public transport access to RPT

11m

Taxi and bus access

H

Aircraft parking (including provision for future freight/aeromedical/rescue/RPT)

New 10.5m wide Code A, B taxiway

12m

Taxiway Bravo widened to 15m (Code C)

14m

Relocated central helipad

13m

Taxiway Bravo

15m

Runway 18R/36L

Proposed Runway 18R/36L

35 ANEF

Taxiway Charlie

Runway 28

0 100 200m

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Figure 22 **Boundary and Wirraway Precincts**

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AAC has set the developments back eight metres along the entire length of Boundary Road to accommodate future road widening and long-term traffic growth for the region.

The terms of any future land transfer will be determined with BCC when Council decides to proceed with the anticipated road widening. The Corporation is currently in the process of transferring at no cost to BCC (with the Commonwealth's consent) land for turning lanes and a new intersection accessing Transition Drive from Boundary Road, together with upgraded access to the Orora Group site opposite the airport. These works are being funded by AAC.

Preliminary analysis of development potential indicates that by 2020 the Precinct could contain an additional 30,000m^2 of warehouse floor space (and related office areas), with a further 30-35,000m^2 of floor space developed by 2025. AAC will develop the site access and other infrastructure in stages, matched to the land development program. As detailed below, initial works for the Precinct are well advanced, and agreement has been reached with BCC with respect to the 'triggers' for major works including signalisation of the intersection of Transition Drive and Boundary Road.

The works that are committed (and in some cases already completed), include;

- a new intersection and associated traffic islands along Boundary Road to provide access to Transition - Archerfield Logistics Estate and the Orora Group site on the north side of Boundary Road;
- preparatory works for the installation of traffic signals around the time when Transition is at 65% occupancy;
- dedicated through lanes and turning lanes for ease of traffic flow along Boundary Road and into Transition (and the Orora Group site opposite the airport);
- the installation of new street lighting on both sides of Boundary Road and approximately 200m either side of the new intersection;
- the extension of culverts and the boring of piers to bridge over the top of the drainage easement on the northern side of Boundary Road in order to widen Orora's driveway for ease of B-Double access into and out of their site which wasn't previously possible with their pre-existing, narrow width driveway;
- the relocation of overhead powerlines into underground conduits with provision for future expansion and communications such as the NBN;
- the relocation of the high pressure gas transmission pipeline which was located on the edge of the old road reserve and has now been moved a few metres to the south to allow for the road widening works to occur;
- the installation of kerb and channel and stormwater swales to cater for rainwater runoff along Boundary Road which previously ran onto adjacent grassed areas; and

- landscaping and the installation of palisade fencing along the northern boundary of Transition.

AAC has also undertaken extensive civil works on airport land in preparation for new tenancies within Transition. These works include:

- the filling in of the narrow drainage system that ran north-west from the secondary grass runway complex to Boundary Road;
- the replacement of this system with a much larger detention basin, Basin 3 (volume approximately 18,000m^3) to control peak storm related flows from the secondary grass runway complex and the ultimate development in the Boundary Precinct, and to also assist with maintaining acceptable water quality in the flows discharged into the local drainage system;
- the construction of Basin 4 (the interface between Boundary Road, Basins 3 and 5 and the Gross Pollutant Trap);
- the construction of Basin 5 (sand filtration for improved water quality)
- the installation of Gross Pollutant Traps to further improve the quality of water from Boundary Road and Transition Drive before it enters the local drainage system;
- importation of fill for lots 1.08 and 1.09 in Transition to bring them above Q100 flood level;
- the construction of entrance walls and illuminated pylon signage at the intersection of Boundary Road and the future alignment of Transition Drive; and
- the installation of a new 300mm water main along Wirraway Avenue to service the new tenancies in Transition and the Fire Pump House which services the existing Corporate Hangars;
- upgrading of power to Wirraway Avenue; and
- reconstruction and resurfacing of Wirraway Avenue.

The entrance to Transition Drive and intersection works at Boundary Road have received authority approvals and are due for construction in 2017. As the Transition estate develops, Transition Drive will be extended to link to Wirraway Avenue from Boundary Road.

The Precinct Plan includes provision for further drainage works within Transition, to capture and manage stormwater from the Precinct and the adjacent area of the airport, prior to it being discharged to Oxley Creek.

The concept design includes a new basin 1 south of BP Truck Stop, which will treat stormwater prior to discharge to the drains in Beaufighter Avenue; and basins 2, 6 and 7, that will provide additional capacity for stormwater management prior to discharge to the drainage system through the Rocklea industrial area.

These works will be implemented progressively, as development proceeds.

The need to set aside land for the future widening of the Ashover Road reservation has also been identified for investigation. AAC will discuss this further with BCC and other relevant parties, as the plans for the Ashover precinct evolve.

12.11 ASHOVER PRECINCT

The Ashover Precinct is included in the General Industry zone.

12.11.1 Concept

This precinct has similar characteristics to the Boundary Precinct. It enjoys excellent road access from Balham Road/Barton Street and Ashover Road and is in the middle of the long established Rocklea industrial area. It is also close to the State Government's proposed cross-over, linking Ashover Road to the Ipswich Motorway.

The Ashover Precinct Structure Plan (Figure 22) shows that the land is likely to be developed in a series of lots along Balham Road, Ashover Road, and the proposed southerly extension of Ashover Road to Wirraway Avenue. Land uses could include transport related services such as fuel, servicing, repairs and parts.

The precinct falls into two main drainage sub catchments. Stormwater and sewer requirements will be investigated in consultation with QUU and BCC.

The Structure Plan also indicates that the need for road widening along Ashover Road and Balham Road should be investigated.

12.12 BARTON PRECINCT

This precinct is included in the General Industry zone.

12.12.1 Concept

The land relates strongly to the surrounding industrial area along Beatty Road and Barton Street, off airport. It also has a direct interface to the northern end of the Beatty Precinct, and to the reconfigured secondary grass runways.

The concept for this precinct (Figure 24) provides for groups of industrial, display and sales tenancies including tenancies adjacent to the reconfigured secondary grass runways and relocated northern helipad that are suited to uses requiring both airside and landside access.

The area to the north of the proposed Boundary Road intersection will eventually be totally redeveloped. All existing hangars will in time be removed or relocated.

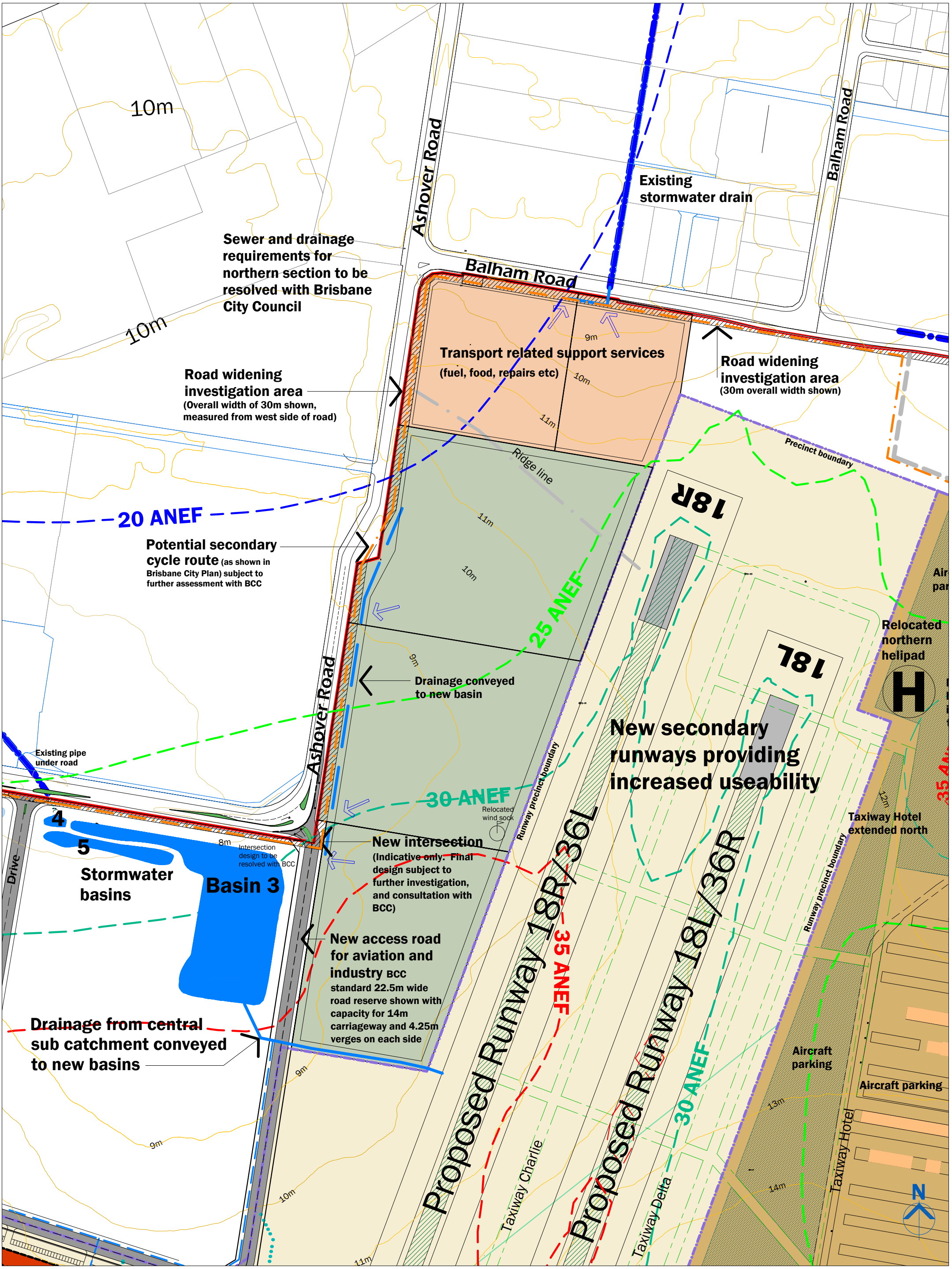

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Figure 23 **Ashover Precinct Structure Plan**

PlannedFX
Planning Environment Strategy Design

Road widening investigation area
(30m overall width shown hatched)

New intersection (location and design subject to further investigation, and consultation with BCC)

Barton Street

9m

Potential cycle route
(as shown in SEQ Principal Cycle Network Plan)

Drainage
discharged to existing network

Loading

Loading

Car parking

Display and sales
(preliminary concept only)

Precinct boundary

10m

Loading

Car parking

Design of new internal roads to incorporate measures to discourage through traffic

Potential for local cycle route bypassing Beatty/Barton corner

11m

Aircraft parking

Beatty precinct boundary

Beatty Road

20 ANEF

Smaller industrial, commercial, and service tenancies serving the surrounding area

Relocated northern helipad

H

Multi purpose hangars and industrial tenancies

25 ANEF

30 ANEF

35 ANEF

Car parking

Multi purpose industrial, office and service tenancies

Car parking

Left turn lane for inbound vehicles

Qantas Drive extended north
to provide frontages to new lots

Road widening investigation area

Timing and layout of southern section is subject to consideration of existing leases and market demand

12m

Taxiway Hotel extended north

Runway precinct boundary

Drainage discharged to existing network

Controlled vehicle access to airside

Beatty precinct boundary

Boundary Road

Boundary Road extended into airport to provide enhanced access to Barton, Beatty and Runway precincts

N

0 50 100m

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Archerfield Airport Master Plan 2017-2037

Figure 24 **Barton Precinct Structure Plan**

PlannedFX
Planning Environment Strategy Design

The sizes of the tenancies, and their anticipated usage, are similar to that of the existing developments on the opposite (east) side of Beatty Road.

Access to this land will be from Beatty Road (via an extension to Boundary Road, and a second access to the north) and from Barton Street. The PSP shows conceptually the layout of the new access points from Beatty Road and Barton Street, and opportunities for future widening of Barton Street if required to cater for growth in passing traffic.

The new road network will also provide improved land access to the northern end of the Beatty Precinct, enhancing the attractiveness of the new multipurpose hangars and northern helipad planned adjacent to the realigned secondary runway complex.

The development layout shown in the Precinct Structure Plan orients the new tenancies so they face the adjacent roads, enhancing the presentation of the airport at the interface to the surrounding area.

Vehicle access is controlled to three main intersections. A service road parallel to Beatty Road has been proposed, consistent with Qantas Avenue, which functions as an existing service road further to the south. This will facilitate vehicle circulation within the precinct, and minimise any impacts on the traffic flows on Beatty Road.

There is also the opportunity to provide a local cycle route along the internal roads, allowing people to bypass the busy intersection of Beatty Road and Barton Street. The feasibility of this will be assessed in consultation with BCC when more detailed plans are prepared.

13 Environment Strategy summary

INTRODUCTION

The Archerfield Airport Environment Strategy 2017 (AES) addresses the ongoing environmental management of the airport site. It also provides the framework for responsible environmental management by airport tenants.

This strategy comprises:

- a statement of environmental responsibilities that apply to Archerfield Airport;
- a description of the airport environmental management system, including the process by which AAC implements the AES and related environmental management procedures;
- the AAC corporate environment policy;
- a summary of existing environmental issues, management responses to those issues and an action plan to address them;
- details of the ongoing consultative processes AAC uses to implement and review the AES.

This strategy was approved on 15 July 2017 and should be read in conjunction with the Archerfield Airport Master Plan that sets out AAC's 20-year vision for the development of the airport.

ACHIEVEMENTS 1998-2016

AAC has over the period 1998-2016 achieved a number of milestones which have contributed to the improvement of the airport environment.

Studies have been completed, Environmental Management Procedures (EMPs) prepared, major drainage works have been implemented, water and energy use has been audited, water conservation measures implemented, the airport environment has been monitored and analysed, environment protection awareness information made available, installation of an additional six groundwater monitoring wells since 2012 and relationships with key stakeholders strengthened.

A summary of these achievements is provided in Chapter 14.

AAC ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

Environmental responsibilities

AAC maintains the runways, taxiways, grassed areas, and infrastructure; develops new airport facilities; leases sites; and oversees environmental compliance by tenants.

AAC prepares the AES; develops and maintains the airport's environmental management system; undertakes environmental reviews of relevant aspects of the airport; works with the Airport Environment Officer (AEO) and tenants to protect the environment of the airport and assist with the investigation of incidents on the site; liaises with environmental authorities; and provides annual reports to Department of Infrastructure and Regional Development (DIRD) on progress on implementing the AES.

These responsibilities are established through legislation and are set out in Chapter 15 and in the airport Environmental Management Procedures (EMPs).

AAC tenants are responsible for environmental management of their leased site in accordance with the AES, lease conditions and relevant legislation, standards and guidelines; providing

practical assistance to AAC in developing, reviewing and revising the AES; adhering to requirements of the AES; devising environmental management procedures and implementing improvements specific to the lease site; and adhering to appropriate dangerous goods handling and storage standards, and to workplace health and safety standards.

Scope

The Archerfield Airport EMS addresses AAC operations, existing tenants, new facilities, non-aviation tenants and activities, and emergency events occurring on the site.

It comprises this Strategy, the EMPs, and the management processes that are in place.

AAC works with tenants to ensure that all responsible parties are aware of their environmental obligations.

Environmental Management Procedures

The EMPs include procedures for assessing prospective tenants, communication and consultation, emergency preparedness and response, minor and major spill response, environmental awareness and training, tenant environmental reviews, environmental reviews at the end of a tenancy, and assessment of new development works.

Action plan

The actions identified in the AES are summarised in the *Archerfield Airport Environment Action Plan*, which is included in Appendix D.

Communication

AAC communicates with a variety of parties both on the site (tenants and operators) and external to the site.

Key aspects relevant to environmental management include:

- facilitation by AAC of monthly management meetings involving the AEO, Airport Building Controller (ABC) and AAC personnel;
- a rolling program of reviews of tenant operations;
- provision of information on the AAC web site;
- targeted consultation with stakeholders on specific issues;
- community consultation on major projects;
- regular 12 monthly reporting of environmental matters to DIRD;
- environmental training and education.

Environmental training

All current AAC staff undertake environmental awareness training on an annual basis. Training is ongoing, responsive to needs. AAC personnel and tenants will be briefed on the new AES.

AIRPORT ENVIRONMENT POLICY

AAC recognises the importance of maintaining and where practical, enhancing the quality of the environment on Archerfield Airport and neighbouring areas.

Its commitment and actions to realise this are described in the AAC Corporate Environment Policy in section 15.2 3.

CURRENT ENVIRONMENTAL STATUS, ISSUES, AND ACTIONS

The AES includes for each aspect of the environment, management objectives, a statement of existing conditions, potential impacts, management measures, and targets for the planning period.

The information is based on a review of past studies and more recent investigations of groundwater, surface water, potable water consumption, asbestos and heritage.

More detail is provided in Chapter 16.

Archaeology

In 2001 AAC completed a *Cultural Heritage Assessment and Management Plan: Archerfield Airport, Brisbane*. The findings informed subsequent development decisions, including the major upgrade of Hangar 6, demolition and new works at Hangar 5 and fitout and refurbishment of the ground floor, Level 1 and 2 of the Airport Terminal and Administration Building.

There is no evidence of archaeological sites or features that require specific management at this time.

European heritage

God's Acre Cemetery and the Airport Terminal and Administration building are significant historic features. In addition, there are some hangars and other buildings that mark important phases in the development of the airport.

AAC, and its parent company Miengrove Pty Ltd have invested more than $3.8M in heritage projects. In 2001 AAC restored the Shell building. In 2009 the Terminal building again became the airport administration offices with the refurbishment of Level 2 of the building by AAC. In 2015 Level 1 of the Terminal building was significantly refurbished, winning two awards at the 2015 Brisbane Regional Architecture Awards. The awards were for the Heritage and Interior Design categories.

AAC continues to work closely with The Friends of God's Acre to ensure the cemetery is well maintained.

Consideration will be given to conserving or relocating other identified features in future development projects.

Flora and fauna

The airport environment has been heavily modified since prior to the establishment of the airport, when the site was farmed.

The main operational areas have been subject to a continuous maintenance program that has included mowing and removal of large trees where these infringe on obstacle clearance standards.

The area fringing Oxley Creek has some remnant values, and this land has been incorporated into a green buffer.

A flora and fauna assessment of the buffer area (shown in Figure 18 *Development precincts*) will be undertaken prior to any future development in this area.

Air emissions

There are negligible emissions to air. Establishments which include spray paint booths have appropriate filters installed and these are maintained in accordance with Brisbane City Council requirements and are inspected by AAC and the AEO.

Ozone depleting substances

A detailed audit of the airport in 1993/94 identified all equipment containing ozone depleting gasses. All BFC fire extinguishers were removed in 1997, and there are no remaining air conditioners filled with Freon/CFC's.

Ongoing environmental reviews by AAC seek to identify any ozone depleting gasses on site. If any are identified their removal will be negotiated.

Surface water

The airport surface water falls into six sub catchments (Figure 17), and is conveyed ultimately to Oxley Creek by a network of open and piped drains.

A detention basin at the south-west boundary of the airport assists with managing peak flows, and improving water quality prior to discharge to Oxley Creek. Three additional bio-filtration and detention basins have been constructed recently adjacent to the Boundary Road frontage to manage peak flows from future works at Transition Estate. Gross Pollutant Traps were constructed between Basin 4 and Boundary Road (at Transition Drive) to further improve the quality of stormwater from the Boundary Precinct and central sub catchment prior to its release to the BCC drainage system to the north of the airport.

Rainwater tanks have been installed in a number of tenancies, and in new developments undertaken by AAC.

Groundwater quality

Groundwater quality is monitored annually, and since this practice commenced in 1993, water quality has generally conformed to or exceeded relevant environmental criteria. Localised elevations are addressed progressively with the AEO.

Six new groundwater monitoring wells have been installed since 2012 to ensure all on-airport areas are monitored as well as to test contamination coming onto airport from off-site locations. The bore locations and the direction of groundwater flow are shown in Figure 26 *Groundwater*.

Soil

With the exception of BP Truckstop (which was subject to soil contamination from a leaking storage tank, discovered in 2006), there are no known areas of soil contamination that pose a threat to the environment of the airport.

Assessments show that localised contamination levels are within accepted criteria. Any soil contamination at the Truckstop is being managed by BP in accordance with a remediation and monitoring program.

Hazardous materials and waste

Existing asbestos is recorded in the airport asbestos register, which is kept up to date as works are completed. A significant quantity of asbestos was removed between 2012 and 2015 as a result of extensive repair and upgrade works to various hangars and buildings.

DIRD recommends that AAC determines levels of Perfluorinated Chemicals (PFCs), which are non-biodegradable chemicals that are highly persistent in the environment (and in the past used in fire-fighting foam and equipment), to gain an understanding of the background levels of PFCs on airport and coming from off-site areas.

AAC currently considers the recommendations within the most recent DIRD issued *Guideline for Environmental Management* (GEM) and will consider any alterations to these guidelines when they become available..

The storage and handling of hazardous materials is required to comply with relevant State legislation, and this is assessed during tenant environmental reviews.

Waste is managed and disposed of in accordance with Trade Waste requirements.

Natural resources and energy

Potable water use was reviewed and a management plan formulated in 2008 to minimise consumption and improve efficiency.

When the drought ended the State government abolished the Queensland Water Commission and its permanent water conservation measures on 1 January 2013.

Energy usage is considered as part of the periodic environmental reviews of tenant and AAC operations.

Opportunities for energy efficiency are also considered in the design, siting and specification of new works by AAC and the assessment of new works by tenants.

Noise

Potential noise sources from on ground activities at Archerfield Airport are limited to maintenance and general commercial activities conducted on site, and ground running of aircraft.

Noise emissions are considered as part of the assessment of new tenancies and ongoing tenant environmental reviews.

To address noise from ground running of aircraft, dedicated engine run-up areas have been established away from the main centres of development.

NEW FACILITIES

AAC is committed to sustainable development.

The environmental performance of refurbished offices in the historic Terminal building is a prime example of this.

Improvements in energy efficiency, water use and indoor environment quality, whilst maintaining the heritage aspects of the building, were paramount to this project.

Since completion, AAC energy consumption has been reduced by almost half, saving around 5000 kg of greenhouse gas emissions per annum.

Water tanks have been incorporated into new developments such as the Corporate Hangars, the Lot 15 warehouse, and the Aviall building at Site 111.

AAC requires new tenants to identify all potential environmental issues or impacts, and assists them to clarify applicable legislative requirements and best practice management guidelines that will be applied.

AAC's EMPs include procedures to manage this process.

The AEO and Airport Building Controller (ABC) (if required) are involved in this process.

14 Scope and overview of the AES

14.1 SCOPE OF THE ENVIRONMENT STRATEGY

Under the *Airports Act 1996* and regulations, AAC is required to develop and implement an AES that:

- sets out AAC's objectives for the environmental management of the airport;
- identifies environmentally significant areas within the airport;
- identifies sources of environmental impact associated with airport operations;
- defines studies, reviews and monitoring to be carried out in relation to the environmental impact of the airport;
- sets timeframes for completion of audits and reviews;
- sets out specific measures to be implemented by AAC to address existing or potential impacts, and timeframes for completion of these; and
- provides details of consultation undertaken in preparing the AES.

14.2 OVERVIEW OF 2017 AES

The AES addresses the management of environmental issues arising from airport activities and operations.

It covers the ongoing environmental management at the airport arising from the use of the airport site.

The relationships between the various elements of the AAC environmental management system are illustrated in Figure 25, in section 15.4.

This strategy comprises:

- a statement of environmental responsibilities that apply to Archerfield Airport;
- a description of the Airport Environmental Management System, including the process by which AAC will implement the AES and related environmental management procedures;

- the AAC corporate environment policy;
- a summary of existing environmental issues, management responses to those issues and an action plan to address them;
- details of the ongoing consultative processes AAC will adopt in implementing and reviewing the AES.

This AES was approved on 15 July 2017 and builds on the previous strategies (1999, 2000, 2005, 2010 and 2012).

14.3 ENVIRONMENTAL MANAGEMENT ISSUES

The principal environmental management issues at Archerfield Airport are:

- management of new development works to minimise and ameliorate impacts on the environment;
- conservation of any significant flora and habitat values along Oxley Creek;
- protection of storm water and groundwater quality from contamination by pollutants from the airport;
- encouraging the efficient use of water and energy;
- ensuring that all chemicals on airport are appropriately handled, used, stored and disposed of;
- containment and management of spills;
- appropriate containment and handling of all asbestos in buildings and plant on airport (as identified in the asbestos audit and register);
- protection of any cultural and heritage values (pre and post contact); and
- ensuring that airport tenants are aware of their environmental obligations and comply with all relevant requirements.

14.4 OVERVIEW OF ACHIEVEMENTS 1998-2016

Over the period 1998-2016, AAC has achieved the following milestones. These have all contributed to improvements to the management of the airport environment.

Table 5. Summary of achievements 1998-2016 (AES)

Activity	Date
Environmental management system	
AAC adopted new airport *Environmental Management Procedures* (EMPs).	2003
AAC reviewed EMPs, and identified minor revisions	2010
Heritage	
AAC has supported the restoration works by Friends of God's Acre Inc, including with donation of funds and provision of maintenance services over the past 18 years.	1998 onwards

Activity	Date
AAC restored the Shell building	2001
The *Cultural heritage assessment and management plan* for the airport was completed.	2003
AAC purchased in 2000 and refurbished the 2nd floor of the neglected Airport Terminal building and relocated its administration offices to the upper floors of the building	2009
Brisbane Regional Commendation awards for both Heritage and Interior Architecture for refurbishment of the middle floor of the Airport Terminal building.	2015
Refurbishment of the ground floor public areas, and painting and waterproofing of the exterior of the Airport Terminal Building in preparation for Brisbane Open House	2015
Flora and fauna	
Fire Ant control has been undertaken by helicopter and motorcycle broadcasting.	2001 onwards
Creation of a conservation zone in the south-west part of the airport, adjacent to Oxley Creek, to provide a permanent buffer	2009
Air quality	
Existing data on airshed quality obtained from the DEHP (formerly DERM/EPA) monitoring station at Rocklea	2004
Inventory of existing airport tenants and users was compiled as a baseline for possible future air quality assessments	2004
Air quality testing at Site 400 Yak Investments	2015
Dust	
Wirraway Avenue was reconstructed and resurfaced.	2000
Beaufighter Avenue was sealed and extended into the Beaufighter Precinct.	2000
Alex Fraser monitored dust coming off Site 670-672 over a six month period.	2015
AAC commissioned URS consultants to conduct an assessment of dust coming off site from Site 670 occupied by Alex Fraser	2015
Surface water management	
The former open drainage line through the Beaufighter, Boundary Road, Runway, and Beatty precincts (which was subject to significant scouring) was piped, and silt traps and dissipation structures installed to moderate peak flows and manage water quality prior to discharge to Oxley Creek.	2001
A significant new stormwater detention basin was constructed in the Beaufighter precinct, treating stormwater prior to its discharge to the Oxley Creek.	2001
The stockpile areas for the Alex Fraser Group recycling facility on Beaufighter Avenue drain to a sedimentation basin for treatment prior to discharge to the main drainage system on airport. Water is recycled for dust suppression and irrigation purposes.	2001
A triple interceptor was installed to treat water from the aircraft washdown bay. The washdown bay was signed to encourage its use.	2002
The second wash down bay (at the eastern end of Taxiway Bravo) was decommissioned.	2002
Swale drains were constructed along the southern boundary of the Beaufighter Precinct.	2003
The open drain running north-west from the Runway precinct, under the 04/22 runways to Boundary Road was upgraded with the piping of the	2008

Activity	Date
section near the runways, and the creation of a detention basin in the Boundary precinct. This will modulate peak flows entering the drainage system through Rocklea, which ultimately discharges to Oxley Creek approximately 2 km downstream of the airport.	
Stormwater tanks were provided for the new corporate hangars on Wirraway Avenue, and a warehouse constructed by AAC on Beaufighter Avenue to retain rainwater for use on site, and assist with reducing peak discharge volumes to Oxley Creek.	2007-8
Small rock landscaping has been introduced to localised sections of open drains showing evidence of minor soil erosion.	1998 to present
Civil construction work, which included stormwater and associated services to improve drainage at the northwest end of Archerfield Airport was completed. The works included construction of three stormwater basins	2014
Underground stormwater drains around the southern and eastern areas of the airport were examined by CCTV camera and significant repair/upgrade work was carried out to improve drainage	2014/2015
Open earth drains have been periodically slashed and weeds removed.	Ongoing
Surface water quality monitoring in open drains and at drain outlets has been undertaken on an annual basis.	Ongoing
Groundwater	
The network of groundwater quality monitoring wells across the airport was serviced and upgraded.	2004
Well No. 9 was relocated, to fit with redevelopment in the Beaufighter precinct.	2004
A new sampling and analysis program was implemented.	2004
Simmonds & Bristow commissioned to review groundwater monitoring program	2012
Six new groundwater monitoring wells were installed between 2012 and 2015	2015
The annual groundwater monitoring program by AAC has continued throughout the planning period.	Ongoing
Issues identified from analysis have been assessed in consultation with the AEO and will continue to be addressed over the planning period.	Ongoing
Soil contamination	
The former Airport Rescue and Fire Training Area was closed and remediated	1994
The former battery recycling site was remediated by removal of the contaminated soil and reclamation with clean fill.	1997
The underground storage tanks at the Shell Building were decommissioned and the site remediated.	1998
The former Mobil fuel depot at Site 12 was decommissioned and the site remediated	1999
Soil tests were carried out at Site 110 (formerly occupied by Flying Colours)	2013
Soil tests were carried out at Sites 9 and 635	2014
Soil tests were carried out at Site 668	2015
Hazardous materials and waste management	
Asbestos Audits Queensland Pty Ltd prepared an *Asbestos Materials Report and Register for Archerfield Airport.* The report identified asbestos in AAC owned buildings, and was updated regularly as buildings come into AAC ownership until 2012	2003 to 2012

Activity	Date
A Management Plan and risk assessment was added to the asbestos register.	2006
Asbestos Audits Queensland Pty Ltd prepared an *Asbestos Management Plan and Register for Archerfield Airport, which* incorporated new buildings and recognised 2011 codes of practise. Update of the plan is ongoing	2009 2012
AAC created a *Chemical and Hazardous Materials Register* for its grounds maintenance and works operations	
AAC has included in its tenant inspections consideration of materials storage, handling, waste management, and disposal.	Ongoing
Brisbane City Council regularly tests sewage entering its treatment system from the airport. Any non conformances are reported to AAC and the tenant (if applicable) for action.	Ongoing
Natural resources and energy	
AAC installed rainwater tanks for the corporate hangar development on Wirraway Avenue and the warehouse and office on Beaufighter Avenue	2007-8
AAC installed a 3000L Rainwater Tank for the Aviall warehouse on Ditchmen Avenue	2012
Water meters have been upgraded to improve monitoring of consumption.	2008
Efficient water fittings have been installed in AAC buildings.	2007
AAC developed a *Water Efficiency Management Plan* (WEMP) in accordance with Queensland Water Commission requirements, in consultation with tenants and Brisbane Water. Subsequent legislation abolished The Queensland Water Commission and its Permanent Water Conservation Measures on 1 January 2013.	2008
The airport has secured a number of businesses that recycle materials and equipment for reuse in construction and manufacturing. These include Veolia Environmental Services, Alex Fraser Group and Q-Crete. These operations promote the reuse of resources, and reduce the energy required to produce materials.	1998-present
Use of natural resources and energy is considered in tenant assessments.	1998-present
Noise	
Noise emissions from tenancies on airport are managed in accordance with the EMPs and any site environmental management plan in place for their operation.	Ongoing
New facilities	
EMPs have been developed for new tenancies, renewal of existing tenancies, and for assessment of major works and are periodically updated	2003-present
Corporate hangars were constructed, incorporating rainwater harvesting.	2006
A warehouse and office development incorporating energy efficiency measures and rainwater harvesting was constructed by AAC at Lot 15.	2008
A new warehouse and office development incorporating energy efficiency measures and rainwater harvesting were constructed at Site 111.	2012

15 Environmental management framework

15.1 REGULATORY FRAMEWORK

15.1.1 Airports Act 1996

The *Airports Act, 1996* and the associated *Airports (Environment Protection) Regulations, 1997* provide the primary mechanism for Government to ensure the ongoing responsible environment management of Archerfield Airport.

This legislation requires AAC to produce and implement an Airport Environment Strategy (AES).

All operators of undertakings on the airport, including AAC, have an obligation to comply with the AES, the *Airports Act 1996* and Regulations.

AAC has the additional obligation to prepare the AES, monitor pollution levels at the airport in accordance with its AES and report the results of this monitoring on an annual basis.

The first AES for Archerfield was approved on 15 November 1999. In December 2000, an amended version was published, including the approved 2019 ANEF for Archerfield Airport. The AES for 2004-2009 was approved on 18 January 2005, the AES for the period 2010-2015 was approved on 26 March 2010, and an updated version for the period 2011-2016 was incorporated into the 2011-31 Master Plan. This version was approved on 15 July 2017.

Airport operators and airport regulators

The Act provides a system for separating the roles of the airport operator and airport regulator.

In the case of Archerfield Airport, the Commonwealth Department of Infrastructure and Regional Development (DIRD) and the Civil Aviation Safety Authority (CASA) provide the regulator role. Archerfield Airport Corporation being the Airport Leasing Company (ALC) undertakes the airport operator role.

AAC as airport operator is responsible primarily for activities that take place on the ground and within airport confines. Airservices Australia (AsA) has the principal responsibility for aircraft operations.

AAC recognises that operational issues at times need to be addressed jointly by AAC and Airservices Australia, and AAC is proactive in identifying relevant aspects and potential solutions as appropriate.

Airports (Environment Protection) Regulations 1997

The regulations:

- set limits for environmental pollution of air, water and soil, and for noise emissions;
- set out the duties everybody operating at the airport must comply with; and
- authorise the monitoring and remediation of breaches of environmental standards.

The Regulations do not apply to pollution generated by aircraft, or to noise generated by an aircraft in flight or when landing, taking off or taxiing at the airport.

All users of Archerfield Airport are required under the *Airports (Environment Protection) Regulations 1997* to:

- avoid polluting the environment
- preserve local biota and the ecosystems and habitats of native species
- preserve existing aesthetic, cultural, historical, social and scientific (including archaeological and anthropological) values of the local area;
- ensure there are no adverse consequences for endangered or vulnerable flora or fauna species or endangered ecological communities;
- ensure there are no adverse consequences for sites of indigenous significance on the airport site; and
- prevent the generation of offensive noise.

Environment Protection and Biodiversity Conservation (EPBC) Act 1999

The Commonwealth EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places.

The Act applies to the following areas or matters of national environmental significance:

- world heritage sites;
- national heritage places;
- wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;

- the Great Barrier Reef Marine Park;
- nuclear actions; and
- a water resource, in relation to coal seam gas development and large coal mining development.

The Act aims to:

- provide for the protection of the environment, especially matters of national environmental significance;
- conserve Australia's biodiversity;
- protect biodiversity internationally by controlling the international movement of wildlife;
- provide a streamlined environmental assessment and approvals process where matters of national environmental significance are involved;
- protect Australia's world and national heritage; and
- promote ecologically sustainable development.

The Act is triggered when a proposal has the potential to have a significant impact on a matter of national environmental significance.

The Commonwealth Department of the Environment administers the Act and coordinates the assessment of potential impacts. After consultation and assessment, the environment Minister (or delegate) is responsible for deciding whether a project needs approval under the Act, and if it does, whether it is allowed and under what conditions.

The Minister will not intervene in a proposal that has no significant impact on one of the eight matters of national environmental significance, even though there may be other undesirable environmental impacts, for example on air quality, noise, odour, general amenity or on animals that are not listed as threatened or endangered under the EPBC Act.

The regulation of these matters is the responsibility of the Queensland State government, and the environment protection requirements are administered by various agencies, including Brisbane City Council.

Airport Environment Strategy

Under the *Airports Act 1996* AAC is required to produce and implement an Airport Environment Strategy. The Strategy must:

- set out AAC's objectives for the environmental management of the airport;
- identify environmentally significant areas within the airport;
- identify sources of environmental impact associated with airport operations;
- define studies, reviews and monitoring to be carried out in relation to the environmental impact of the airport;

- set timeframes for completion of audits and reviews;
- set out specific measures to be implemented by AAC to address existing or potential impacts, and timeframes for completion of these; and
- provide details of consultation undertaken in preparing the AES.

The previous AES was approved on 24 May 2012, after completion of the consultative processes set out in the *Airports Act*.

State law

AAC is required to comply with relevant State legislation and regulations, to the extent that these do not conflict with the Airports Act or Regulations.

State laws concerning workplace health and safety, waste management (including trade waste), motor vehicle pollution, emissions of substances that deplete stratospheric ozone, or the use of a pesticide are examples that are relevant to activities at Archerfield.

Compliance requirements

All operators of undertakings on the airport, (AAC and tenants), have an obligation to comply with the *Airport Environment Strategy*, the *Airports Act* and Regulations. It is an offence to cause deliberate damage to the environment.

Legal register

AAC has identified in Appendix A legislation and regulations relevant to its operations.

The register of legal requirements will be kept up-to-date through liaison with the Airport Environment Officer (AEO) at least monthly during the regular Airport Environmental Management Forum (AEMF).

15.2 ARCHERFIELD AIRPORT CORPORATION ENVIRONMENT POLICY

Environmental management at Archerfield is guided by the AAC environment policy.

Policy scope and principles

In developing and managing Archerfield Airport, AAC will:

- identify and manage the environmental issues that are within AAC's responsibility;
- comply with relevant environmental legislation and regulations;
- establish environmental objectives and targets to minimise the environmental impact of the airport;
- measure, monitor and improve upon the environmental performance of the airport;

- promote to AAC's employees, tenants, customers and neighbours its commitment to sound environmental management.

These principles have been taken into account when preparing this AES.

AAC environment policy

Archerfield Airport Corporation Environment Policy

Archerfield Airport is operated and developed by Archerfield Airport Corporation (AAC). AAC is a private company which in 1998 acquired the long term lease to the airport.

AAC has overall responsibility for environmental management on the airport. Airport users, including tenants have responsibility for appropriate environmental management of their activities.

AAC recognises the importance of maintaining and where practical, enhancing the quality of the environment of Archerfield Airport and neighbouring areas.

AAC will:

- *operate the airport in an environmentally responsible manner*
- *minimise any adverse environmental impacts of its operations*
- *comply with all legally binding environmental management requirements*
- *encourage environmental responsibility amongst its employees and contractors*
- *encourage environmental responsibility amongst airport tenants and users*
- *strive to continually improve environmental performance of all aviation and non-aviation operations on the site.*

To achieve this AAC will:

- *establish and maintain procedures and practices to comply with all applicable environment laws and regulations*
- *ensure that this policy, management procedures and environment protection actions are communicated to all relevant personnel, including AAC staff, airport tenants, airport users and contractors*
- *conduct regular reviews of all site operations to identify areas which are or may have the potential to breach a regulatory requirement or which require improvement*
- *conduct regular monitoring and analysis of the airport environment to identify potential issues and ensure compliance with relevant regulations*
- *implement environmental management and operating procedures to ensure that the development of Archerfield Airport is carried out in an environmentally sound manner*
- *consult as appropriate with authorities and the community to ensure that the views of external parties regarding environmental issues are considered when making decisions*
- *ensure that AAC staff are appropriately trained and briefed on compliance and regulations*
- *ensure that tenants and users of the airport are adequately informed of their obligations, compliance and regulatory requirements.*

AAC managers are accountable to the Managing Director to ensure that this policy is implemented.

15.3 ENVIRONMENTAL MANAGEMENT SYSTEM

AAC's system for management of environmental issues on Archerfield Airport follows the principles and format of *ISO 14001:2016 Environmental Management Systems-Requirements with guidelines for use.*

The management system provides a structure for identifying environmental issues, developing environmental management plans to manage these issues, and a method to review and measure environmental performance.

It applies to all operations carried out at Archerfield Airport, encompassing both aviation and non-aviation related activities. As a minimum, it provides a system to ensure that operations for which AAC is responsible will comply with all applicable legal requirements, and where deemed necessary, exceed these requirements.

15.4 ENVIRONMENTAL ROLES AND RESPONSIBILITIES

The roles and responsibilities of AAC, tenants, the Airport Environment Officer (AEO), and the Airport Building Controller (ABC) are set out below. The relationships between the various stakeholders are illustrated in Figure 25.

AACs responsibility

AAC is responsible for:

- overall environmental management on the airport;
- preparation of the AES;
- overseeing implementation of the AES, including informing tenants of their obligations under the Strategy;
- conducting reviews of AAC's own operations, such as maintenance of runways, taxiways, aprons and grassed areas;
- development and management of new airport facilities, such as runways and airport infrastructure;
- preparing Environmental Management Procedures (EMPs) for AAC activities and developments;
- leasing sites to tenants (and setting environmental management requirements via lease conditions, where appropriate);
- adhering to appropriate dangerous goods handling and storage standards, and to workplace health and safety standards; and
- monitoring pollution levels (for aspects defined in the AES) and reporting the results of this monitoring on an annual basis.

Under common law as a landlord AAC may also conduct pollution and contamination tests, order remedial works, or stop activities in the event of environmental harm. Under the *Airports (Environment Protection)*

Regulations 1997, the Commonwealth can also assist AAC in having tenants comply with tests, implement remedial works, or stop harmful activities.

Responsibilities of tenants of AAC

Tenants on the site can be broadly divided into four categories:

- aircraft maintenance and service facilities;
- aircraft charter operations;
- airport passenger facilities and flight schools; and
- sites carrying out non-aviation related activities, such as industry, warehousing, service stations and shops.

Tenants are responsible for:

- environmental management of their leased site in accordance with the AES, lease conditions and relevant legislation, standards and guidelines;
- providing practical assistance to AAC in developing, reviewing and revising the AES;
- adhering to requirements of the AES;
- implementing improvements relevant to the leasehold;
- devising environmental management procedures specific to the lease site;
- implementing guidelines set by AAC;
- meeting the requirements of their lease agreements; and
- adhering to appropriate dangerous goods handling and storage standards, and to workplace health and safety standards.

Most leases entered into, or renewed since 1999 stipulate the tenants' environmental responsibility and the requirement to conform to the AAC Environment Policy and AES.

Airport Environment Officer (AEO)

The AEO is part of DIRD and fulfils the role of environmental regulator on the airport.

The AEO monitors operations on airport sites and where necessary, enforces the requirements of the Act and its subordinate legislation.

The AEO works cooperatively with AAC and tenants, supporting and ensuring compliance with environmental standards. The AEO can apply financial penalties to environmental offenders.

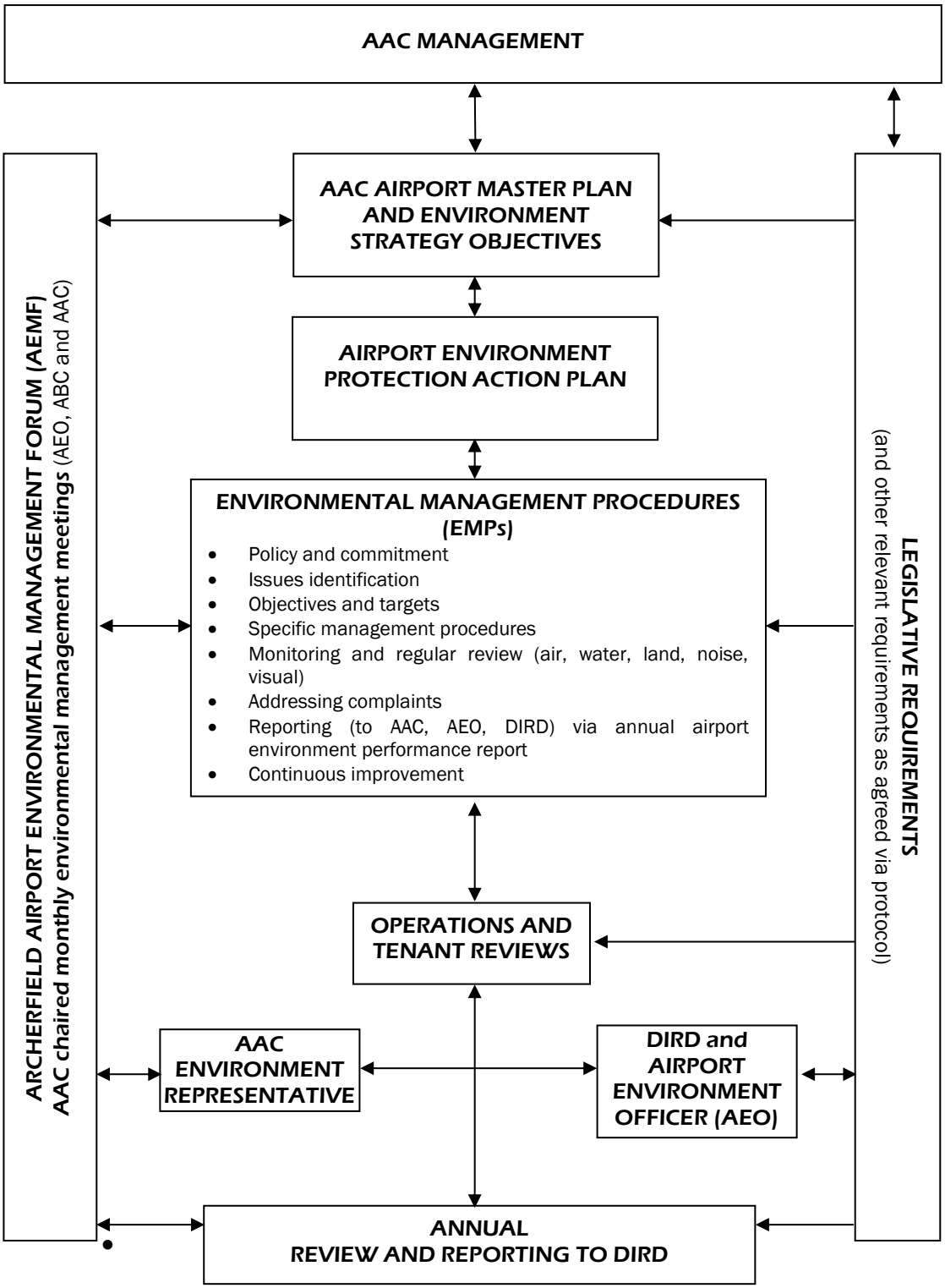


Figure 25. **Overview of environmental management process at Archerfield Airport**

AAC may also conduct pollution and contamination tests, order remedial works or stop activities in the event of environmental harm.

The AEO investigates incidents relating to pollution. The AEO can require any operator on the airport to carry out works; reduce or cease generation of pollution.

If an operator cannot meet the standards detailed in the Regulations due to local conditions, but the operator believes the operations will still comply with the general objectives of the Regulations, the operator can apply to the AEO for an authorisation, allowing the non-compliance to continue for a specified period. If the AEO is satisfied that the authorisation is warranted and the objectives of the Regulations can be achieved, then the authorisation may be granted.

If necessary, the AEO can issue an environmental protection order or infringement notice to any operator on Archerfield Airport who has committed an offence. If the offence is considered serious, the operator and individuals involved can be prosecuted.

Building approval requirements

DIRD has appointed an Airport Building Controller (ABC) who is responsible for ensuring that all activities at Archerfield Airport meet the appropriate building and engineering standards.

The ABC must be notified in writing of all proposed construction and building activities; including minor repairs, alterations, and signs. Some minor works are exempt from formal approval.

Building and construction must comply with the *Building Code of Australia* (BCA) as operational in Queensland. Where the BCA does not apply (for example in relation to civil engineering works) the relevant Australian Standard or international standard will apply. The ABC identifies the appropriate standards.

A Certificate of Compliance for Occupancy is required for all building or construction work that requires formal approval by the ABC. A Certificate of Compliance for Occupancy is issued before a building can be occupied, and a Certificate of Compliance for Use is required before engineering works, electrical works, or other utility services can be used.

The consent of AAC is required before the ABC can approve a development application. AAC is responsible for ensuring that all development proposals are consistent with the Archerfield Airport Master Plan and AAC's planning objectives. AAC will in each case assess the impact of the proposal on infrastructure and the operations of the airport, and may impose conditions on building activities.

AAC environment representative

In addition to facilitating the Airport Environmental Management Forum (AEMF), the appointed AAC environmental representative also has the following responsibilities:

- work with the Airport Environment Officer on issues associated with Archerfield Airport;
- prepare associated documentation;
- make recommendations to the Managing Director, AAC;
- ensure that AAC is compliant with relevant legislation and laws;
- work with the airport community to ensure that compliance is being achieved;
- conduct or coordinate environmental reviews in accordance with policy; and
- apply policy initiatives and identified strategies.

The following table sets out who at Archerfield is responsible for ensuring that the environment protection obligations are fulfilled and environmental management procedures are followed.

Items marked with an asterisk need to be addressed by each tenant in their environmental management plans and other initiatives. Their compliance will be assessed during the cyclical tenant reviews.

Table 6. Environmental responsibilities

Function	Responsibility
Policy and strategy-direction	
Defining environmental policies, and modifying existing policies	AAC Board
Determining objectives, priorities and targets in accordance with policy	AAC Board
Determining environmental management procedures in accordance with the policy direction, objectives, priorities and targets	AAC management
Construction and maintenance activities	
Securing building and environmental approvals	Proponent (typically AAC or tenant)
Assessing contractor's abilities to meet AAC's environmental requirements	For AAC works-Airport Planning & Compliance Manager * For works by tenants-each tenant, ABC, AEO and AAC
Ensuring compliance with environmentally sound work practices	For AAC works- Airport Planning & Compliance Manager * For works by tenants-each tenant, ABC, AEO and AAC
Operation phase	
Compliance with State regulated waste, hazardous good and other requirements	AAC for AAC operations. * Tenants and contractors are responsible for their own activities.

Function	Responsibility
Containment of chemicals, fuel and oils	AAC for AAC operations (staff and contractors). * Tenants and their contractors are responsible for their own activities.
Awareness and training	
Promoting awareness of environment protection and management requirements amongst AAC personnel and tenant representatives.	AAC management
Promoting environmental awareness and compliance within each tenant's operation	* Each tenant, with assistance from AAC and AEO
Induction of AAC personnel	AAC management
Training of AAC personnel	AAC management
Induction of tenant personnel	* Each tenant
Training of tenant personnel	* Each tenant
Ensuring that AAC is conversant and compliant with relevant legislation, including changes	Airport Planning & Compliance Manager
Ensuring that tenants are aware of changes in environmental management requirements	AAC and AEO
Ensuring compliance with legislation	AAC for AAC activities and works * AEO for tenants
Monitoring and review	
12 monthly reviews of AAC operations, surface water and groundwater	AAC
Cyclical tenant reviews, with the review schedule determined according to an assessment of risk to the environment (12 monthly for tenants with hazardous materials on site)	AAC and AEO
Annual Airport Environment Performance report to DIRD.	AAC
Revision of EMP documentation to reflect findings of reviews of AAC operations and tenancies	AAC management
Maintenance of records of overall condition of airport environment	AAC
Monitoring and reporting of emissions from tenancies	* Each tenant is responsible for monitoring and reporting on their emissions. Such reports to be made available to AEO/AAC on request.
Monthly AEMF meetings between the AAC, AEO and ABC.	Minutes of meeting maintained by AAC
Emergency response	
Spill containment airside, and from AAC operations	AAC
Spill containment within tenancies	* Each tenant
Spill containment on common airport land (where caused by a person other than a representative of the AAC).	The person causing the spill (enforced by AAC and the AEO)
Document control	
Ensuring that the key users of the EMPs have up to date copies of the EMPs	Airport Planning & Compliance Manager.
Acquiring and disseminating environmental management information	Airport Planning & Compliance Manager with assistance from AEO.
Maintaining EMPs up to date (from replacement pages provided by AAC)	Each person on the Document Distribution Register.

15.5 ENVIRONMENTAL ASPECTS AND POTENTIAL IMPACTS

The potential impacts of airport activities (to the extent these are required to be addressed by this strategy) on aspects of the environment is summarised in the table below.

The activities have been grouped into three phases:

- construction;
- operation (AAC and tenants); and
- emergency action.

Table 7 Summary of environmental aspects and potential impacts

Activity	Aspect	Impact or potential impact
Construction activity		
Transportation of machinery and materials	Increased traffic on nearby roads	Nuisance noise
	Dirt on roads	Nuisance dust
		Disruption to local traffic
		Possible importation of weeds and plant pathogens
		Possible importation of Fire Ants
		Contamination of stormwater
		Pollution of surface water
Operation of machinery/equipment on site	Increased noise levels	Nuisance noise
	Production of dust	Air pollution
		Nuisance dust (possible impacts on aviation and ground based activities, on and off airport)
Plant and vehicle wash down	Discharge of wash down water contaminated with oils, fuels etc	Contamination of soil, surface water and/or groundwater
		Possible spread of weeds and plant pathogens
		Possible importation of Fire Ants via contaminated plant or vehicles
Site clearance	Vegetation removal	(Low) potential loss of habitat and/or significant plant species along Oxley Creek
	Heritage values	Potential disturbance of heritage or archaeological sites
	Surface destabilisation	Sediment pollution of receiving waters (Oxley Creek)
		Nuisance dust (possible impacts on aviation and ground based activities, on or off airport)
Demolition of buildings, structures or plant containing asbestos	Human health	Potential for impacts on health if asbestos material is not appropriately contained and/or disposed of.
Excavation/levelling and construction of stormwater drains	Increased sediment discharge in runoff from surface disturbance	Sediment pollution of receiving waters
On site storage of fuel and oil	Major spillage or leakage of fuel	Soil, surface water and/or groundwater contamination

Activity	Aspect	Impact or potential impact
Refuelling plant and vehicles	Minor spillage or leakage of fuel	Soil, surface water and/or groundwater contamination
Concrete work on site	Increased suspended matter in stormwater runoff	Sediment pollution of receiving waters
Landscaping works	Flora and fauna	Importation or spreading of soil or plants contaminated by Fire Ants
Earthworks	Increased suspended matter in stormwater runoff	Sediment pollution of receiving waters
	Release of acid sulphate soils-potentially found at or below the 5m (AHD) contour	Degradation of Oxley Creek environment
Airport operation (AAC and tenants)		
Storage and use of chemicals, fuel, oils (including hazardous and dangerous chemicals)	Escape of chemicals to the environment from spillage or leakage	Health impact on site personnel and neighbours Potential pollution of soil, air, surface, and/or groundwaters.
Aircraft wash down	Discharge of wash down water contaminated with oils, fuels etc	Contamination of soil, surface water and/or groundwater
General rubbish from airport activities	Production of general waste and litter	Potential stormwater contamination Potential visual pollution
	Tracking of waste from generation to disposal	Potential nuisance or hazard to aviation activities
Hard rubbish generated by airport activities	Disposal of waste off site	Use of landfill space
Generation and handling of regulated waste	Containment of waste Tracking of waste from generation to disposal	Potential occupational health and safety issue
Ground running of aircraft	Aircraft noise	Nuisance noise in nearby areas
Industrial plant and equipment used on site.	Machinery noise	Health risk to site workers Nuisance noise in surrounding areas
Maintenance work, office operations and staff facilities	Production of general waste and litter	Use of landfill space
Activities with emissions to air.	Discharge of pollution to the atmosphere	Potential effects on air quality
Handling of dangerous goods	Accidental discharge via spill	Pollution of soil, air, surface water and/or groundwater
Handling of hazardous goods	Accidental discharge via spill	Pollution of soil, air, surface water and/or groundwater
Emergency actions		
Incidents or accidents causing material spills	Escape of materials to the environment from spillage or leakage	Pollution of soil, air, surface water or groundwater
Identification of Fire Ant in plants or soil on airport	Introduction of Fire Ant via imported plants or soil	Containment and destruction in accordance with government requirements

As part of the ongoing management of the airport environment, site and activity specific assessments are required. The methodology for doing this is provided in the EMPs.

15.6 ENVIRONMENTAL OBJECTIVES AND TARGETS

Objectives and targets for each aspect of the airport environment are set out in the sections that follow.

Actions and the timing of their implementation are summarised in the Airport Environment Protection Action Plan in Appendix D.

15.7 TENANT REVIEWS

AAC will identify environmental issues on the airport by conducting regular reviews of its own operations and works and those of its tenants on a cyclical basis.

In the case of tenants with hazardous goods, the reviews will be undertaken on an annual basis. The timing of reviews for other tenancies will be determined from an assessment by AAC of the likely risk to the environment of the tenant activities.

The reviews will identify:

- level of compliance with environmental regulations, guidelines or standards;
- any unacceptable work practices;
- any opportunities for minimising the use of natural resources or generation of waste; and
- any general environmental training that may be required by the organisation being reviewed.

Each environmental review will identify any operations or works that are, or could cause a breach of the regulations and also identify possible environmental improvements.

Issues identified by previous environmental reviews will also be checked to ensure that they have been appropriately addressed.

Environmental review results will be compiled into a summary report and where required, management plans will be devised. For each case where an environmental issue is identified, the following key steps will be taken:

- following clear definition of the issue(s), a priority will be assigned, based on AAC's assessment of the environmental risk posed by the aspect;
- an objective and target(s) will be developed detailing what needs to be achieved;
- a management plan will be developed showing how objectives and targets will be achieved, who is responsible for ensuring the necessary actions are taken, and the timing of that action; and
- the achievement of the management plan actions will be monitored, and AAC personnel advised of this.

Where the issues relate to tenant activities, AAC (with the AEO as appropriate) will liaise with the tenant to ensure that they take all necessary action to bring their operations and/or works into conformity with legislation, standards, and guidelines.

15.8 ENVIRONMENTAL MANAGEMENT PROCEDURES

Environmental Management Procedures (EMPs) have been prepared by AAC to manage the environmental effects of operations and works on the airport.

The EMPs identify a range of activities likely to take place at Archerfield Airport, the aspects of the environment that might be affected by these activities, and the potential impacts of these activities. Objectives and targets are also described.

Procedures

The EMPs currently include the following procedures:

- Procedure AA1-Environmental assessment of new tenancy or lease renewal;
- Procedure AA2-Communication and consultation;
- Procedure AA3-*Emergency preparedness and response*;
- Procedure AA4-*Minor spill response*;
- Procedure AA5-*Environmental awareness and training*;
- Procedure AA6-*Tenant environmental reviews*;
- Procedure AA7-*End of lease tenant environmental review*; and
- Procedure AA8-Assessment of environmental effects of new works.

Forms

The EMPs include the following standard forms:

- ENV-01 Tenant Information Form;
- ENV-02 Environmental awareness and training record;
- ENV-03-Environmental complaint;
- ENV-04-Environmental accident/incident report;
- ENV-05-Review of environmental non conformance; and
- ENV-06-Environmental management checklist for new works.

Review

The procedures and forms in the EMPs are subject to ongoing review and may change over the life of this Strategy.

Information for tenants

On request, relevant parts of these operating procedures will be provided to airport tenants carrying out similar activities to assist them with environmental compliance.

The AAC EMPs provide a starting point for specific EMPs to be developed by tenants for their construction or operational activities. AAC will encourage tenants to work with AAC and the AEO to formulate EMPs to meet their environmental management obligations.

15.9 ENVIRONMENTAL TRAINING

AAC

Existing AAC personnel

AAC has in place an internal communication system that provides frequent forums for disseminating relevant information about environmental management issues and responsibilities. This comprises:

- weekly management meetings attended by the Airport General Manager, Airport Operations and Technical Officer, Airport Planning & Risk Compliance Manager and Airport Foreman; and
- monthly staff meetings (involving AAC administration, operations and management personnel).

The training of AAC personnel focuses on improving awareness of responsibilities and liabilities under the AES; relevant State, and Federal environmental legislation; regulations and guidelines.

Training also assists personnel to familiarise themselves with the company policy, the management system and the environmental risks on the site.

New AAC personnel

All new AAC personnel are provided with an overview of the environmental issues relating to the airport; AAC's environmental policy, strategies, and procedures; and their role and responsibility in addressing those issues as part of their induction. Refresher awareness training is provided for all staff on an annual basis.

Contractors

The Airport EMPs set out procedures for ensuring that all potential effects of new operations or works are considered by AAC prior to commencement. Where required, Environmental Management Plans will be prepared and form part of the specification for the works (or management of the operation).

Any contractors carrying out environmentally sensitive activities on behalf of AAC will be required to demonstrate that they have completed appropriate

skills, experience and management systems to successfully address relevant environment protection requirements.

Contractors will need to have in place appropriate environmental management procedures and personnel will be required to undergo relevant training.

The specific requirements will be highlighted in the project specification. All contractors must complete the Contractors Induction which includes the environmental management requirements.

Tenants

Tenants and their employees also need to have an understanding of the 2017 AES.

AAC will provide all tenants with access to the AES and will require that all tenants:

- provide their staff and contractors with awareness training of the AES, and
- provide further training on specific aspects, these being principally determined through the environmental reviews AAC undertakes at each tenancy.

15.10 EMERGENCY PREPAREDNESS

Archerfield Airport has developed *Airport Emergency Procedures* through a committee that includes the Police, Fire Brigade and Ambulance Services.

Emergency procedures are currently in place to deal with incidents which could impact on the environment, such as spills. AAC ensures that its personnel are familiar with these procedures and the location of emergency equipment.

Procedure AA3-*Emergency preparedness and response* in the EMPs details the methodology to be followed.

The need for tenants to maintain emergency equipment on their sites, develop emergency procedures, and ensure that staff are aware of the proper procedures will be identified during site environmental reviews.

15.11 INCIDENTS

Any incident on the airport that is within the responsibility of AAC will be managed in accordance with Procedure AA3-*Emergency preparedness and response*.

If an environmental incident occurs the details will be recorded on Form ENV-04 *Environmental accident/incident report* in the Airport Environmental Management Procedures.

The AEO will be contacted immediately. The incident will be investigated by AAC and a formal internal reporting, investigating and corrective action procedure initiated in accordance with the EMPs.

The AEO will be kept informed of all findings. If the incident has the potential to cause off site effects, the State Department of Environment and Heritage Protection (DEHP, formerly DERM) and Brisbane City Council will also be advised.

The AEO will also be advised if routine monitoring indicates that an excessive discharge or level of pollutant is present.

Incident reporting

Any major environmental incidents which occur on the site, such as chemical spills, will be investigated by AAC and reported to the AEO.

Depending on the nature of the incident, the State Department of Environment and Heritage Protection may be informed of the incident, and may also be involved in consequential management measures.

This information will also be reported to DIRD in the annual report.

15.12 MANAGEMENT OF NEW FACILITIES

15.12.1 Application requirements

AAC will require new tenants or proponents of new aviation or non-aviation facilities or activities to apply for approvals as provided for in the *Airports Act, 1996*.

In addition to the requirements of the Airport Building Controller, the application for approval will need to detail, as appropriate:

- the activities and operations proposed, in accordance with the Archerfield Airport EMPs;
- any chemicals to be used or stored on the site including type and maximum quantities;
- evidence that the proposal meets any applicable legislative requirements and guidelines for the construction and operation of the activity or site; and
- evidence that the proposal will meet any applicable workplace health and safety, storage and placarding requirements.

Procedures for this and relevant forms are set out in the Airport EMPs.

These include:

- ENV-01 Tenant Information form; and
- ENV-06 Environmental management checklist for new works.

The information provided with applications will assist AAC and the tenant/proponent to identify all potential environmental issues or impacts, and to also clarify applicable legislative requirements and best practice management guidelines that will be applied. If required, the AEO will be provided with this information.

15.12.2 Assessment

From an environmental perspective, the assessment of new works will consider the implications of the proposal for:

- airside operations;
- existing land uses on and adjacent to the airport, including through the emission of noise, dust or odour;
- existing infrastructure and utility services, and any connections proposed during and following construction;
- efficient use of water and electricity;
- access to, from and within the airport;
- significant native flora and fauna;
- heritage values (pre and post contact);
- potential risk of soil or air pollution;
- noise impacts;
- groundwater, including potential changes to groundwater levels on or off airport, and/or water quality;
- surface water, including potential changes to peak volumes entering existing drainage lines, diversion of existing stormwater flows and/or impacts on water quality;
- containment of asbestos, where works relate to buildings or plant listed in the airport asbestos register;
- the potential for the works to result in the introduction or spreading of Fire Ants; and
- the appearance of the site and the airport.

If on reviewing the proposal potential environmental impacts are identified, AAC will work with the proponent to identify how impacts can be mitigated. The preparation of a Site Environmental Management Plan for the construction and/or operational phases may also be required.

15.12.3 Consultation

All new proposals for the site will be reviewed by AAC against the AES, the Airport Master Plan, and other relevant policies, guidelines or standards.

Where the *Airports Act 1996* requires consultation with the wider community, AAC will facilitate this.

The AEO will be involved in assessing and advising on the environmental aspects of any major new developments on the airport site, including any Environmental Management Plan for the construction or operational phases.

If in the opinion of AAC, the development could result in a significant off-site impact, AAC will identify and consult with relevant stakeholders including Brisbane City Council, and possibly State agencies and/or the community and their comments taken into consideration.

Information concerning new proposals will be provided to the AEO, in accordance with the Airport EMPs.

All comments received will be reviewed and considered by AAC before deciding on whether the proposal should proceed, and if relevant, under what conditions.

Any significant changes to airport operations will be reviewed in accordance with prevailing DIRD's environmental requirements for new airport development.

Where the *Airports Act 1996* requires consultation with the community (such as in the case of a Major Development Plan), AAC will initiate an appropriate consultative process. Comments received by external parties will be taken into account by AAC when deciding whether the proposal should proceed.

15.12.4 Leasing conditions

For all new leases, conditions will be included that ensure that facilities are constructed and operated in accordance with the AES and relevant environmental requirements.

Following construction of the facility, AAC will inspect the premises and verify compliance with any environmental requirements stipulated in the development approval.

Prior to lease expiry, termination, transfer or change of use the AEO will, where there is reason to suspect soil contamination, ensure the sublessee, licensee or occupier, investigates the site pursuant to the requirements of the *Airport (Environment Protection) Regulations* in particular Part 6.07.

AAC undertakes prelease or entry condition reports and exit condition reports on tenancies serving as benchmark reports to ascertain asset, site and environment conditions before and at the expiry or transfer of a lease.

15.13 NEW OPERATIONS AND WORKS

New operations will also be reviewed prior to and following their establishment, to ensure operations are conducted in a proper fashion and do

not result in a breach of any legal requirements and comply with the requirements of this Strategy.

The EMPs include:

- Procedure AA8-Assessment of environmental effects of new works, and
- Form ENV-06 Environmental management checklist for new works.

These set out AAC's requirements for management of new operations or works by AAC.

15.14 NON-CONFORMANCES

AAC's role

In administering the Archerfield Airport environmental management system for AAC operations or works, AAC is responsible for detecting non-conformances, developing appropriate corrective and preventative actions, and ensuring that such incidents do not recur.

The following types of non-conformances can occur on the site:

- breach of an applicable Act or Regulation;
- failure to follow a formal procedure;
- non-achievement of a formal target; or
- an environmental incident.

Actions by AAC

In the instance of a non-conformance relating to AAC operations or works, the AAC is responsible for carrying out the following actions:

- recording details of the non-conformance using the form ENV-05 *Review of environmental non-conformance*;
- investigating and identifying the reason for the non-conformance;
- developing an appropriate corrective and preventative action to avoid future non-conformance;
- ensuring the corrective and preventative actions are implemented in accordance with agreed EMPs or other relevant guidelines; and
- initiating incident reporting procedures.

Following an incident, the findings of the investigation and development of the corrective and preventative actions will be provided to the person/s involved in the non-conformance and the person/s carrying out the necessary preventative and corrective actions.

Typically, the results of a non-conformance investigation may result in one or more of the following actions:

- amendment of the Airport Environment Protection Action Plan;

- amendment of the relevant Environmental Management Plan;
- amendment of an existing environmental management procedure;
- development of a new procedure;
- additional training and instruction;
- new capital works; and/or
- involvement of the AEO or other relevant government authorities.

15.15 COMMUNICATION

Successful management of the airport environment requires appropriate and workable communication on environmental issues, management measures, and achievement of environmental objectives and commitments.

This communication includes:

- communication within the AAC organisation;
- communication with airport tenants;
- communication with local, state and Federal government via the Planning Coordination Forum (PCF) meetings which occur three times a year;
- communication with other interested parties external to the airport, such as the community and regulators; and
- ongoing liaison with other airports.

Communication procedures are set out in Procedure AA2-*Communication and consultation* in the airport EMPs.

Information and training for AAC personnel

AAC will ensure that its personnel are informed about existing and emerging environmental issues by:

- conducting environmental awareness training in accordance with its Environmental Management Procedures;
- making available to AAC operational personnel the results of annual environment reports, relevant environmental reviews and any management plans; and
- involving relevant personnel in the review of existing environmental management plans and procedures, and the formulation of new procedures.

Communication with tenants and operators

Airport tenants and operators will be kept informed about new and emerging environmental issues and requirements via a variety of methods, including:

- newsletters;
- discussions during the cyclical tenancy reviews;

- discussions at the time of applications being made for new works, or lease renewal;
- information provided on the Airport web site; and
- email.

Airport Environment Management Forum

AAC meets with the AEO and the ABC on a quarterly basis, or at other times as required for individual projects.

The management forum:

- disseminates information to relevant stakeholders concerning environmental aspects of new proposals, proposed environment management plans, etc.;
- discusses current environmental issues and management practices, and their application to Archerfield Airport;
- considers and makes recommendations to AAC on future amendments to the Airport Environment Strategy and Airport Master Plan;
- assesses and makes recommendations on the EMPs;
- recommends training and awareness programs; and
- makes recommendations to AAC on preventative initiatives that could be implemented.

AAC currently provides a monthly report for the ABC and AEO on AAC environmental and building related activities.

Communication with government departments and regulatory agencies

AAC communicates regularly with DIRD, the AEO, Brisbane City Council, and State and Federal government. This includes liaison with stakeholders on issues arising from, or potentially impacting on the operations at the airport.

Procedures for this communication and consultation are set out in Procedure AA2-*Communication and consultation* in the airport EMPs.

15.16 COMPLAINTS

Complaints from the community or other parties (except the regulatory bodies) are recorded in the AAC *Environmental and Complaints Register*.

Any environmental complaints received concerning an operation on the site will be recorded on Form ENV-03 *Environmental complaint* and dealt with promptly. The complaint will be investigated and appropriate action taken to resolve any issues identified.

The AEO will be advised of complaints as appropriate.

A summary of environmental complaints received and actions taken will be reported to DIRD on an annual basis.

16 Environmental conditions and actions

16.1 OVERVIEW

Consistent with the *Airports Act* and AAC's *Environmental Management Procedures*, the airport environment is described in the following categories:

- heritage;
- flora and fauna;
- noise;
- emissions to air and ozone depleting substances;
- surface water;
- groundwater;
- soil contamination;
- hazardous materials and waste management; and
- use of natural resources and energy.

The following sections provide, for each aspect of the airport environment:

- objective(s) for environmental management;
- an overview of existing conditions;
- identification of potential impacts of on-airport activities or developments;
- proposed measures to manage those impacts;
- a summary of achievements for the term 1998-2016; and
- a summary of targets for actions for the period 2017-2022.

Actions for the planning period for the 2017 AES are summarised in the *Airport Environment Protection Action Plan*, in Appendix D.

16.2 HERITAGE

16.2.1 Objective

To identify and appropriately manage cultural heritage values on the airport

16.2.2 Existing conditions

In 2001 AAC completed the *Cultural Heritage Assessment and Management Plan: Archerfield Airport, Brisbane* (Bonhomme Craib and Associates). The brief was prepared in consultation with the Queensland Department of Environment and Resource Management (now DEHP).

The assessment and management plan address both Aboriginal heritage and European settlement.

Archaeology

Archerfield's original inhabitants were the Yerongpan clan who spoke a dialect of the Turrbal language. The first Europeans arrived in the Acacia Ridge area in the 1820s but the area remained mostly rural well into the 20th Century.

The airport site has been highly disturbed since European occupation of the area as a result of land clearance, stock grazing, and establishment of the airport in the 1930s.

The 2001 heritage assessment included a search of relevant literature, registers, and other data; identification and consultation with Aboriginal traditional owners, Native Title claimants and other indigenous interest groups; archaeological field surveys and preparation of recommendations and a Cultural Heritage Management Plan for the airport.

The study did not locate any sites or features of cultural heritage significance. It noted however that retention of the Oxley Creek margins as a buffer area (as shown in the Airport Master Plan) will protect any features that may exist in this part of the site.

European heritage

The airport developed in four historical phases, being *Pastoral* (pre 1927); *Development of air transport* (1927 to 1939); *World War II* (1940 to 1945); and *Post war*.

The airport site was originally purchased in 1855 by Thomas Grenier, publican of the Brisbane Hotel in Russell Street, South Brisbane. The land was lightly timbered alluvial soil, and some of the best grazing land in the district. The land was subdivided into three family farms in 1862. Grenier died in 1877 and was buried in God's Acre cemetery. The farms were sold to the Beatty family in the late 1890s and early 1900s.

In 1927 Qantas Airways test landed a DH-61 on Franklin's Farm which was located at the western side of the airport. Brisbane City Council decided that the site was suitable to be an airfield, and the Government initially acquired about 121 hectares (300 acres) of land in 1929. Two gravel air strips 1500 metres long were built and the airfield started operations. More land was purchased in 1930, 1936, 1942 and finally the cemetery (God's Acre) in 1946.

In the 1930s Qantas moved their operations from Eagle Farm to Archerfield after the first hangars were erected at Archerfield. Australian National Airways (ANA) and Trans Australia Airlines (TAA) both used Archerfield during the 1930s. The Queensland Aero Club, established in 1919, moved from Eagle Farm to Archerfield in 1931.

The Airport Terminal and Administration building was built in 1941 when Archerfield was the main airport in Brisbane. In the Second World War Archerfield became a base for the RAAF, and the United States Fifth Air Force and the Royal Dutch Air Force.

American B-17 Flying Fortresses, Kittyhawks, Dakotas and Dutch Mitchell bombers were at Archerfield. Large hangars were built on both sides of Beatty Road. There are examples of those remaining today along Kerry Road (on the eastern side of Beatty Road, off airport).

The Mustang and Vampire aircraft of the RAAF 23 Squadron were based at Archerfield until September 1955.

Once Eagle Farm became established as the main civilian passenger centre and the RAAF moved to Amberley, Archerfield became a thriving light aircraft centre.

The Bonhomme Craib report identifies a number of buildings and items on airport that are of historical interest and assist with interpretation of the past use and development of Archerfield.

Archerfield Airport was Brisbane's major airport from 1930 to 1947, and has been Brisbane's main general aviation airport since 1947. It played a significant role in the development of Australia's fledgling domestic and international airmail networks, and in controlling air traffic and operations during World War Two.

Items of interest include:

- Hangars 1-6;
- Fire Station (building 13);
- Shell kiosk (building 16);
- Toilets (buildings 17, 18 and 19);
- Dope building (building 21);
- Building 25;

- Airport Administration Building/Terminal (building 28);
- Building 107; and
- God's Acre cemetery.

Of these features, God's Acre Cemetery and the Airport Administration/Terminal building have been assessed as having sufficient value to be included in a heritage register.

God's Acre Cemetery

God's Acre Cemetery is located on the corner of Beatty Road and Grenier Drive, at the main entry to the airport. This historic site is one of Queensland's oldest cemeteries. It is shown in Figure 4 *Existing airport layout*.

The site was established by the early settler and South Brisbane Publican, Thomas Grenier on the family property after the death of their 16 year-old son. It was dedicated as a cemetery in 1859, just before Queensland became a separate state. 2009 marks 150 years since the cemetery was established.

About 200 people including descendants of the Grenier family and other members of the local community are buried in the cemetery, with the last funeral held there in 1980.

The land was acquired by the Government in 1946. It represents an historic link to the pioneers of the district, and a valuable resource for interpreting the evolving history of the local community.

The cemetery was previously on the Queensland Heritage Register but was removed in 2004 as the Queensland legislation is not applicable to Commonwealth sites.

The cemetery was assessed by the Australian Heritage Council for inclusion in the Commonwealth Heritage List.

The assessment found that the site satisfied two criterion for listing. The following is an extract from the assessment, as published on the Australian Heritage Database (www.environment.gov.au).

> ***Criterion: A Processes***
>
> *God's Acre Historic Cemetery was among the earliest cemeteries established in Brisbane, and is now one of the oldest surviving. Of nearly 400 cemeteries in Queensland, most are in rural areas, and God's Acre Historic Cemetery is unusual as a former rural cemetery in metropolitan Brisbane.*
>
> *The place is uncommon in that it was a privately-established burial ground in the Brisbane area. It illustrates some of the principal characteristics of a small burial ground, including a lack of denominational divisions.*
>
> *It is associated with many of the earliest pioneering families in the Cooper's Plains /Oxley district and their descendants, and provides important evidence of an early Queensland farming community.*

Criterion: G Social value

There is broad community support for the God's Acre Historic Cemetery, both from descendants of those interred in the cemetery, and from people with no direct ancestral link to it. An annual 'Day of Remembrance' draws significant numbers to the cemetery.

The place has broad community support, as is evidenced by the involvement of the Archerfield Airport Corporation, the Brisbane City Council and the Commonwealth, and is a valuable resource for interpreting the evolving history of the local community. A historical education pack about the cemetery is used in local schools.

The Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) decided that the cemetery has Commonwealth heritage values with respect to Criterion A and G, above. The Minister decided not to include the cemetery on the Commonwealth Heritage List as the heritage management regime implemented by the *Airports Act* and regulations, and under the EPBC Act provided the appropriate mechanism for conservation of the cemetery.

Airport Administration Building/Terminal

This building dates back to the 1940s and is still used today as the airport terminal. AAC owns the building.

Plans for the building were first drawn up in 1936, but construction did not commence until 1941. The terminal housed the airline companies, the Civil Aviation Department, the Flight Checking Department, the weather bureau and Airport control officials.

Facilities included a restaurant, restrooms, lounges, and a roof garden and reception hall. A control tower originally constructed on top of the building has since been dismantled.

The building is included in the Commonwealth Register of the National Estate. The Register was closed in 2007 as part of the rationalisation of heritage lists as agreed between the States, Territories and Commonwealth in 1997.

The Register is an archive of information about more than 13,000 places throughout Australia. It has no statutory effect, but provides useful information which can be taken into account in any future decisions about the conservation of the heritage values of the Airport Administration Building.

The building was also previously on the Queensland Heritage Register, but was removed from this in 2004 as Queensland heritage legislation is not applicable to Commonwealth land.

The building was assessed by the Australian Heritage Council for inclusion in the Commonwealth Heritage List.

Consistent with the decision on God's Acre, the Minister responsible for the EPBC Act decided that the building has Commonwealth heritage values and that the heritage management regime implemented by the *Airports Act* and

regulations, and under the EPBC Act provided the appropriate mechanism for conservation of the building.

16.2.3 Potential impacts

The potential impacts on heritage values would stem from:

- demolition or inappropriate alterations to buildings or structures;
- lack of maintenance.

16.2.4 Management

AAC will continue to support the work of The Friends of God's Acre Inc. which is engaged in conservation of the cemetery.

It will consider the findings and recommendations of the *Cultural Heritage Assessment and Management Plan: Archerfield Airport, Brisbane* (or any revised Cultural Heritage Assessment & Management Plan) in any decisions relating to development of sites or features of heritage value.

AAC is sensitive to the need to retain historically significant landmarks where adaptive uses can be found or their removal would otherwise contribute to the significant loss of past history.

AAC also recognises that a number of older buildings on the airport are no longer suited to modern aircraft and are inefficient in terms of their layouts for modern aviation related purposes.

In order to ensure Archerfield continues to attract aviation tenants of a high calibre and the airfield continues to regenerate, development options will be canvassed when approached by prospective aviation tenants.

Each development will be assessed on an individual basis, taking into account the tenant's requirements, the historic significance of the building, its potential for adaptive reuse, refurbishment, removal or relocation. Buildings containing asbestos will be handled in accordance with the AES.

The appropriate agencies will be consulted prior to either approving works by tenants of buildings of recognised historic significance, or undertaking works that may impact on these sites or features.

AAC will use the *Cultural Heritage Management Plan* as a framework to guide such decisions.

16.2.5 Achievements 1998-2016

Completion of the *Cultural Heritage Assessment and Management Plan: Archerfield Airport, Brisbane* by Bonhomme Craib and Associates for AAC in 2001.

AAC has over the past 18 years spent more than $3.8M on heritage conservation initiatives at Archerfield. This includes purchase of the historic Terminal Building, restoration of the former Shell Building, refurbishment of the ground, first and second levels of the Terminal Building in 2009 and 2015, and repainting the exterior walls and waterproofing the external surfaces of the Terminal Building.

The upper floors of the Terminal building are now used for the airport administration offices.

AAC has supported the conservation work being undertaken by the Friends of God's Acre Inc., through donations and contribution of labour and provision of specialised equipment for maintenance works.

AAC has encouraged enjoyment and pride in the airport by opening the Terminal building and surrounds to the public on Brisbane Open House days where they can view memorabilia from the past.

16.2.6 Implementation targets for the 2017 AES

Continue to support the conservation work by the Friends of God's Acre Inc. and seek the cooperation of all levels of government and the broader community in improving the site and promoting it to the local community and visitors.

Consult with the relevant agencies prior to either approving works by tenants of buildings of recognised historic significance, or undertaking works that may impact on these sites or features.

Review and update the Cultural Heritage Management Plan to reflect legislative changes and provide to DIRD for its information.

16.3 FLORA AND FAUNA

16.3.1 Objectives

To identify and conserve significant indigenous flora and fauna.

16.3.2 Existing conditions

History

The land that the airport occupies was cleared by early settlers and used for farming.

In 1931, with the exception of the Oxley Creek environs the area was an open grassed paddock and since then, the airport has been managed mainly as a grassed area, with extensive mowing and removal of large trees where these infringe on obstacle clearance standards.

Trees and shrubs grow along the banks and flood area of Oxley Creek, and there is planted vegetation around the built up areas of the airport.

Oxley Creek context

Oxley Creek Catchment has an area of approximately 260 square kilometres. The creek is about 50 kilometres long and flows from the Flinders Peak Region to the Brisbane River.

The airport is in the lower to middle reaches of the creek catchment, approximately 500m upstream of the confluence of the Oxley and Blunder Creeks. This part of the Oxley Creek catchment is urbanised, and the land along the creek is used for housing, industry, open space, and sand extraction.

The Creek is part of a regional open space and habitat corridor that runs through the southern part of Brisbane to the Brisbane River.

In the general locality (and upstream of) the airport there are some remnant paperbark (*Melaleuca nodosa*) wetlands which before European settlement would have covered most low-lying areas of the catchment and provided habitat for waterbirds, frogs, and fish.

Riverine or vine forest was the dominant vegetation on creek banks, and 'dry' rainforest grew on the well-drained floodplains. In poorer soil, a mixture of Eucalypt and wetland species grew.

In recent years Brisbane City Council has secured the land on the south side of Oxley Creek immediately to the south of the airport (extending upstream of the confluence of Oxley and Blunder Creeks) and has designated this as an 'environmental protection area' in the Brisbane City Plan. This action was taken following an unsuccessful proposal to undertake sand extraction in that area.

The south western corner of the airport has a frontage of approximately 550 metres to Oxley Creek.

Along the creek banks there is riparian vegetation that makes a contribution to the landscape and ecological values of the creek. The balance of the area is largely clear of vegetation. It is managed by grazing and occasionally slashing, consistent with current practices on many other properties along this part of the creek.

The area accommodates also important stormwater management works, including a major stormwater detention basin, and drainage outfalls.

With this in mind, the land has been designated as a 'creek buffer' in Figure 2 *Master Plan vision*, and zoned *Conservation* in Figure 18 *Airport land use zoning.*

Flora and fauna significance

In May 1997 the (then) Queensland Environmental Protection Agency (Stewart 1997) was commissioned by the Airport to advise on flora and fauna values.

The study included site surveys and literature reviews. It concentrated on the Oxley Creek as, due to past and current use, and the relationship of the creek to the broader regional environment, this area was assessed to have the highest probability of containing flora and/or fauna of regional or higher significance.

The study found that:

- the vegetation of the Creek and surrounding area is considerably disturbed with numerous plant and weed species and substantial clearing of native vegetation;
- a total of 45 vertebrate species are known to occur along Oxley Creek. None are vulnerable (Schedule 3) or rare (Schedule 4) species under the *Queensland Nature Conservation (Wildlife) Regulations* 1994;
- two species of migratory birds or birds in danger of extinction, Little Curlew (*Numenius minutus*) and Sharp-tailed Sandpiper (*Calidris acuminata*) are species closely related to the short grass and wetlands of the area;
- a further species of international significance, the Rainbow Bee-eater (*Merops ornatus*) may breed in the sandy banks of the Creek;
- no mammals, frogs or reptiles were recorded along Oxley Creek during the survey; and
- no threatened or endangered species of fauna were identified.

It concluded that the creek provides essential habitat for some native fauna, but is unlikely to support populations of regional significance. Three species of local significance and three of international significance are recorded along or in close proximity to the creek.

The (then) Queensland Department of Natural Resources and Water advised in June 1999 that:

- a more comprehensive survey would probably identify frogs, reptiles or mammals in Oxley Creek;
- migratory waders *Numenius minutus* and *Calidris acuminata* are listed by DNR as being in danger of extinction. This occurrence is very transient as waders prefer coastal habitat. Waders are most likely to visit the creek during times of drought. This requires further investigation;
- historically there is a high possibility of the rare frog species *Litoria brevipalmata* occurring within the Oxley Creek catchment. If it occurs within the area its presence would be significant
- the vegetation description suggests that the existing habitat is unsuitable for any scheduled species other than *Litoria brevipalmata*; and
- conservation of remnant fauna should be concentrated along Oxley Creek.

It is noted that some species including the Little Curlew, Sharp-tailed Sandpiper, and the Rainbow Bee-eater are currently listed under the EPBC Act.

Any actions that interfere with listed threatened species, listed migratory species, or listed marine species may require a permit under the Act. This will require further investigation and assessment if there are any proposals that could include actions that might impact on species listed under the Act.

Pest animals

The airport has not been subject to excessive pest animal populations, with the exception of Fire Ants which were confirmed in 2001 and have been subject to a rigorous ongoing control program since then.

16.3.3 Potential impacts

The main potential impacts of airport activities on flora and fauna values in Oxley Creek are:

- altered surface water flow patterns (including peak flows) entering the Creek;
- water quality decline, in particular through sedimentation; lowering of pH; changes in temperature; excess nutrient loads; and pollution by hydrocarbons or metals;
- pollution from heavy industry and waste processing;
- weed and pest animal invasion; and
- vegetation removal or other changes to habitat in proximity to the creek.

16.3.4 Management of impacts

The riparian zone of Oxley Creek is likely to provide habitat for frogs, reptiles, birds and mammals, and these values have the potential to improve over time, particularly following habitat restoration by Brisbane City Council in 2014 on the land on the south side of Oxley Creek.

Identification of appropriate management measures for the creek frontage will also be addressed prior to any significant new development of land next to Oxley Creek.

AAC will continue to facilitate the Fire Ant control measures being implemented by the State government.

The use of mainly indigenous plants in landscaping works will provide some additional habitat opportunities, and reduced reliance on watering when compared with exotic species.

Bird and bat strike is a significant issue for airport management, so measures need to be implemented to manage bird and bat habitat to minimise the risk of this occurring.

16.3.5 Achievements 1998-2016

AAC has maintained the airport grounds through regular mowing, control of weeds and maintenance of landscaped features on the site.

AAC has also worked with tenants to ensure that facilities on airport are established and maintained in a tidy manner.

Fire Ant control by helicopter and motorcycle broadcasting has since 2001 been undertaken by the State government which is proactive and conducts regular inspections of the airport grounds, and carries out spraying as required.

Extensive stormwater management works were implemented in 2003-2004 in association with developments in the Beaufighter Avenue/Mortimer Road, and Central precincts. These works have replaced eroding open drains with a system of pipes, grassed swales and detention facilities. The new drainage system protects water quality and manages the peak quantity of water discharged to Oxley Creek. It has the potential to improve the habitat values of the creek over time.

Additional stormwater drainage works have been implemented with the construction of piped drainage under Runway 04L/22R and construction of a detention basin complex to the north-west of this. Extensive maintenance and restoration of stormwater drains on the southern and eastern side of the airport was also carried out in 2015/2016

New landscaping work was carried out alongside the Grenier Drive entrance road and along Ditchmen Avenue in 2012. This included replacing existing inappropriate vegetation with Tuckeroos. The areas around Hangars 5 and 6, and Buildings 8 and 9 have also been landscaped with appropriate plants. The newly landscaped areas have successfully improved the presentation of these areas.

16.3.6 Implementation targets for the 2017 AES

The area next to Oxley Creek serves as a buffer between the aviation activities on the airport, and the Oxley Creek, and is also developed with significant drainage infrastructure that assists with managing the stormwater discharges from the airport to the creek.

In recent years BCC has made significant commitments to plan, and implement initiatives for managing the natural values of Oxley Creek, including the section in proximity to the airport.

AAC will continue to liaise with BCC where there are opportunities to work together to manage more efficiently and cost effectively the creekside land.

AAC will also consider options for introducing best practice grazing (including limiting stock access to the creek banks) if this can be implemented as part of a coordinated management strategy involving BCC and other landholders/land managers along this part of Oxley Creek.

This area of land is currently being considered as part of the Oxley Creek Transformation Project being managed by Oxley Creek Transformation Pty Ltd. AAC will consider any feasible proposals that assist in improving current grazing practices or implementing alternative management techniques, where these are consistent with the sustainable management of the airport land and the initiatives for other land included in the project.

Prior to any significant development of land in the area that is not currently intensively managed through slashing or grazing, appropriate flora and fauna investigations will be undertaken to confirm the existence of any significant species. If these are identified, appropriate nature conservation measures will be implemented.

AAC will continue to facilitate the Fire Ant control measures being implemented by the State government.

Landscaping will be provided in new developments to improve the presentation of the site. AAC will encourage the planting of mainly indigenous species on airport property.

A list of suitable plants for landscaping on AAC property has been developed and will be used when assessing landscaping works by AAC or tenants.

All developments on the airport, including flood mitigation works and site landscaping, will be carefully planned to ensure that they do not increase bird or bat populations at the airport, due to the hazard to aircraft of bird or bat strike.

16.4 AIR QUALITY AND OZONE DEPLETING SUBSTANCES

16.4.1 Objective

To minimise where practicable emissions to air from AAC and tenant related activities (except emissions from aircraft)

16.4.2 Existing conditions

The airport is located in the industrial area of Archerfield/Rocklea, which is home to general manufacturing, and service industries; transport and related activities. The area is bisected by a network of arterial and main roads including Ipswich Motorway, Granard Road, Beaudesert Road, Boundary Road, Ashover Road, Kerry Road, Mortimer Road and King Avenue/Learoyd Road.

There are no significant sources of greenhouse gas emissions on the airport. No tenants or AAC operations produce significant discharges to the atmosphere.

A detailed audit of the airport in 1993/94 identified all equipment containing ozone depleting gasses. Since then, all BFC fire extinguishers have been

removed (in December 1997), and there are no remaining air conditioners filled with Freon.

Archerfield Airport has no dedicated spray painting operations. A number of tenant operations include spray paint booths as part of their maintenance activities and some tenants undertake minor painting, but as an ancillary activity.

16.4.3 Potential impacts

Experience at similar general aviation airports in Australia shows that a relatively small quantity of pollutants are released during the running of aircraft engines while on the ground for testing and maintenance procedures.

The majority of emissions are solvent vapours released either during the spray painting of aircraft bodies and components, or through cleaning of equipment.

Emissions would be similar to other spray painting and mechanical repairs establishments in the surrounding industrial areas. Due to the mix of uses and the extensive open space on airport the density of these uses is significantly lower than nearby industrial areas.

16.4.4 Management of impacts

Painting and cleaning

The main potential impact on the air environment from painting or cleaning operations is odour from solvents.

AAC has replaced its solvent based line marking paints with water based alternatives to reduce the emission of solvent vapour from this source.

For new tenancies, any potentially odorous activities will be identified and managed so that there is no unacceptable impact on neighbouring areas. If painting is proposed, consideration will be given to the acceptable scale of the activity, and any mitigation measures that will be required.

Measures for achieving appropriate odour control will be determined prior to the establishment of the tenancy, in accordance with the EMPs.

In the case of existing tenancies, if any odour emission issues arise, these will be addressed through direct negotiation (if a complaint is received) or via the periodic environmental review process.

AAC requires all tenants with trade waste discharges to obtain from BCC appropriate trade waste disposal approvals, and maintain their operations in accordance with these requirements.

Ozone depleting substances (ODS)

AAC facilities

AAC operations will be managed to ensure that all discharges meet the requirements of relevant legislation being the *Airport (Environment Protection) Regulations 1997*, the *Ozone Protection Act 1989* and the *National Environmental Protection Measure (NEPM) for Ambient Air Quality*.

Regular environmental reviews will identify any ozone depleting substances on site, and their phase out will be arranged.

The progressive phase out and replacement of any remaining AAC equipment containing ozone depleting gasses will also occur as replacement equipment becomes commercially available and older equipment is replaced.

Tenants

The regular environmental reviews of tenant facilities will identify any halon fire extinguishers (sometimes used in aircraft), and if any are found in service for non-essential use, the tenant will be advised to remove the equipment from service as required by State and Federal legislation.

As the presence of halon extinguishers will be readily identifiable during the regular environmental reviews, additional monitoring is not considered necessary.

16.4.5 Achievements 1998-2017

AAC has collated existing data on airshed quality from the DEHP Rocklea monitoring site.

AAC has produced an inventory of existing airport tenants and users, as an indicative baseline for possible future air quality assessments.

Water based line marking paints are now used by AAC to reduce the emission of solvent vapour from this source.

16.4.6 Implementation targets for the 2017 AES

Continue to identify the presence of ODSs in AAC and tenant reviews, and negotiate appropriate management (including decommissioning and removal wherever feasible).

Continue to advise tenants of their responsibility to obtain relevant environmental approvals in accordance with the Airports Act and Regulations.

16.5 SURFACE WATER

16.5.1 Objective

To minimise the impact of airport operations on surface water quality

16.5.2 Existing conditions

Catchment context

The airport is located in the middle to lower reaches of the Oxley Creek catchment, just upstream of the confluence of Oxley Creek and Blunder Creek. Oxley Creek discharges ultimately to Brisbane River.

The airport location relative to the Brisbane River is shown diagrammatically in Figure 1. The location of Oxley and Blunder Creeks, and the alignments of the main drainage outfalls from the airport to these waterways is shown in Figure 3 *Airport context*.

The middle and lower reaches of the Oxley Creek catchment are highly urbanised.

The *1999 Oxley Creek Catchment Management Plan* identified the following issues for the catchment overall:

- water quality within the creek system exceeds standards across all water quality parameters (suspended solids, total nitrogen, total phosphorus, faecal coliforms) in the lower urbanised part of the catchment. There was however some evidence of improvements since 1988;
- the primary causes of the existing degradation are point sources such as the Inala Sewage Treatment Plant, minor point sources (sewer overflows) and the non-point sources of sand extraction, stormwater run-off and land development, including areas using septic treatment systems;
- Brisbane River and Moreton Bay, the receiving waters of Oxley Creek, are experiencing excess sediments, nutrients and faecal coliforms, giving rise to problems of sea grass loss and algal blooms;
- further development in the upper reaches of the catchment could exacerbate flooding;
- riparian vegetation including wetlands has some critical areas requiring management and buffering; and
- soil erosion is an issue along the watercourses.

Stormwater management on the airport site needs to have regard to these broader contextual issues, and in particular to avoid causing detriment to water quality or flood conditions in Oxley Creek.

Site sub catchments

Surface water runoff from the airport falls generally into one of six main sub catchments and these are shown diagrammatically in Figure 17.

The boundaries of the sub catchments are indicative only, as there are few clearly defined watersheds across the site. In some cases, drainage infrastructure has been constructed such that stormwater flows will cross between the sub catchments as currently shown.

All surface water from the airport is discharged ultimately to Oxley Creek, and from there flows to Brisbane River and Moreton Bay. The northern and eastern part of the airport drains to Stable Swamp Creek (to the north) which enters Oxley Creek on the north side of the Rocklea industrial area.

1: Southern sub catchment

This sub catchment includes:

- grassed areas;
- sealed Runway 28L/10R and taxiways;
- hangars and businesses;
- open storage; and
- the control tower.

This stormwater drains to the main detention basin that is located between the Alex Fraser Group recycling facility and the neighbouring Archerfield Speedway. The detention basin then discharges to Oxley Creek.

A small part of this sub catchment drains south under Mortimer Road, and through the neighbouring industrial area to Oxley Creek. This drain collects water from the eastern end of Lores Bonney Drive, and from the adjacent tenancies.

2: Beaufighter Avenue and Wirraway Avenue sub catchment

This sub catchment includes:

- the western end of the 28R/10L runway and associated taxiways;
- the majority of the '500' tenancies on Boundary Road;
- development along Wirraway Avenue; and
- development along Beaufighter Avenue, generally west and north of Alex Fraser Group recycling.

Stormwater in this sub catchment is conveyed via a piped drainage system along Beaufighter Avenue to a concrete end wall and dissipation structure prior to entering Oxley Creek.

The three bio-filtration and detention basins constructed along the Boundary Road boundary of the airport manage peak flows from future works at Transition Estate. A Gross Pollutant Trap constructed between Basin 4 and

the corner of Boundary Road and Transition Drive further improves the quality of water from the central drainage sub catchment which includes parts of the Boundary, Wirraway, Ashover, Runway and Beatty precincts. These basins convey water to Brisbane City Council drainage systems,

3: BP Truckstop

Stormwater from the BP Truck Stop site on the corner of Beaufighter Avenue and Boundary Road discharges to a drain at Boundary Road that runs north through the Rocklea industrial area before joining to the main drain to Oxley Creek.

4: Central sub catchment

This sub catchment comprises the grassed areas associated with the 04/22 runway complex, most of the northern half of the 28R/10L runway, the fuel farms, and aircraft parking positions.

The majority of storm water in this sub catchment is collected by an on airport drainage system that falls north-west under the 04/22 runways to the recently constructed detention basins in the Transition Estate, and then passes under Boundary Road. From there the drainage runs through the neighbouring industrial area, under the Ipswich Motorway to Oxley Creek. Water in the Oxley Creek then enters the Brisbane River.

5: Eastern sub catchment

The fifth catchment on airport is the eastern and north eastern area fronting Beatty Road and Barton Street.

The stormwater run-off from this area enters the Brisbane City Council drains that run parallel with Beatty Road. At three locations along Beatty Road there are drains under the road that take stormwater to the east and then north to Stable Swamp Creek.

Underground stormwater drains in this area of the airport were examined by CCTV camera and significant repair/upgrade work was carried out to improve drainage in 2015/2016.

This part of the sub catchment is reasonably intensively developed, with extensive impervious areas (building roofs, roads, sealed aircraft parking, and manoeuvring areas).

The balance of the sub catchment has at present less impervious surfaces. Stormwater from development planned for this area could potentially discharge to points on Barton Street and Balham Road (subject to design investigation, and approval by BCC).

6: Beatty Road South

The vacant airport land on the north-east corner of Beatty Road and Mortimer Road drains to the north-east. It discharges to the main drainage line that runs parallel to Beatty Road, to Stable Swamp Creek, and then to Oxley Creek.

Stormwater quality

AAC undertakes stormwater quality analysis on an annual basis. The sampling is undertaken at the main drainage discharge points, and at locations within the airport drainage network. During drought periods, there has been insufficient water at some of the sampling locations resulting in incomplete historical data.

Notwithstanding this, the program has provided useful information about site conditions.

The assessment completed by Simmonds & Bristow Pty Ltd in April 2015 found:

- the PH, conductivity measures and suspended solids concentrations were within regulatory limits;
- the aluminium concentration at SWM8 and SWM5 had decreased compared to the previous year;
- concentrations of arsenic, beryllium, chromium, nickel and selenium measured below the regulation limits; and.
- high concentrations of aluminium, cadmium, copper, lead and zinc were found at varying locations across the airport. SWM5 contained the most non-compliant concentrations of trace elements.

The report noted the following as possible sources:

- sources of possible cadmium contamination include metal plating, transportation equipment. heavy machinery, water pipes, batteries, welding and painting;
- sources of possible copper contamination include metal plating, industrial and domestic waste, painting and mineral leaching;
- sources of possible lead contamination include pipework, paint, industrial waste and petrol;
- sources of possible Zinc contamination include industrial waste, metal plating, paint and plumbing.
- concentrations of Total Nitrogen, Total Phosphorus and, in most cases, Ammonia were above permitted levels, however, these results were consistent with concentrations returned from previous sampling events;
- there were no volatile, semi-volatile petroleum hydrocarbons (>C_9) or aromatic hydrocarbons detected in the water samples. This is consistent with previous annual sampling events; and
- although high concentrations of certain heavy metals were found, an investigation into possible sources could not identify any activities which may have contributed to these results.

Assessments completed in 2016 and 2017 were generally consistent with the findings in 2015, apart from increases in aluminium at SWM5 and SWM8 in 2017.

It is noted that the 2017 aluminium findings are similar to levels found in these wells prior to 2015. Both results could be a result of suspended solids contained in the sample. There were no volatile, semi-volatile petroleum hydrocarbons (>C_9) or aromatic hydrocarbons detected in water samples in 2017, which is generally consistent with previous annual sampling events. The 2017 report concluded that there were no concentrations of elements identified that posed a serious risk to the aquatic health of Oxley Creek.

AAC will work with the AEO to monitor the situation. Future results will be assessed to identify whether the 2015 results were an isolated event.

16.5.3 Potential impacts

The potential impacts of stormwater drainage are:

- export of suspended solids off site leading to increased sedimentation of Stable Swamp Creek or Oxley Creek;
- transport of chemical pollutants, trace elements, or nutrients into these creeks and ultimately into Brisbane River;
- increased peak flood flows discharged to Oxley Creek, with the potential for exacerbating flooding in the creek; and
- increased peak flows into the existing main drainage system through the Rocklea industrial area, and through Archerfield, north to Stable Swamp Creek.

16.5.4 Management of impacts

AAC is vigilant regarding stormwater management on the airport.

The following EMPs have specific relevance to managing the water aspects of the airport environment:

- Procedure AA1-Environmental assessment of new tenancy or lease renewal
- Procedure AA4-Minor spill response
- Procedure AA6-Tenant environmental reviews
- Procedure AA7-End of lease tenant environmental review
- Procedure AA8-Assessment of environmental effects of new works.

For example, the procedure for new construction requires an assessment of the potential impacts of construction on all aspects of the airport environment (including stormwater drainage), and where impacts are possible, the preparation of a construction phase Site Environmental Management Plan (CEMP).

Washing of aircraft in the wash-down bay (with triple interceptor) is strongly encouraged. However, if aircraft owners wish to wash their aircraft in its

parking position to remove general dirt and insects this is allowed provided biodegradable detergents are used.

If there is a risk that oil or grease will be discharged onto the ground, then the wash-down bay must be used. If there is regular washing of aircraft in parking positions, then AAC reserves the right to request soil testing to monitor for any contamination. This monitoring would be at the aircraft owners' expense.

AAC maintains a spill containment trailer that can be mobilised at short notice to deal with fuel and chemical spills from its own operations and for incidents involving aircraft.

Where appropriate, tenants are also required to have spill procedures for their operations. In addition to providing appropriately bunded storage facilities, tenants are also required to maintain stocks of spill control equipment where their operations have the potential to release environmentally hazardous materials to the environment.

16.5.5 Achievements 1998-2016

Stormwater management measures (addressing water quality and peak discharge volumes) have been incorporated where appropriate into new tenancies and into the airport development precincts.

The former open drainage line through the western part of the Boundary precinct and the west of the Beaufighter precinct (which was subject to significant scouring) has been piped, and silt traps and dissipation structures installed to moderate peak flows and manage water quality prior to discharge to the Oxley Creek.

A significant stormwater detention basin (basin 8) was constructed in the Beaufighter precinct in 1997/8, treating stormwater prior to its discharge to the Oxley Creek. The stockpile areas in the Alex Fraser Group Recycling facility drain to a sedimentation basin prior to discharge to the on-airport stormwater system.

Swale drains have been constructed along the southern boundary of the Beaufighter precinct, to direct flows from Runway 28L/10R and development in the Beaufighter precinct to the sediment basin.

Three additional bio-filtration and detention basins (Basins 3, 4 and 5) were constructed along the Boundary Road boundary of the airport in 2014 to manage peak flows from future works at Transition Estate. A Gross Pollutant Trap was constructed between Basin 4 and Boundary Road/Transition Drive to further improve the quality of water from Boundary Road and Transition Drive. These basins convey water to Brisbane City Council drainage systems,

Small rock landscaping has been introduced to localised sections of open drains showing evidence of minor soil erosion.

The drainage line under the 04/22 runways has been piped and extended into Basin 3 at the north-western end, to moderate peak flows prior to discharge to the district drainage network.

Rainwater tanks have been included in new developments, including the corporate hangars on Wirraway Avenue, the QGAir facility on Wirraway Avenue, the office and warehouse development on Beaufighter Avenue and the warehouse and office at Site 111 occupied by Aviall.

Open earth drains have been periodically slashed and weeds removed.

The aircraft wash down bay is identified with signage. Washdown water passes through a triple interceptor prior to discharge from the site.

Surface water quality monitoring has been undertaken at various locations in the drainage network on an annual basis.

16.5.6 Implementation targets for the 2017 AES

The annual surface water quality assessments will continue at spot locations, on a sub catchment basis and will be analysed for contaminants.

Where elevated concentrations are found, AAC will undertake further investigations within the relevant sub catchment area(s) to identify the likely cause of reduced water quality. It will work with the AEO to identify the source and improve water quality wherever feasible.

If necessary, the surface water monitoring program will be revised to assist with identifying the distribution or source of pollutants.

Water sensitive design measures, including the use of rainwater tanks for capture and reuse of stormwater flows will be incorporated into new developments wherever feasible.

16.6 GROUNDWATER

16.6.1 Objective

To minimise the impact of airport operations on groundwater quality

16.6.2 Existing conditions

Groundwater at the airport has been assessed on an annual basis since 1993.

A network of groundwater monitoring wells has been developed and expanded with the installation of six new wells since 2012.

The new wells were installed to ensure all on-airport areas are covered as well as to test contamination coming onto airport from off-site locations. All 14 wells are shown in Figure 26.

The most recent assessment, the *2015 Ground Water Monitoring Event for Archerfield Airport* was completed by Environmental Management & Remediation Pty Ltd in October 2015.

Regional hydrogeology

The *2013 Annual Ground Water Monitoring Report* by Simmonds & Bristow included information about the existing site conditions as follows:

The site geology consists of Tertiary semi consolidated sediments and basalt (Sunnybank Formation). It is estimated that the basalt dips to the west. Underlying this is the Triassic-Jurassic Woogaroo Sub-group which is comprised of sandstone, siltstone, shale and conglomerate. These rocks are less permeable to groundwater flows than basalt. Alluvial deposits occur along Oxley Creek (southwest boundary) and Stable Swamp Creek further north.

Potentiometric contours have indicated that the groundwater flow across the site is in a northwest direction. This was supported by the findings of the 2014 groundwater monitoring report.

Therefore, the receiving environment for groundwater would be the section of Oxley Creek along the airport's south west boundary and in areas immediately adjacent to the creek. Groundwater from the site would also tend to flow further northwest toward the junction of Oxley Creek and Stable Swamp Creek. The indicative flow direction is shown in Figure 26.

Beneficial uses of groundwater

Groundwater resources in the area are not used for potable supply. Alex Fraser Group uses water for dust suppression at their site in the Beaufighter precinct.

Underground Storage Tanks

Although AAC generally discourages tenants from installing USTs, a 55,000 litre UST for storage of Adblue, was approved and installed at Site 450 in 2014.

Adblue is used in heavy vehicle exhaust systems to reduce harmful emissions. New Euro 4 and Euro 5 equipped vehicles incorporate an additional separate tank for the product which is injected into the vehicle's exhaust manifold. Adblue is a water based solution containing 35% urea. It is not a hazardous or dangerous chemical under the NOHSC Criteria and ADG Code.

The USTs on site are required for current uses and are summarised below.

Table 8 Underground Storage Tanks

Site	Tank Reference	Fuel type	Capacity (litres)
AAC Compound (Site 652)	AAC 1	Diesel	5,300
Air BP (Site 121)	Air BP 1	Avgas	55,000

	Air BP 2	Jet A1	55,000
BP Truckstop (Site 450)	BP 1	Diesel	110,000
	BP 2	Diesel	110,000
	BP 3	ULPe10	50,000
	BP 4	ULT98	30,000
	BP 5	PULP	30,000
	BP 6	LPG	30,000
	BP 7	Adblue	20,000
Exxon Mobil (Site 123)	Mobil 1	Avgas	50,000
	Mobil 2	Jet A1	50,000
Shell (Site 120)	Shell 1	Avgas	90,000

Above Ground Storage Tanks

Shell in 2013 installed a 55,000 litre Jet A1 above ground storage tank.

BP Spill

In 2006 one of the diesel tanks at the BP Truckstop on the corner of Boundary Road and Beaufighter Avenue was found to be leaking.

The tank was removed and a soil and groundwater remediation and monitoring program was implemented by BP, under the supervision of an independent environmental assessor.

The tanks and related infrastructure were replaced with double walled tanks and pipes.

The groundwater and soil remediation works were undertaken in accordance with an Environmental Management Plan, and the remediation, monitoring and reporting program will continue until the remedial plan can be closed.

Groundwater quality

In 1993 Otek studied the potential migration off site of various compounds in the groundwater. The study found that BTEX, TPH and metal concentrations were below method detection limits in all monitoring wells.

The assessment undertaken in 1993 has been followed up with annual groundwater sampling and analysis to monitor for any changes in these conditions.

Analysis of the water quality in 2003 indicated concentrations of chromium, lead and zinc above accepted limits in four monitoring wells. Field measurements at two of these four wells showed dissolved oxygen and conductivity levels that did not meet accepted levels. The AEO and AAC reviewed historical groundwater data but were unable to determine any possible causes for elevated chromium in groundwater.

In 2003-4 AAC reviewed its water quality monitoring program and serviced and upgraded monitoring wells.

Since 2003, annual reports have shown contamination in a number of wells to varying degrees.

As a result of on-going contamination, AAC commissioned Simmonds & Bristow to review its groundwater monitoring program in November 2012. The aim of the review was to assess whether the program was adequate for AAC to effectively manage the impact of on-site and off-site activities on the groundwater. The review included an investigation into the source of the contaminants and possible remediation strategies.

The report concluded that off-site activities behind MW2, MW3 and MW6 had an impact on the levels of heavy metals in the groundwater since 2006, that activities around MW4 and near MW9 could have had an impact on the concentration of contaminants in those areas.

The report recommended that four new bores be installed along the area bounded by Mortimer Road, Wirraway Avenue and lower Beaufighter Avenue. The new bores were recommended to ensure that all contamination from off-site and on-site activities is being monitored.

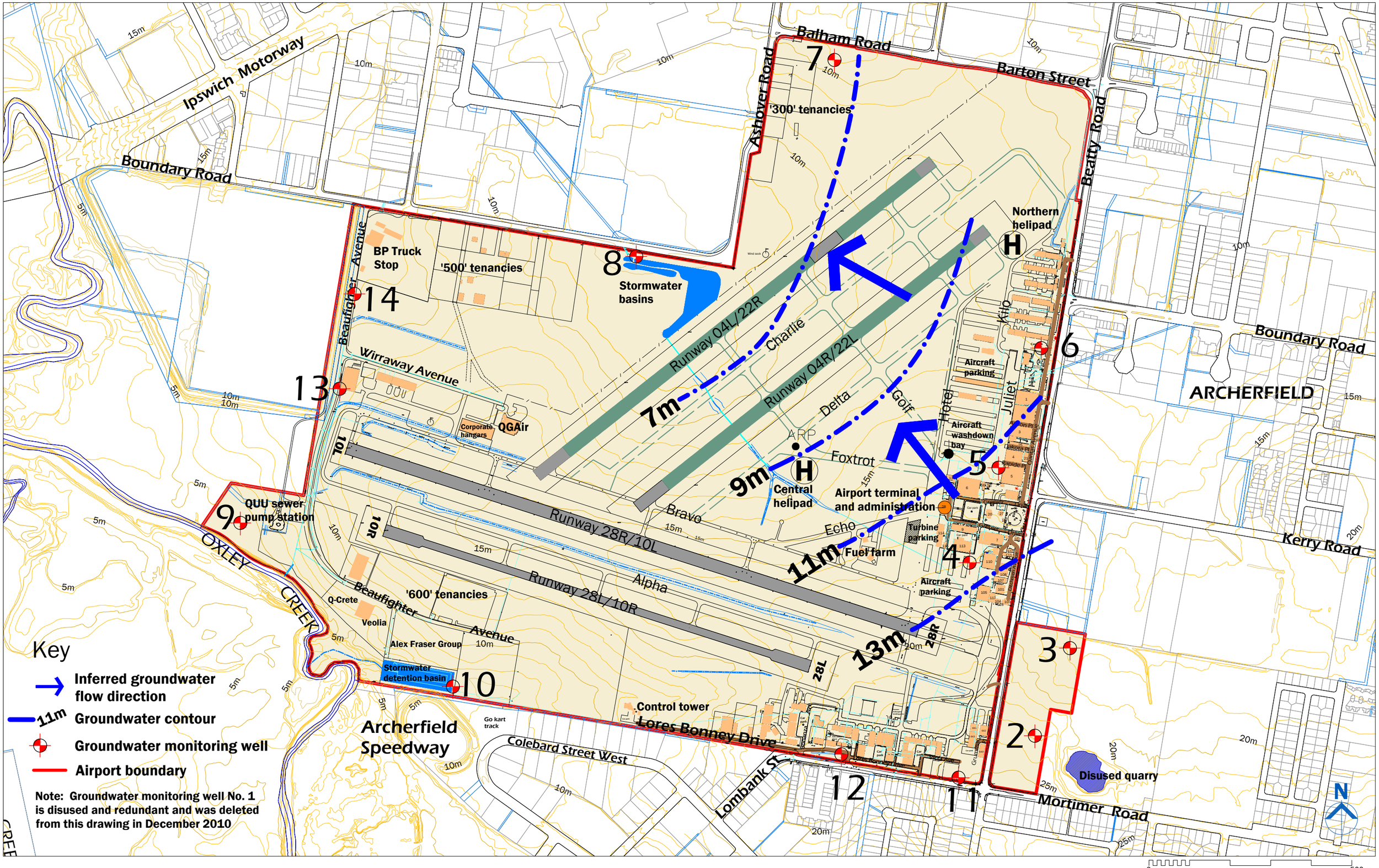
The four new bores were installed in April 2013. Further investigation into the activities around MW4 and MW9 could not confirm that those activities were the source of contaminants identified in those wells.

A significant factor influencing the high metal readings, is that the AEPR requires analysis of total metal concentrations, i.e. readings from non-filtered samples. The presence of silt in non-filtered samples can result in readings showing high concentrations of metals.

Analysing dissolved metals is a more accurate method of testing groundwater quality. This was shown in the 2015 groundwater report where a review of the dissolved versus total metal concentrations reported during the 2014 groundwater monitoring event (GME) showed that the total concentrations were approximately one order of magnitude higher than the dissolved, which was likely attributed to the presence of silt in the total concentrations.

The subsequent groundwater monitoring report, dated October 2016, concluded that, overall, the groundwater concentrations reported do not indicate that a serious risk exists to the water quality or aquatic ecosystem of Oxley Creek.

AAC continues to monitor sampling results and works closely with the AEO to attempt to identify the source/s of any contamination.



Archerfield

Brisbane's Metropolitan Airport

Archerfield Airport Master Plan 2017-2037

Figure 26 **Groundwater**

PlannedFX Planning Environment Strategy Design

16.6.3 Potential impacts

Impacts in groundwater from activities on airport could arise from:

- leaking USTs and related infrastructure (pumps, pipes etc.);
- inappropriate storage, handling or disposal of hazardous materials;
- buried waste (including from past occupiers);
- spills from the QUU sewer pump station off Beaufighter Avenue (and near Oxley Creek); or
- material spills.

Similarly, there is the potential for areas surrounding the airport to impact on the groundwater conditions on airport. The past and present industrial uses, wartime developments, and the former quarry on the north side of Mortimer Road (next to the south-east corner of the airport) are all potential sources. These need to be considered in any groundwater monitoring program.

16.6.4 Management of impacts

AAC has in place a number of measures to protect groundwater from contamination by airport activities.

These include:

- annual monitoring of groundwater via the network of bores on site;
- provision of spill containment equipment for deployment by AAC in areas under its direct management;
- decommissioning of old and redundant USTs;
- discouraging tenants from installing new USTs if bunded above ground storage is feasible;
- requirements in the EMPs for new tenants to address hazardous materials storage and containment in their plans; and
- consideration of spill containment during tenant reviews.

Any new UST and related infrastructure needs to be installed and operated in accordance with industry standards.

Existing tanks and related pipe and pumping infrastructure require ongoing monitoring to confirm the integrity of the fuel storage system. Any losses from the system need to be identified early so that remedial action can be taken.

This needs to be addressed by each tenant, and AAC needs to confirm during the environmental reviews of each tenancy with USTs that monitoring is being undertaken.

16.6.5 Achievements 1998-2016

The network of groundwater sampling bores has been periodically serviced and was upgraded in 2003.

A new groundwater monitoring well was established in the area between Beaufighter Avenue and Oxley Creek for the 2010 monitoring cycle. This provides baseline data about groundwater conditions and movement in the south-western part of the airport.

An additional 6 new wells were installed along the Mortimer Road Boundary and Beaufighter Avenue boundary between 2012 and 2015 and two unserviceable wells in other locations were repaired.

The annual groundwater monitoring program by AAC has continued throughout the planning period and now provides data for the past 20 years.

Annual integrity testing is carried out on AAC's underground diesel tank. No loss of product has been identified.

All tenants with USTs have in place gain/loss monitoring systems.

16.6.6 Implementation targets for the 2017 AES

The annual groundwater monitoring and analysis program will continue. Attention will be given to determine the likely reasons for any elevated levels. The monitoring program will be updated if required.

AAC will during the cyclical environmental reviews follow up tenants with USTs to ensure that monitoring for losses is being undertaken.

AAC will continue to undertake annual integrity testing of the diesel UST in the AAC grounds maintenance compound. If any discrepancy is identified immediate remedial action will be taken. These actions will be in accordance with the Australian Institute of Petroleum's Code of Practice, *'CP4 1998, Design, Installation and Operation of Underground Petroleum Storage Systems'*.

Any new USTs will be subject to either an integrity testing plan or an appropriate gain/loss monitoring system. The testing, monitoring, and reporting regime will be in accordance with the relevant industry standards.

16.7 SOIL

16.7.1 Objectives

To minimise the potential for soil contamination to occur

To continue to manage contaminated sites in accordance with relevant legislation

16.7.2 Existing conditions

Soil conditions at the airport consist of silty and sandy clays that overlay weathered basalt. The basalt becomes less weathered as depth increases.

Soil contamination

In July 1993, a *Background Investigation Report* (Otek 1993) identified several potential areas of subsurface contamination associated with the airport. These included a number of USTs, scrap yards, a battery recycling operation, maintenance shops, painting facilities, and drum storage areas.

A subsequent more detailed environmental investigation (Otek September 1993) found that Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX) and Total Petroleum Hydrocarbon (TPH) levels were below method detection limits in all borings tested. Metal analyses indicated elevated levels of lead in proximity to the former battery recycling facility. The study concluded that detectable concentrations of nickel, copper, cadmium, and chromium were consistent with background concentrations and were within applicable criteria. Analyses for volatiles, pesticides, and PCBs showed no concentrations above the method detection limits.

The study found no adverse impact on the environment from the USTs.

The minimal localised soil contamination detected in the Otek environmental reviews is well within the current acceptable environmental standards.

Otek, in 1993 also undertook soil sampling in the open unlined drains along the northern and western perimeters of the site. The analysis of the samples concluded that there was no detectable soil contamination.

In 2006 BP advised that one of the diesel tanks at the BP Truckstop on the corner of Boundary Road and Beaufighter Avenue was found to be leaking. BP subsequently replaced all tanks and implemented a soil and groundwater remediation and monitoring program, under the supervision of an independent environmental assessor. This is subject to ongoing assessment and reporting.

An independent environmental assessor has overseen the containment of pollution and the implementation of the remediation and monitoring program which is still in place. Contaminated soil was excavated to the maximum feasible extent (some allowance had to be made for protection of canopy foundations and other structural elements). The soil was farmed on adjacent land on the airport for approximately six months, before being disposed of off-site.

The USTs on the site have been replaced with double walled tanks and related infrastructure.

Soil samples have also been tested from Site 635, at Site 668 (formerly occupied by Australian Paving Services (APS) and at Building 9. In all instances, no contamination above accepted levels was detected.

Acid sulfate soils

As part of the Brisbane City Plan, Brisbane City Council has collated information about acid sulfate soils in the Council area, and made available a potential and actual acid sulfate soils overlay which identifies land subject to the requirements of the State Planning Policy (SPP).

The Department of Environment describes acid sulfate soil as follows:

> *Acid sulfate soil is the common name for soils that contain metal sulfides. In an undisturbed and waterlogged state, these soils may pose no or low risk. However, when disturbed or exposed to oxygen, acid sulfate soils undergo a chemical reaction known as oxidation. Oxidation produces sulfuric acid which has led to these soils being called acid sulfate soils.*

In Brisbane, acid sulfate soils are generally found in land at or below 5m Australian Height Datum (AHD) and in Holocene sediments (organic-rich sediments and silts). They are usually associated with coastal lowlands and estuarine flood plains. Under natural conditions the soils are usually located below the water table.

The only parts of the airport at or below the 5 metre contour are found in the south-west corner of the site, next to Oxley Creek. The 5 metre contour is shown in the *Existing conditions* drawing.

The Department of Environment notes that acid sulfate soils may affect the following key environmental values or uses, and provides examples of how these values are affected:

Table 9 Potential effect of acid sulfate soils

Environmental values	Impact or potential impact
Aquatic ecosystems	Aquatic ecosystems may be affected by changes to water and soil quality. This can lead to negative effects on the species and ecological communities that depend on this ecosystem.
Primary industries	Irrigation water may be acidic and/or have high concentrations of metals, which may affect stock drinking water, infrastructure and machinery, and crop growth and yield. Commercial fisheries may be affected by poor water quality that may cause fish kills or disease, and affect human consumption of aquatic foods.
Recreation and aesthetics	An environment may not be able to be used or enjoyed to the same extent for recreational purposes due to factors including acidic water, odours, loss of aesthetic appeal, loss of fishing amenity and acid-tolerant mosquitoes increasing in number.
Drinking water	Water quality may be unsafe for human consumption due to factors such as pH change, changes to the concentration of dissolved metals or load of suspended metals and tastes and odours.
Industrial water	Water may not be suitable for certain industrial purposes. For example, acidified water may corrode metals in the manufacturing process.
Cultural and spiritual values	Areas of cultural and spiritual significance may be degraded or may not be able to be used for cultural, recreational or consumptive uses. Significant fish and plants may be affected by acidic water, metal contamination or oxygen depletion in water.

16.7.3 Perfluorinated chemicals (PFC)

There is the potential that Perfluorinated Chemicals (PFC) exist on airport, as a result of historical fire-fighting or other activities. PFCs are non-biodegradable chemicals that are highly persistent in the environment, can bio-accumulate and can be harmful to animals and human health.

At this stage the extent to which AAC and other airport leasing companies are required to address PFCs has not been determined by DIRD.

There is currently no nationally recognised guidance material or Australian standards, guidelines or regulations on PFC contamination and management.

AAC will continue to liaise with DIRD on this issue, to determine an appropriate course of action for environmental assessment, or for remediation of any contamination that might be identified.

16.7.4 Potential impacts

The main potential impacts of airport activities are:

- soil contamination from USTs;
- soil contamination from chemical spills;
- soil contamination from oil leaks from aircraft and motor vehicles; and
- soil contamination from PFCs.

16.7.5 Management of potential impacts

AAC will continue to review activities on airport to identify any potential sources of soil contamination. For AAC operations and areas under AAC management, this will occur on an ongoing basis. Individual tenancies will be assessed during the tenant reviews, and at the end of lease assessment.

Underground storage tanks and businesses associated with the storage and use of potential contaminants (including waste materials) will attract specific surveillance.

All new AAC leases have the requirement for tenants to monitor for contamination, and where issues arise, to remediate. These activities will in each case be addressed through a tenant *Site Environmental Management Plan* for construction and/or operation phases (as applicable).

Tenants will be required to provide AAC with independent validation of site clean-up works.

AAC will encourage tenants to decommission underground tanks, regardless of condition, due to the significant potential liability associated with the ageing underground tanks. In the future, all storage tanks installed on the site (apart from fuel services) will wherever possible be above ground with appropriate containment, including bunding.

Bunding of hazardous materials storage equipment (containers and conveying infrastructure) will be required where there is the potential for spills.

AAC's PFC Trigger Assessment will be applied to any development or works involving excavation.

Any future development in the lower lying land in the south-west corner of the airport, immediately adjacent to Oxley Creek, needs to take into account the possibility of acid sulfate soils. This should be addressed in an assessment to be undertaken as part of the formulation of any development proposals for the land at or below the 5 metre (AHD) contour.

In addition, if excavation of more than 100m^3 is proposed at or below 5m AHD on land with a natural surface level of between 5m and 20m AHD, appropriate consideration will be given to acid sulfate soils in the design and construction of the works.

16.7.6 Achievements 1998-2016

The former battery recycling site has been remediated by removal of the contaminated soil and reclamation with clean fill in 1994. The remediation is described in report reference B94C094/C1 prepared by OTEK Australia Pty Ltd dated 14 December 1994.

The former Airport Rescue and Fire Training Area was closed and remediated in 1994. The site remediation is also described in the 14 December 1994 report by OTEK Australia Pty Ltd.

The former underground storage tanks used by Mobil, Air BP and Shell were decommissioned and the sites remediated over the period 1997 to 2000.

With the exception of the BP Truckstop site, there are no known contaminated sites on the airport. The assessments indicate that only small contamination issues such as oil leaks from aircraft and motor vehicles exist on the airport.

16.7.7 Implementation targets for the 2017 AES

All tenants operating or proposing to install underground storage tanks will be required to institute programs to ensure tanks do not leak. Tenants will be required to carry out annual testing of tanks, or alternatively implement a continual monitoring program as detailed in the Australian Institute of Petroleum's Code of Practice, *'CP4 1998, Design, Installation and Operation of Underground Petroleum Storage Systems'*.

Bunding will be required for all new storage facilities for hazardous materials.

AAC will continue to apply EMPs (and in particular the *End of lease tenant environmental review*) to ensure that leaseholds are appropriately managed and any contamination is identified and rectified.

An assessment for acid sulphate soils will be undertaken before any development requiring ground excavation in the south-west corner of the airport, at or below the 5 metre contour.

16.8 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

16.8.1 Objectives

To minimise the use of hazardous materials, where practicable

To minimise the quantities of waste produced where practicable

To maintain current information on hazardous materials on the airport

To ensure that wastes are properly handled, stored, transported, and disposed of

To encourage recycling of materials

16.8.2 Existing conditions

Effluent

The airport is serviced with reticulated sewer and is connected to the metropolitan network (including for trade waste). QUU has a sewer pump station in the south-west corner of the airport, adjacent to Oxley Creek.

Hazardous materials

AACs objective is to minimise where practicable the use of hazardous materials and to ensure that where hazardous materials are used, their impact on the surrounding environment is kept to a minimum.

Hazardous materials are stored in a variety of locations at the airport, and while some storage locations are fairly well designed, others require some improvement. There is also a need for constant vigilance to ensure that the storage methods and signage are appropriate to the types of product storage currently in use. Australian Standards will apply.

Potentially contaminated building materials

A comprehensive survey of buildings conducted in 1994/1995 and reviewed regularly since then has found evidence of some in situ building materials likely to contain asbestos. These materials are mostly in sheet 'fibro cement' form and have been used most commonly for cladding some buildings, and roofing in particular. There are also incidences of asbestos in other building materials including flooring.

The survey found that this is confined to older existing structures, and, provided it is not disturbed from its current state, is regarded as not presenting any hazard.

The survey also identified a limited amount of asbestos fibre used in pipe lagging.

In 2003 Asbestos Audits Queensland Pty Ltd completed its *Asbestos Materials Report and Register for Archerfield Airport.* The report addressed all AAC buildings on the airport and included an inventory of asbestos, and recommendations for its management.

In 2006 the asbestos register was upgraded to include a risk assessment and Management Plan, which was updated as developments occurred, buildings were demolished, and buildings came into the ownership of AAC.

In 2012 Asbestos Audits Queensland Pty Ltd prepared a new plan *Asbestos Management Plan and Register for Archerfield Airport* - which incorporated new buildings and recognised 2011 codes of practice. AAC updates the plan as asbestos is removed.

Recycling

AAC's objective is to comply with current waste management standards and to minimise waste. It will ensure that it adopts the most recent recycling practices.

Where possible during tenant reviews opportunities to minimise waste or utilise waste from other activities on site will be identified.

16.8.3 Potential impacts

The potential impacts of ground based airport activities include discharge of hazardous materials or waste to soil, surface or groundwater; and litter pollution of the site or neighbouring land.

16.8.4 Management of impacts

AAC maintains a current register of asbestos in its buildings. Asbestos material is marked with hazard stickers, and the asbestos register is made available to tenants and contractors undertaking work on the airport.

The asbestos register is updated as works are undertaken, and any changes are included in the annual environment report to the Commonwealth.

If buildings containing asbestos are to be demolished or modified, this work will be undertaken in accordance with an Environmental Management Procedure applying precautions stipulated under the *Work Health & Safety Act* and regulations, applicable codes of practice and other relevant guidelines

Monitoring of the quality and quantity of waste materials on site, and the actions taken to recycle this material will continue as part of environmental reviews of tenant operations.

Ongoing reviews will ensure environmental issues previously identified are addressed appropriately, as well as identifying any new issues related to the management and disposal of hazardous materials and wastes.

Environmental reviews will include an inspection of storage facilities and work practices, identification of unacceptably large waste stockpiles and a review of tenant records concerning the proper disposal of industrial wastes.

The regular environmental reviews will be supplemented by the on-going vigilance of all AAC staff. AAC personnel noticing unacceptable work practices, such as improper storage or leaking wastes will report their findings to AAC management for action.

The Archerfield EMPs require prospective new tenants (tenants or renewing their lease) to provide details of the materials they propose to store and use on site, and how these will be managed.

16.8.5 Achievements 1998-2016

AAC has conducted regular inspections of tenancies to identify all materials storage and handling, waste management and disposal and other aspects of the activities conducted in the tenancy that could potentially impact on the safety of the airport, or on the environment.

Brisbane City Council regularly tests sewage entering its treatment system from the airport. Any non-conformances are reported to AAC and the tenant (if applicable) for action.

In May 2003 Asbestos Audits Queensland Pty Ltd completed its *Asbestos Materials Report and Register for Archerfield Airport.* The register was maintained until 2006 when a risk assessment and management plan was formulated.

This guided decisions on the ongoing management of asbestos until 2012 when the *Asbestos Management Plan and Register for Archerfield Airport* was implemented. The 2012 plan is subject to ongoing review and updating as works are completed.

A significant quantity of asbestos was removed between 2012 and 2015 as a result of extensive repair and upgrade works to various hangars and buildings.

AAC has compiled a register of chemical and hazardous materials for its grounds maintenance and works activities (2009).

16.8.6 Implementation targets for the 2017 AES

Maintain the AAC asbestos register, management plan and risk assessments.

Review AAC operations and expand the Hazardous Materials Register as required.

Develop Hazardous Materials Register for relevant tenancies and prepare baseline snapshot.

Monitor hazardous materials on airport through tenant reviews and record quantities of hazardous materials in Hazardous Materials Register.

Ensure that tenants have hazardous materials licences where applicable and have a HAZMAP located at the site entrance.

Monitor the quality and quantity of waste materials on the airport.

Comply with regulations relating to the management of PFCs on airport.

16.9 USE OF NATURAL RESOURCES AND ENERGY

16.9.1 Objectives

To identify opportunities for cost effective reductions in consumption of natural resources and energy

To encourage efficient use of water and energy

To encourage the use of alternative sources of energy and water

To reduce airport use of non-renewable resources

16.9.2 Existing conditions

Archerfield Airport is supplied with reticulated water, mains power and other utility services from the Brisbane urban infrastructure networks.

Water

Sustainable Solutions International Pty Ltd prepared a *Water Efficiency Management Plan* (WEMP) for Archerfield Airport in April 2008.

The WEMP included a detailed assessment of past and existing water usage, and identified opportunities for more efficient use of water. It was prepared at a time when SEQ was in a protracted drought, and State government implemented legislation to conserve water use. The Government subsequently abolished The Queensland Water Commission and its permanent water conservation measures on 1 January 2013.

AAC encourages tenants to minimise use of potable water and to recycle water wherever possible.

Alex Fraser Group uses bore water and water from its detention basin for dust control, Veolia Environmental Services (Australia) Pty Ltd uses recycled water for dust management, and Q-Crete recycle water from its triple interceptor for its operations.

Water tanks are installed with new developments. Tenants are discouraged from hosing out hangars.

Electricity

The airport is connected to the Brisbane grid. Electricity is supplied directly to the airport substations, and the airport distributes the electricity to tenants on serviced sites.

Infrastructure includes:

- a 500 kVA transformer substation at the BP Truckstop;
- a 300 kVA transformer serving developments in Wirraway Avenue;
- a 500 kVA transformer substation at the Veolia Environmental Services site, serving developments in Beaufighter Avenue;
- a 300 kVA supply to the BCC sewage pump station near the Oxley Creek;
- a 200 kVA and a 300 kVA transformer in the south east of the site, near Mortimer Road;
- a 300 kVA transformer at the fuel farm;
- a 750 kVA substation and a 60 kVA diesel powered standby generator (for essential power only) to the east of the Airport Terminal building; and
- a 200 kVA substation serving the tenants on Beatty Road, opposite Boundary Road (on the east side of the airport).

16.9.3 Potential impacts

Efficient use of energy and water at Archerfield will become increasingly important in coming years.

Water scarcity is expected to be more prevalent due to climate change and increasing demand for water to serve population and economic growth in South East Queensland.

Energy usage will also become a significant issue, from the perspectives of cost, and carbon emissions in particular.

AAC is committed to securing the economic sustainability of the airport, and is working hard to attract additional enterprises and people to the site.

It recognises that water and energy consumption overall could increase due to:

- occupation of vacant leasehold premises, or connection of existing sites to the reticulated network;
- increased staff and visitor numbers on airport;
- construction activity; and/or
- increased production by tenants (particularly those with higher water usage requirements).

With growth in airport activity, the focus will be on achieving best practice efficiencies in water and energy use in new enterprises; use of renewable

energy (including on site generation where feasible); and encouraging progressive improvements in existing AAC operations and tenancies.

Management of impacts

The management of water use will include:

- ongoing monitoring of consumption by AAC and tenants using the AAC metered supply, to identify opportunities for reductions;
- harvesting and reuse of water on site as a replacement (or supplement) for potable water (for suitable aviation and non aviation purposes);
- use of water efficient fittings and appliances in AAC facilities and new developments; and
- incorporating grey water reuse in new developments, where feasible.

As part of on-going improvements the following water reduction initiatives have been identified:

- sub metering of tenancies with high water usage, to identify unaccounted for uses and possible leakages;
- use of water efficient fixtures with a minimum of 3 WELS stars at the airport; and
- a leak identification and monitoring program including repair of known leakages.

In addition, drought tolerant indigenous vegetation will be used where possible in new landscaping, to minimise the need for irrigation.

Improvements in recent years includes new landscaping work alongside the Grenier Drive entrance road and along Ditchmen Avenue in 2012. This included replacing existing undesirable vegetation with Tuckeroos. The areas around Hangar 5, 6, Building 8 and Building 9 have also been landscaped with appropriate plants.

A staged reduction in energy usage will be pursued, through initiatives such as:

- specification of energy efficient appliances and fittings (including lighting) in refurbishments and new developments;
- achievement of energy efficiency in the siting, design, building fabric and specification of services for new development by AAC and tenants; and
- encouraging tenants during environmental reviews to implement reduction strategies.

Improved efficiency in water and energy use will be pursued in new airport and commercial development. AAC has implemented such measures in the refurbishment of the Airport Terminal and administration building, the corporate hangars, the new warehouse development on Beaufighter Avenue and the new Aviall building on Ditchmen Avenue.

16.9.4 Achievements 1998-2016

Use of natural resources and energy has been considered in tenant assessments.

The airport has secured Alex Fraser Group, Veolia Environment Services (Australia) Pty Ltd and Q-Crete as tenants, all of which are recycling operations. These businesses promote the reuse of resources and reduce the energy used in producing these raw materials.

Water efficiency initiatives by AAC since the 2005/06 baseline year include:

- upgrade of all taps, showers, toilets and urinals at AAC owned buildings to more efficient fittings;
- installation of rainwater tanks; and
- upgrading of water meters.

Rainwater tanks have been installed for the Q G Air complex (for washdown for operational purposes), the corporate hangar development on Wirraway Avenue, the warehouse and office on Beaufighter Avenue, and the Aviall warehouse/office building on Ditchmen Avenue.

Energy and water efficiency were key considerations in the refurbishment of the administrative offices in the historic Terminal building. Since completion, AAC energy consumption has been reduced by almost half saving around 5000 kg of greenhouse gas emissions per annum.

Energy requirements for airport operations have also been addressed. AAC has installed a new runway/taxiway lighting control system to accommodate the planned replacement of runway/taxiway lighting with LED which will result in energy saving in the future.

16.9.5 Implementation targets for the 2017 AES

Use of natural resources and energy in AAC operations, and by tenants will continue to be monitored through the cyclical environmental review process.

Tenants will be encouraged to reduce natural resource and energy use, and initiatives will be recorded and reflected in management plans (as appropriate).

AAC will consider energy efficiency, water efficiency, and sustainable design when designing and specifying future projects or reviewing proposals by new or existing tenants.

16.10 NOISE

16.10.1 Objectives

To minimise within the scope of AAC's responsibility ground based noise disturbance associated with airport operations.

16.10.2 Existing conditions

Aircraft noise

The major contributor of noise and vibration associated with airport operations is aircraft in flight.

Aircraft noise is modelled and mapped for each airport as an Australian Noise Exposure Forecast (ANEF). The ANEF shows the expected noise effects on land around the airport. It is reviewed and endorsed by Airservices Australia.

AAC in 2010 prepared an updated ANEF for Archerfield Airport that illustrates the practical capacity of the airport (Figure 13). This ANEF was developed in consultation with Airservices Australia, BCC and the State Government and was endorsed in August 2010. It replaced an ANEF that showed projected aircraft activity to the year 2019.

The Archerfield Airport ANEF identifies forecasted noise impacts. It takes into account current standards, the projected aircraft movement patterns, likely aircraft mix, and maximum aircraft volumes forecast for the Airport Master Plan.

The approved ANEF provides useful information for planning decisions for land around the airport. It identifies areas that are not suitable for noise sensitive uses unless mitigating measures are implemented in the siting, design and construction of any buildings.

BCC and the State Government take the ANEF into account when they prepare the planning scheme for land around the airport, or consider development proposals near the airport.

Under the *Civil Aviation Act 1988* noise due to aircraft in flight, landing, taking off or taxiing is under the direct control of Airservices Australia (AsA). It is exempted from being the responsibility of the ALC under the *Airports (Environment Protection) Regulations 1997*.

Any complaints received concerning aircraft movements are immediately directed to the responsible officer at Airservices Australia.

The Airservices Noise Enquiry Service can be contacted by phone on 1800 802 584 (freecall), by mail at PO Box 211, Mascot NSW 1460, or by email at: *community.relations@airservicesaustralia.com*

AAC works with AsA and aircraft operators on any aspects that involve AAC's areas of responsibility or interest.

AAC developed a Fly Neighbourly program in 2015 and works with AsA and aircraft operators to minimise the impact of aircraft on the community and on any aspects that involve AAC's areas of responsibility or interest.

Other noise sources

Noise emitted from an airport (other than discussed above) may be caused by activities including:

- ground running of aircraft;
- noise from aircraft parked near buildings;
- operation of engine test cells;
- construction operations;
- noise from non-aviation activities; and
- road traffic movements.

These sound sources may affect the area immediately surrounding the airport.

16.10.3 Management of impacts

Noise levels due to ground based aircraft engine activities are minimised by restricting ground running and testing procedures to appropriate locations on the airport, distant from sensitive land uses.

Helicopters are directed to pod Tango for run up, jet engine testing is only allowed at the run up bay to Runway 10L, and truck based dynamic engine test beds are directed to pod Tango.

Evening or night time activities of this nature rarely occur.

AAC investigates any complaint due to the ground running of aircraft. The approach to this is addressed in the EMPs, and is subject to monitoring for effectiveness, and periodic review.

AAC considers that its noise control strategy described above is suitable, and that noise monitoring or changes in noise management practices does not appear to be warranted.

If current circumstances change significantly then the need for monitoring and further controls will be reassessed and actions taken. Changes that would trigger further assessment could include proposals to commence a new 'noisy' process, or a significant increase in the frequency of ground based engine operation.

With respect to other potential noise sources, there has not been a significant history of complaints. Since 1999, all new leases have included clauses relating to the environmental management obligations on tenants.

Under the current environmental management regime, tenants assessed as having the potential to generate nuisance noise are required to develop and

implement a *Site Environmental Management Plan* (operations) to address potential off site impacts. Implementation of these management plans will be subject to ongoing monitoring and periodic review by the AEO.

16.10.4 Achievements 1998-2016

There have been four complaints relating to ground running of aircraft. These have been addressed in accordance with AAC procedures.

Noise emissions from tenancies on airport are managed in accordance with the EMPs and any environmental management plan in place for their operation.

16.10.5 Implementation targets for the 2017 AES

Continue with noise management initiatives adopted by AAC which include:

- working with AsA to identify and implement solutions to any noise complaints, where these relate to AAC's areas of direct responsibility as airport operator;
- monitoring and reviewing the use of airport facilities (including ground running and testing procedures) with the view to minimising the noise impact on the community;
- ensuring if a significant issue arises that appropriate consultation processes are put in place to resolve the issue;
- working with Brisbane City Council and other relevant government agencies to ensure that structures built near the airport have taken noise into consideration and that off airport land is appropriately zoned; and
- assisting neighbouring landholders with advice on anticipated noise from airport operations, and options for minimising potential noise impacts on the use or development of their land.

Ensure that all AAC personnel know of the noise complaints process (as set out in the EMPs). Advise new employees during initial induction and refresh all personnel annually.

Develop guidelines for when tenants are able to produce noise and the noise limitations that apply.

17 Consultation on the Master Plan

17.1 CONSULTATION FOR THE PREPARATION OF THE PRELIMINARY DRAFT MASTER PLAN

Consultation is integral to the successful formulation and delivery of the Master Plan, and implementation of the vision, strategies and actions described in the plan. AAC is committed to frank and open consultation. It wholeheartedly embraces the opportunity to receive constructive feedback on its plans for the airport.

The 2017-37 Master Plan retains the core principles of the previously approved 2011-31 Master Plan. Minor updates have been included in this plan to reflect the changes to environmental procedures, building activities and movement figures that have occurred at the airport since 2011.

In addition, this Master Plan includes more extensive information on ground transport (Chapter 10) and additional information about how AAC will manage developments anticipated within the first five to 10 years of the Master Plan. This information has been added in accordance with further requirements of the *Airports Act* that now apply.

The key initiatives and major components of the 2011-31 plan, including: the proposed realignment of the secondary grass runways; options for the extension of the main runway; the proposed extension of the Wirraway Precinct for further high-end aviation developments; the traffic mix; and flight paths have not changed.

These concepts were the subject of extensive consultation that was undertaken in the preparation of the 2011-31 Master Plan, and involved a range of people and organisations with an interest in the future of the airport.

Since 2011, AAC has operated the *Archerfield Airport Community Aviation Consultation Group* (AACACG) which meets three times a year to discuss any matters affecting the airport, including facets of the Master Plan. Community bodies, airport tenants and Government agencies provide information to the group on issues and policies that may affect the future operations of Archerfield Airport.

In addition, AAC established a Planning Co-ordination Forum (PCF) in June, 2014. The forum involves representatives of AAC, BCC, State Government,

and the Commonwealth (through DIRD) and currently meets three times per year to discuss a range of strategic issues including noise, traffic, land use, airport protection, infrastructure services and community consultation.

PCF meetings with BCC have included representatives from City Planning and Sustainability, and Infrastructure.

AAC has since the approval of the 2011-31 plan also liaised with:

- DIRD on regulatory and policy matters, and the Master Plan's direction;
- CASA on standards issues, airspace management, airspace protection, the proposed realignment of the secondary grass runways, and prescribed airspace approval;
- Airservices Australia on airspace management including the introduction of a new Cat C and RNAV-Z (GNSS) approach for runways 10L and 28R; navigation aid requirements; future aircraft instrument procedure design; and prescribed airspace approval;
- Queensland Department of Infrastructure, Local Government and Planning on regional planning initiatives (including the SEQ Regional Plan), aviation planning, airport protection;
- Queensland Department of Transport and Main Roads on road and rail aspects; and
- Brisbane City Council on airspace issues, land use planning, road network and transport requirements, infrastructure services requirements and funding, environmental management, economic development, and noise aspects.

17.2 BACKGROUND STUDIES

17.2.1 Optimising the aviation operations

In 2008 AAC made significant investments in resources and new technologies to help better understand the aviation operations of the airport.

AAC engaged technical expert aviation engineers to analyse detailed data and to suggest improvements to help realise the full potential of Archerfield Airport.

These studies primarily focused on the utility of the secondary grass runway complex. They found that the secondary grass runways were periodically unavailable due to wet conditions, and were not optimally oriented having regard to wind patterns.

For example, these runways were continuously closed for all but two weeks between December 2010 and September 2012. This was due to rain events and the 2011 floods causing significant erosion and degradation of the grass runways complex and a 'Soft Wet Surface'.

Continued rain prevented reconstruction works throughout this period, rendering the grass runways and taxiways unserviceable, and in effect

quarantined approximately 60 hectares, or nearly one quarter, of the airport's total land mass for almost two years.

This experience confirmed that a rethink was required so that this otherwise underutilised area of land can contribute to both the aviation and non-aviation activities (and therefore the economic viability) of the airport. This will enable the airport to grow, achieve its highest and best use and remain poised for aviation opportunities that present themselves in the future.

A number of options to improve the utility of the grass runways were considered, including paving them in their current positions. In accordance with CASA regulations, upgrades to runways must take into account current standards. The existing runways do not meet the current standards due to their longitudinal peaks and troughs. Dispensations that currently exist, no longer apply at commencement of upgrade works.

The runways would require approximately $1.8 million in fill alone to bring them up to current ICAO standards. On top of this, more than $6 million would be required to construct an appropriate pavement and bitumen overlay. Parallel and connecting taxiways would also require pavement and bitumen works to complement the runways. These costs were considered exorbitant in comparison to the increased utility achieved and far too onerous to pass on to existing GA operators and airport users.

17.2.2 Grass runway utilisation and proposed improvements

A review of NOTAMs (Notices to Airmen) relevant to Archerfield was conducted in 2007 to ascertain the period of time that the grass runway complex is typically closed due to 'Soft Wet Surface' conditions.

This was initially conducted over a 9 year study period starting from privatisation in 1998. The 10 years prior to privatisation were later studied to determine any differences that may have occurred since privatisation. The year 2008 was also included in the analysis to give a 20 year sample: 10 years pre-privatisation and 10 years post-privatisation.

In depth analysis of grass runway availability had not been conducted for Archerfield in the past. It revealed that on average, both of the grass runways had been unavailable 26.25% of the time over a 20 year period. This data shows that on average, nearly one-quarter of the airport's land mass is effectively quarantined for a quarter of each year.

In addition to this study, in 2008 AAC invested in technology and reporting tools to enable an in-depth analysis of individual runway movements. For the first time in Archerfield's history, accurate data became available for individual runway usage over a prolonged period at the click of a button.

The findings of the 20 year NOTAM study, together with airport specific wind data were analysed by a team of experts spearheaded by the principal of Randl, Rod Sullivan. Mr Sullivan has been involved with the planning of the airport since the 1970's.

The results concluded that a crosswind runway alignment would be required at Archerfield Airport, for daytime operations only, approximately 12% of the time. This requirement is primarily to cater for ab-initio students flying light aircraft who can sometimes find it difficult learning in crosswinds.

It was also found that in conjunction with the existing 10/28 runways, and following the removal of the 13/31 runways in the 1980's, a realignment of the grass runways was commended by wind data and their usage could be improved by rotating them around 20-30 degrees counter-clockwise.

Following these findings, and at the recommendation of Randl, AAC proposed a single, sealed crosswind runway on a realignment of 01/19 degrees. This proposal, and the reasons for it, was flagged at a number of Aviation Consultative Meetings with airport users and tenants and also during individual meetings with CASA, AsA and Air Traffic Control during 2009.

A discussion paper was also prepared which examined the required changes to operating procedures and various risks that may occur as a result of the change.

AAC requested operators, and in particular the flying schools, come forward with any issues that this proposal may create and to suggest alternative solutions for consideration.

One of the major flying schools, Flight Training Australia, suggested an alternative crosswind runway configuration in October 2009.

Two hazard identification (HAZID) workshops were held with representatives from airport user groups, CASA, Air Traffic Control and AsA. The workshops considered any risks to safety that might be associated with four options for the proposed realignment of the 04/22 runways.

The various options considered for the secondary runways included the construction of a single, sealed runway to replace the existing secondary grass runways.

The workshops and subsequent analysis revealed that although CASA was comfortable with the single-sealed crosswind runway proposal, AsA and the two major flying schools were concerned about transitioning from parallel to single runway operations.

In response to these concerns, AAC decided to abandon the initial proposal to provide a single-sealed crosswind runway and an alternative option preferred by the parties was chosen; that of providing two grass parallel runways on a bearing of 01/19 and moving them to higher ground to avoid unserviceability issues caused by 'Soft Wet Surface' conditions.

This required a number of significant changes to modelling scenarios that were in the process of being developed at the time (including the *Practical Capacity ANEF*, runway capacity, and flight paths). The new proposal was presented to airport users and tenants at an aviation consultative meeting on 29th January 2010 and 16th April 2010.

The Commonwealth Administrative Appeals Tribunal between 2012 and 2015 undertook a thorough review of the Minister's decision to approve the 2011-31 Master Plan. Deputy President P. E. Hack SC, who presided over the case, concluded *"I am then satisfied that the re-alignment of the 04/22 runways will likely improve useability; it certainly will not reduce it."*

A Major Development Plan (MDP), including further consultation with potentially affected stakeholders, and approval by the Minister under the *Airports Act* will be required before realignment of the secondary grass runways can proceed.

17.2.3 Aviation land use planning

In parallel with the work associated with the proposed improvements to the grass runway complex undertaken for the 2011-31 Master Plan, AAC conducted extensive consultation and spent considerable time on land use planning issues.

This included analysis of the strategic land use context of the airport; the interfaces to surrounding land; and consideration of the role and function of Archerfield as depicted in State, regional and local planning strategies and the Brisbane City Plan.

The consultation and analysis assisted with clarifying the short to medium term plans of a number of airport users and tenants, identified opportunities for the expansion of aviation facilities, and concepts for changes to runway and taxiway layouts to cater for emerging needs.

AAC also engaged Marcom Communications to survey existing airport users and tenants about their current and anticipated future needs. AAC decided to engage aviation operators early in the master planning process, to ensure that any proposed future expansions to tenant businesses could be identified and catered for in the development of the Plan.

The survey was distributed in October 2009 and sought data on the nature of organisations operating from the airport, their existing facilities and the extent of utilisation, and factors influencing likely expansion.

It was also sent to Local, State and Federal representatives to inform them of the beginning of the consultation period and to invite them to contact the Corporation should they have any initial queries or concerns.

The survey found strong support for the ongoing provision and further development of aviation related activity. Given the limited number of survey respondents who noted plans for expansion however, this increase in growth will likely need to be generated from aviation businesses not yet located at the airport.

Discussions with Brisbane Airport Corporation have indicated that some of this expansion may come from their GA sector, which is likely to change following

the development of the New Parallel Runway (NPR) at Brisbane Airport around 2020.

From this consultation, it was also clear that from a land use perspective Archerfield Airport is a major and strategic feature of Brisbane and South East Queensland, and that planning strategies and policies recognise this.

As discussed in chapter 3, the airport is an important part of the South West Industrial Gateway of Brisbane, and has the potential to make a significant contribution to the consolidation of this employment area, as a transport hub, and as a site for further development. The underutilised land on the Airport has the potential to cater for appropriate large scale tenancies that cannot be accommodated elsewhere in this district due to scarcity of land and existing development commitments.

The investigations and consultation reinforced also the importance of incorporating appropriate transitions to the surrounding area, including by matching the types of land uses with those on neighbouring land, and providing appropriate transitions in the scale and form of developments. The State and BCC reviewed and supported these land use aspects of the 2011 Master Plan.

17.2.4 Practical capacity ANEF

Consistent with best practice (and supported by the representatives of Federal, State and Local government engaged in the previous master planning process in 2010), AAC in 2010 commissioned Randl Pty Ltd to develop a Practical Capacity ANEF.

This was seen as an important step in ensuring the airports capacity for growth is maintained, particularly in light of increased urban development (and redevelopment) within the surrounding industrial and residential suburbs.

Extensive technical work was carried out based on the proposed single-sealed crosswind runway option. This was later altered to incorporate the industry preferred realigned, parallel, grass runway option. Changes to Archerfield's airspace under the transition from GAAP to Class D procedures were also incorporated.

The study was based around the mix of aircraft currently using the airfield and those expected in the future. Accurate data was gathered from reporting tools that AAC invested in, specifically for this process, to achieve a realistic outcome.

During the development of the 2010 ANEF and prior to its endorsement, AAC conducted a number of consultation sessions with BCC and State Government.

These sessions focussed around the ANEF, changes to runways including the secondary grass runway realignment, airspace changes, noise issues and traffic issues with proposed developments.

Initially, the discussions were on the changes to the proposed ANEF. Of importance was the notion that the 2010 ANEF is based on Practical Capacity, rather than a 20 year horizon.

The 2010 ANEF also makes provision for the realignment of the secondary grass runways and includes noise levels associated with the current grass runway alignment up to approximately 175,000 movements.

A MDP, including additional investigations and further consultation with potentially affected stakeholders will be required before realignment of the secondary grass runways can proceed.

Comments from BCC and State were taken into consideration and included in the final report that was sent to AsA prior to endorsement by the Minister of the 2010 *Practical Capacity ANEF*.

Discussions were also held regarding noise issues associated with the realignment of the grass runways along with potential issues associated with traffic on surrounding areas.

It was seen important that the community be fully aware of the changes and had the opportunity to assess the potential impacts to their properties.

Summary fact sheets were developed to address these issues. The fact sheets provided brief overviews of the major aspects of the pDMP and included; current movement figures, grass runway realignment considerations, RPT and freight options, ANEF changes, N70 noise contours (existing and proposed), land use and surrounding road issues.

17.2.5 Runways and Taxiways

To ensure the proposed realigned runways would meet the needs of current and future aircraft operations, extensive technical work and consultation with AsA, ATC and CASA, was undertaken.

The foremost concerns were that adjoining runways and taxiway systems could cater for future growth and that ground and airspace operational issues were considered in line with Archerfield's transition to Class D airspace.

Options for additional secondary taxiways have also been included in the Master Plan to ensure the ground movement of aircraft will not become a 'bottleneck' when movements approach Practical Capacity. Potential taxiway layouts were discussed with ATC, AsA and CASA before their adoption into the 2011 Plan.

17.2.6 Required upgrades for future RPT, freight or larger aircraft

Technical studies were also conducted early in the planning stages for the 2011-31 Master Plan to examine the likely requirement, and alterations that would be required to existing infrastructure, for RPT operations.

Archerfield Airport has a long history of performing RPT operations and the Corporation has a desire to continue the option for RPT in the event that it is required again by the greater community in the future.

In line with the previously approved plan, the 2017-37 Master Plan includes 12 arrivals and 12 departures per day following conversations with RPT operators and taking into account the future growth of the region.

Consultation with BCC in March 2010 also recommended that the Master Plan include options for future freight operations. With its current location within the South West Industrial Gateway of Brisbane, one of Australia's fastest growing regions, both of these scenarios are seen as likely requirements.

The technical reports recommended the strengthening and lengthening of the existing main runway by means of reconstruction.

To avoid interruptions to operations, it suggests a newly constructed runway along the existing taxiway Alpha would be more economical and provide a more certain outcome in terms of quality, than reconstruction of the existing main runway.

The upgrading of taxiway Bravo and associated linkages to the main runway to a Code C standard would also be required. These options have all been presented in the Master Plan. A MDP will be required before any of them proceed.

Consultation with affected stakeholders, through means such as the Community Aviation Consultation Group, would occur prior to the introduction of any RPT services of over 40 seat capacity operating from Archerfield.

This consultation would address any potential implications including for aircraft noise, ground access and use of surrounding roads, adequate provision for on airport parking, and any effects on other airport operations.

17.3 EXHIBITION OF THE PRELIMINARY DRAFT MASTER PLAN

The preliminary draft of the 2017-37 Master Plan (pDMP), incorporating the 2017 Airport Environment Strategy (AES) was exhibited from 9 November 2016 to 17 February 2017.

A number of key stakeholders were engaged prior to the formal exhibition period, to inform them of the main changes proposed from the 2011-31 Master Plan, and the opportunities for feedback on the preliminary draft of the 2017-37 Master Plan.

These included local, State and Federal elected representatives, BCC officers, aviation authorities, aviation industry and businesses, tenants and airport users.

The following summarises the consultation activities undertaken.

Table 10 Summary of consultation activities

Activity	Audience	Results
Direct mail	Directly affected businesses, tenants and airport users	150 letters to tenants, 250 letters to airport users, and over 780 emails were sent by AAC at the commencement of the formal exhibition of the pDMP, providing information about the master plan
Internet	Directly affected, indirectly affected and the wider community	Over 6750 hits throughout the consultation period, viewing web pages and downloading information about the master plan
Media	Directly affected, indirectly affected and the wider community	Media release announcing preparation and exhibition of the pDMP widely circulated to print media, television, radio, internet media, industry bodies, local community groups, State and local government. Articles in South West News Quest newspaper, Southern Star Quest newspaper, RAAA Newsletter - Spring edition, community Neighbourhood Watch newsletters, AAC newsletters
Advertising	Directly affected, indirectly affected and the wider community	Notice of the pDMP was given in local and metropolitan papers with a circulation reach of more than 428,000.
Phone/Email	Directly affected, indirectly affected and the wider community	AAC followed up with calls and emails and responded to requests for further information or clarification of aspects of the pDMP.
Responding to feedback	Directly affected, indirectly affected and the wider community	Further information was provided, by phone, mail, email and in face to face discussions
Briefing document	Directly affected, indirectly affected and the wider community	Briefing document provided for download (63 downloads), supplied also to a wide range of stakeholders including those on AAC's email distribution list (over 780), and BCC Councillors and officers, State Members of Parliament, local libraries and community groups

AAC prepared a briefing document summarising the key features of the 2017-37 pDMP, highlighting the key changes proposed from the 2011-31 Master Plan, and setting out how people could contact AAC for further information.

This was circulated to a range of stakeholders including those on AAC's email distribution list (over 780), and Local and State elected representatives, BCC officers, and local libraries (ARTIC Library - Acacia Ridge, Coopers Plains Library, Sunnybank Hills Library, Mt Gravatt Library). It was also made available for download from the AAC web site.

Stakeholders were informed by advertising in metropolitan and local newspapers (Courier Mail with 369,000 readers, and Southern Star 59,263), the distribution of media releases to news agencies and the aviation industry,

letters to over 150 tenants, 250 airport users and emails (with information about the master plan and links to the plan and explanatory material) to more than 780 stakeholders on the AAC database.

Copies of the 2017-2037 pDMP (incorporating the AES) were made available for viewing or purchase during office hours at the AAC offices at Archerfield Airport. A printed copy was also provided to Coopers Plains Library.

The pDMP and AES document, together with the summary of key features, the technical reports, fact sheets addressing key issues, and the media release were also posted on the AAC web site and made available for download. Links were also provided to the final 2011-31 Master Plan.

During the public exhibition period:

- 794 copies of the 2017-37 pDMP/AES document were downloaded (395 high resolution, 399 low resolution);
- 177 copies of the media release announcing commencement of the consultation period were downloaded; and
- 63 copies of the 'key features' document were downloaded.

The airport master plan pages on the AAC web site were viewed as follows:

- pDMP 2017 *Main Page* = 841 views;
- pDMP 2017 *Media Release* Page = 31 views;
- Master Plan 2011 *Main Page* = 57 views;
- Master Plan 2011 *Fact Sheets & Technical Papers* Page = 10 views;
- pDMP 2017 *Open for Consultation - Latest News* section = 4713 hits; and
- pDMP 2017 *Open for Consultation - Media Release* section = 73 hits.

Consultation activities undertaken during the exhibition period included:

- follow up with tenants and operators via letters, emails, and the airport newsletter, highlighting the exhibition of the 2017-37 pDMP and inviting questions or input;
- meetings with local Councillors; AVEO Durak retirement village; the Federal Members for Moreton and Oxley; the State Member for Sunnybank; QGAir; Shell; State Department of Infrastructure, Local Government and Planning; Queensland Fire and Emergency Services; Department of Transport and Main Roads; State Department of Health; Department of State Development-Economic & Industry Development; and Neighbourhood Watch Mt Ommaney;
- phone discussions with a number of airport tenants, and landholders in the vicinity of the airport.

AAC also held workshops with BCC to go through the pDMP, and also address management of obstacles within the airport airspace.

17.4 FEEDBACK ON PRELIMINARY DRAFT MASTER PLAN

AAC received five submissions in response to the formal exhibition. These were from:

- Brisbane City Council;
- State Department of Transport and Main Roads;
- Archerfield Airport Chamber of Commerce Inc;
- Dr Chris Andrews; and
- Falling Skies.

17.5 CONSIDERATION OF SUBMISSIONS

AAC took into account all submissions in formulating the 2017-37 Draft Master Plan and 2017 Environment Strategy, submitted to the Minister for approval.

The following provides a summary of the key issues raised, the changes sought, AACs response, and actions that will be implemented.

Where the issue raised resulted in changes to the preliminary draft Master Plan, these have been incorporated in the 2017-37 Master Plan and AES, approved by the Minister for Infrastructure and Transport on 15 July 2017.

17.5.1 Changes from the current 2011-31 Master Plan

Issue

A number of submitters stated that the 2017-37 pDMP did not propose significant departures from the 2011-31 Master Plan.

Response

The 2017-37 Master Plan is an evolution of the 2011-31 Master Plan.

The main changes from the 2011-31 plan are:

- The master plan and environment strategy documents have been consolidated into a single report, removing duplicated information and bringing the documentation into alignment with amendments made to the *Airports Act* in 2010;
- The existing and future OLS/PANS-OPS surfaces for Archerfield have been updated in consultation with Airservices to reflect the decommissioning by Airservices of the Non Directional Beacon (NDB) in 2017 (section 9.2);
- Information about the planning context for the airport has been revised to be consistent with the current planning strategies, policies and controls. The changes reflect amendments made to State Planning Policy and Brisbane City Plan since the publication of the 2011-31 Master Plan;

- Additional information is provided about ground transport; including details of the anticipated traffic generation from airport developments in the initial planning period (5 years+), works anticipated to be required to provide for safe and efficient access to airport developments, other opportunities for improvements to the adjacent road network (to cater for growth in passing traffic), and opportunities for integration of bicycle routes now shown in the *Brisbane City Plan*, and the State Government *South East Queensland Principal Cycle Network Plan*; and
- The potential for a new road connection between Boundary Road, east and west of the airport has also been deleted, with the agreement of BCC and DTMR.

17.5.2 Consultation

Has adequate consultation been undertaken for the 2017-37 DMP?

The issue/changes sought

Some submitters have questioned whether adequate consultation has been undertaken in the process of preparing the 2017-37 Draft Master Plan (relates to sections 17 (consultation) and 18 (implementation)).

Response

AAC considers that the consultation undertaken for the review and preparation of this master plan was appropriate and sufficient.

AAC undertook extensive consultation prior to preparing the 2011-31 Master Plan, including with Council, the local community, airport users, elected representatives, and authorities.

The 2011-31 plan proposed a number of new initiatives, including for the realignment of the grass runways. Compared to the master plan it was replacing, it also contained a new Practical Capacity ANEF; N70 modelling; more comprehensive information about airport developments; and was supported by a range of technical analyses of existing airport operations and options for addressing future needs.

The merits of these initiatives and supporting documentation were scrutinised:

- through workshops addressing specific planning issues;
- in the public exhibition process for that master plan;
- in AACs consideration of submissions on the preliminary draft;
- in the assessment of the 2011-31 Master Plan by the Minister; and
- over the course of the Commonwealth Administrative Appeals Tribunal (AAT) review of the Minister's decision to approve the 2011-31 Master Plan.

The AAT review in particular canvassed a wide range of issues relating to the role, function and operation of the airport in the past, present and future.

The review process ran from August 2012 to July 2015. The AAT heard extensive submissions on topics relating to:

- airport operations;
- safety;
- runway planning and protection;
- runway usability and suitability for various aircraft;
- drainage and other infrastructure requirements;
- land use and development;
- consistency with regional and local planning strategies and controls; and
- compliance with the requirements for an airport master plan under the Airports Act.

It affirmed the Minister's decision to approve the 2011-31 Master Plan.

The direction and content of the 2017-37 Master Plan , and the implications for areas around the airport of existing and planned airport operations and development are not proposed to change significantly from what was shown in the 2011-31 Master Plan.

The consultation carried out for the 2017-37 Master Plan built on the engagement of key stakeholders in the formulation of the 2011-31 plan and the preliminary draft of the 2017-37 plan. This included consultation prior to, and during the formal exhibition of the 2011-31 Master Plan and the preliminary draft of the 2017-37 plan; and consultation on issues arising from the submissions to the plans.

Section 18 sets out the other consultative processes, including the ongoing *Airport Planning Coordination Forum*, and the *Archerfield Airport Community Aviation Consultation Group* (AACACG). AAC provides more detailed information about the AACACG to the general public via its website including copies of all meeting minutes which are available for download. More information is provided in section 18.11 of the 2017-37 Master Plan.

Section 18 also describes consultation that will be undertaken for specific types of projects, or approvals (including for any Major Development Plan that might be prepared).

AAC has also reinforced in the 2017-37 Master Plan a commitment to consult with BCC on ground transport issues including the design of proposed intersections for the Boundary and Barton precincts. This approach has already been taken in resolving the design of the Transition Drive intersection at Boundary Road, and the related infrastructure works that have been implemented by AAC.

17.5.3 Land use and development planning

Consistency with Brisbane City Plan

The issue/changes sought

BCC has suggested that the references to the Brisbane City Plan could be strengthened to reinforce Council's support for the safe and efficient operation of the airport and its importance to the economic development and diversity of the city.

Response

AAC recognises that through the Brisbane City Plan, Council supports the safe and efficient operation of Archerfield Airport and acknowledges its importance to the economic development and diversity of the city.

Accordingly, section 3.5 (Brisbane City Plan and local plans) has been revised to acknowledge that:

- The effective operation of airports and the importance of major transport infrastructure to economic activity are reflected in City Plan's *Strategic framework*.
- Element 2.1 of City Plan, Brisbane's industrial economy, recognises that adjacent development must optimise and integrate with airport airspace and limit sensitive land use in proximity to the airport approaches.
- The *Airport environs overlay* in City Plan ensures that new development is consistent with this land use strategy.

Proposed Oxley Creek Transformation Project

The issue/changes sought

In March 2016, BCC announced the Oxley Creek Transformation Project which will, over the next 20 years, create improved opportunities for kayaking, public aviaries, Eat Street style markets, urban farms, sports facilities, and economic hubs in the 15 km green corridor between Brisbane River and Larapinta.

Council owns 21 ha of land on the eastern side of Oxley Creek, extending from the southwest corner of the airport land, zoned Conservation and 24 ha adjoining the northwest corner of the airport, zoned Conservation.

Council also owns the adjoining 74 ha to the west of the Airport, known as Archerfield Wetlands. This land was purchased in 2003 due to its important ecological value and future eco-recreation potential.

BCC has advised that works on this site are likely to commence in the short term. Council is planning to improve biodiversity values of the Archerfield Wetlands. This will increase vegetation cover.

Council seeks to work with AAC to explore land uses, built form outcomes and vegetation on the Council land forming the corridor that will both advance the creek transformation strategy but also protect the airport operations.

Response

AAC welcomes the opportunity to work with BCC to identify appropriate land use, built form outcomes and vegetation on Council land forming the corridor that will both advance the creek transformation strategy and protect airport operations.

To this end, AAC has recently engaged with Oxley Creek Management Pty Ltd and will continue to do so as the Project develops over the coming years.

Accommodation for tourism purposes

The issue/changes sought

Archerfield Square (the precinct at the main Beatty Road entry to the airport) is proposed to include accommodation for tourism purposes. BCC has advised that it does not consider this to be an appropriate on-airport use. Student accommodation is supported.

Response

AAC wants to retain the flexibility for accommodation for tourists, business people and others visiting the airport or utilising its services. This use is complementary to the aviation and business activities at Archerfield, and will strengthen the appeal of Archerfield as a transport hub in the South West Industrial Gateway of Brisbane. The accommodation uses were provided for in the 2011-31 Master Plan, and past plans, similar to many airports.

Any buildings developed for tourism accommodation would need to satisfy relevant design and construction requirements, including for noise protection having regard to the noise exposure for the particular site.

Interface to residential uses on the south side of Mortimer Road

The issue/changes sought

The low impact industry on the corner of Beatty Road and Mortimer Road should provide a buffer to the adjacent residential development south of Mortimer Road, provided that amenity impacts can be contained within the airport site. Where practical, the draft master plan should also seek to manage amenity impacts from land uses in the SP5 Special purpose (Airport) zone, particularly in the Mortimer precinct within 250m of a sensitive zone.

Response

The zoning has been carried over from the 2011-31 Master Plan (updated to be consistent with the zones in the City Plan 2014).

The *Beatty and Mortimer PSP* (Figure 20) recognises that the land on the corner of Beatty Road and Mortimer Road provides an interface to neighbouring residential and open space areas.

These lots have direct frontage to the adjacent roads, and face the residential areas opposite. The preferred land uses for this corner include light industry, display, office, accommodation, convenience and support uses, which would be compatible with the nearby residential properties.

Council supports light industry uses at this location, as the site is at the edge of a Major industry area and the Archerfield Airport precinct (*Acacia Ridge-Archerfield neighbourhood plan/NPP-001*).

It has advised that a small-scale shop or food and drink outlet that directly supports the industry and workers may also be acceptable, and that a small scale neighbourhood centre of up to 2,500 m^2 could also be supported.

South West Industrial Gateway

The issue/changes sought

BCC considers that the Master Plan should acknowledge that recently there has been provision made for additional future industrial development in the South West Industrial Gateway area.

Response

BCC has in recent years made provision for expansion of the South West Industrial Gateway at Lower Oxley Creek (to the south of the airport).

In 2013, it adopted the Lower Oxley Creek South neighbourhood plan which applies to an area commencing 4km south-east of the airport. It provides for industrial development in locations where land use conflict can be avoided.

In 2016 BCC adopted the Lower Oxley Creek North neighbourhood plan which provides for low and medium impact industry in an area commencing 2.5km south of the airport.

Section 3.5.2 which describes the implications of land use planned around the airport has been amended to acknowledge the future industrial areas in the Lower Oxley Creek North, and South neighbourhood plans.

17.5.4 Airport protection

Residential development in the Public Safety Area

The issue/changes sought

The residential zoned land in the Public Safety Area on the eastern approach to Runway 28R/10L, including the land in the *Emerging community zone*, is already effectively fully developed, and opportunities for further development are very limited.

Response

When the 2011-31 Master Plan was being prepared, an infill site was being prepared for further residential development. That development has now been completed.

BCC has advised that the *Airport environs overlay code* in City Plan ensures that new development is compatible with the functioning of the airport.

The reference to this issue has therefore been deleted from the 2017-37 Master Plan.

Obstacles within the prescribed airspace

The issue/changes sought

BCC considers that the Master Plan suggests that there is a maximum allowable height of trees off-airport, and that this is incorrect. It requests that the reference to 'trees' be removed from section 1.4.6 (airport protection measures) as they are not a 'controlled activity'.

Response

AAC is working with BCC to ensure that acceptable obstacle clearances are maintained to protect the safe and efficient operation of the airport. The annual obstacle surveys carried out by AAC have identified a number of trees on Council land that are now infringing the protected airspace.

Negotiations to reduce the height of these trees and agree on appropriate species for new or replacement plantings in the vicinity of the airport are ongoing.

AAC notes that the 2017-37 Master Plan does not state that trees are a "Controlled Activity". However, in accordance with the *Airports Act 1996,* if an object (including a tree or other natural obstacle) is deemed to interfere with the safety, efficiency or regularity of existing or future air transport operations, the Federal Court may, upon application by the Minister, make an order requiring a person to, amongst other things, reduce the height of or remove the object.

The information in the Master Plan about airport protection has been altered as follows for clarity:

- *mapping showing the current and future airspace for the airport, which is protected under the Airports (Protection of Airspace) Regulations and the Airports Act 1996. This mapping shows the maximum allowable height of any structures, objects (including trees) or other features to protect the airspace from any intrusions that could compromise the safe and efficient operation of the airspace;.....*

17.5.5 Aviation facilities

Design, usability and safety of the proposed cross wind runways

The issue/changes sought

The proposed realigned secondary runways will not provide any aviation benefit or meet aviation needs.

Response

AAC intends progressing the proposed realignment of these runways to improve the usability of the runway system for flying training in particular. It will also enhance the airport's ability to provide for high-end aviation infrastructure with direct access to the main runway.

The proposed alignment and supporting taxiways are shown conceptually in Figure 2 *Master Plan vision*. Further information about the design is provided in the technical studies undertaken for AAC in the development of the 2011-31 Master Plan.

The issues relating to the potential for improvements to usability of the secondary runways were considered during the AAT review process.

The Tribunal concluded at paragraph 47 of its decision: *I am then satisfied that the re-alignment of the 04/22 runways will likely improve useability; it certainly will not reduce it. I should add that neither the Civil Aviation Safety Authority (CASA) nor Airservices Australia have raised any objection to the proposed realignment.*

A range of safety issues relating to the existing airport and planned developments (including the proposed realignment of the secondary runways) were addressed in the AAT review, and the Tribunal concluded at section 83 of its decision:

'The position then is that each of CASA and Airservices Australia, the Commonwealth agencies having statutory authority to regulate aviation and aviation safety, and the agencies whose views the Minister is obliged to consider, is satisfied with the content of the draft master plan. Nothing in the Chamber's arguments leaves me in any doubt about the correctness of those views.'

With respect to the potential safety implications for the fuel farm of the runway realignment, AAC considers that this issue has been appropriately addressed in the Master Plan.

The realignment will be the subject of a MDP and the runways will be designed to meet the requirements of MOS 139 and any other relevant safety regulations.

This will include more detailed engineering investigations, design, and further consultation with stakeholders including Airservices Australia, CASA, nearby residents and businesses, aviation tenants and users of the airport.

The rezoning of land from *General Industry* to *Special Purpose Centre SP-5 (Airport)* and other proposals for the Wirraway and Beatty precincts are dependent on the successful implementation of the realigned secondary grass runways.

Benefits to aviation of the realignment

The issue/changes sought

The proposed realignment will not provide benefits to aviation.

Response

From a land use perspective, the plan provides for the expansion of the core aviation areas, including airside developments in the Wirraway, Beatty and Barton precincts.

Overall it proposes an additional 5 hectares of land dedicated to long-term aviation use following the realignment of the grass runways.

The proposed realignment of the grass runway complex presents new opportunities to cater for this anticipated growth.

A strip of land one-third the length of, and adjacent to, the main runway will become available for high-end aviation uses providing direct access to the airport's most valuable asset. This will create efficiencies for operators in terms of reduced taxiing times, reduced fuel usage and subsequently reduced emissions.

The realignment will also create opportunities for the establishment of complementary industrial uses to offset the costs required to improve drainage in this area and relocate the secondary grass runways.

These uses will strengthen the economic activity on the airport.

An ongoing return from this area of land, which is currently underutilized, will provide additional capital required to improve existing facilities and to ensure the growth of the airport into the future.

In addition to the strip of land being made available parallel to the main runway, AAC has proposed that a large portion of land fronting Beatty and Mortimer Roads be rezoned for long term aviation use should the grass runway realignment proceed.

Much of this land is currently zoned 'General Industry'. The rezoning will give certainty of tenure to those tenants who currently have hangars in these areas. The BCC zoning 'SP5 Special purpose (Airport)' will be applied, reserving it for future long-term aviation uses only. This will increase the total aviation dedicated land over the entire site by approximately 5 hectares compared with the 2005 Master Plan.

The area in the Beatty and Barton precincts, to the north of the proposed Boundary Road intersection will eventually be totally redeveloped. All existing hangars will be removed or relocated.

The realignment of the grass runways will provide additional area within this precinct for new aviation facilities and hangars with direct access to the grass runways and repositioned helipad. These facilities will also have direct land access via the new road network planned for the Barton precinct.

The Wirraway Precinct, which is already home to QGAir, Flying Fighters, the AAC corporate hangars and other aviation developments will be expanded with potential sites for RPT, aeromedical, freight and other aviation uses created adjacent to the main runway. These sites will have direct access to the widened Taxiway Bravo and a new code A, B taxiway.

Provision will also be made for a new central helipad and for access to the realigned grass runways.

An area to the north of Boundary Road, adjacent to the relocated northern helipad, will also become available for new aviation developments.

These initiatives will ensure sufficient land is reserved for any possible expansion required for future aviation facilities. It will provide the opportunity for existing and emerging aviation businesses to establish themselves in modern facilities with direct access to the new runways (and associated taxiways) and the new northern helipad. These tenants will enjoy operational efficiencies previously unavailable.

AAC has consulted with existing tenants and users on their future needs and is confident that the plan provides many opportunities for their growth.

AAC recognises that in some cases tenants might believe that the initiatives in the Master Plan will force the early resumption of their leaseholds.

This is not the intention, so AAC will make renewed efforts to communicate to tenants that existing leases are honoured, and if relocation is necessary, this will be negotiated in accordance with the conditions of their lease. This is consistent with normal AAC practice, and is also addressed in sections 8.1.2 and 12.

Surfacing of secondary runways, movement and aircraft parking areas

The issue/changes sought

Realigning runways, and doing other major works, should not be undertaken until existing facilities are serviceable. Providing hard surfaces in all aircraft parking and movement areas should be a priority.

Response

AAC disagrees that hard surfaces should be provided to all aircraft parking and movement areas before the grass runways are realigned, or other major works are planned.

The maintenance of the grass runways, taxiways and parking areas, and decisions on access during wet periods are operational issues, rather than a master planning issue.

The past and present drainage and topographic constraints that contribute to periods of unserviceability due to 'soft wet surface' are documented in the technical studies undertaken for the 2011-31 and 2017-37 master plans , and in the master plan reports. The issues around this were considered comprehensively in the AAT review of the Minister's decision to approve the 2011-31 Master Plan.

AAC maintains the runways, aircraft parking areas and related aviation infrastructure in accordance with its obligations under the Commonwealth lease. It will continue to do this.

The 2011-31 and 2017-37 master plans acknowledge the limitations that the existing secondary runways place on the optimum operation, use and development of the airport.

In formulating the vision for the sustainable development of Archerfield as Brisbane's metropolitan airport, AAC considered various options for providing cross wind runways for aircraft that need them.

AAC has concluded that on balance the most appropriate solution is for realignment and relocation to higher ground. The reasons for this, and the benefits to aviation are set out in the 2011-31 Master Plan, and are carried over to the 2017-37 Master Plan. These include increased runway and taxiway usability in wet periods; improved orientation for cross wind conditions; and the creation of significant areas of land for aviation purposes adjacent to the main runways, the taxiways and other airport infrastructure. The proposed new aviation areas are accessible also to ground transport.

The 2011-31 and 2017-37 master plans include concept designs for the realigned secondary runways and the related taxiways and aircraft parking areas.

The plans provide for a pair of grass runways, designed and constructed to contemporary standards. The final configuration will be determined from more detailed investigations, engineering design, and the preparation and approval of a Major Development Plan.

Longer term projects

The issue/changes sought

The Master Plan lists longer term projects including a potential new main runway. These projects are not reflected in key environmental impact assessments, such as the ANEF. The document should clarify that the long term projects are not being endorsed as part of the approval of the draft master plan, as they are not reflected in key environmental impact assessments, such as the ANEF.

Response

The longer term major projects including a potential new main runway (as part of the 10/28 complex) would require a MDP and would be subject to a range of impact assessments and consultation, in accordance with the Airports Act.

This is set out in section 7.3 (Longer term projects) and 18.6 (Consultation on development applications).

Section 7.3 foreshadows the requirement for a MDP and related detailed assessments and consultation for this possible longer term project.

The wording of section 18.11.2, which refers specifically to consultation on major developments, has been strengthened to include specific reference to "*the provision of new or lengthened runways as part of the 10/28 complex*", in addition to the project to realign the 04/22 runway complex.

17.5.6 Ground transport access

The adequacy of the road network around the airport has been an issue of concern to AAC, and this has been reflected in the initiatives presented in successive master plans. In recent years, the Barton Street link was created across the northern end of the airport, and this has enhanced significantly the east-west routes available to traffic travelling through the Archerfield area.

Master plans have also provided for the progressive development of the road network within the airport.

The *Ground transport plan* (section 10) and the Precinct Structure Plans (section 12) maintain the key features of the 2011-31 Master Plan, and:

- define potential road widenings along Beatty Road, Barton Street, Ashover Road and Boundary Road to cater for improvements required to these roads (primarily to deal with passing traffic, which is growing in volume);
- identify the proposed main access points for each precinct;
- propose a rationalised and improved access to the Airport terminal and administration (and related uses in the 'Archerfield Square' area of the Beatty precinct);
- show a new, direct road access to the proposed aviation area in the Wirraway precinct;
- show concepts for internal road alignments, for access to existing and new developments in each precinct; and
- adopt BCC standards for the design of new roads.

Upgrading of Beatty Road

The issue/changes sought

The Master Plan provides for Council's planned widening and upgrading of Beatty Road, and the intersections at Kerry Road and Boundary Road (east of the airport). Council has no timeframe or current budget for the overall upgrade of Beatty Road. This relates to sections 10.8 and 12.

Response

AAC has for many years advocated for the upgrading of Beatty Road, so the road can more adequately cater for recent increases in through and passing traffic. It has had discussions with BCC over the years, and understands that Council is now progressing the design of upgraded intersections at Kerry Road and Boundary Road (east of the airport) and is in the process of developing a design for the widening of Beatty Road.

This design will assist with confirming the land requirements (including any proposed widenings onto airport land), and will allow AAC to progress plans to implement a realigned airport access at Kerry Road, as shown in the 2017-37 Master Plan and in BCC's plans provided to AAC over 15 years ago.

AAC acknowledges that the timing of the upgrading of Beatty Road by Council will depend on the priority given to this by Council, in the context of other road projects. AACs experience with facilitating the Barton Street road link across the northern end of the airport, and the plans for improvements to Boundary Road (on the west side of the airport) reinforce the need for the master plan to continue to promote (and where possible allow for) the upgrading so it can be integrated with the airport access strategy (as shown in the Ground Transport Plan and precinct structure plans) and implemented expeditiously once it is made a Council priority.

Traffic access for new developments

The issue/changes sought

BCC supports the site access strategy, subject to some changes, including revising the access to the future aviation developments in the Boundary and Wirraway Precinct, reviewing the proposed intersection on Barton Street, and rationalising lot access along Boundary Road. This relates to section 10 (*Ground transport plan*), 12.10.1, figure 2 (*Master Plan vision*), and the PSPs in figures 22, 23, and 24.

Response

The site access strategy shown in the 2017-37 Master Plan is taken from the approved 2011-31 Master Plan, which was prepared in consultation with Council and DTMR, and is being implemented progressively in consultation with BCC as each project proceeds.

AAC agrees that any new intersections need to satisfy relevant traffic engineering and design requirements, and will continue to work with BCC on resolving these as each project progresses. AAC also notes that the current PSPs have been designed to minimise the number of additional access points onto the surrounding road network, and include existing and new service roads, and internal access routes where feasible.

Given the size and layout of the airport site, the length of the road frontages, and the characteristics of the interfaces to the surrounding area, it is necessary to provide additional intersections to facilitate the orderly development of the airport, while also providing safe and efficient access.

The proposed lot layouts and access on Boundary Road, Ashover Road and Balham Road are consistent with the existing pattern of direct frontage access to the larger lots in those areas, both on and off the airport.

The location and design of the proposed new intersection on Barton Street will be subject to further investigation and design, having regard to Council's latest advice. The feasibility of moving the intersection further west to create a fourth leg to the Balham/Barton intersection will be considered as part of that analysis. Any relocation will however need to fit in with the design and safety requirements for the realigned 04/22 runway complex. A note has been added to the Barton PSP to clarify this, and confirm that the access will be resolved in consultation with Council.

Proposed access to the future RPT/aviation uses via a southward extension of Ashover Road will also be subject to further investigation in consultation with Council.

The issues associated with restricting all access to the future RPT/aviation facilities via the newly constructed Transition Drive entrance, which BCC has only recently raised during the development of the 2017-37 Master Plan, are subject to ongoing discussions with BCC.

AAC has concerns with mixing heavy industrial traffic with passenger vehicle traffic and at this stage does not see the sharing of this intersection as an ideal outcome for the community or the users of the airport. Alternative options, including the development of a roundabout and/or slip-lanes on the corner of Ashover/Boundary Roads, will be considered. These solutions may require the provision of airport land to achieve such outcomes, similar to the creation of Barton Street and the recently completed widening of Boundary Road and entrance to Transition Drive.

AAC remains open minded about the final design of road access to the proposed RPT facility and related car parking. It will continue to work with BCC to resolve this when more detailed information becomes available about the design and operation of any RPT services.

Existing and anticipated future developments along Beatty Road and Mortimer Road (both on and off the airport) are typically smaller in scale. AAC notes that BCC supports the access strategy in the master plan which utilises where

possible the existing service roads for site access, and for shared parking. Where direct frontage access is proposed (for example, at the corner of Beatty Road and Mortimer Road), it is in situations that are consistent with access to similar lots in this area.

DTMR has included in its regional traffic access modelling the anticipated needs of the airport, and AAC has provided DTMR and BCC with a traffic impact assessment for the Transition Estate (in the Boundary Precinct) as input to the assessment of access requirements and appropriate network improvements.

The consultation between AAC and DTMR will continue through the Archerfield Airport Planning Coordination Forum, and on a project by project basis.

Figure 2 (*Master Plan vision*) and the Boundary/Wirraway, Ashover and Barton PSPs have been amended to include notes recognising that the final location and design of new intersections is subject to further investigation, and will be determined in consultation with BCC. Section 12.10.1 of the 2017-37 Master Plan has also been updated for clarification.

Road hierarchy description

The issue/changes sought

The description of the road hierarchy in the vicinity of the airport needs to be updated to be consistent with the terminology and layout shown in the Brisbane City Plan.

Response

The description of the road hierarchy in sections 3.5 and 10.2 in the Master Plan has been updated, and expanded to include also information about freight routes.

Identify opportunities for providing pedestrian and cycle facilities servicing the airport

The issue/changes sought

The 2011-31 and the 2017-37 plans include a pedestrian/cycle network, comprising potential routes along the Council roads adjacent to the airport, and local access within the airport.

The State Government has recently adopted the *South East Queensland Principal Cycle Network Plan* which indicates the main existing and anticipated future desire lines for cyclists throughout the SEQ region. There is an opportunity to incorporate in the 2017-37 plan the relevant routes in the vicinity of the airport, and also encourage the provision of cycling facilities in airport developments where appropriate.

Brisbane City Plan shows potential routes along Beatty Road, Barton Street/Balham Road, Ashover Road and Boundary Road (west), and these have been incorporated in the 2011-31 and 2017-37 versions. The City Plan

shows also a potential route through the south-west corner of the airport, along Oxley Creek.

These issues relate to sections 3.4, 10.4, and figures 2, 16, and the relevant Precinct Structure Plans.

Response

The current and proposed master plans recognise that there is an opportunity to consider improvements to pedestrian and cycle access within the Council roads around the airport, and for cyclists to use existing and new roads within the airport to access airport destinations.

A summary description of the SEQPCNP has been included in Section 3.4, and the routes in proximity to the airport have been added to Figure 16 *Ground transport plan*.

With respect to bicycle access along the roads adjacent to the airport, the Master Plan shows potential routes in accordance with the conceptual network in the Brisbane City Plan. AAC recognises that the implementation of these routes by BCC is subject to Council priorities, feasibility studies, design investigations, acquisition of land, and securing funding for land and works.

AAC has in the 2011-31 and 2017-37 master plans identified opportunities for potential road widenings, which might also accommodate cycle paths should Council decide to incorporate them into improvements to the road network.

The potential routes have been highlighted in the Precinct Structure Plans which show suggested routes around the airport, and potentially in the Barton Precinct (offering an alternative route to the Beatty/Barton intersection).

As part of the 2011-31 master planning process AAC considered options for extending the cycling network within the airport.

The runway complex and airside areas provide a constraint to north-south or east-west connections through the middle of the airport site.

Security, topographic, flood management, environment conservation and runway protection issues make it impractical to provide a link along the Oxley Creek. Even if a section of path was provided along the creek, it would be isolated, as there are no paths (or practical options for creating these) on neighbouring land.

AAC considers that safe and convenient access to airport tenancies for cyclists is most appropriately catered for within the existing and planned local roads within the airport.

The potential network is shown in the updated Ground Transport Plan and the Precinct Structure Plans.

AAC will continue to work with BCC to determine the feasibility of any potential new or upgraded routes, having regard to the practical requirements of the airport.

The requirement for end of trip bicycle facilities will be assessed on a case by case basis for new developments. The relevant standards for location, size and layout will be taken into account where facilities are required.

17.5.7 Infrastructure and utility services

Development contributions for infrastructure

The issue/changes sought

BCC has requested that the master plan acknowledge that AAC is only committed to investing in on-airport infrastructure. It also requests that comments in the master plan about provision of land for road works to facilitate on-airport development for industrial uses be recognised as a legitimate contribution, and not a 'gift'. Other submitters have said that infrastructure required for the airport should be funded directly by the developer.

Response

Funding for any required infrastructure will be resolved in accordance with agreements to be reached between AAC and the relevant infrastructure agency (be it BCC, QUU, Energex, or others). All infrastructure will be developed in accordance with relevant authority standards.

In cases where AAC will be required to develop infrastructure and then transfer it to the relevant authority, the authority will specify the standard to be met. For example, roadworks on the adjacent roads would be constructed to normal BCC requirements, and BCC only accepts ownership and maintenance responsibility of the completed asset once it is satisfied with their standard.

AAC recognises that the intersection works required for access to the Transition Estate are reasonably required for that purpose.

The description of the road works and land transfers for the Transition Drive intersection have been revised in the 2017-37 Master Plan (section 12.10.1).

The text distinguishes also between the land and works required for the new intersection for Transition Drive, and the provision for future road widening along the road frontages by BCC, should that need arise.

The wording of the third last paragraph on page 12 was amended to say:

In conjunction with servicing agencies and relevant development interests on airport and in the district, AAC will develop progressively the airport infrastructure.

Section 18.12 describes the agreed approach between AAC and BCC for resolving the infrastructure to be implemented. To reinforce this, the following paragraph has been added:

Any infrastructure works, or other contributions such as the provision of land for road works (such as widenings or intersections) required for airport developments will be implemented in accordance with agreements to be negotiated between BCC and AAC.

17.5.8 Noise

The issue/changes sought

Submitters have questioned whether appropriate consideration has been given to aircraft noise, including relating to flights at Archerfield and Brisbane Airport.

Response

AAC has addressed noise impacts of aircraft in accordance with the requirements of the Airports Act and other legislation. The master plan is not required to take into consideration noise from air traffic using Brisbane Airport.

The *Practical Capacity ANEF* takes into account existing standards, the projected aircraft flight numbers at practical airport operating capacity, the projected movement patterns (including the planned re-alignment of the grass runways), and likely aircraft mix.

This capacity has been determined from an analysis of the theoretical maximum throughput of the airport, including the enhancements to the runways, taxiways and other infrastructure described in the Plan.

The endorsed ANEF includes anticipated flights by the types of aircraft used for aeromedical and rescue services. Any night time flying by aeroplanes will be confined to the main runway complex, as is modelled in the endorsed ANEF.

The modelling also considers the mix of operations for flying training, freight, maintenance, passenger transport, emergency services, and so on.

AAC acknowledges that there is a need to continue to inform people about the basis and effect of the ANEF, both in response to individual enquiries, and in its ongoing consultation with stakeholders including residents and authorities.

It is also important to ensure that any issues with noise complaints from aircraft in flight are referred to Airservices, so they can be appropriately addressed.

To address noise aspects, the Master Plan includes in section 9 (airport protection):

- information about the ANEF in (section 9.4); and
- discussion about N70 modelling in section 9.5.

Noise aspects of the airport environment are managed within a framework set out in Section 15 and 16.10 (part of the AES).

The 2017-37 Master Plan also includes an ongoing commitment by AAC to the Planning Coordination Forum with BCC, the State, and Commonwealth.

17.5.9 Other potential environmental effects

Potential impacts on wildlife

The issue/changes sought

Have there been any environmental impact studies done for the effects on the wildlife that Archerfield Airport is having an impact on?

Response

AAC considers that wildlife related aspects have been appropriately addressed in accordance with the requirements of the Airports Act.

The AES incorporated into the 2011-31 and 2017-37 master plans include information about fauna (and flora) values, and their management.

Section 15 describes the environmental management framework that is applied by AAC. It addresses a wide range of aspects of the environment; potential impacts; objectives and targets; and the systems that are used to assess proposals, make decisions, and implement and review the outcomes of those decisions.

Section 16.3 describes AACs objectives, the existing values, potential impacts, management of those impacts, achievements (1998-2016), and implementation targets for the 2017 AES.

Potential impacts on air quality and noise

The issue/changes sought

Is AAC aware of the health effects of the noise and air pollution that it has on the surrounding communities?

Response

AAC considers that noise and air quality aspects have been appropriately addressed, in accordance with the requirements for an airport master plan as set out in the Airports Act.

As noted above, the airport environment is managed within a framework set out in Section 15.

Noise aspects are addressed specifically in section 9 (airport protection), and 16.10 (part of the AES).

Section 16.10 describes AACs objectives, the existing values, potential impacts, management of those impacts, achievements (1998-2016), and implementation targets for the 2017 AES.

17.6 SUMMARY OF KEY CHANGES

As a result of this consultation a number of changes were made to the Master Plan, including:

- the Foreword was updated for the 2017-37 Master Plan;
- the strategic land transport and ground access aspects werestrengthened by updating the description of the road hierarchy to align it with the terminology in the City Plan, and updating the road classifications and freight routes (sections 3.5 and 10);
- notes were added to the master plan drawings and the text revised to clarify that the proposed new intersections at Boundary Road/Ashover Road and Barton Street will be subject to further investigation, and consultation with BCC (figures 2 (*Master Plan vision*), 16 (*Ground transport plan*), 22 (*Boundary and Wirraway PSP*), 23 (*Ashover PSP*), and 24 (*Barton PSP*), and section 12.10.1);
- the description of the local and district pedestrian/cycle access network was updated to be consistent with the current City Plan and SEQPCNP (figures 2, 16, and the relevant PSPs; and section 3.4);
- the description of land transfers and roadworks for Transition Drive was updated to distinguish between the land and works that are required for the new intersection, and the provision in the Master Plan for future road widening along the road frontages (section 12.10.1);
- the protocols for providing new or upgraded infrastructure were revised to clarify that AAC is committed to providing on-airport infrastructure for airport developments (summary, and section 18.12);
- the airport protection measures described in section 1.4.6 were reworded to clarify that 'trees' are of concern if they infringe prescribed airspace;
- section 3.5.2 which describes the implications of existing and planned land use around the airport now includes acknowledgement of the future industrial areas in the Lower Oxley Creek North, and South neighbourhood plans;
- the discussion about future residential development in the 'emerging community' area to the east of the main runways was deleted from section 8 as BCC has advised that the development is complete and any further development will be appropriately controlled by the *Airport environs overlay code* in the City Plan;
- the references in the drawings and in text to the ownership/management of the sewer pump station in Beaufighter Precinct (previously operated by

BCC), and any requirements for servicing of future development were updated to 'Queensland Urban Utilities' and 'QUU' as appropriate.

- section 7.3 (Longer term projects) which refers to the possibility of a new main runway (as part of the 10/28 complex) was amended to clarify that this project would be subject to a Major Development Plan. The wording of section 18.11.2, which refers specifically to consultation on major developments, was also strengthened to include specific reference to "*the provision of new or lengthened runways as part of the 10/28 complex*".

18 Implementation

18.1 PLANNING PROCESS AND PRIORITIES

The *Airports Act* and regulations define a planning regime for Archerfield Airport that comprises:

- a *Master Plan* that sets the long term framework for development of the airport, having due regard to its physical, economic and community context (and its relationship to surrounding areas), and the need to plan for the long term viability of aviation services;
- an *Environment Strategy* that identifies all relevant current and potential impacts of the Airport on the environment, and sets out strategies, actions, monitoring and review procedures required to address these impacts; and
- *Major Development Plans*, for significant projects. Major developments include projects with a value in excess of the benchmark set in the Regulations (currently $20M), proposals for new runways or taxiways, or proposals that could have a significant environmental impact.

The Master Plan sets the framework for the timely, equitable and efficient provision of general aviation services, facilities, and supporting infrastructure.

It also defines AAC's plans for non-aeronautical land. These plans show how the potential of the airport as a strategic part of the greater Brisbane area (and South East Queensland), can be realised.

The proposals build on the ideas originally identified by both the Commonwealth and the Federal Airports Corporation many years ago, and refined more recently by AAC and BCC.

It also sets the parameters for land use and development decisions for proposals that interface with the airport, particularly those on neighbouring land.

The Master Plan is dynamic and subject to ongoing improvement and review.

It needs to be flexible to accommodate adjustments to market conditions, economic performance, operating requirements, standards and technologies.

18.2 KEY INITIATIVES

The development initiatives listed in the table below reflect the current and future needs of the airport as at the time of preparation of this Master Plan.

The timing and final form of specific projects is not guaranteed at this time. There are many interrelated factors that will influence the form, feasibility and timing of these proposals and much of this is outside the control of AAC.

Notwithstanding this, AAC will work diligently to realise the full potential of both the aviation and non-aviation aspects of the airport, with a view to securing its long term sustainability.

Table 11: Possible developments and planning initiatives

Project	Catalyst
TIMING	
0–5 years	
Continue to overlay and repair operational pavements.	Maintenance inspection results.
Investigate with Airservices Australia the siting requirements for the Airport Control Tower and its relocation if required.	Decision to prepare Major Development Plan for realignment of the grass runways
Investigate possible relocation of fuel farms.	Decision to prepare Major Development Plan for realignment of the grass runways or for improved airport operations
Further develop the aviation area in the Wirraway Precinct to the west of QGAir	Commitment by operators of new or expanded aviation activities/facilities.
Implement realignment of the 04/22 grass runways.	Major Development Plan approved.
Rezoning of SP5 and general and low impact industrial land to reflect the zoning shown in Figure 18.	Realignment of the grass runways.
Encourage new aviation developments, for RPT, freight, emergency services, aeromedical, flying training, corporate aircraft and charter.	Market/industry interest in available serviced sites and/or following the realignment of the grass runways when new sites become available.
Further develop the Boundary precinct (Transition-Archerfield Logistics Estate)	Market/industry interest in available serviced sites.
Further develop the Beaufighter and Mortimer precincts.	Market interest in sites.
Improve the safety and efficiency of access to Archerfield Square from Beatty Road.	Initial planning investigations commenced. Airport property secured by AAC. Construction scheduled once agreement reached with BCC on configuration of intersection at Kerry Road (or alternative access arrangements).
Implement pro active building maintenance/replacement program.	Availability of funding and market interest will determine priorities
Upgrade hangars along Qantas Ave and Ditchmen Ave	Commitments to upgrade facilities by existing or new tenants
Extend and strengthen Runway 28R/10L and associated taxiways and aprons	Increase in frequency of over 5,700kgs MTOW aircraft and/or

Project	Catalyst
	commitment to RPT, freight or larger corporate or aeromedical aircraft
6-8 years	
Encourage commuter operations to Archerfield Airport.	Potential operators identified.
Reconstruct taxiways and aprons/develop new taxiways and aprons	Needs arising from increased movements/larger aircraft
Further develop the aviation area in the Wirraway Precinct to the east of QGAir	Commitment by operators of new or expanded aviation activities requiring access to main runway complex. Realignment of the grass runways
Upgrade hangars along Qantas Ave and Ditchmen Ave	Commitments to upgrade facilities by existing or new tenants
Design and obtain approvals for initial stages of redevelopment of Barton Precinct, including road access from Barton Street and Beatty Road	Realignment of the grass runways. Commitments from tenants of proposed development
Commence development in greenfields section of Barton Precinct	Commitments from tenants of proposed development
9–20 years	
Reconstruct runways, taxiways and aprons.	In accordance with AAC maintenance program.
As required	
Prepare development plans for development precincts.	Critical mass of bona fide (and feasible) development proposals received by AAC.
Upgrade navigational facilities	Need demonstrated by airport users. AAC satisfied with viability of investing in system to attract additional movements, or to facilitate existing or new operators.
Upgrade runway/taxiway lighting	Current system no longer viable to maintain Extension or alterations to main runway or taxiways
Review of Master Plan and Environment Strategy	Airports Act requirements for cyclical review.

The airport contains some significant landside development and redevelopment opportunities that will be realised by AAC.

The detail of these projects will evolve over the coming years, as bona fide proposals are secured and their feasibility proven to the satisfaction of AAC.

Within the framework of the Master Plan, AAC will at times draw on the advice of BCC and other agencies (as appropriate) to ensure that, before a decision

is taken on a significant project, the full planning and development implications are known.

AAC has in recent years worked hard with BCC and other agencies to develop a constructive and cooperative approach on matters where there are shared interests.

This is reasonably new territory in the history of the airport.

From the feedback that AAC has received over the past 18 years it is clear that prior to privatisation the Commonwealth did not involve local authorities in many of the planning and operational decisions about the airport.

Where there are opportunities for mutually beneficial decisions to be made about the airport and the surrounding area, AAC is committed to pursuing these through respectful consultation and consideration.

AAC facilitates the *Archerfield Airport Planning Coordination Forum*, and the *Community Aviation Consultation Group* which includes representatives from the airport businesses and users, the communities around the airport, local businesses, other local stakeholders, and relevant agencies and authorities with a role in the planning and/or operation of the airport.

Further information about these initiatives is described in Chapter 18.11.

18.3 PLANNING APPROVALS PROCESS

18.3.1 AAC planning obligations and operation of the Master Plan

Under the provisions of the *Airports Act*, the airport is exempt from the local planning controls in the Brisbane City Plan.

Instead, AAC is responsible for devising a land use plan as part of the Master Plan and administering the provisions of that plan. The plan must be generally consistent with relevant aspects of the Brisbane City Plan, and the State Planning Policy and strategies.

The land use zoning and requirements for development precincts are presented in Chapter 12.

The land use proposals in the Master Plan are generally consistent with the strategic direction for land use and development as described in the City Plan and State Planning Policy and guidelines.

AAC has adapted to the airport the zone descriptions used by BCC in its City Plan, and will also refer to relevant Codes and related provisions in the City Plan when assessing development applications.

Administration

Within this strategic framework, land use and development approvals are granted, either by the Airport Building Controller, or in the case of major developments, through the exhibition and approval of a MDP.

In the case of projects requiring the approval of a MDP (as defined in the *Airports Act*) AAC will undertake a range of consultation activities with relevant parties including BCC, in accordance with the Act.

18.3.2 Role of AAC in land use planning and development external to the airport site

Land use and development decisions relating to land in the vicinity of the airport have the potential to impact on the sustainable, safe and efficient operation of Archerfield Airport.

Key aspects are:

- maintaining obstacle clearances to allow for safe aircraft movement and aviation communications (in accordance with the obstacle limitation surfaces shown in Figures 11 and 12);
- controls over lighting to minimise the potential for adverse effects on pilots and ground staff (in accordance with the restricted light zones shown in Figure 13);
- identifying areas that are forecast to be subject to aircraft related noise, ensuring that noise sensitive uses are not located in these areas, and that appropriate noise amelioration measures are implemented (in accordance with AS2021: *Acoustics - Aircraft Noise Intrusion - Building Siting and Construction*); and
- adherence to the public safety areas and other relevant provisions of the *State Planning Policy* and related guideline.

AAC will continue to work with BCC, State Government and other authorities responsible for land use and development decisions to ensure that these aspects are addressed. AAC will assist with providing advice on current obstacle clearance and lighting requirements and forecast noise distribution.

18.4 NEW FACILITIES/APPLICATIONS

AAC will require new tenants or proponents of new aviation or non-aviation facilities or activities to apply for approvals as provided for in the *Airports Act, 1996*.

In addition to the requirements of the Airport Building Controller, the application for approval will need to detail:

- the activities and operations proposed, in accordance with the Archerfield Airport Environmental Management Procedures (EMPs);

- any chemicals to be used or stored on the site including type and maximum quantities;
- evidence that the proposal meets any applicable legislative requirements and guidelines for the construction and operation of the activity or site; and
- evidence that the proposal will meet any applicable occupational health and safety, storage and placarding requirements.

Procedures for this and relevant forms are set out in the Airport EMPs.

These include:

- Procedure AA1-*Environmental assessment of new tenancy or lease renewal*;
- Procedure AA8-*Assessment of environmental effects of new works*;
- EMP1 *Lease proposal/tenant questionnaire*; and
- EMP6 *Environmental management checklist for new works*.

The information provided with applications will assist AAC and the tenant/proponent to identify all potential issues or impacts, and to also clarify applicable legislative requirements and best practice management guidelines that will be applied. If required, the AEO will be provided with this information.

18.5 ASSESSMENT

The assessment of new works will consider the implications of the proposal for:

- compliance with CASA standards in relation to new works proposed within the Master Plan;
- airside operations;
- existing land uses on and adjacent to the airport, including through the emission of noise, dust or odour;
- existing utility services, and any connections proposed during and following construction;
- efficient use of water;
- access to and within the airport;
- significant native flora;
- heritage values (pre and post contact);
- potential risk of soil or air pollution;
- noise impacts;

- groundwater, including potential changes to groundwater levels on or off airport, and/or water quality;
- surface water, including potential changes to peak volumes entering existing drainage lines, diversion of existing stormwater flows and/or impacts on water quality;
- containment of asbestos, where works relate to buildings or plant listed in the airport asbestos register;
- the potential for the works to result in the introduction or spreading of Fire Ants; and
- the appearance of the site and the airport.

If on reviewing the proposal potential impacts are identified, AAC will work with the proponent to identify how impacts can be mitigated. The preparation of a Site Environmental Management Plan for the construction and/or operational phases may also be required.

18.6 CONSULTATION ON DEVELOPMENT APPLICATIONS

All new proposals for the airport land will be reviewed by AAC against the Master Plan, the AES, and other relevant policies, guidelines or standards. Where the *Airports Act 1996* requires consultation with the wider community, AAC will facilitate this.

The AEO will be involved in assessing and advising on the environmental aspects of any major new developments on the airport site, including any Environmental Management Plan for the construction or operational phases.

If in the opinion of AAC, the development could result in a significant off-site impact, AAC will identify and consult with relevant stakeholders including Brisbane City Council, and possibly State agencies and/or the community and their comments taken into consideration.

Information concerning new proposals will be provided to the AEO, in accordance with the Airport EMPs.

All comments received will be reviewed and considered by AAC before deciding on whether the proposal should proceed, and if relevant, under what conditions.

Where the *Airports Act 1996* requires consultation with the community (such as in the case of a Major Development Plan), AAC will initiate an appropriate consultative process. Comments received by external parties will be taken into account by AAC when deciding whether the proposal should proceed.

18.7 BUILDING APPROVAL REQUIREMENTS

DIRD has appointed an Airport Building Controller (ABC) who is responsible for ensuring that activities at Archerfield Airport meet the appropriate building and engineering standards.

The ABC must be notified in writing of all proposed construction and building activities, including minor repairs, alterations and signs. Some minor works are exempt from formal approval.

In summary, the following standards and considerations will apply to all works on the airport:

- *Airports (Building Control) Regulations—Building Code of Australia* as applied in Queensland (adopted by reference), and other relevant standards;
- structures must have a wind rating in accordance with *AS 1170 Part 2* - Structural design actions - Wind actions (2011);
- all structures and site features must comply with the Obstacle Limitation Surfaces applicable to Archerfield. Any development constituting a 'controlled activity' should be dealt with in accordance with the relevant regulations;
- regard must be had to noise attenuation requirements, or arrangement of activities to minimise adverse exposure of occupants;
- landscaping must be provided to provide screening, shade and an attractive setting, and be consistent with the overall landscaping theme for the precinct within which the building sits;
- individual developments must include adequate provision for car parking, service and emergency vehicle access, loading and storage facilities;
- the relevant provisions of the AES, environmental management plans, and the environment protection requirements of relevant regulatory bodies must be met; and
- in assessing proposals, AAC will have regard to best practice building development and environment protection practices, including those adopted by State Government and BCC.

Building and construction must comply with the Building Code of Australia (BCA) as operational in Queensland and any other relevant standards. Where the BCA does not apply (for example in relation to civil engineering works) the relevant Australian Standard or international standard will apply. The ABC identifies the appropriate standards.

The structural design will be required to be certified by an appropriately qualified Structural Engineer to meet the appropriate wind rating.

A Certificate of Compliance for Occupancy is required for all building or construction work that requires formal approval by the ABC. A Certificate of Compliance for Occupancy is issued before a building can be occupied, and a

Certificate of Compliance for Use is required before engineering works, electrical works or other utility services can be used.

The consent of AAC is required before the ABC can approve a development application. AAC is responsible for ensuring that all development proposals are consistent with the airport Master Plan and AAC's planning objectives. AAC will in each case assess the impact of the proposal on infrastructure and the operations of the Airport, and may impose conditions on building activities.

18.8 LEASING CONDITIONS

For all new leases, conditions will be included that ensure that facilities are constructed and operated in accordance with the Master Plan, the AES and relevant environmental requirements.

Following construction of the facility, AAC will inspect the premises and verify compliance with any requirements stipulated in the development approval.

18.9 BUILDING PRESENTATION STANDARDS

AAC seeks to encourage the progressive improvement of the airport environment, and is particularly concerned to see improvement in the quality and presentation of buildings on the site. This includes the standard and quality of building design and layout, the materials and finishes used, and the landscaping provided.

The principal objective is to ensure that the profile and presentation of the airport is continuously upgraded from the state to which it had deteriorated prior to privatisation.

AAC will require that landscaping surrounding new developments will be of a standard complementary to the expectations of BCC.

AAC will apply appropriate siting and design guidelines to all applications for advertising signs proposed on airport. When assessing an application for a sign, AAC will refer to signage guidelines applied elsewhere by BCC. This will assist AAC to ensure that the character of the airport and surrounding neighbourhood is protected and where possible enhanced.

18.10 IMPLEMENTATION OF THE AES

18.10.1 AAC's role in implementing the AES

AAC recognises that the successful implementation of the Environment Strategy requires the constructive involvement and commitment of a number of parties both on and off airport. AAC will facilitate this by:

- providing information about the AAC environment protection policy; its objectives, environmental issues, management and mitigating measures,

actions to be taken, and outcomes of ongoing monitoring and review, to interested parties;

- working with key stakeholders with a common interest or responsibilities to address environmental issues;
- disseminating information about environmental issues and initiatives being undertaken;
- training AAC personnel on the environmental management needs of the airport, according to their obligations under the Airports Act and Regulations, and requiring airport tenants to also undertake environmental training;
- encouraging others operating from, or using the airport to develop and apply environmental awareness, consistent with the Airport Environment Strategy;
- continuing to include environmental management requirements in airport leases and development approvals; and
- reporting on achievements and outstanding matters to assist all stakeholders to monitor the implementation of the Strategy.

AAC is committed to ensuring that the Environment Strategy and Master Plan remain focused on the relevant current and future planning and environmental requirements of the airport.

To this end, it will consider and address all future proposals for improvement to, or refinement of the Environment Strategy and the Master Plan. These improvements will be formally consolidated in revised documentation arising from periodic reviews.

18.10.2 Annual environmental performance report

An environmental performance report is supplied to DIRD—Airports Division every 12 months, and copied to the AEO. The performance report details:

- the results of any site environmental reviews which have been conducted over the previous 12 months;
- achievement of AAC's environmental protection and management objectives and targets;
- progress in implementing the strategy;
- the results of the groundwater and surface water quality monitoring program;
- a summary of any environmental incidents that occurred over the previous 12 months and the findings of any incident investigations; and
- a summary of complaints received and actions taken.

AAC will also advise the AEO if monitoring indicates that discharges from the site were excessive.

Contact will also occur following any spill of material that may adversely affect either the on-site or off-site environment.

BCC and the Queensland DEHP will also be advised if environmental impacts have occurred external to the site.

18.10.3 Continuous improvement

AAC will advise relevant tenants of the findings of its environmental reviews.

AAC will also communicate with tenants on related environmental issues on an as needed basis, for example when tenants first arrive, or following an environmental incident.

In exceptional circumstances, the AEO will also be involved to ensure the implementation of the AES is achieved.

Airport Environmental Management Procedures

The EMPs are dynamic and subject to regular review and refinement.

The main opportunities for improvement are anticipated to arise from:

- monthly AEMF meetings involving the AAC, AEO and the ABC;
- monthly management reviews by AAC of key issue areas;
- cyclical tenant reviews; and
- revisions and recommendations arising from the annual environmental management report to DIRD.

AAC will undertake a general review of the EMPs every two years

Authority for revision of the procedures in the EMPs rests with the Airport General Manager. Policy and strategies can only be revised with the approval of the AAC Board.

18.10.4 Monitoring and review

As a part of maintaining the ongoing responsibilities identified in this AES it is important that there are mechanisms in place to monitor and identify any potential or emerging issues.

Key environmental aspects will be monitored through the following actions:

- an ongoing, annual assessment of groundwater quality on the airport;
- annual reviews of airport tenants that have hazardous chemicals on site, to monitor compliance with chemical handling and storage requirements;
- cyclical environmental reviews of each airport tenant to determine the environmental performance of the activities carried out and achievement

of environmental management objectives against their Site Environmental Management Plan (where applicable);

- maintaining a register of known hazardous materials (including wastes) that are on the airport site;
- ensuring that with each new building application the appropriate environmental systems and considerations are put in place. This will involve working closely with the AEO;
- annual assessment of the quality of the airport stormwater run-off. AAC will continue the past practice of conducting assessments each year with sampling taken in each sub catchment on airport, and will maintain these data on a data base;
- ensuring that tenants secure any Trade Waste Agreement required prior to commencing activities on the airport;
- monitoring and reviewing products and chemicals used by AAC to ensure that environmental issues are considered and best practice is applied; and
- investigating any complaints about nuisance noise relating to ground based activities, including those by tenants.

The AEO will be advised if monitoring indicates that any discharges are excessive.

There are currently no other known emissions to the environment that warrant monitoring. If an issue arises, or is identified during environmental reviews of activities or works by AAC or tenants, a monitoring program will be implemented as required.

The achievement of the AES objectives and action plan targets will be monitored by AAC and the AEO on a six-monthly basis.

AAC will review the Airport Environment Protection Action Plan on a 12 monthly basis. It will check on the risk rating given to each action, progress on individual actions, and whether the Plan needs to be modified. It will provide the results of this review to DIRD and to the AEO.

18.11 OTHER CONSULTATIVE PROCESSES

18.11.1 Consultation during implementation of the Master Plan and AES

AAC will continue to consult in a variety of ways to provide for appropriate and timely input to its decision making processes.

Similarly, AAC will seek to have input to planning and development decisions by others, where those decisions may have implications for the operation, amenity or safety of the airport.

AAC is particularly concerned that other parties are cognisant of AAC needs and requirements and seeks to work in partnership with its neighbours where there are common issues to be resolved.

AAC is engaged in a continuing program of consultation with parties involved in the airport, both on the site (tenants and operators) and external to the site.

Key aspects include:

- facilitation by AAC of the Archerfield Airport Environmental Management Forum (AAEMF);
- a rolling program of reviews of tenant operations;
- community consultation on major projects;
- regular 12 monthly reporting of environmental matters to the Commonwealth Government; and
- environmental awareness training and education.

Archerfield Airport Planning Coordination Forum

There are a number of ongoing issues that AAC shares with BCC, State Government and Commonwealth agencies responsible for the environment, roads, and planning. These include:

- planning for, and providing utility services infrastructure required to support the planned developments at Archerfield;
- land use and development controls to ensure that on airport activities are consistent with the Master Plan, complementary to the strategic direction of the City, and are compatible with neighbouring land use;
- opportunities to enhance the South West Industrial Gateway by the provision of complementary aviation services, and land uses;
- land use and development controls to ensure that land around the airport is used and developed in a way that will allow the continued safe and efficient operation of the airport, and minimise the opportunity for activities to establish that are intolerant to aircraft noise or other aspects of airport operation;
- airspace protection and removal of obstacles;
- identifying and conserving features and areas of heritage and natural significance;
- managing emissions to the environment; and
- facilitating the timely and equitable upgrading of the regional and local road network, to address existing capacity problems, particularly relating to Beatty Road.

AAC will continue to work to address these issues with the relevant authorities.

The strategic planning meetings that took place as part of the master planning process for the 2011-31 Master Plan provided a valuable opportunity for a

number of these issues to be clarified and further considered by AAC, DIRD, the State Government and BCC.

The ongoing consultation is now facilitated by the *Archerfield Airport Planning Coordination Forum* which meets on a regular basis to discuss strategic issues relevant to the implementation of the Master Plan and plans for the areas around the airport, and disseminate information.

The meeting frequency is resolved with the forum members, and depends on the issues that need to be addressed. There is also the flexibility for special meetings to be arranged to address specific issues as required.

Community Aviation Consultation Group

AAC recognises the importance of effective consultation with the range of community stakeholders with an interest in the airport. The issues are often complex, and attract divergent views.

AAC has through this and past master plans identified and implemented various approaches to consulting with stakeholders, and providing information on the strategic issues shaping the airport.

There is always scope to improve these processes, and with this in mind, AAC established the *Archerfield Airport Community Aviation Consultation Group*.

The group meetings provide the opportunity for dissemination of information about airport related issues, and provide feedback to AAC.

The inaugural meeting of the group took place on 2 November 2011. It was attended by approximately 30 people, including individuals and representatives of community groups from the areas around the airport, airport businesses and business groups, other local businesses, BCC Councillors, BCC officers, CASA, Airservices Australia, DIRD, and the State Department of Transport and Main Roads (DTMR).

The group has an independent Chairperson, and currently meets three times per year.

Airport Environment Management Forum

The *Archerfield Airport Environment Management Forum* (AAEMF) provides a forum for AAC, the ABC and the AEO to discuss current and emerging environmental issues, monitor aviation activities, and disseminate information relevant to the environmental management of the airport and its environs.

It is facilitated by AAC and meets quarterly. It was established as part of AAC's commitment to implement an appropriate on-going consultation process.

Consultation with airport tenants and airport users

AAC publishes newsletters which are circulated to the individuals and organisations on the AAC contact list. The newsletters are circulated via email and are where appropriate included in other mail correspondence with

tenants and airport users, and are also posted on the airport notice board in the Terminal Building.

AAC also holds meetings with airport tenants and users, at which information about current issues is presented and discussed.

18.11.2 Major developments

Major developments, including the proposed realignment of the secondary grass 04/22 runway complex, or the provision of new or lengthened runways as part of the 10/28 complex will require the preparation and approval of a Major Development Plan under the *Airports Act 1996*.

AAC will consult with potentially affected stakeholders in accordance with the requirements of the Act. The *Planning Coordination Forum* and the *Community Aviation Consultation Group* will be engaged in these consultation processes.

18.11.3 Other information

AAC maintains a range of literature and other publicly available documentation relating to the safe and efficient operation and management of the airport. This information currently includes:

- historic records about the airport;
- standard guidelines and other information about appropriate land use and development on the airport site (and in proximity to the airport);
- obstacle clearance requirements for Archerfield;
- brochures describing environment management at airports and the development approvals process;
- the current Airport Environment Strategy;
- the current approved ANEF;
- N70 modelling showing potential noise effects of the airport when operating at practical capacity; and
- fact sheets and other material that describes key aspects of the Master Plan.

AAC is proactive in working with any party that could either be impacted by airport operational requirements, or have the potential to compromise airport functionality, to ensure that the safety, operational needs and amenity of the airport is maintained.

18.12 EXTERNAL INFRASTRUCTURE

During the process of preparing the 2011-2031 Master Plan, BCC and AAC agreed to work together to determine:

- the infrastructure requirements for the developments described in the Master Plan;
- the likely sequence, timing and triggers for the delivery of required infrastructure; and
- any contributions from AAC toward the cost of providing infrastructure adjacent to the airport that is required as a consequence of airport developments.

This consultation process has continued over the intervening years, as specific projects (such as the development of the Transition estate) have progressed.

Any infrastructure works, or other contributions such as the provision of land for road works (such as widenings or intersections) required for airport developments will be implemented in accordance with agreements to be negotiated between BCC and AAC.

Appendix A-Glossary of terms

AAA	Airline Academy of Australia
AAC	Archerfield Airport Corporation
AAEMF	Archerfield Airport Environment Management Forum
AEPAP	Airport Environment Protection Action Plan
ABC	Airport Building Control Officer
ACN	Aircraft Classification Number
AEO	Airport Environment Officer (Commonwealth)
ALC	Airport Leasing Company (AAC)
ANEF	Australian Noise Exposure Forecast
ARFL	aircraft reference field length
AsA	Airservices Australia
ATC	Air Traffic Control
ATS	air traffic services
BAC	Brisbane Airport Corporation Limited
BCC	Brisbane City Council
BOM	Bureau of Meteorology
CASA	Civil Aviation Safety Authority
CASR	*Civil Aviation Safety Regulations* 1998, and relevant provisions of *Civil Aviation and Civil Aviation Safety Amendment Regulations* 2009 (No. 1)
CTAF	common traffic advisory frequency
DEHP	Department of Environment and Heritage Protection (State)
DIRD	Department of Infrastructure and Regional Development (Commonwealth)
DTMR	Department of Transport and Main Roads (State)
EMPs	Archerfield Environmental Management Procedures
FAA	Federal Aviation Administration (US)
GA	general aviation
GAAP	General Aviation Aerodrome Procedures
GPS	Global Positioning System

ICAO	International Civil Aviation Organisation
IFR	instrument flight rules
ILS	instrument landing systems
MATS	Manual for Air Traffic Services
MOS 139	Manual of Standards Part 139-Aerodromes
MTOW	maximum take-off weight
OLS	obstacle limitation surfaces
PAPI	Procession Approach Path Indicator
PAL	Pilot Activated Lighting
PALC	Pilot Activated Lighting Control
PANS-OPS	Procedures for Air Navigation Services Operations
PCN	Pavement Classification Number
RPT	regular public transport
SEQ	South-East Queensland
Tenant	All occupiers of AAC land or facilities at Archerfield Airport (other than AAC), including lessees and sub lessees.
Tie Down	Aircraft parking position
VMC	visual meteorological conditions
White Paper	National Aviation Policy White Paper: *Flight Path to the Future* (2009)

Appendix B-Legal register

The following is a list of Commonwealth and State planning, environment protection, health and safety or dangerous goods management acts and regulations that may apply to Archerfield Airport and/or its various tenants.

COMMONWEALTH LEGISLATION

Aboriginal and Torres Strait Islander Heritage Protection Act 1984
Airports Act 1996
Airports (Protection of Airspace) Regulations 1996
Airports (Environment Protection) Regulations 1997
Airports (Building Control) Regulations 1996
Airspace Act 2007
Airspace Regulations 2007
Australian Heritage Council Act 2003
Aviation Transport Security Act 2004
Aviation Transport Security Regulations 2005
Civil Aviation Act 1988
Civil Aviation Safety Regulations 1998
Environment Protection & Biodiversity Conservation Act 1999 and Regulations
Ozone Protection and Synthetic Greenhouse Management Act 1989

STATE LEGISLATION

Aboriginal Land Act 1991
Aboriginal Cultural Heritage Act 2003
Coastal Protection and Management Act 1995
Environmental Protection Act 1994
Environmental Protection (Air) Policy 2008
Environmental Protection (Noise) Policy 2008
Environmental Protection (Water) Policy 2009
Environmental Protection Regulation 2008
Environmental Protection (Waste Management) Regulation 2000
Native Title (Queensland) Act 1993
Nature Conservation Act 1992
Sustainable Planning Act 2009
Torres Strait Islander Cultural Heritage Act 2003

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Otek Australia Pty Ltd (1993) *Background Investigation Archerfield Airport, Archerfield Queensland*, Otek; Brisbane

Otek Australia Pty Ltd (1993) *Environmental Investigation Archerfield Airport, Archerfield Queensland*, Otek; Brisbane

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Planned F.X. Pty Ltd (2000) *Archerfield Airport Environment Strategy 1999-2004*, Archerfield Airport Corporation; Archerfield

Planned F.X. Pty Ltd (2003) *Archerfield Airport Environmental Management Procedures*, Archerfield Airport Corporation; Archerfield (revised 2005)

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Appendix D-Environment Protection Action Plan

Action	Risk rating	Action by:	Cycle	Start date	Finish date
ENVIRONMENTAL MANAGEMENT SYSTEM					
Review core Environmental Management Procedures (EMPs).	Minor	AAC and AEMF	2 yearly	2010	2 yearly
Prepare additional EMPs as required.	Minor	AAC, Tenants	As required	As required	N/A
Provide framework for preparation of EMPs to those tenants undertaking activities that could cause environmental harm.	Minor	AAC, AEO	As required	As required	N/A
Administer Complaints Register.	Moderate	AAC	N/A	Ongoing	Ongoing
Ensure all new lease agreements for Airport tenants include the requirement that tenants address relevant environmental issues.	Moderate	AAC	Prior to grant/ renewal of lease	Prior to grant/renewal of lease	On signing of lease
Identify new legislative requirements, relevant standards and guidelines for AAC activities.	Moderate	AEMF	Monthly	Ongoing	Ongoing
INFORMATION, EDUCATION AND TRAINING					
Provide AAC staff with copies of quarterly newsletter and alert them to any new or emerging environmental issues or requirements that might impact on their work.	Moderate	AAC	Quarterly	Ongoing	Ongoing
Train AAC staff in environmental responsibilities, key environmental issues for the airport, and actions.	Major	AAC	Annual	2010	Ongoing
Educate staff on new legislation requirements.	Moderate	AAC	As required	As required	Ongoing
Inform tenants of their obligations under the AES and provide copies of relevant AAC EMPs if requested.	Moderate	AAC and AEO	N/A	As required	N/A
Encourage tenants to work with AAC and the AEO in formulating appropriate and workable EMPs to meet their environmental management obligations.	Moderate	AAC and AEO	N/A	As required	As required

Action	Risk rating	Action by:	Cycle	Start date	Finish date
Include on AAC web site the AES, relevant Environment Management Procedures (EMPs) and EMP forms; standard environmental requirements for leases; summary information about regulatory requirements under the Airports Act 1996 and its regulations; fact sheets; and updates on any current environmental issues.	Moderate	AAC	As required	2010	Ongoing
Provide current airport-related environmental information to tenants via quarterly newsletter/email, AAC website environment section or summary with tenant invoices.	Major	AAC	Quarterly	Ongoing	Ongoing
HERITAGE					
Facilitate the conservation works at God's Acre cemetery by Friends of God's Acre Inc.	Minor	AAC	N/A	Ongoing	Ongoing
Consider findings and recommendations of the current *Cultural Heritage Management Plan* in formulation or assessment of development of sites.	Major	AAC, AEO, ABC	N/A	Ongoing	Ongoing
Review and update the *Cultural Heritage Management Plan* to reflect legislative changes and provide to DIRD for its information.	Moderate	AAC	N/A	When DIRD provides guidelines to ALCs	To be determined once scope is clarified
FLORA AND FAUNA					
Ensure new development does not cause an increase in bat or bird populations (due to drainage works, settlement ponds, storage of materials, or bird attracting landscaping).	Catastrophic	AAC, ABC and AEO	N/A	On assessment of each proposal	Ongoing
Encourage use of mainly indigenous plants in landscaping works.	Minor	AAC	N/A	Ongoing	Ongoing
Prior to any major development in areas along Oxley Creek not already intensively managed, investigate fauna and flora values.	Moderate	AAC	As required	As required	N/A

Action	Risk rating	Action by:	Cycle	Start date	Finish date
EMISSIONS TO AIR AND OZONE DEPLETING SUBSTANCES (ODS)					
Continue to identify the presence of ODSs in AAC and tenant reviews.	Moderate	AAC and AEO	At tenant reviews	Ongoing	Ongoing
Advise tenants of their responsibility to obtain relevant environmental approvals for use of ODSs.	Major	AAC and AEO	At tenant reviews	Ongoing	Ongoing
SURFACE WATER					
Continue surface water monitoring for each sub catchment.	Moderate	AAC	Annual	Ongoing	Ongoing
Carry out further investigations to identify pollution source(s) if results exceed acceptable limits in a catchment.	Major	AAC and AEO	Annual	As required	As required
Prepare management plan if pollution is attributed to AAC or tenant(s).	Moderate	AAC and AEO	As required	As required	As required
GROUNDWATER					
Conduct annual assessment of groundwater quality.	Moderate	AAC	Annual	Ongoing	Ongoing
Review with AEO findings of annual groundwater monitoring reports and determine likely reasons for any elevated levels. Update monitoring program if required.	Moderate	AAC and AEO	Annual	2010	Ongoing
AAC and tenants with USTs to monitor net quantities to identify any losses. Immediate integrity testing required if losses are identified.	Major	AAC and tenants	Annual	Ongoing	Ongoing
SOIL AND GROUNDWATER CONTAMINATION					
Assess storage of potential contaminants, work methods, and equipment during tenant reviews to identify potential for contamination.	Major	AAC	At tenant reviews	Ongoing	Ongoing

Action	Risk rating	Action by:	Cycle	Start date	Finish date
Encourage tenants to install bunded above ground tanks, rather than USTs where feasible.	Major	AAC, tenants	Ongoing	Ongoing	Ongoing
Ensure all new tenant lease agreements cover contamination monitoring and remediation requirements.	Moderate	AAC	As tenancies are let or renewed	Ongoing	Ongoing
Require tenants to remediate any contamination.	Major	AAC	As required	As required	As required
HAZARDOUS MATERIALS AND WASTE MANAGEMENT					
Implement recommendations of *Asbestos Management Plan and Register for Archerfield Airport* and keep asbestos register current.	Moderate	AAC, tenants modifying existing structures and services	As building demolition, works or modifications are undertaken, AAC acquires buildings	2003	Ongoing
Maintain Hazardous Materials Register for AAC operations.	Major	AAC	Ongoing	Ongoing	Ongoing
Record hazardous materials at minor tenancies during environmental reviews	Moderate	AAC and tenants	At tenant reviews	2010	Ongoing
Monitor hazardous materials on airport through tenant reviews and record quantities of hazardous materials in Hazardous Materials Register.	Major	AAC, tenants	12 monthly	2011	Ongoing
Ensure that tenants have hazardous materials licences where applicable and have a HAZMAP located at the site entrance.	Major	Tenants	12 monthly (with reviews)	2010	Ongoing
Monitor the quality and quantity of waste materials on airport.	Moderate	AAC and AEO	Ongoing	Ongoing	Ongoing

Action	Risk rating	Action by:	Cycle	Start date	Finish date
USE OF NATURAL RESOURCES AND ENERGY					
Encourage tenants to reduce energy and water use and make greater use of recycling by highlighting opportunities for resource recovery and reuse during environmental reviews of tenancies.	Minor	AAC, AEO and tenants	At tenant reviews	Ongoing	Ongoing
Include in new AAC developments rainwater harvesting where feasible.	Minor	AAC	Ongoing		Ongoing
Identify opportunities in new developments for water conservation and reuse, efficient use of energy, natural light, and ventilation.	Minor	AAC	Ongoing	Ongoing	Ongoing
NOISE					
Investigate any noise complaints related to on airport activities (except aviation activity that is the responsibility of Airservices Australia). If necessary, conduct noise monitoring.	Moderate	AAC, AEO and tenants	Regular follow up if issue identified	As required	Ongoing
Ensure that all AAC personnel are familiar with the noise complaints process, and the different responsibilities of AAC and AsA. Advise new employees during initial induction.	Minor	AAC	Annual	Ongoing	Ongoing
ENVIRONMENTAL MONITORING AND REVIEWS					
Maintain updated tenant review schedule, in accordance with tenant risk classification.	Moderate	AAC and AEO	N/A	Ongoing	Ongoing

Action	Risk rating	Action by:	Cycle	Start date	Finish date
Conduct tenant environmental reviews	Major	AAC, AEO	At tenant reviews (12 monthly for tenants with hazardous materials), others as scheduled	Ongoing	Ongoing
Identify opportunities during tenant reviews for improved waste management by AAC and tenants through cleaner production and potential synergies between activities on the airport.	Minor	AAC and tenants	At tenant reviews	Ongoing	Ongoing
Audit sites prior to tenant departure to confirm environmental condition, removal of plant and equipment, condition of utility services, and to identify any remediation or reinstatement required by tenant.	Major	AAC and AEO	Lease end	3 months before tenant vacates premises.	2 months before tenant vacates premises
Ensure compliance of tenant with any actions arising from audit	Moderate	AAC and AEO	N/A	1 month prior to tenant vacating	Prior to release of tenant from lease
Investigate and report on received complaints	Minor	AAC	As required	1998	Ongoing
COMMUNICATION AND CONSULTATION					
Facilitate the Archerfield Airport Environmental Management Forum (AEMF).		AAC	Monthly	2000	Ongoing
Undertake consultation with relevant stakeholders on major projects	Minor	AAC	As required	As required	As required

Action	Risk rating	Action by:	Cycle	Start date	Finish date
CONTINUOUS IMPROVEMENT					
Review progress of implementation of the Environment Protection Action Plan.	Moderate	AAC and AEO	6 monthly	July 2010	Ongoing
Review contents of Environment Protection Action Plan and revise as required, consistent with the AES.	Moderate	AAC	Annually	June 2011	Ongoing