



Final Sustainability Plan

(Airport Environment Strategy)

Parafield Airport

November 2009

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ABBREVIATIONS

| | | | |
|-------------------|---|-----------|---|
| AAA | Australian Airports Association | DTEI | Department of Transport, Energy and Infrastructure (SA) |
| PACC | Parafield Airport Consultative Committee | EIS | Environmental Impact Statement |
| PAL | Parafield Airport Limited | EMP | Environmental Management Plan |
| AAWHG | Australian Aviation Wildlife Hazard Group | EPA | Environment Protection Authority (SA) |
| ABC | Airport Building Controller | EPBC | Environment Protection and Biodiversity Conservation Act 1999 |
| AEO | Airport Environment Officer | ES | Environment Strategy (2004) |
| AEP | Airport Emergency Plan | FAC | Federal Airports Corporation |
| AER | Airport Environment Report | FEGP | Fixed Electrical Ground Power |
| AIC | Airport Lessee Company | FOD | Foreign Object Debris |
| AMLRNMB | Adelaide and Mount Lofty Ranges Natural Resource Management Board | FOPC | Friends of Patawalonga Creek |
| APU | Auxiliary Power Unit | GA | General Aviation |
| ARFF | Airport Rescue and Fire Fighting | GPU | Ground Power Unit |
| ASR | Aquifer Storage and Recovery | HSE | Health, Safety and Environment |
| ASTR | Aquifer Storage, Transfer and Recovery | HSEMS | Health, Safety and Environmental Management System |
| AST | Above-ground Storage Tank | IMP | Irrigation Management Plan |
| CASA | Civil Aviation Safety Authority | ISO 14001 | Australian and International EMS standard |
| CBD | Central Business District | MDP | Major Development Plan |
| CEMP | Construction Environmental Management Plan | NPI | National Pollutant Inventory |
| CO ₂ e | Carbon Dioxide Equivalents | ODS | Ozone Depleting Substances |
| DCC | Department of Climate Change (Commonwealth) | PAL | Parafield Airport Limited |
| DEWHA | Department for the Environment, Water, Heritage and the Arts (Commonwealth) | PAR | Plan Amendment Report |
| DITRDIG | Department of Infrastructure, Transport, Regional Development and Local Government (Commonwealth) | PCB | Polychlorinated Biphenyls |
| | | RPT | Regular Public Transport |
| | | SOP | Standard Operating Procedure |
| | | SP | Sustainability Plan (2009) |
| | | UST | Underground Storage Tank |

12 INTRODUCTION

12.1 COMMITMENT TO ENVIRONMENTAL SUSTAINABILITY

The PAL Sustainability Policy provides the foundation for the Preliminary Draft Master Plan (PDMP) that comprises four integrated volumes, namely an Airport Master Plan, Surface Access Plan, Sustainability Plan and Community Plan, plus Appendices and, which are described in more detail below. This Sustainability Plan is provided to comply with Sections 121 and 122 of the *Airports Act 1996* (the Act), namely the provisions for an Airport Environment Strategy every five years.

As described in the Sustainability Policy, PAL's corporate vision and ongoing success is founded on building and maintaining the three pillars of responsible business practice – sustainable financial, environmental and social management. To ensure that our business thrives and is managed today in a manner that promises to meet the needs of future generations, PAL must respond positively and innovatively to today's local and global financial, environmental and social challenges.

How PAL plans to address these challenges is described throughout the four volumes of the PDMP. The central focus of this Sustainability Plan is environmental management in which PAL sets out the long-term objectives and medium-term goals to minimise the company's footprint, or impact, on the earth in balance with the other two sustainability pillars.

Whilst PAL has a legislated and moral responsibility to effectively manage broad environmental issues across Parafield Airport, airport occupiers that sublet sections of airport land and/or building space from PAL are directly responsible for their organisation's environmental performance, including their sub-lessees, contractors and sub-contractors.

12.1 PURPOSE OF THE STRATEGY

PAL's Sustainability Policy forms the foundation of the Sustainability Plan which in turn will be implemented through the Sustainability Program.

The purpose of this Plan is to:

- ensure all identified environmental sustainability risks are appropriately managed;
- facilitate PAL's objective of remaining an industry leader in airport environmental management;
- ensure continuous improvement of the airport environment; and
- build upon the achievements of the 2004 Airport Environment Strategy.

The Sustainability Policy is provided in Figure 12.1.

12.3 LEGISLATIVE REQUIREMENTS

Under the Act, and with further reference to the *Airports (Environment Protection) Regulations 1997* (the Regulations), PAL must develop and implement a Plan which comprehensively sets out how PAL will maintain or improve environmental quality of the airport.

The Act establishes an environmental management regime that focuses on a cooperative approach, supporting and ensuring compliance with environmental standards at federally-leased airports. Part 6 of the Act specifically covers environmental management requirements, detailed in the Regulations.

Under Section 116 of the Act the Sustainability Plan (Airport Environment Strategy) must include:

- environmental management objectives for the airport;
- identification of the current environmental status of the airport including identification of environmentally significant areas;
- identification of sources of environmental impact associated with airport operations;
- an outline of the proposed studies, reviews and monitoring of current and future activities and a timeframe for these studies to be conducted;
- proposed measures to prevent, control or reduce environmental impacts associated with airport operations and the timeframe for their completion; and
- details of consultation on the preparation of the plan with stakeholders including federal, state and local government bodies, the airline industry, businesses and the community.

SUSTAINABILITY POLICY



Adelaide Airport Limited (AAL) is committed to managing and developing Adelaide and Parafield Airports in a sustainable manner.

Our philosophy is to operate and develop our airports in accordance with the principles of sustainable development, recognising that the success of our organisation can be enhanced by conducting business in a way that is environmentally, socially and economically responsible. We believe that in choosing this path we can improve outcomes for our business, our stakeholders and the wider community for generations to come.

PHIL BAKER
Managing Director
September 2008

AAL's objectives are to:

minimise the environmental impact of our organisations' operations through a program of continuous improvement;

ensure that we provide a positive and safe working environment, where individuals are valued and equipped with the skills to effectively carry out their work;

Integrate the principles of sustainable development, economic viability and operational efficiency into decision making at all levels and communicate these to our stakeholders;

foster a culture of sustainability through our relationship with customers, partners, tenants, contractors and suppliers;

engage with the local community in a positive and constructive manner and be a valued member of the community;

ensure compliance with all relevant regulatory and other requirements; and

rigorously monitor our progress against meaningful objectives and targets.

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Figure 12.1 PAL Sustainability Policy

Under the Regulations, the Sustainability Plan must include:

- sites identified to be of indigenous significance after consultation with relevant indigenous communities and organisations and Commonwealth or State bodies;
- proposed environmental management for areas of the airport which are not used, or planned to be used, for airport operations or aviation-related development; and
- proposed environmental management training for employees.

12.4 APPROVAL PROCESS

The content and key objectives of this Sustainability Plan have been prepared in parallel with the Airport Master Plan, Surface Access Plan and Community Plan by PAL and in consultation with regulatory authorities and numerous stakeholders in the lead up to its drafting in 2009. Feedback will be sought on the PDMP which includes this Sustainability Plan, through a rigorous program of stakeholder engagement and community consultation. Written comments will then be invited from the wider community and given due regard for incorporation into a Draft Sustainability Plan (Airport Environment Strategy) that will be presented to the Federal Minister for consideration and approval.

The Final Master Plan, once approved by the Federal Minister for DITRDG, will remain in force for five years (in accordance with Sections 77 and 122 of the Act) or until replaced by a new plan.

12.5 IMPLEMENTATION

PAL and other airport operators and occupiers (including tenants) must take all reasonable steps to ensure that the Sustainability Plan is complied with. Airport occupiers are also required to assist with and contribute to the development and periodic review of the Sustainability Plan as PAL is obliged to make them aware of the requirements therein.

DITRDG has appointed an Airport Environment Officer to regulate the administration of environmental legislation on the airport.

In addition, an Annual Environment Report is submitted to DITRDG detailing PAL's progress with Plan commitments.

Implementation of the 2004 Airport Environment Strategy for Parafield Airport resulted in numerous achievements, reported each year to DITRDG. A complete list of these achievements is provided in Appendix C.

12.6 COMMUNITY ENGAGEMENT AND CONSULTATION

Parafield Airport is located within the City of Salisbury and surrounded by residential, recreational and industrial zones. PAL has continued to communicate and share environmental information with the community and key stakeholders through various forums including the Parafield Airport Consultative Committee, Tenant Environment Group, newsletters and the PAL website.

Prior to the development of the PDMP, a stakeholder consultation program was developed and implemented which invited comments on the concerns of industry partners, tenants, government, staff and the broader community.

The early involvement of interest groups at both a strategic and operational level ensured that interested parties were provided with the opportunity to advise and influence the development of this PDMP prior to formal presentation to the public as prescribed by the legislation. Responses received from interested groups and individuals during the consultative process have been collated and incorporated into the Plan to reflect the relevant environmental issues.

The consultation process targeted key stakeholders and the public and both have played an equally important role in the development of this PDMP. Land use precinct planning concept drawings, supported by environmental sustainability goals and objectives were developed to promote discussion with the government agencies, and newsletters and media releases were distributed to promote community discussion.

A detailed Community Plan including a section on consultation is provided as Volume 4 of the PDMP.

13 PLAN STRUCTURE

The structure given to each of the following sections of this Sustainability Plan is outlined below. For the first time, PAL will present a 20-year outlook to match that required under the Act in Volume 1 of the Airport Master Plan. This allows more transparency for stakeholders and better continuity between each five-year plan.

Long-term objectives and management plans are given for the following environmental sustainability areas being actively managed by PAL:

- Sustainability Performance
- Climate Change
- Energy
- Water Resources
- Noise
- Waste
- Stormwater
- Soil and Groundwater
- Land and Heritage Management
- Local Air Quality

These objectives provide the focus for PAL's Sustainability Program over the next 20 years

in alignment with our company Vision and Sustainability Policy. Specific prioritised goals are given for the coming 5-year Master Plan period supported by those management actions identified by PAL as required for meeting them.

The stakeholder(s) responsible for each management action, and the timeframe for their anticipated completion, is provided to offer a robust framework for implementing our Sustainability Program.

Additional detail is provided by allocating short-term (1-3 years) and medium term (4-5 years) timeframes for completing discrete and commencing ongoing management actions.

14 SUSTAINABILITY PERFORMANCE

14.1 OVERVIEW

Sustainable environmental management of Parafield Airport is a core PAL commitment and the central focus of this Sustainability Plan. The impact that humans have on the local environment can have local, regional or even global consequences. Excess resource consumption, waste generation, degradation of biodiversity and heritage values, and pollution of our land, air and waterways are all potential impacts of business operations that can be minimised or eliminated through conscientious care, control and management.

Fortunately, many of these impacts are quantifiable. Measuring aspects of the airport environment (eg. stormwater quality) as well as company inputs and outputs (eg. energy consumption, waste generation) allows PAL to exert more effective control over its operations and strive to make them as efficient as possible, and thereby minimise the company's overall environmental impact or "footprint".

PAL will establish quantifiable measures – Sustainability Performance Indicators (SPI) – for assessing the standard of future infrastructure developments, in addition to those already used to assess the efficiency of current company infrastructure, plant and operations. These SPIs will be based upon existing codes, standards and voluntary rating tools such as the Building Code of Australia, NABERS and Green Star. PAL will develop its SPIs over time and upon consideration of company objectives, goals and targets, data requirements, methodology and resource availability.

Commercial buildings generate employment and can make a substantial contribution to the local

economy. They can also create a significant environmental burden through water and energy consumption, waste generation, biodiversity loss and air emissions, in particular, greenhouse gases. Therefore, such developments present the greatest opportunity for PAL to show leadership in fulfilling its sustainability commitments. To this end, PAL will seek to establish Sustainability Performance Targets or benchmarks for new and existing developments where possible, whilst further refining those targets driving operations directly under PAL control. A detailed description of PAL's development standards is provided in Section 6.7.2 of the Airport Master Plan.

To remain at the forefront of sustainable environmental management PAL will continue to seek partnerships with leading research institutions and engage across all levels of government and industry. As both a landlord and direct consumer of products and services PAL is committed to exerting influence with tenants, customers and suppliers to adopt more sustainable business practices.

14.2 OBJECTIVES

The AAL objectives for sustainable performance (by 2029) are:

- to exceed national standards for sustainable commercial developments for major new developments, refurbishments and fit-outs; and
- to be at the forefront of the latest research findings, applications and thinking in environmental sustainability.

The goals and management actions for achieving these objectives are detailed in Table 14.1.

Table 14.1 PAL Approach to Sustainable Performance

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (Years) |
|---|----------|---|-----------------------------|----------------|
| PAL assets designed, constructed and managed to meet targets aligned to key Sustainability Performance Indicators (SPI) | High | · Establish and measure progress in alignment with Sustainability Performance Indicators (SPI) | PAL | 1-3 |
| | | · Incorporate sustainable development principles into existing and new development, fit-out and construction guidelines | PAL | 1-3 |
| | | · Streamline data collection, analysis and reporting processes | PAL | 1-3 |
| | | · Introduce green leases where feasible | PAL / Lessees | 4-5 |
| | | · Incorporate SPIs into standard works contracts | PAL / Contractors | 4-5 |
| | | · Set, regularly review and report publicly against Sustainability Performance Targets (SPT) | PAL | 4-5 |
| Participate actively at the highest State and Federal levels in environment-related research, industry and policy development | High | · Partner with leading institutions in supporting research into ecological health, resource conservation and renewable technology | PAL / Government | 1-3 |
| | | · Seek competitive tertiary grant for national/international conference attendance | PAL / Tertiary Institutions | 1-3 |
| | | · Continue to occupy key positions on industry committees, forums and 'think tanks' | PAL | 1-3 |
| | | · Support the Australian Airports Association role in national policy development | AAA | 1-3 |
| | | · Identify external training and conference attendance support for employees in the field of sustainability | PAL | 1-3 |
| Embed principles of stewardship into corporate processes and through the supply chain | High | · Integrate sustainable development considerations within the corporate decision making process. | PAL | 1-3 |
| | | · Encourage customers, partners and suppliers to adopt sustainability principles and practices | Stakeholders | 1-3 |
| | | · Promote stewardship initiatives throughout the supply chain through preferred 'suppliers of choice' | Suppliers | 4-5 |
| | | · Facilitate and encourage responsible product design, use, reuse, recycling and disposal of products | Suppliers | 4-5 |

15 MANAGEMENT FRAMEWORK

15.1 OVERVIEW

PAL is regulated by the *Airports Act 1996* (the Act) and *Airports (Environment Protection) Regulations 1997* (the Regulations). If a matter is not covered under Federal legislation then State legislation applies through the *Commonwealth Places (Application of Laws) Act 1970*, to the extent that it does not conflict with any Commonwealth legislation.

There are strong interrelationships between the regulations, this Plan and the management system in operation to implement the Plan. The Act, Regulations and other relevant legislation and standards give direction to the scope, required structure, content and purpose of this Sustainability Plan.

15.2 SUSTAINABILITY POLICY

The Sustainability Policy issued by the PAL Managing Director in September 2008 provides the foundation for PAL's environmental management program. All new airport employees, tenants and major contractors are introduced to the policy, as part of their induction program and tenants received a copy of the policy in the Plane Talking newsletter distributed in December 2008. It is also presented to AAL employees as part of periodic environmental awareness training programs. The current policy is prominently displayed at the offices of PAL and is also available on the company website (www.aal.com.au)

15.3 OBJECTIVES, GOALS AND MANAGEMENT ACTIONS

Objectives, goals and management actions are detailed in each section of the plan that, once implemented, ensure PAL meets the commitments stated in the Sustainability Policy. In setting objectives and goals, consideration was given to the following:

- Company Vision;
- Sustainability Policy;
- legal requirements;
- significant environmental risks;
- views of stakeholders and the community;
- prevention of pollution;

- broader business objectives; and
- availability of resources.

15.4 MANAGEMENT SYSTEM

Environmental sustainability issues are controlled and improvements made through a detailed Health, Safety and Environmental Management System (HSEMS). The HSEMS – designed to be consistent with the Australian Standards AS/NZS/ISO 14001 (environmental management) and AS/NZS 4801 (occupational health and safety) – makes it possible to identify and mitigate risks, implement the overarching Sustainability Program, and provide a structure for continuous improvement.

The HSEMS will be audited regularly by a third party against the requirements of ISO14001 and the results reported to DITRD LG to provide assurance as to the quality and rigor of PAL's Sustainability Plan.

The key programs comprising the HSEMS are detailed in Table 15.1.

15.5 LEGAL REQUIREMENTS

The *Airports (Environment Protection) Regulations 1997* outlines the major obligations with respect to environmental matters on the airport, however, the Regulations do not apply to pollution or noise generated by aircraft (except ground running). The Commonwealth regulates these matters through the *Air Navigation (Aircraft Engine Emissions) Regulations 1994* and the *Air Navigation (Aircraft Noise) Regulations 1994* respectively. Management of significant flora and fauna or any potential future impacts of environmental significance is regulated through the *Environment Protection and Biodiversity Conservation Act 1999*.

Where the Regulations are silent, State law applies. This is the case for such matters as:

- pollution from motor vehicles;
- occupational health and safety;
- emission of ozone depleting substances;
- storage and handling of dangerous goods;
- irrigation management planning for use of recycled water;

Table 15.1 HSEMS Structure

| HSEMS Program | Outcomes |
|----------------------------------|--|
| Policy | <ul style="list-style-type: none"> · Sustainability Policy – provides foundation for HSEMS · Sustainability Plan – provides the overall direction for the Sustainability Program |
| Risk Management | <ul style="list-style-type: none"> · Register of environmental hazards (ie. aspects), including significant environmental hazards, risks (ie. impacts) and controls – provides the risk management framework for the HSEMS |
| Legal Review | <ul style="list-style-type: none"> · Legal Register – provides legal framework for risk ranking of environmental hazards and underpins the Sustainability Plan · Site Environment Register – maps and details all sites that have been subject to environmental review (for the purposes of building approval), monitoring, research, auditing and/or incident |
| Planning and Resource Allocation | <ul style="list-style-type: none"> · Sustainability (Environment) Management Plan (SMP) – updated annually, lists the management actions to be adequately resourced and completed by PAL based on the outcomes from the · Department Business, Finance and Operational Plans – updated annually, plans detailing actions at the Department level that support the implementation of the SMP and, where relevant, other HSEMS programs |
| Monitoring | <ul style="list-style-type: none"> · Sustainability (Environment) Operations and Monitoring Plan (SOMP) – updated annually, lists the regular risk control actions and monitoring activities to be completed by PAL and other stakeholders · Workplace Inspection Schedule – details the timing of HSE inspections of PAL owned and operated areas and PAL/contractor activities · Tenant Audit Schedule – details the timing of environmental audits of airport tenants · Construction Inspection Schedule – details the timing of HSE inspections of both PAL and third party construction sites · Topic Audit Schedule – details the timing of internal system audits to assess the performance of the HEMS · Internal audit schedule - details timing of annual audit against requirements of ISO14001 |

- transport and disposal of waste; and
- use of herbicides.

Building Controller in the assessment of Building Applications.

In addition, various industry codes of practice, Australian Standards and other guidelines are applicable to operators at the airport.

15.6.2 Airport Tenants, Occupiers and Operators

15.6 STRUCTURE AND RESPONSIBILITY

The airport hosts a wide variety of occupiers (tenants). Tenant activities include airline services, aircraft maintenance and avionics facilities, private charters, retail, warehousing, flight training and student accommodation facilities. Airport operators (taxi drivers, aircraft operators and contractors) use the airport regularly as part of their business operations. An array of contractors operate on airport participating in large-scale construction projects as well as conducting routine maintenance.

To ensure the successful implementation and operation of the HSEMS and this Sustainability Plan, responsibility has been assigned to the parties listed in Table 15.2.

15.6.1 Airport Environment Officer

These stakeholders are key to environmental compliance and performance at the airport. PAL promotes environmental obligations and best practice opportunities through negotiation, co-operation, education and enforcement where necessary. Tenant and contractor activities pose a degree of risk to the environment and are therefore managed through the development and implementation of Environmental Management Plans (EMPs).

The Airport Environment Officer (AEO) is appointed by the Secretary of DITRD LG and is authorised under the Act to exercise powers regarding environmental issues conveyed through the legislation. The AEO monitors PAL’s compliance with this Master Plan and the Sustainability Plan (Airport Environment Strategy) and the *Airports (Environment Protection) Regulations 1997* while DITRD LG maintains overall responsibility for enforcement of the Act and Regulations.

PAL activities are monitored and compliance communicated through regular meetings, site inspections, monitoring and reporting. In addition to this, the AEO also provides advice to the Airport

All new and current tenants are assigned an environmental risk ranking (Category 1, 2, 3 or 4) based on the potential of their core business

Table 15.2 Structure and Responsibilities for Implementation of the Sustainability Plan

| Party | Responsibilities |
|---|---|
| Board of Directors (including Managing Director) | <ul style="list-style-type: none"> · The environmental performance of PAL · Periodic review of the PAL Sustainability Policy · Allocation of resources to manage environmental sustainability issues |
| Health, Safety and Environment Committee | <ul style="list-style-type: none"> · Providing guidance on implementation of the HSEMS · Review of significant incidents · Review of company-wide environmental risks and performance · Assistance in implementation of the Sustainability Plan |
| General Manager Corporate Affairs | <ul style="list-style-type: none"> · Ensuring roles/responsibilities for environmental sustainability management are Defined and communicated · Implementing communication plans |
| General Manager Property Development | <ul style="list-style-type: none"> · Incorporating regulatory and other environmental conditions within leases and other property contracts |
| Environment Manager | <ul style="list-style-type: none"> · Preparing the Sustainability Plan and monitoring its implementation · Monitoring implementation of company HSE Management Plans and Programs · Ensuring compliance with regulatory requirements · Preparation of the Annual Environmental Report · Providing advice and specific training to staff and contractors · Assisting staff with environmental compliance |
| Managers | <ul style="list-style-type: none"> · Management of daily environmental sustainability issues associated with their Department's operations · Review of department HSE Management Plans · Ensuring that operations comply with applicable legislation · Identification of staff training needs · Integration of environmental requirements into daily operations · Staff environmental awareness |
| Staff | <ul style="list-style-type: none"> · Reporting environmental hazards, incidents, and complaints · Adhering to relevant HSEMS Procedures · Undertaking work in compliance with applicable environmental legislation · Participation in training sessions |
| Contractors | <ul style="list-style-type: none"> · Reporting environmental hazards, incidents, and complaints · Adhering to relevant HSEMS Procedures · Undertaking work in compliance with applicable environmental legislation · Participation in induction sessions · Reporting HSE data and information to PAL |

activities to cause harm as defined in the Act. Category 1 tenants have the greatest potential for environmental impact, or causing serious environmental harm, mainly through the nature and size of their operations. Category 2 tenants have the potential to cause material environmental harm.

The category that a tenant is assigned determines the level of environmental responsibility. Category 1 and 2 tenants must implement an EMP and are audited annually against regulatory requirements and their own EMP. This EMP process requires them to review their environmental risks regularly and set improvement actions as appropriate.

Category 3 and 4 tenants are those with less potential to impact upon the environment, and are required to carry out their operations in accordance with industry best practice and in accordance with regulatory requirements and this Sustainability Plan. Category 3 operators are considered to only

have the potential to cause environmental nuisance and are audited every three years or assessed when their work activities change requiring re-categorisation. Category 4 tenants perform activities that are considered to pose a negligible risk to the environment and are audited as required.

Large construction projects are subject to environmental audits by PAL staff. Contractors directly engaged by PAL for maintenance and minor capital works are included in the HSEMS Workplace Inspection Schedules to be assessed for compliance with environmental standards.

To date there have been no airport operators or occupiers found guilty of an offence under the *Airports (Environment Protection) Regulations 1997*. PAL has developed a positive and open relationship with its tenants. This ensures that parties can work together and PAL can assist tenants to improve environmental performance.

1.5.7 ENVIRONMENTAL MONITORING

PAL operates a broad monitoring program that collects data across those areas listed in Table 15.3.

1.5.8 SITE ENVIRONMENT REGISTER

In accordance with the *Airports (Environment Protection) Regulations 1997* an Environment site Register is maintained for Parafield Airport. The register identifies (by assigning a unique Site number) the location of every site around the airport that has been subject to environmental monitoring, assessment, auditing, incident investigation and/or has been given Environmental Significance status. The features of each site, including its contamination status, are detailed in the register and the site location drawn onto an aerial map using GIS software.

1.5.9 SITES OF ENVIRONMENTAL SIGNIFICANCE

Throughout the 5-year period of the 2004 Environment Strategy, PAL has kept the Environmental Site Register for environmentally

significant areas up to date. Through research, monitoring and consultation with Commonwealth, State and local bodies, AAL has identified one site – Vernal Pools Conservation Zone – that contains:

- significant vegetation communities and isolated flora;
- significant habitat for fauna; and
- conservation value.

The Vernal Pools Conservation Zone is described in more detail in Section 23 – Land and Heritage Management and delineated on an aerial photo in Appendix D.

1.5.10 OBJECTIVES

The objective for PAL (by 2029) is to be a leader in environmental sustainability management.

The goals and management actions for achieving this objective are detailed in Table 15.4.

Table 15.3 Environmental Monitoring Overview

| Issue | Program Overview | Frequency |
|------------------------------|--|--|
| Climate Change / Energy | <ul style="list-style-type: none"> • Carbon footprint • Electricity, gas and fuel consumption | Annually Quarterly |
| Water Resources | <ul style="list-style-type: none"> • Water consumption • Stormwater harvesting volumes (City of Salisbury) | Quarterly Quarterly or as required |
| Noise | <ul style="list-style-type: none"> • Ground-based noise • Construction noise | Bi-Annually and as required As required |
| Waste | <ul style="list-style-type: none"> • Waste quantity and composition • Asbestos volumes | As required Annually |
| Stormwater | <ul style="list-style-type: none"> • Stormwater quality • Stormwater flows | Annually/Seasonal As required |
| Soil and Groundwater | <ul style="list-style-type: none"> • Soil and groundwater quality • Background groundwater quality | Annually and as required Annually/Seasonal |
| Land and Heritage Management | <ul style="list-style-type: none"> • Flora and fauna surveys (Vernal Pools Conservation Zone) • Flora and fauna surveys (other areas) • Bird census • Arboreal assessments • Archaeological surveys • Heritage surveys | Annually As required Weekly As required As required As required |
| Local Air Quality | <ul style="list-style-type: none"> • On-site air quality • Stack monitoring • Ozone depleting substances audit | As required As required Annually |

Table 15.4 PAL Approach to Continuous EMS Improvement

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|--|----------|--|-------------------------------|----------------|
| Improve the effectiveness and efficiency of our HSEMS whilst meeting the requirements of AS/NZS/ISO 14001:2004 | High | · Establish more detailed risk assessment process aligned with corporate risk procedures | PAL | 1-3 |
| | | · Utilise corporate software tools to better track the performance of our HSEMS and associated plans | PAL | 1-3 |
| | | · Schedule external party audits of the HSEMS as required | Contractor | 1-3 |
| Measure continuous improvement in tenant environmental performance | Medium | · Run regular training workshops for tenants wishing to improve their Environmental Management Plans | PAL/Tenants | 1-3 |
| | | · Continue to share information on and encourage tenant adoption of best management practice through regular audits, Airport Tenant Environment Group meetings, distribution of our quarterly company newsletter, and sponsorship of an environment award. | PAL/Tenants | 1-3 |
| | | · Create, train and distribute a tenant self-audit scoring tool | PAL/Tenants | 1-3 |
| Expand the development of applications for integrated spatial data management tools | Medium | · Continue development of a GIS spatial data and asset management system | PAL | 1-3 |
| | | · Develop an interactive web-based tool for external stakeholder access to environment-related data | PAL | 4-5 |
| | | · Contribute environmental data, where feasible, to the public reporting of progress against SPT | PAL | 4-5 |
| Form links between the environment programs of PAL and surrounding agencies where relevant | Low | · Promote the environmental program and services of surrounding Councils to airport tenants | Councils | 1-3 |
| | | · Create opportunities for joint promotion and implementation by PAL, State Government and Councils of key environment-related initiatives | State Government/Councils/PAL | 1-3 |
| | | · Seek to create a joint World Environment Day award with the City of Salisbury | Council/PAL | 1-3 |
| Adopt an adaptive management approach to our environmental and operational programs | Medium | · Continue to implement rigorous, transparent environmental monitoring plans and methods as the foundation for our HSEMS | PAL | 1-3 |
| | | · Invite specialist third party review of selected key areas of our operational processes and monitoring program to maximise the potential for early learning and adaptation | Contractor | 1-3 |
| | | · Partner with leading institutions in supporting research into ecological health, resource conservation and renewable technology | PAL / Contractor | 1-3 |

1 6 CLIMATE CHANGE

1 6.1 OVERVIEW

In recent years, global focus on climate change has shifted away from the “how”, that is, the scientific debate surrounding the extent of the contribution of human activity, and towards the “what”, the emerging policies and strategies for dealing with its impact on our planet.

The Fourth Assessment Report released by the Intergovernmental Panel on Climate Change in 2007 stated the existence of climate change as “unequivocal” and attributed the main causes of the change to human activities. In response, the Australian government committed to emissions reductions targets outlined in the Kyoto Protocol, prompting establishment of the *National Greenhouse Gas and Energy Reporting (NGER) Regulations 2007*, and design of a carbon emissions trading scheme. The Australian Airports Association took a step further and released guidelines in 2008 defining how airports must measure emissions in compliance with the NGER Regulations.

Like many businesses, PAL recognizes it will soon be entering a carbon-constrained future and must address the various risks associated with climate change. PAL is committed to reducing its carbon footprint whilst continuing to showcase renewable energy technology. A prudent carbon management program will be pursued to address (a) carbon risk (the potential financial and business impact associated with a carbon constrained economy) and (b) climate risk (the potential impact on assets and operations associated with more variable climate).

PAL has shown to be a leader in this area having calculated its carbon footprint annually since 2007. To manage carbon risk PAL has, and will continue to measure emissions through establishment of

a dedicated greenhouse gas accounting system and reduce its company carbon footprint through ongoing implementation of energy efficiency measures (see Section 17 – Energy). PAL will initiate a climate adaptation program in which the future impacts of climate change will be assessed and the outcomes considered in future business planning.

Participation in the national carbon trading scheme will not be mandatory for PAL. Nonetheless, PAL realises the greater benefits of acting voluntarily in the carbon market and will seek to switch a proportion of its electricity purchases to renewable energy and purchase ‘carbon credits’ to offset the greenhouse gas emissions resulting from key company activities.

PAL has already made significant progress in the implementation of its carbon program and will continue to offer leadership and exert influence where possible on key stakeholders to implement similar programs. New opportunities for improved carbon management will be appraised in light of a rapidly evolving regulatory framework and emerging technology.

1 6.2 OBJECTIVES

PAL’s objectives (by 2029) for managing climate change issues are to:

- minimise PAL’s carbon footprint;
- be influential in reducing greenhouse gas emission levels from other airport users; and
- be adaptive to future climate change impacts on our business and operations.

The goals and management actions for achieving these objectives are detailed in Table 1 6.1.

Table 16.1 PAL Approach to Managing Climate Change

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|---|----------|--|------------------------|----------------|
| Reduce PAL’s greenhouse gas emissions | High | · Establish a company carbon ledger for detailed and verifiable measurement of the company carbon footprint | PAL | 1-3 |
| | | · Continue at least annual calculation of the company carbon footprint and, where required, carbon reporting in accordance with regulatory requirements | PAL | 1-3 |
| | | · Purchase up to 10% of electricity from renewable (green) sources by 2012 (see Section 17. Energy) | PAL | 1-3 |
| | | · Incorporate sustainable development principles into existing and new development, fit-out and construction guidelines (see Section 14. Sustainability Performance) | PAL/Developers | 1-3 |
| | | · Consider voluntary offset of up to 30% of AAL’s company carbon footprint by 2014 | PAL | 4-5 |
| | | · Detail and enforce minimum energy efficiency standards for all equipment, including motor vehicles, in the company purchasing policy | PAL | 4-5 |
| Encourage and, where feasible, facilitate tenants to measure and reduce their carbon footprint | High | · Support and facilitate fuel reduction initiatives by aircraft operators where possible | PAL/Operators | 1-3 |
| | | · Develop tools and provide guidance to tenants on techniques for measuring emissions and reducing energy consumption (see Section 17. Energy) | PAL/Contractor | 1-3 |
| | | · Run specialist information sessions on opportunities for purchasing green energy and participating in carbon off-set schemes (see Section 17. Energy) | PAL/Contractor | 4-5 |
| Improve PAL’s preparedness against the likely impacts of climate change on infrastructure and operations | Medium | · Participate in local and State level adaptive planning processes | State Government | 1-3 |
| | | · Conduct an infrastructure review against projected climate change scenarios | PAL | 1-3 |
| | | · Accommodate, where required, extreme weather events into the Airport Emergency Plan | PAL/Emergency Services | 1-3 |
| | | · Update flood models (see Section 21. Stormwater) | PAL | 4-5 |
| | | · Incorporate, where required, new pavement and building standards into development and construction guidelines | PAL/Contractor | 4-5 |
| Increase the proportion of airport visitors and tenants using alternative forms of transport or changing their transport habits | Low | · Establish baseline data on transport patterns by airport visitors and tenants | PAL | 1-3 |
| | | · Increase the scope of service provided by public buses to the airport | State Government | 1-3 |
| | | · Introduce an airport-wide green travel initiative which could include a car pooling scheme in collaboration with airport employers, dependent on support | PAL/Tenants | 1-3 |
| | | · Develop a Bicycle/Pedestrian Access and Safety Plan for the airport | PAL | 4-5 |

17 ENERGY

17.1 OVERVIEW

The Parafield Airport site is a relatively modest consumer of energy resources shared between PAL and tenants, although electricity demand is projected to increase as the airport is further developed. Most of the energy consumed is electricity used in airport buildings predominantly for heating, cooling and lighting. Of these buildings, only a proportion is owned and occupied by PAL; the remainder either leased to or owned and occupied by tenants. A map showing the mix of PAL and tenancy building ownership is provided in Appendix E.

Whilst infrastructure owned and managed by PAL consumes relatively minor amounts of electricity it nonetheless generates greenhouse gases accounted for in PAL's carbon footprint and includes:

- office lighting, heating and cooling;
- street lighting;
- airfield lighting; and
- maintenance compounds.

PAL's carbon footprint is measured annually requiring regular assessment of the airport electricity metering network, creation of accurate, detailed energy data sets and development of an integrated finance/carbon ledger. Baseline energy data provides the essential platform for an energy efficiency program that will be guided by the recommendations stemming from energy audits of PAL-owned buildings, plant and equipment.

The energy efficiency program will be a subset of PAL's overarching carbon management program and be a critical step towards reducing the company's carbon footprint.

17.2 OBJECTIVES

PAL's objective (by 2029) in managing energy use is to exceed relevant industry benchmarks for energy efficiency.

The goals and management actions for achieving this objective are detailed in Table 17.1.

Table 17.1 PAL Approach to Managing Energy Use.

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|--|----------|---|----------------------|----------------|
| Reduce baseline electricity consumption in buildings occupied by PAL (5% of 2005 levels by 2014) | High | · Review electricity metering within PAL occupied buildings to provide more accurate and detailed baseline data | PAL/Contractors | 1-3 |
| | | · Implement Energy Audit Action Plan where feasible | PAL/Contractors | 1-3 |
| | | · Incorporate sustainable development principles into existing and new development, fit-out and construction guidelines (see Section 7. Sustainability Performance) | PAL/Developers | 1-3 |
| Purchase up to 10% of electricity from certified South Australian renewable sources by 2012 | High | · Assess renewable energy purchasing options | PAL | 1-3 |
| | | · Arrange the supply of certified green energy | PAL/Utility Provider | 1-3 |
| Increase on-airport generation of renewable energy | High | · Conduct a solar and wind modelling assessment | PAL/Contractors | 1-3 |
| | | · Investigate possible locations for renewable energy installations | PAL/Contractors | 1-3 |
| | | · Partner with Government and leading R&D institutions to facilitate trials for emerging renewable technology | PAL/State Government | 4-5 |
| Encourage tenants to implement energy efficiency measures | Medium | · Develop tools and provide guidance to tenants on techniques for measuring emissions and reducing energy consumption | PAL/Tenants | 1-3 |
| | | · Run specialist information sessions on opportunities for purchasing green energy and participating in carbon off-set schemes | PAL/Tenants | 4-5 |
| | | · Provide support to tenants filing funding applications for energy efficiency projects | PAL/Tenants | 4-5 |
| | | · Introduce green leases where feasible | PAL/Tenants | 4-5 |

18 WATER RESOURCES

18.1 OVERVIEW

Climatic trends, uncertainty with respect to South Australia’s long-term water availability and rising water rates has led to water emerging as a priority issue for PAL. Security of water supply and best practice water conservation are critical goals, building on PAL’s solid track record of leadership in water management.

Stormwater harvested by the City of Salisbury from local drains and treated in a series of wetlands on Parafield Airport has been used for several years as a supplementary source of non-potable water to off-airport facilities (ie. Michell’s wool scouring plant) and residential areas (eg. Mawson Lakes) and local recreation areas such as school ovals.

PAL is committed, where feasible, to securing alternative non-potable water supplies for new and existing developments. Of the various options

being assessed, expansion of the existing recycled water network is the highest priority with new supply points proposed for the Central, Cross Keys and Levels Precincts. A map depicting the locations of current and future planned supply points is provided in Appendix F.

PAL has encouraged water savings by promoting water sensitive design principles in the 2008 Landscape Guidelines. PAL will continue to implement water efficiency measures guided by recommendations from water audits conducted of PAL-owned buildings.

18.2 OBJECTIVES

PAL’s objective (by 2029) is to “water proof” Parafield Airport.

The goals and management actions for achieving this objective are detailed in Table 18.1.

Table 18.1 PAL Approach to Managing Water Resources

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|---|----------|---|------------------------|----------------|
| Reduce mains water consumption in PAL owned and occupied buildings (10% of 2005 levels by 2014) | High | · Implement the Water Audit Action Plan where feasible | PAL/Contractors | 1-3 |
| | | · Continue to seek opportunities for reducing reliance on potable mains water | PAL/Contractors | 1-3 |
| | | · Continue to update the water meter network to improve data accuracy | PAL/Contractors | 1-3 |
| Expand the use of non-potable water supplies across the airport | High | · Construct additional take-off points in the recycled water supply network in the vicinity of existing and future developments | PAL/Council | 1-3 |
| | | · All new developments to incorporate water sensitive urban design features such as rainwater tanks or other water harvesting systems | Tenants/Developers | 1-3 |
| Encourage tenants to implement water efficiency measures | Medium | · Develop tools and provide guidance to tenants on techniques for measuring and reducing water consumption | PAL/Tenants | 1-3 |
| | | · Run specialist information sessions on opportunities for water harvesting and efficiency | PAL/Tenants | 1-3 |
| | | · Continue to review proposed plantings for conformance with the PAL Landscape Guidelines, i.e. Drought tolerant species selection (see Section 23. Land and Heritage Management) | Tenants/Developers/PAL | 1-3 |
| | | · Introduce green leases where feasible | PAL/Tenants | 4-5 |

19 NOISE

19.1 OVERVIEW

Aviation can be a significant contributor to noise levels in urban areas, and airports are the interface between the aviation sector and local community. Airports have a critical role to play in minimising noise impacts from ground-based activities (in accordance with the Regulations) and, where possible, being an influential stakeholder in responsibly addressing those impacts resulting from aircraft in flight. Issues relating to the latter are the direct responsibility of Airservices Australia and detailed for Parafield Airport in Section 5 of Volume 1 of the PDMP.

The major contributors of noise and vibration arising from airport ground-based activities include aircraft ground-running (engine testing), parked aircraft, freight operations, ground vehicles, plant and equipment and construction activities.

PAL has undertaken repeated noise monitoring surveys focusing on the residential zones adjacent the western airport boundaries showed noise levels from ground-based operations to be well below relevant regulatory standards. Background noise modeling has been undertaken to assess the potential impact relating to forecast road traffic increases from airport development. Nonetheless, PAL continues to implement controls to minimise the potential off-airport impact caused by noise, in

particular that noise generated by night-time aviation and non-aviation related activities.

Ground running (engine testing) activities undertaken by aircraft operators are strictly controlled through monitoring and enforcement of PAL's Engine Ground Running Policy contained within the Airport Manual. Similarly, operational and construction activities are controlled through enforcement of Tenant or Construction Environmental Management Plans and monitored through a program of regular site audits. Noise modelling is undertaken for new developments that may contribute to the airport noise profile and noise attenuation measures incorporated into these developments at the design phase.

19.2 OBJECTIVES

PAL's objectives for managing noise on the airport (by 2029) are to:

- **comply with relevant standards for ground-based noise sources; and**
- **increase community awareness and understanding of noise from airport-related activities.**

The goals and management actions for achieving these objectives are detailed in Table 19.1

Table 19.1 PAL Approach to Managing Ground-Based Noise

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|---|----------|---|------------------|----------------|
| Ensure present and future developments comply with relevant noise regulations | High | · Continue to conduct regular boundary noise monitoring | PAL/Contractors | 1-3 |
| | | · Continue to ensure that potential noise impacts are modelled for new developments and noise mitigation measures implemented where necessary | PAL/Developers | 1-3 |
| | | · Continue to ensure appropriate noise management by inclusion in Construction Environmental Management Plans and construction site auditing | Contractors | 1-3 |
| Raise community awareness of noise-related issues | Low | · Develop a fact sheet on noise-related issues and post on the PAL website | PAL | 1-3 |
| | | · Continue to lobby and support AirServices Australia initiatives to improve reporting and communication of noise-related enquiries | PAL/Stakeholders | 1-3 |

20 WASTE

20.1 OVERVIEW

Waste generated at Parafield Airport can be divided into two sources; that which results from PAL operations and that produced by tenants. Major waste streams include organic (e.g. food), packaging, paper and cardboard, aluminium cans, plastics, electronic, construction, hazardous (e.g. waste oil, fluorescent tubes) and green waste.

PAL has well-established recycling regimes for paper and cardboard, printer cartridges, waste oil, batteries, drink containers, construction waste and green waste. Further reduction of waste to landfill is sought by employing various tactics. This includes amendment of the Purchasing Policy in recognition of the impact of purchasing decisions on minimising resource consumption and waste generation. An integrated waste management strategy is to be drafted, based on the results of a waste audit.

PAL works collaboratively with tenants to reduce waste, and seeks to positively influence the environmental performance of independently operating tenants via a number of management techniques, including environmental audits and EMPs.

PAL proactively identifies high risk tenants for wildlife attraction and requires they submit Waste

Management Plans, specifying waste streams and management of them, with the aim of reducing foreign object debris and the likelihood of attracting wildlife to the airport environs.

An Asbestos Register is maintained for all buildings owned by PAL. Following annual audits, a specialist company is contracted to remove selected asbestos-containing materials on a risk basis. Any demolition project is preceded by an asbestos audit and the building stripped of asbestos-containing materials in strict accordance with State regulatory standards prior to works commencing.

20.2 OBJECTIVES

PAL's objectives for managing waste (by 2029) are to:

- increase the proportion of waste diverted from landfill in alignment with State targets; and
- be an asbestos-free airport.

The goals and management actions for achieving these objectives are detailed in Table 20.1.

Table 20.1 PAL Approach to Managing Waste

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|--|----------|--|-----------------|----------------|
| Increase the volume of waste to be recycled or reused (25% of 2009 levels by 2014) | High | · Conduct a waste audit | PAL/Contractors | 1-3 |
| | | · Develop and implement a Waste Management Strategy | PAL/Contractors | 4-5 |
| Engender a company culture of responsible waste management | Medium | · Develop and implement company-wide waste reuse and recycling initiatives | PAL/Contractors | 1-3 |
| | | · Continue to reuse and recycle construction waste for other on-airport commercial projects or off-site applications | PAL/Contractors | 1-3 |
| | | · Identify and regularly review preferred environmentally responsible suppliers and products | PAL | 1-3 |
| | | · Run a staff awareness campaign on the opportunities and benefits of green purchasing | PAL | 1-3 |
| Increase tenant waste reuse and recycling | Medium | · Continue to support, where practicable, airport tenants seeking to expand their reuse and recycling program | PAL/Tenants | 1-3 |
| | | · Run a tenant awareness campaign on the opportunities and benefits of effective waste management | PAL | 4-5 |
| Minimise risks associated with hazardous waste handling and disposal | Low | · Continue to manage hazardous wastes in accordance with regulatory requirements | PAL | 1-3 |
| | | · Continue the environmental audit program of tenants and construction sites | PAL | 1-3 |
| | | · Continue annual asbestos removal program until asbestos-free | Contractors | 1-3 |

21 STORMWATER

21.1 OVERVIEW

Waterways are sensitive environments, often supporting flora and fauna that are susceptible to degradation and pollution. Water collected across catchments not only has the potential to impact the health of waterways but also that of the receiving marine environment.

Parafield Airport lies at the downstream end of several regional catchments. The Main North Road Diversion Drain collects flows from the urban catchment to the east of Main North Road. Abutting the southern airport boundary, the Bennett Road Drain collects water from the southern section of the airport and Main North Road. The Airport Western Drain directs flows from the airport and the suburb of Salisbury South. Stormwater from these catchments is released to Gulf St. Vincent via Dry Creek, downstream of the airport. A map depicting the major stormwater catchments is provided in Appendix G.

PAL is committed to improving stormwater quality and consequently the ecological health of its waterways by installing gross pollutant traps in all new developments, supporting aquatic ecosystems, regularly auditing airport tenants, implementing effective emergency spill response plans and conducting regular monitoring.

Stormwater discharges from within the airport boundary are of a quality consistent with stormwater discharge monitored from off-airport urban catchments and well above what is commonly

reported for urban catchments in Australia (Wong et al 2000).

Areas of Parafield Airport and its surrounds are susceptible to flooding and predicted to be increasingly so as a result of climate change. The assessment and reduction of flood risk to these areas is a critical consideration in PAL land use planning, building design and stormwater management. PAL will continue to liaise as required with Councils, the State Government and key tenants in implementing strategies to further reduce the risk of damaging floods.

PAL will continue to measure and seek improvements in the ecological health of its waterways, and minimise the risk of flood damage, through finalisation and implementation of an airport-wide stormwater management plan, based on the requirements prescribed by the SA EPA and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000).

21.2 OBJECTIVES

PAL's objective for managing stormwater (by 2029) is to minimise the impact of airport operations on surface water quality, flooding and the risk of harm to aquatic ecosystems.

The goals and management actions for achieving this objectives are detailed in Table 21.1.

Table 21.1 PAL Approach to Managing Stormwater

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|---|----------|---|----------------------------|----------------|
| Maintain and improve ecological health within our waterways | High | · Review and revise the Stormwater Monitoring Program to include ecological health parameters | PAL/Contractors | 1-3 |
| | | · Continue to install stormwater protection devices for new and upgraded developments | PAL/Developers/ Tenants | 1-3 |
| | | · Assess the feasibility of constructing stormwater harvesting schemes on airport (see Section 18. Water Resources) | PAL | 1-3 |
| | | · Finalise and implement the airport Stormwater Management Plan | PAL/Tenants | 4-5 |
| Reduce on-airport flood risk | Medium | · Update flood risk models | PAL/Contractors | 1-3 |
| | | · Include flood mitigation strategies with the Stormwater Management Plan | PAL | 1-3 |
| | | · Continue to collaborate with external stakeholders on catchment-wide flood mitigation | PAL | 1-3 |

22 SOIL AND GROUNDWATER

22.1 OVERVIEW

Prior to the site being used as an airport, the predominant land use was grazing. Soils on the airport are predominantly clays. Groundwater is shallow and characterised by reasonable quality. Managing historical and recent contamination is an ongoing role for PAL as the airport lessee company and all practicable measures are undertaken to protect groundwater quality. The biggest risks to soil and groundwater quality are spills principally associated with refuelling and leaks from storage tanks.

22.2 SOIL

PAL has developed a mature program for managing contaminated sites and reducing the risk of contamination, comprising regular tenant audits, workplace inspections and regular liaison with tenants on the implementation of monitoring and remediation programs. Furthermore, PAL's building approval process captures the requirement for environmental site assessments to be undertaken prior to development or upon a change in leasing arrangements. Tenants and developers are provided with additional support in the form of a set of guidelines in conducting environmental site assessments.

The majority of operations that take place at the airport are on impervious surfaces which greatly reduce the likelihood of soil contamination. Minor spills and other sources of contamination therefore have generally been confined to a small area and are responded to promptly. PAL also has a procedure in place to undertake an environmental site assessment whenever there is change in landuse, land is purchased, leased, or vacated at lease expiry, or if there is suspected contamination of a site.

Newly identified contamination is subject to an environmental audit and/or health risk assessment from which short and long-term remedial actions are developed and implemented on a priority basis. Investigations into suspected or known contamination is done in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999.

Soil is regularly imported onto airport land as part of construction work and is a potential source of

contamination to soil and groundwater. In order to reduce this risk all developments (including demolition) are required to implement a Construction Environmental Management Plan which addresses soil importation. PAL requires verification of the contamination status of material that is brought onto airport.

During the past 5 years two sites have been remediated by PAL: a former landfill where waste was excavated, segregated and recycled where feasible; and a former refuelling site adjacent to building 57.

A subset of the Environment Site Register was created in 2005 to manage sites in accordance with the known degree of contamination. The Contaminated Site Register is a dynamic document which includes details on contaminants, hazardous substances storages, risk ratings and short and long term risk mitigation or remedial actions.

To inform the Contaminated Site Management Plan, first developed in 2007, PAL remains abreast of the latest remediation technologies from the CRC for Contamination Assessment and Remediation for the Environment via the Australian Remediation Industry Cluster (ARIC). As new information on contaminants comes to hand, existing sites on the airport are reassessed to determine if further site investigations are required by PAL or the operator to ensure compliance with the Regulations.

22.3 GROUNDWATER

Monitoring wells have been placed at specific locations on the airport for the purpose of measuring contamination levels at known or suspected contaminated sites. PAL has also installed additional monitoring wells to establish background groundwater quality for comparison against known contaminated sites. All USTs are required to have groundwater monitoring wells installed adjacent the tanks. This applies to tenant and PAL-owned tanks. It is a condition of building approvals that all tanks are required to meet Australian Standards. During tenant audits of sites ASTs are inspected for any leaks and verification is requested to show that tanks meet relevant standards.

Groundwater is situated generally between 2.5 and 4 m below ground surface. Elevated salinity and the presence of a range of heavy metals

preclude the use of groundwater as a potable source of water however the quality of groundwater is generally good. Currently, groundwater is not used for any other purpose. PAL recognises its role in protecting the shallow groundwater resource from any adverse impacts on airport land and groundwater quality is actively managed through various mechanisms.

22.4 HAZARDOUS SUBSTANCE MANAGEMENT

Hazardous substances and dangerous goods are stored and used across the airport on a daily basis. These products have the potential to cause significant environmental impacts if they are not stored and managed correctly. The nature of an airport requires large quantities of fuel to be transported in addition to the use of solvents, oils, herbicides, possibly radioactive materials by PAL and airport tenants.

A Hazardous Substances Storage Register is maintained by PAL and documents the location, type and history of all known past and current storage facilities, ASTs and USTs.

Records are kept of all spills and other

environmental incidents reported on-airport. PAL has a program in place, supported by emergency services personnel where required, for spill clean up, monitoring, reporting and recording. Staff and key tenants receive spill response training and clean up materials and equipment are kept in designated airside and landside locations.

USTs have shown to be the greatest risk to soil and groundwater at Parafield Airport. To manage this risk PAL has prescribed requirements for the monitoring of all USTs in tenant leases. Tenants have also been requested to include UST monitoring in their EMPs and report these results to PAL.

ASTs also pose the risk for environmental harm and are regularly audited by PAL, and monitored by their owners, to minimise the risk of leaks or failures.

22.5 OBJECTIVES

PAL's objective to manage soil and groundwater issues (by 2029) is to minimise the impact of airport operations on soil and groundwater quality.

The goals and management actions for achieving this objective are detailed in Table 22.1.

Table 22.1 PAL Approach to Managing Soil and Groundwater

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|--|----------|---|--|----------------|
| Maintain and, where feasible, improve soil and groundwater quality | High | · Continue to implement priority actions from the Contaminated Site Management Plan | PAL | 1-3 |
| | | · Continue to guide tenants to close out contaminated sites on a risk basis where practicable | Tenants | 1-3 |
| | | · Continue to conduct environmental site assessments for new developments and lease handovers in accordance with the PAL Environmental Site Assessment Guidelines | Developers/ Tenants/PAL | 1-3 |
| | | · Continue to investigate and monitor soil and/or groundwater quality on a risk basis | Tenants/PAL | 1-3 |
| Minimise risks associated with hazardous substances storage and handling | Low | · Continue to store and manage hazardous substances and dangerous goods in accordance with regulatory requirements | PAL/Tenants/ Developers | 1-3 |
| | | · Tank integrity programs to be implemented for all USTs, including groundwater monitoring where required | Tenants | 1-3 |
| | | · Continue the environmental audit program of tenants and construction sites | PAL | 1-3 |
| | | · Continue to implement emergency response plans for hazardous substances spills | Emergency Services/ Tenants/ PAL | 1-3 |

23 LAND AND HERITAGE

23.1 OVERVIEW

Historic records for vegetation around Parafield Airport prior to European settlement lack detail, but generally indicate that the area between Dry Creek and Gawler consisted of grassy plains, interspersed by riparian woodlands hugging the Little Para and Gawler Rivers. Later referred to as the Northern Adelaide Plains, these were dominated by *Austrodanthonia* and *Austrostipa* species, which gave way to samphire shrublands to the west and *Eucalyptus porosa* woodlands to the east.

Archival information regarding Aboriginal (Kaurna) sites in the vicinity of Parafield Airport identifies several known sites, including isolated artefacts, stone artefact scatters, and 'mound' sites; where in-situ camping refuse raises the height of the camping area. Mound sites often contain Aboriginal burials, oven stones, stone artefacts and faunal remains such as kangaroo, dingo, seashells, emu eggshell and other food remains. These artefacts indicate that the general area has a rich and varied archaeological record of Kaurna occupation.

23.2 HABITAT CONSERVATION

Most of the Northern Adelaide Plains have been developed, yet despite drastic landscape modification, Parafield Airport has retained some pre-European habitats, and hosts the last known population of vernal pools within the Adelaide metro area. The pools fill with rainwater in winter and dry out over summer, resulting in a specific environment which requires specialist adaptations for flora and fauna species utilising the pools. The Wetland Inventory of the Mount Lofty Ranges identifies these vernal pools as a Threatened Habitat (Seaman 2002).

The surrounding grasslands host the state endangered Black Cotton Bush (*Maireana decalvans*) and a number of other vernal pool specialist species, including plants of state and/or regional conservation significance. The site's habitat also supports a number of native birds, reptiles, amphibians and unusual invertebrates, including Seed Shrimp and Water Fleas.

The pools and surrounding grasslands are preserved in the Vernal Pools Conservation Zone (VPCZ) in

the Bennett, Cross Keys and Runways Precincts. The VPCZ was created by PAL encompassing all but one of the remaining pools and some scattered aboriginal artefacts.

No listed birds listed in the *Environment Protection and Biodiversity Conservation Act 1999* have been observed on-site, and of the listed birds in the *National Parks and Wildlife Act 1972*, only the Peregrine Falcon has been seen frequenting the site.

23.3 WILDLIFE MANAGEMENT

PAL runs a comprehensive wildlife management program, balancing the dual interests of aviation safety and wildlife conservation. In 2007 the program was augmented by a bird risk assessment, using over 20 years of data which identified birds that pose the highest risk to aviation safety. These species are consequently prioritised within the program, and are discouraged from the aerodrome using techniques such as bird harassment and modification of landscape, while landside bird species are supported where risk to aviation safety is minimal. This risk assessment process, the most comprehensive to date, has been adopted at the national level for implementation by other airports.

A visual bird census and bird strike mapping tool was developed in 2008 utilising GIS technology, allowing comprehensive analytical power in real time. Concurrently, data report forms were converted into electronic format enabling online entry and alerts in the events of wildlife strikes or other management activity.

PAL has in place a pest control program that includes ongoing management of fox, rabbit and hare numbers through a Wildlife Hazard Management Plan and liaises with local Councils and landholders to reduce their numbers.

The PAL Bird Management Committee membership was expanded in 2007 to include new key stakeholders, particularly the surrounding local governments creating a robust network that works collaboratively to minimise risks to aviation safety posed by wildlife attraction through awareness and planning. A Wildlife Risk Management Zone has been delineated around Parafield Airport,

highlighting areas of highest bird attraction risk, acting as a tool for consultation with external stakeholders.

23.4 ARCHAEOLOGY

In collaboration with Kairua representatives PAL has surveyed areas of the airport and recorded indigenous and heritage sites found in the Environmental Site Register, which is updated if a new site is discovered. There are procedures in place to ensure that identified indigenous and heritage sites are appropriately protected from ongoing maintenance activities and new developments.

No sites are listed on the interim register under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* or the South Australian *Aboriginal Heritage Act 1988*.

23.5 HERITAGE

No heritage sites have been listed to date on the Australian Heritage Commission Register of

National Estate, the Commonwealth Heritage List (controlled or owned by the Commonwealth) or the State Heritage Register. Heritage assessment surveys and a management strategy for Parafield Airport are to be finalised for consideration by the Department of Environment, Water, Heritage and the Arts (DEHWA).

23.6 OBJECTIVES

PAL's objectives for managing land and heritage issues (by 2029) are:

- to preserve our natural amenity, archaeological and built heritage values in compliance with relevant standards;
- to enhance the habitat biodiversity within designated conservation zones, and
- to minimise the risks presented by wildlife to aviation safety.

The goals and management actions for achieving these objectives are detailed in Table 23.1.

Table 23.1 PAL Approach to Managing Land and Heritage

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|---|----------------------------|--|----------------------------------|---|
| Enhance biodiversity within the Adelaide and Mount Lofty Ranges | High | · Implement the Vernal Pools Management Plan | PAL/Stakeholders | 1-3 |
| | | · Continue routine flora and fauna monitoring of the Vernal Pools Conservation Zone, including assessment of rehabilitated and reconstructed pools | PAL/Stakeholders | 1-3 |
| | | · Continue to implement DITRDG's land clearing guidelines | PAL/Stakeholders/ Contractors | 1-3 |
| | | · Conduct flora and fauna surveys of areas of remnant vegetation on-airport and assess opportunities for supporting habitat expansion | PAL | 1-3 |
| | | · Conduct a trial replanting program to improve the biodiversity values of the unlined waterway network | PAL/Contractors | 4-5 |
| | | · Partner with external stakeholders to support an on-ground biodiversity program within the Mount Lofty Ranges | PAL | 4-5 |
| | | · Review and revise the Stormwater Monitoring Program to include ecological health parameters (see Section 21. Stormwater) | PAL/Contractors | 1-3 |
| | | Reduce wildlife strike rates per 1000 aircraft movements | High | · Continue to implement the Wildlife Hazard Management Plan |
| · Continue research partnership with the University of Adelaide to identify potential relationships between insects, plants and bird attraction on the airfield | PAL/University of Adelaide | | | 1-3 |
| · Regularly review the 3 km radius Wildlife Risk Management Zone | PAL/Councils | | | 1-3 |
| · Expand efforts to facilitate collaboration with external stakeholders to reduce wildlife strike risk | Stakeholders | | | 4-5 |
| · Partner with local and State government to assess bird migration patterns and risk within 13 km radius | Stakeholders/PAL | | | 4-5 |
| Appropriately manage sites of archaeological or heritage significance | Medium | · Conduct Heritage Surveys | PAL/Contractors | 1-3 |
| | | · Develop and implement a Heritage Management Strategy based on the findings of heritage surveys | PAL/Contractors | 4-5 |
| | | · Continue to implement procedures for identifying and protecting archaeological artefacts | Contractors | 1-3 |
| | | · Continue to provide avenues for consultation between the airport and traditional custodians – the Kurna people | PAL | 1-3 |
| Improve the amenity value of the airport environs | Low | · Review proposed plantings for conformance with the PAL Landscaping Guidelines | PAL/Developers/ Tenants | 1-3 |

24 LOCAL AIR QUALITY

24.1 OVERVIEW

Good ambient air quality is critical for maintaining community and ecological health. Air pollution occurs when the air contains gases, dust, fumes or odour in harmful amounts; an environmental issue common in urban areas.

Parafield Airport is situated within a highly urbanised area 18 km due north of the CBD, surrounded by residential, recreational and industrial zones. Air quality in the northern Adelaide airshed has consistently been monitored for over a decade by the SA EPA at sites in Elizabeth Downs and Hampstead, collecting data on ambient levels of key pollutants, namely carbon monoxide, nitrogen dioxide, ozone, sulphur dioxide and particles less than 10 micrometres in diameter.

Data published to date by the SA EPA shows air quality in the airshed that encompasses Parafield Airport to meet the criteria for these pollutants in the *National Environment Protection (Ambient Air Quality) Measure 2003*. In addition, PAL has failed to trigger reporting thresholds for air emissions under the National Pollutant Inventory.

Under the Regulations PAL is responsible for controlling air emissions from ground-based activities such as refuelling, painting, cleaning, mechanical maintenance, ozone depleting substances, energy generation and construction. The most significant pollutant generated at Parafield Airport is dust

from earthworks which PAL manages through enforcement of dust mitigation activities detailed in Construction Environmental Management Plans and construction site audits. Emissions from minor point sources, such as aviation paint shops, are filtered prior to discharge and regularly inspected during tenant audits.

Given the known impact of road vehicle traffic and industrial facilities on the airshed it has been difficult to draw any conclusions concerning the relative contribution of aircraft, airport activities and induced traffic on the low levels of air pollution. Whilst the Regulations do not apply to emissions generated by aircraft, PAL nonetheless will seek to take the lead and engage with relevant government agencies to assess their impact on local air quality.

Greenhouse gas emissions are detailed separately in Section 16 – Climate Change.

24.2 OBJECTIVES

PAL’s objective for managing local air quality (by 2029) is to ensure Parafield Airport complies with relevant air quality standards.

The goals and management actions for achieving this objectives are detailed in Table 24.1.

Table 24.1 PAL Approach to Managing Local Air Quality

| Goal (2009-2014) | Priority | Management Action (2009-2014) | Responsibility | Timing (years) |
|---|----------|--|------------------|----------------|
| Determine ambient air quality within the airport boundary | Medium | · Conduct air quality monitoring within and on the boundary of the airport as required in line with changes to airport development | PAL/Contractors | 1-3 |
| | | · Report as required to the National Pollutant Inventory | PAL | 1-3 |
| Improve our understanding of the future impact of aviation on local air quality | Low | · Collaborate with EPA to model the potential future impact of aviation and induced traffic on local air quality | State Government | 4-5 |
| Ensure point source emissions meet regulatory requirement | Low | · Collect air emissions data from point sources and assess the requirements for additional pollution prevention as required | Tenants | 1-3 |
| | | · Continue to maintain a register of ozone depleting substances and phase out where feasible | PAL | 1-3 |