

# Avalon Airport Environment Strategy

2014 - 2019

Avalon Airport Australia Pty Ltd



# Acknowledgements

Avalon Airport Australia thanks Ecosure Pty Ltd for their assistance preparing this document.

## Phrases and Acronyms

AAA	Avalon Airport Australia Pty Ltd
AAV	Aboriginal Affairs Victoria
AES	Airport environment strategy
AEPR	Airports (Environment Protection) Regulations 1997
ANEF	Aviation noise exposure forecast
ANZECC	Australia and New Zealand Environment Conservation Council
CASA	Civil Aviation Safety Authority
CFC	Chlorofluorocarbon
DME	Distance measuring equipment
DoD	Department of Defence (Commonwealth)
DSE	Department of Sustainability and Environment (Victoria)
DSEWPac	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth; currently Department of Environment)
EPA	Environment Protection Authority (Victoria)
EMP	Environment management plan
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ILS	Instrument landing system
NPI	National pollutant inventory
PAPI	Precision approach path indicator
TEC	Threatened ecological community
T-VASIS	T-Visual approach slope indicator system
VOR	Very high frequency omni directional range

# Glossary

## Phrase

## Description

Avalon Airport Australia (AAA)

The airport lessee company.

Airport operators

The airport lessee company (AAA) and all sublessees and licensees (tenants and contractors) undertaking any activity on Avalon Airport.

Environmental impact

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from the release of a substance in the environment.

Environmental objective

Overall environmental goal, arising from the environmental policy, that an organisation or parts thereof sets itself to achieve, and which is quantified where practicable.

Environmental actions

Detailed performance requirement, quantified where practicable, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be accomplished in order to achieve those objectives.

Ramsar

The Ramsar Convention (The Convention on Wetlands of International Importance, especially as Waterfowl Habitat) is an international treaty which aims to conserve wetlands and ensure that they are sustainably utilised.

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# 1 Introduction

Avalon Airport is operated by Avalon Airport Australia Pty Ltd (AAA), an exclusively owned subsidiary of the Linfox Group.

The Avalon Airport Environment Strategy (AES) 2014-2019 communicates the commitment of AAA to manage environmental issues arising from airport operations. This strategy has been prepared with consideration of the Avalon Airport Master Plan June 2013 (Draft) (AAA 2013).

It is a requirement of the Avalon Airport lease that the AES be reviewed every five years. This strategy supersedes the previous strategy (2007-2012).

## 1.1 Location

Avalon Airport is situated on 1753 hectares of land that is 55 kilometres south west of the Melbourne central business district and 18 kilometres north east of the centre of Geelong (Figure 1; from AAA 2013). The airport is bordered to the north by Beach Road, to the east by Pousties Road, to the south by Dandos Road, to the north-west by the Princess Freeway and to the west by Cheetham Salt, along with rural land.

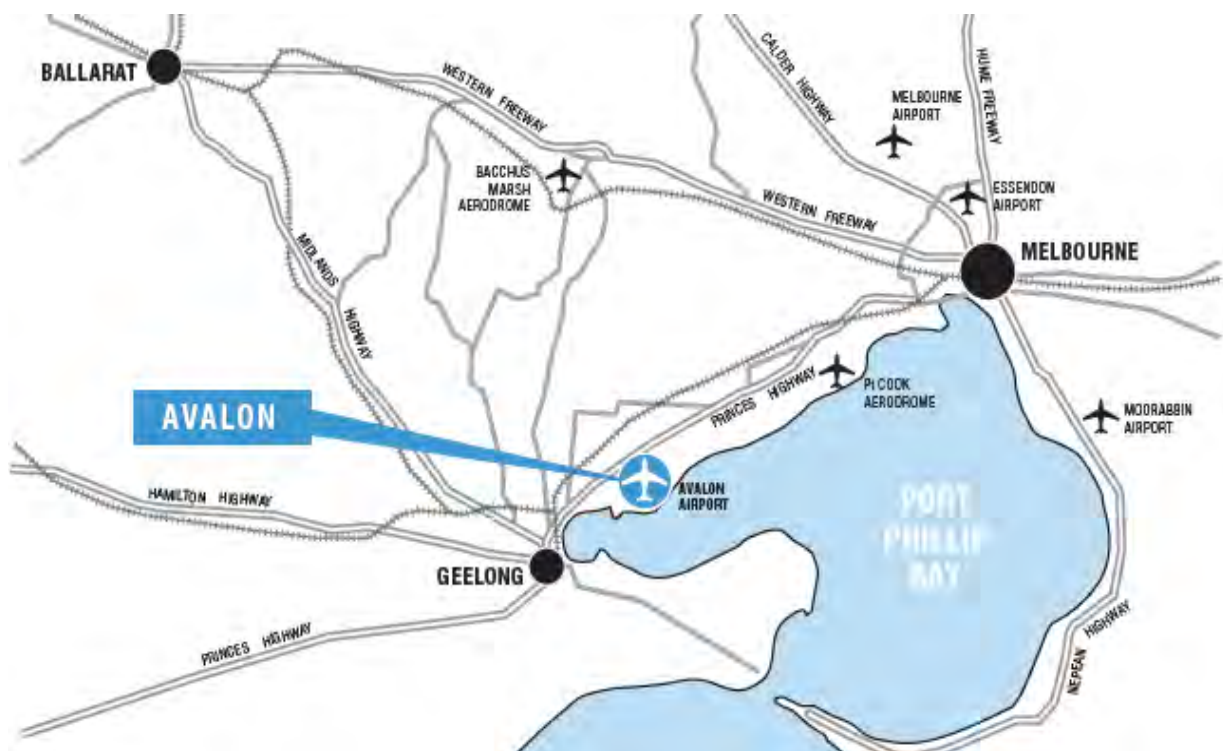


Figure 1 Site location

Most of the land in the vicinity of the airport is used for grazing and other agricultural purposes. Additional land use activities in the surrounding area include the Geelong Motor Sports Complex, Avalon Raceway, Cheetham Saltworks, Point Wilson Explosives Area, Melbourne Water Western Treatment Plant, Ocean Wave Seafood aquaculture, and Mountain View Quarries (Figure 2; from AAA 2013).

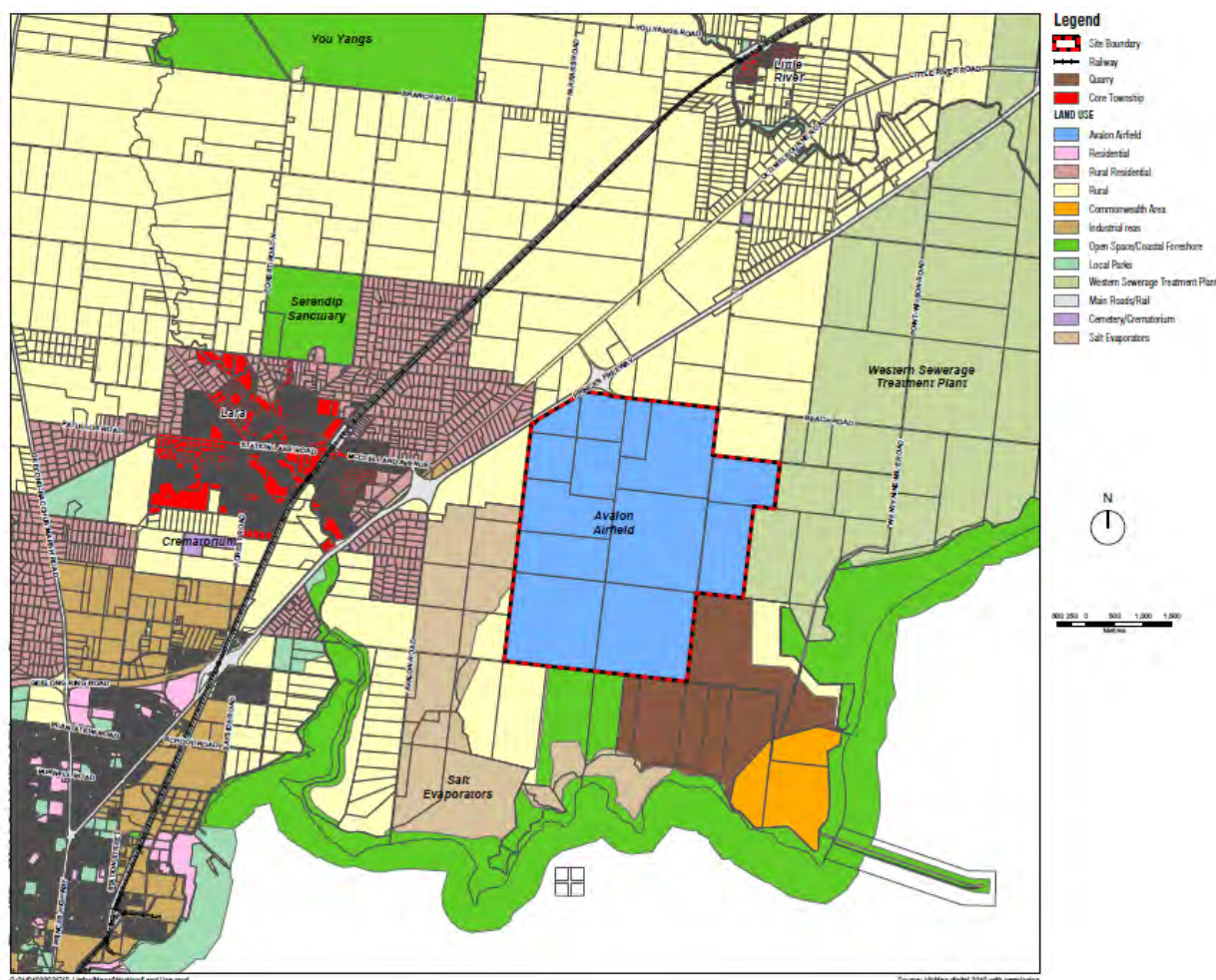


Figure 2 Land use surrounding Avalon Airport

The airport is located approximately four kilometres east of the township of Lara and seven kilometres south-west of the township of Little River. Little River provides support to the rural sector in the region although in recent years has become a rural lifestyle choice for new residents, whereas Lara acts more as a satellite urban settlement of Geelong than a service centre to surrounding rural enterprise.

In addition to aviation, Avalon Airport land is also used for cropping and grazing. Sheep graze across more than half of the airport's total area. Crops are seasonal, and include a variety of grains such as wheat and canola. These land uses are managed by a local farmer.

Avalon Airport has a temperate climate with a cool winter. The mean minimum temperature ranges from 5.0°C in July to 14.5°C in February (Avalon Airport – site 087113; BOM 2014). The annual rainfall average is 460 mm, while the monthly average rainfall ranges from 27.5 mm to 50.0 mm (Avalon Airport – site 087113; BOM 2014). Table 1 outlines the



average rainfall and temperature at Avalon Airport (from BOM 2014).

Table 1 Average rainfall and temperature

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average rainfall (mm)	30.1	34.5	27.5	36.0	35.4	38.1	38.1	44.2	46.4	50.0	49.5	29.5	460
Average maximum temperature (°C)	26.2	26.2	24.2	20.3	17.1	14.7	14.0	15.5	17.6	19.8	22.3	24.0	20.2
Average minimum temperature (°C)	14.0	14.5	12.5	9.5	7.5	5.8	5.0	5.5	6.6	7.9	10.6	11.6	9.3

## 1.2 History

Avalon Airport is located within the area of the Wathaurong language group of clans (Alert Solutions 2006) and has undergone many changes over the past century. The following is a summary of key historical milestones at the airport (Table 2).

Table 2 Historical milestones

Year	Milestone
Prior to 1952	Land was used for grazing sheep and dairy cattle.
1952	Airport constructed by the Federal Government for the production and testing of military aircraft.
1980 - 1996	Construction of military aircraft ceased in the 1980s, while maintenance continued until 1996.
1959	Airport runway extended to 3,048 metres. Qantas established a training base for heavy jet flight training.
1991	Two Aboriginal archaeological sites were found: <ul style="list-style-type: none"> <li>one to the north of the Avalon Airport property between Beach Road and Princes Freeway</li> <li>one isolated stone scatter, approximately 500 m west of the southern end of the runway.</li> </ul>
1992	Inaugural Australian International Airshow and Aerospace Expo commenced, which has been held biennially ever since.
1997	The Commonwealth Government, through DoD, granted Linfox Group a 50 year plus 49 year option lease for Avalon Airport from 7 <sup>th</sup> February 1997.
1998	Two aboriginal archaeological sites confirmed by Aboriginal Affairs Victoria (AAV) as site AAV 7721-117. Boeing 747 aircraft maintenance for Qantas commenced.
2001	Development proposals for Avalon Airport over a twenty year period were prepared by Linfox Group forming the basis of the Avalon Airport Master Plan July 2013 (Draft) (AAA 2013).
2003	AAA marked the Aboriginal scatter-site area with a plaque to commemorate the Wathaurong Community's involvement with the area.
2004	Jetstar Airways commenced passenger flight services.
2009	The apron was expanded to accommodate an additional four aircraft as well as to enable the opportunity to accommodate aircraft up to the size of a Boeing 747.
2009	The fuel farm was expanded to triple the storage capacity from 500,000 to 1,500,000 litres of A1 jet fuel. In addition, new fuel pipelines were installed.
2010	Tiger Airways commenced passenger flight services out of Avalon Airport.
2011	Victorian state government made the commitment to install a rail link into Avalon Airport and assist with installation of a fuel pipeline to directly deliver jet fuel to the airport.

## 1.3 Operations

The airport is used for a range of aviation related services including heavy jet flight training, B747 aircraft maintenance, international airfreight handling and passenger flight services. The Avalon Airport Master Plan June 2013 (Draft) (AAA 2013) estimates that the total passenger movement throughout Avalon Airport in 2013-14 will be 1,028,000, which is forecast to increase to 9,444,000 by 2030-2031.

The infrastructure at Avalon Airport which supports airport operations includes the below:

### **Airside Facilities**

- 3,048 metre north-south runway
- taxiways
- aircraft aprons
- air traffic control tower
- telecommunications towers
- refueling facilities including 1,500,000 litre jet fuel (Jet A1) storage capacity
- runway lighting (Pilot activated, PAPI and T-VASIS)
- rescue and fire fighting facilities
- navigation aids (VOR/DME, ILS)
- helipad.

### **Landside Facilities**

- domestic passenger terminal
- baggage handling facility
- 3700 space passenger car park
- 700 space employee and rental car park
- six maintenance hangars, three of which are Boeing 747 capable
- administration offices
- waste water treatment facility
- water reservoir
- gas pipeline
- sky advertising sign
- various tree plantations
- power lines.

The Australian International Airshow and Aerospace and Defence Exposition have been held

at Avalon Airport every two years since 1992. Avalon hosted an air show in 2013, with the next due to occur in 2015. Following a recent agreement between the Victorian Government and the air show operator, Avalon Airport will host the air show biennially until 2025. The Avalon Airshow is governed by a specific Environmental Management Plan (AirShows DownUnder 2012). The responsibility for overall environmental management at the event is held by the AirShows DownUnder Environment Manager, in conjunction with the AAA Property Manager.

The existing AAA management staff comprises a Chief Executive Officer, a Property and Freight Manager, an Operations Manager, a Company Accountant, a Business Development Manager, Passenger Terminal Manager and business manager. The Chief Executive Officer reports to the Linfox Board and Board of Avalon Airport Australia Pty Ltd. AAA management structure is summarised in Figure 3.

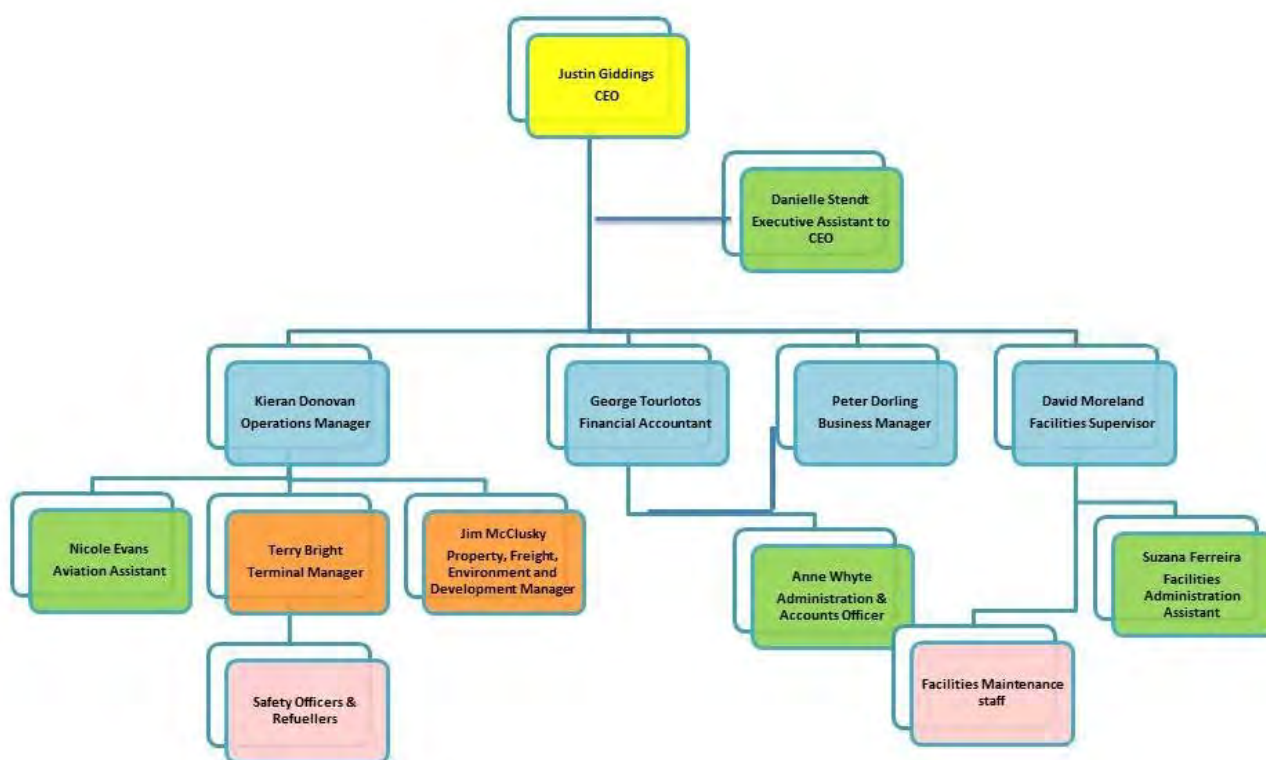


Figure 3 Avalon Airport Australia organisational chart

## Key Responsibilities for Environmental Management

The primary responsibility for environmental management at Avalon Airport rests with the Chief Executive Officer. The Chief Executive Officer will:

- initiate the implementation of the five yearly review of the airport Environment Strategy
- ensure that the responsibilities of all Avalon Airport employees are clearly delineated and that all employees are aware of their responsibilities.

The responsibilities of the Property and Freight Manager include:

- coordinating the conduct of environmental studies and programs
- ensuring that all environmental incidents are properly managed to minimise their impact on the environment and that necessary remedial actions are completed
- chair of the Avalon Airport Aircraft Noise Abatement Committee
- maintaining environmental records
- establishing the necessary environmental communications processes.

## 2 About This Strategy

### 2.1 Airport Lease Agreement

The Commonwealth Government through the DoD granted the Linfox Group a 50 year plus 49 year option lease for the airport from 7<sup>th</sup> February 1997. The lease requires an Environment Strategy be prepared for the airport to provide the framework for environmental management at the airport over a five year period.

In addition to the requirement to prepare and maintain a five yearly Environment Strategy, the Lease Agreement specifies that AAA must:

- a) continue to operate and be maintained as an aerodrome in accordance with all applicable legislation
- b) operate the airport having regard to the actual and anticipated future growth in, and pattern of, traffic demand for the airport site
- c) operate the airport while ensuring the safety and security of the aerodrome in accordance with all laws.

Provided these requirements are met, AAA is granted the opportunity to develop the premises for other legal purposes. This environment strategy will contribute towards minimising the potential for damage to the environment resulting from airport operations and any future development of the land.

Appendix 1 summarises the requirements for an environmental strategy under the Lease Agreement (Clause 9.2.1) and illustrates how these are met by this AES.

### 2.2 Master Plan

The Avalon Airport Master Plan June 2013 (Draft) (AAA 2013) is a 20 year plan which outlines Avalon Airport's vision for the operation and development of Victoria's next International Aviation Airport hub. It contains the strategies required to sustainably meet Melbourne's future air transport needs.

Strategies proposed in the Master Plan include:

- a rail link to Avalon Airport
- expansion of domestic passenger operations and the introduction of international passenger operations
- extension of the existing runway 18/36, a new parallel runway and a proposed cross runway
- a new retail precinct.

The Master Plan details proposed developments and provides a Precinct Plan (see [www.avalonairport.com.au/](http://www.avalonairport.com.au/)). The Master Plan should be read in conjunction with this AES.



## 2.3 Scope

The Avalon AES has been prepared in accordance with Part 9 of the Lease Agreement between the Commonwealth Government, DoD and Linfox Group. Specifically the strategy has been prepared to address Clause 9.1 of the Lease Agreement. The strategy is the means through which AAA communicates their objectives for the environmental management of the airport.

The scope of the Avalon AES covers all environmental matters within the airport boundary; however, some off-site environmental impacts are included where relevant. Noise, air and other environmental impacts associated with aircraft takeoff, landing, taxiing and flying are outside the scope of this Strategy.

In accordance with the Lease Agreement, this five year environment strategy supersedes the previous strategy prepared in 2007.

This document addresses overarching environmental matters in Chapter 3 (Environmental Management). Individual environmental features such as water, soil and biodiversity are addressed in subsequent chapters.

The AES provides an overview of environmental features, along with the possible impacts which airport operations may have on each of these. This document discusses what is currently being done to manage potential negative impacts and commits AAA to further management actions over the course of the next five years. In addition, a number of aspirational actions have been included. These are actions which AAA would like to implement, if time and resources permit.

All relevant actions (such as the development of any new management plans) should clearly set out roles, responsibilities and time periods for review.

## 2.4 Consultation

The Lease Agreement between the Commonwealth Government, DoD and Linfox Group outlines the consultation required by AAA when preparing an AES. Each phase of this consultation is summarised in Figure 4. Appendix 2 summarises the consultation requirements for an environmental strategy under the Lease Agreement (Clauses 9.9 and 9.10) and illustrates how these are met by this AES.

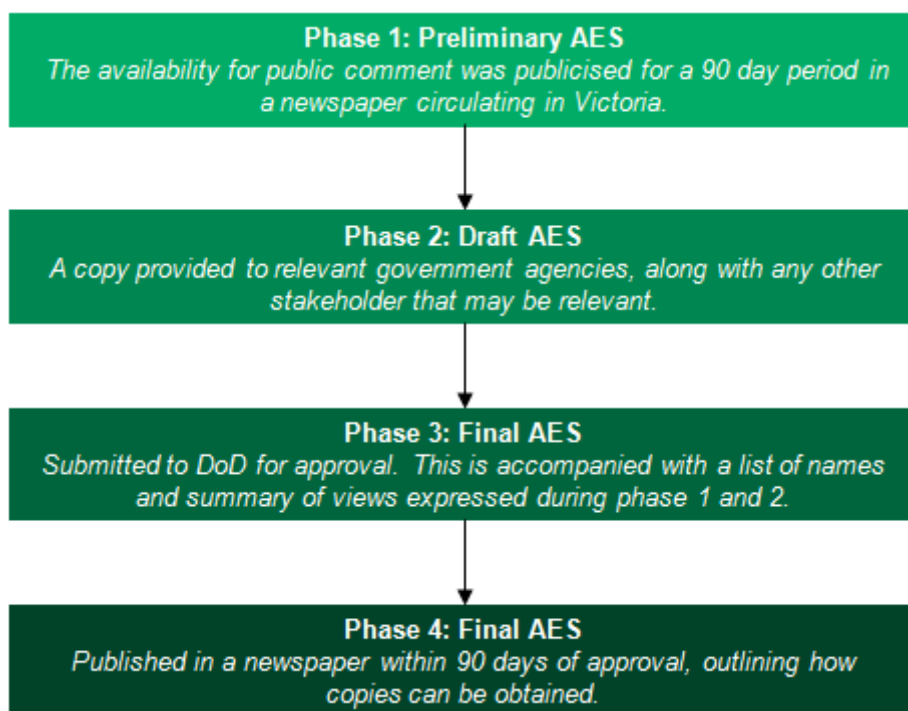


Figure 4 Phases of consultation for the AES approval

## 2.5 Legislation

Avalon Airport is on Commonwealth land and therefore is covered by Commonwealth jurisdiction. Where Commonwealth legislation is silent, state laws are taken to apply.

AAA are committed to compliance with all relevant environmental legislation (see Appendix 3 for Linfox's Environment and Sustainability Policy). The principal pieces of environmental legislation applicable to Avalon Airport are:

- ***Environment Protection and Biodiversity Act 1999*** (EPBC Act) (Commonwealth jurisdiction). The objects of the EPBC Act provide for the protection and conservation of the environment and heritage, with particular regard to matters of national environmental significance. This includes Cultural Heritage matters, listed species and ecological communities and protected areas.
- ***Airports Act 1996*** (Commonwealth jurisdiction). Establishes a system for the regulation of airports and promotes the development of civil aviation in Australia. Section 6 relates specifically to environmental management. The Airports Act states that it is an offence to cause environmental harm at an airport site.
- ***Airports (Environment Protection) Regulations 1997*** (Commonwealth jurisdiction) (AEPR). The objects of these regulations are to establish a system of regulation and accountability for activities which may cause pollution or excessive noise, and to promote improved environmental practices. The regulations deal with environmental standards at airport sites.

- ***Environmental Protection Act 1970*** (state jurisdiction). The Environmental Protection Act provides a legal framework to protect Victoria's environment and applies to noise emissions, air, water and land.
- ***Flora and Fauna Guarantee Act 1988*** (state jurisdiction). This act sets flora and fauna management objectives which seek to guarantee that Victoria's wildlife can survive and flourish in the wild. It provides a list of threatened taxa and communities, as well as identifying potential threatening processes.
- ***Catchment and Land Protection Act 1994*** (state jurisdiction). This piece of legislation governs the management of invasive plants and animals. It identifies the legal obligations which landholders have to manage declared pest species on their land.

Avalon Airport is operated by the Linfox Group under the terms of a lease administered by DoD and is not legally subject to the provisions of the Commonwealth Airports Act. Despite this, all Airport operators (including AAA staff, airport tenants and contractors) should look to the Airports Act and related AEPR as a guide to best practice and strive to meet these requirements.

## 3 Environmental Management

### 3.1 Avalon Airport Environment Policy

Avalon Airport operates under Linfox's Environment and Sustainability Policy, which is included as Appendix 3.

### 3.2 Environment Management Plan

AAA has implemented an Environment Management Plan (EMP; Alert Solutions 2006) which identifies and manages environmental impacts associated with AAA airport operations. The environmental features considered in the EMP include:

- emissions to air
- emissions to surface water
- emissions to land and groundwater
- solid and hazardous wastes
- natural resources and energy
- on site habitat.

For each of these features, the EMP outlines the applicable legislation, environmental risks, environmental objectives and a plan to achieve the stated objectives. The management and monitoring plans outlined in the EMP aim to assess:

- regulatory compliance
- environmental impacts
- existing controls
- progress towards objectives.

The EMP is an internal document used by AAA.

Other airport operators are expected to have their own comparable systems in place to manage potential environmental impacts resulting from their own activities.

The EMP provides more detail on management and monitoring plans for each environmental feature and is specific to AAA staff. In contrast, the AES is intended to communicate to AAA staff, regulatory bodies, key stakeholders and the community an overview of how environmental features are to be managed at the airport over the next five years.

The objectives and actions in the EMP have been considered in development of the AES.

### 3.3 Objective

To minimise potential impacts arising from airport operator activities to the environment, both on and off airport, and where possible improve the environmental values of the site.

### 3.4 Achievements

Environmental Feature	Achievement
Water	AAA has conducted a survey of all sources of wastewater on the property and of all water emissions, including stormwater and wastewater in accordance with the State Environment Protection Policy (Waters of Victoria). Surface drains directing water off site are sampled at critical points as prescribed by the Environment Protection Authority (EPA) Licence No. EW 725/2 on a monthly basis
Soil	Since 2000, AAA, Avalon Landcare Group and the Victorian Government's Department of Sustainability and Environment have addressed salinity at the Airport by planting more than 22,000 native trees and grasses to reduce the water table and restore the soil. During the past five years, this has met with considerable success.
Biodiversity	AAA monitor and manage weeds and pests within the Airport.
Cultural Heritage	In 2003, Avalon Airport marked the Aboriginal stone scatter site with a plaque to commemorate the Wathaurong Community's involvement with the area. Since the 2001-2006 AES the AAA has consulted with, and gained the consent of, Wathaurong representatives prior to planting trees.
Air Quality and Emissions	Between 2007 and 2013, AAA has removed approximately twenty air conditioning units known as potential sources of CFCs (ranging from 3 kilowatts to 25 kilowatts).
Noise	Avalon Airport has a Noise Abatement Committee which meets every six months to discuss noise complaints and noise abatement procedures.
Resource use and sustainability	A waste management programme for Avalon Airport has been developed and implemented in accordance with the Airport's EMP (Alert Solutions 2006). The programme is structured to enable Avalon Airport to meet the standards of the Victorian Industrial Waste Management Policy (Waste Minimisation). It includes management of the generation, storage, transport and disposal of all solid and hazardous wastes generated at Avalon Airport by AAA.

### 3.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Communicate changes to the Regional Environmental Offices of Defence with regards to monitoring, achievements of actions, new reports, and a review of the ongoing relevance of the Environment Policy.	October each year	Property manager
Inform all AAA staff and tenants of the 2014-2019 AES and make a copy available to them (may be online).	Within two months of AES approval	Property manager
Provide a copy of the 2014-2019 AES to new AAA tenants and staff (may be online).	As part of their site induction	Property manager
Develop and implement an Environment Policy which is specific to Avalon Airport.	June 2015	Property manager
Establish an environmental committee for AAA staff and airport tenants to discuss new or changing environmental impacts and management options. Determine an appropriate meeting schedule.	June 2016 and ongoing (as per to be confirmed meeting schedule)	Property manager



Actions	Anticipated Completion Date	Responsibility
Conduct a gap analysis to assess the current ability of AAA to have an environmental management system which is consistent with an international standard. Develop a plan with priorities, timeframes and responsibilities to respond to any gaps.	June 2015	Property manager
Develop and implement an internal audit program for the use, handling and storage of hazardous substances and dangerous goods.	June 2016	Property manager
Develop Construction Environment Management Plan(s) and requirements for environmental inspections prior to the commencement of all significant developments.	As required (prior to commencement of any significant development)	Property manager

## 4 Water

### 4.1 Objective

To maintain, and where possible improve, surface water and groundwater quality to protect existing and future resources both on and off site.

### 4.2 Environmental Aspects

Most of the Avalon Airport property is relatively flat resulting in a poorly defined drainage pattern. There have been several natural wetlands present on the property in the past, however only one of these remains (Lodges Wetland) as the others have been filled in. Constructed open drains transfer surface water to the west and east of the property and ultimately flow into Corio Bay.

There is a monthly surface water quality monitoring program which is reported to the EPA (see Section 4.4). No significant water contamination has been found in the last ten years. Groundwater has been monitored in the past (i.e. Synnot and Wilkenson 1997) as a component of studies into soil and groundwater contamination.

### 4.3 Potential Environmental Impacts

Past and current activities at AAA have the potential to result in impacts to surface water and groundwater both on the airport and downstream. Potential water contaminants and their likely sources include:

- fuel and chemical stores and transfer points (fuel and chemicals)
- aircraft wash bay and shot blast areas<sup>1</sup> (oils, suspended solids and detergents)
- car parking (oils, suspended solids and litter)
- stationary and mobile engines (exhaust particulate)
- fire training area (fuel, fire fighting material)
- grounds maintenance (herbicides)
- maintenance areas (solvents and oils)
- high salinity soil (soluble salts, mobilised particulate matter)
- sewage treatment plant (sewage treatment plant effluent)
- chemicals and solvent stores (solvents and paints)
- ground works (i.e. associated with construction) (suspended solids)

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<sup>1</sup> This is done inside buildings with wash waters contained for off site treatment and disposal and/or pretreated prior to any discharge

- future development, including any significant runway, taxiway, car parking and terminal work, may impact on stormwater drainage.

Potential impacts to water quality associated with the Avalon Airshow include the discharge from drainage improvements (both to open and underground drains), and runoff from resurfacing of aircraft parking areas and grass taxiways, as well as from construction of crushed rock pavements for structure pads.

Pollution of surface and groundwater through these activities on airport grounds may adversely impact the environment both on the airport and the surrounds, including adjacent wetlands. Outcomes of any such pollution may include:

- failure to comply with water quality objectives
- death of aquatic organisms
- potentially harmful algal blooms
- danger to public health.

## 4.4 Measures to Manage Impacts

AAA implements a number of measures to prevent or reduce potential impacts to water quality. These include:

- an emergency plan that includes procedures to control impacts to the environment (including both surface and ground waters) should a fuel spill or contamination occur. In addition, the fuel facility also has a comprehensive manual issued by Shell Australia providing safety and operational procedures for the refueling facility
- a monthly surface water quality monitoring program which is measured against Australia New Zealand Environment and Conservation Council (ANZECC) and AEPR guidelines. The findings of this monitoring program are annually reported to the EPA. Monitoring is conducted under EPA licence No.EW 725/2.
- monthly testing of groundwater bores and stormwater in the open drain to ensure the nearby treated sewerage water does not get into the stormwater drain (parameters tested include ph, E.Coli MPN Colilert, biochemical oxygen demand and suspended solids)
- establishing a stand of new trees and bushes near the sewer treatment plant to extract the majority of treated water and ensure that minimal (if any) treated water leaves the site
- management of impacts from construction through a CEMP (see also Section 3.5)
- the environmental management plan for the Avalon Airshow, which prescribes (among other actions) that new surface drains should discharge onto grass, that loose soil and rubble be removed from constructed drains, and that new pavements be graded, watered and compacted immediately to avoid mobilization of fine material.

Further measures to manage impacts of water pollution include appropriate training for all airport operators whose duties may pose a risk to water quality at the airport.

## 4.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Review and expand water quality monitoring program (e.g. to document and include an appropriate testing regime at each discharge point from the airport). Include a review of previous analytical results, and confirm the status of surface and groundwater quality in relation to appropriate current criteria.	June 2016	Property manager
Undertake routine inspections of housekeeping and cleanliness of non-leased and sub leased areas.	Monthly (may be as frequently as daily, but will be at least monthly)	Property manager
Annual integrity testing of all underground storage tanks and active hydrant lines for all airport facilities.	June each year	Property manager
If surface and groundwater exceeds appropriate assessment criteria, undertake a risk assessment to determine appropriate management action.	As required – in the event water quality exceeds guideline levels	Property manager

## 5 Soil

### 5.1 Objective

To maintain and where appropriate improve the condition of land, including reducing salinity.

### 5.2 Environmental Aspects

Avalon Airport is located on a surface layer of basaltic clays which overlay Quaternary aged basalts. The basaltic lava flows are part of the newer volcanics which underlie most of the north western and western areas of the Melbourne district. The surface clays can vary in depth from being very shallow to around seven metres in depth and contain pockets of sands and gravels. The transition layer between the surface clays and the basalt layer is characterised by a zone of mixed clays and basalt boulders.

The basalt layer, which varies in thickness from one to 10 metres, overlies a layer of tertiary clays. Weathering of basaltic lava flows has resulted in the clayey surface to the depth of up to 3 metres (Synnot and Wilkinson 1997). Soils at Avalon Airport are mainly stiff sandy clays overlaid by a thin layer of topsoil.

An assessment of soil contamination within the Avalon Airport property identified some localised contamination of soil as a result of fuel storage and the use of solvents and other chemicals associated with the aerospace industry (Woodward-Clyde 1997, cited within Synnot and Wilkinson 1997). Contamination was found to be localised in most case and related to past activities at the site.

### 5.3 Potential Environmental Impacts

The main potential sources of soil contaminants are:

- fuel and chemical stores and transfer points (fuel and chemicals)
- aircraft wash bay and shot blast areas<sup>2</sup> (oils, suspended solids and detergents)
- car parking (oils, suspended solids and litter)
- stationary and mobile engines (exhaust particulate)
- fire training area (fuel, fire fighting material)
- grounds maintenance (herbicides)
- maintenance areas (solvents and oils)
- high salinity soil (soluble salts, mobilised particulate matter)

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<sup>2</sup> This is done inside buildings, and wash waters are contained for off site treatment and disposal and/or pretreated prior to any discharge.



- sewage treatment plant (sewage treatment plant effluent)
- chemicals and solvent stores (solvents and paints)
- ground works (i.e. associated with construction) (i.e. suspended solids).

Salinity is a particular issue at Avalon Airport. Between the 1960s and the 1990s there was severe leeching of salt from the salt evaporators into Avalon Airport on the western boundary. Figure 5 shows the incursion of salt into Avalon Airport.



Figure 5 Extent of salinity

Activities at AAA have the potential to result in the following environmental impacts:

- contamination from spills and/or leaks
- erosion and sedimentation
- increase in soil salinity.

Contaminated soil may have adverse impacts on the environment on and surrounding Avalon Airport and may influence other environmental factors such as surface and ground water, as well as biodiversity.

## 5.4 Measures to Manage Impacts

Most of the airport operations take place over concrete or other sealed surfaces, which reduces the risk of causing soil contamination.

AAA addresses soil attrition, salinity and erosion issues through their commitment to revegetation. Since 2000, AAA have planted more than 22,000 native trees and grasses to reduce the water table and restore the soil. The revegetation program has met with considerable success and will be continued during this strategy period. Further measures to manage impacts of soil pollution include appropriate training for all airport operators whose duties may pose a risk to soil at the airport. Soil impacts associated with construction and future airport development are managed through a CEMP (see also Section 3.5).

## 5.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Continue active land management practices, including leading the Avalon Landcare Group to monitor and assess the salinity risk on AAA.	As per agreement between AAA and Avalon Landcare Group	Property manager
Develop erosion/sedimentation control guidelines for all earth works and development activities.	Prior to all earth work and development activities	Property manager
Monitor the success of trees and grasses around the salinity contamination site through photo monitoring	Biennially (June 2015, 2017, 2019)	Property manager
Upon identification of soil that exceeds the appropriate assessment criteria, undertake a risk assessment to determine the management required.	As required - in the event soil quality is found to exceed guideline levels	Property manager
Aspirational Actions	Anticipated Completion Date	Responsibility
Develop an inventory of known and potential contaminated sites (including a map identifying these sites).	June 2019	Property manager

## 6 Biodiversity

### 6.1 Objective

To preserve, maintain and restore natural areas on the airport, with a focus on enhancing environmentally significant areas such as Lodges Wetland.

### 6.2 Environmental Aspects

Avalon Airport is located in the vicinity of habitat areas which hold international, national and regional significance. Significant habitats occur both on Avalon Airport and in the surrounding region. The Port Phillip Bay (Western Shoreline) Ramsar Site includes Avalon Airport and surrounding natural wetlands. This area is considered to be very important in Victoria for migratory wader species and is classified as a Ramsar Site (Department of Sustainability and Environment 2003) due to the following:

- it is a good representative example of a natural/near natural wetland:
  - characteristic of the appropriate bio-geographical region
  - that contains examples of more than one bio-geographical region
- it is a wetland of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna
- the site regularly supports 20,000 water birds
- the site regularly supports substantial numbers of water birds from particular groups
- the site regularly supports 1% of the individuals in a population of one species or subspecies.

#### **Significant Habitats in the Vicinity of the Airport**

Avalon Airport is one of eight areas which are included in the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site (Department of Sustainability and Environment 2003). This means the airport is considered to be part of a Wetland of International Significance, listed under the Ramsar Convention (Figure 6). Under the Convention, Australia has an obligation to ensure that listed sites are managed to maintain their ecological character. However, there is some debate as to whether the inclusion of Avalon Airport as a Ramsar site is merited. This is primarily due to the generally low habitat quality present on the airport. This is reflected in the exclusion of Avalon Airport from the Murtcaim Wildlife Reserve, the Spit Nature Reserve and the Australian Heritage Commission National Estate Point Wilson/Avalon Coastal Reserve (Figure 6). Despite this assertion, AAA's restoration efforts at Lodges Wetland ensure that habitat has been improved.

The Port Phillip Bay (Western Shoreline) Ramsar Site includes natural and artificial wetlands that support a large numbers of waterbirds, especially migratory shorebirds. Key features of this Ramsar Site are (from Department of Sustainability and Environment 2012):

- more than 285 native fauna species, including 50% of the global population of the endangered orange-bellied parrot (*Neophema chrysogaster*). The Strategic Management Plan for this Ramsar Site also states that this area is the most important known wintering site for this species (Department of Sustainability and Environment 2003)
- more than 332 native non-marine flora species, including the nationally endangered spiny rice flower (*Pimelea spinescens*)
- waterbirds using it as a drought refuge when inland lakes and wetlands dry out
- cultural heritage sites, due to Aboriginal tribes being attracted to the wetlands' plentiful in resources for thousands of years.

The Point Wilson/Werribee Coastal Area between Limeburners Bay and Little River is included on the now closed Register of the National Estate Database. Despite this Register now having no statutory value, it indicates that the area is considered to have natural significance. The area generally encompasses the coastal fringe and skirts to the south of Avalon Airport. The area is described in the database as being a highly productive and diverse wetland and saltmarsh habitat supporting a wide range and large number of avifauna.

Significant waterbird habitats are located to the west, south and east of Avalon Airport. These include The Spit State Nature Reserve, further sections of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site, which includes the Western Treatment Plant, the Cheetham Salt evaporators, and the Point Wilson Explosives Area. These areas have international, national, state and regional waterbird habitat significance and provide an important drought refuge for a number of these species when inland lakes and wetlands dry out (Department of Sustainability and Environment 2003).

### **Significant Habitats within the Airport Grounds**

Avalon Airport has generally low conservation value, particularly when compared to the adjacent coastal wetlands. The airport has a long history of being used for cropping and grazing, which has degraded the quality of the environment over the past century.

The majority of the airport supports exotic pasture and numerous declared weed species listed under the Catchment and Land Protection Act such as Bathurst burr (*Xanthium spinosum*) and African lovegrass (*Eragrostis curvula*). Areas throughout the north-west and south-east of the airport also support degraded remnant native grassland. The listing of Natural Temperate Grassland of the Victorian Volcanic Plain as a threatened ecological community (TEC; under the EPBC Act) occurred in June 2008 (DSEWPaC 2011).

Avalon Airport contains several ephemeral freshwater wetlands. The best preserved wetland area is Lodges Wetland, named after the Lodge Family who settled the area and commenced farming it over 100 years ago. Lodges Wetland is located on the eastern side of the southern end of the runway. Previous studies have shown that the vegetation present at this wetland is of regional significance and has the potential to provide habitat for bird species such as:

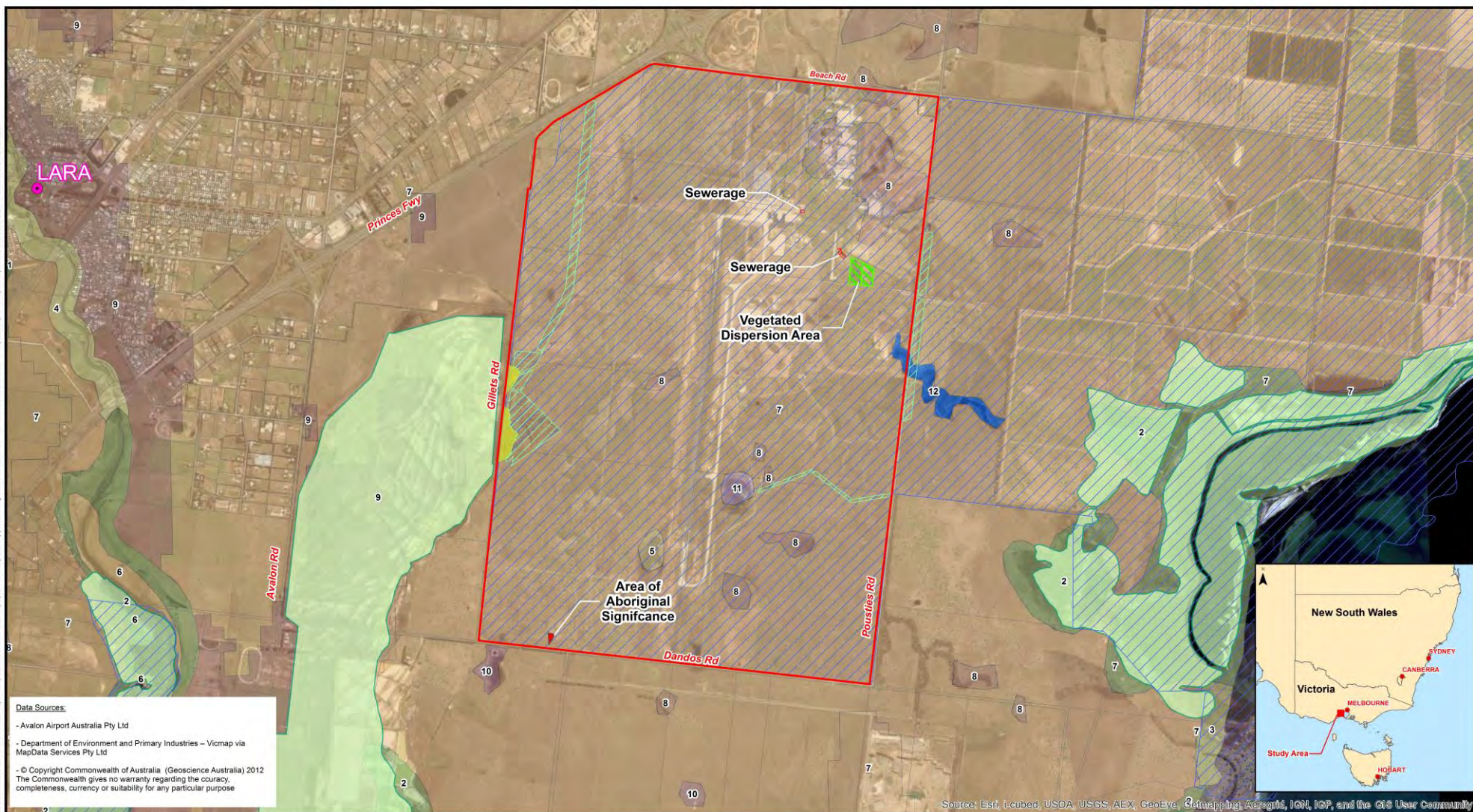
- Australasian bittern (*Botaurus poiciloptilus*; listed as endangered under the EPBC Act)
- spotless crake (*Porzana tabuensis*; listed as marine under the EPBC Act)
- black falcon (*Falco subniger*).

The condition of the wetland has been improved by restoration efforts which commenced in 1995. In recent years, habitat improvement has included planting eucalyptus trees from seeds harvested from the present trees in the wetlands.

The remaining wetland areas on Avalon Airport have been severely degraded. The potential for Lodges Wetland to provide valuable habitat is moderated due to its propensity to dry up during summer. Summer is the season when waterfowl would be expected to move from inland areas and utilise coastal areas such as Werribee/Avalon.

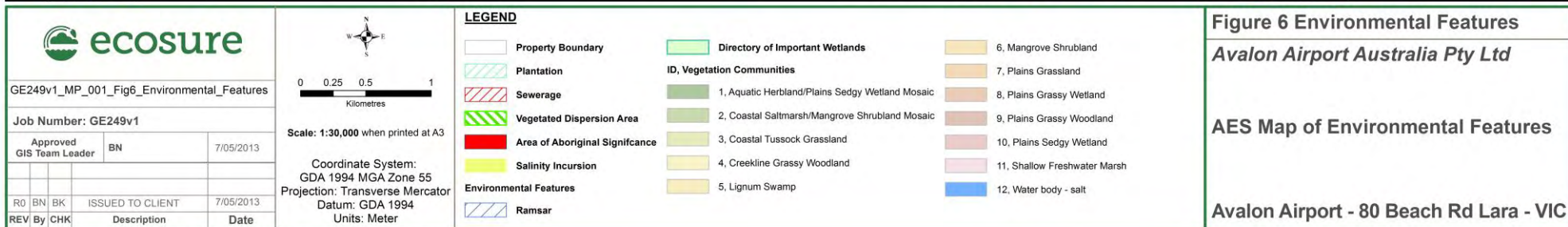


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## 6.3 Potential Environmental Impacts

Biodiversity values at Avalon Airport may be adversely impacted in the following ways:

- habitat loss and mortality as a result of construction, earthworks and vegetation clearing activities
- habitat loss and mortality resulting from fires, or degradation of habitat and available food through water or soil pollution events
- competition for resources and predation by exotic wildlife, including declared pest species (listed under the Catchment and Land Protection Act) such as the European rabbit (*Oryctolagus cuniculus*), red fox (*Vulpes vulpes*) and European hare (*Lepus europaeus*)
- competition for resources by exotic flora species
- direct wildlife mortality via aircraft strike.

Future development at the airport may enhance the opportunity for each and/or every of the impacts listed above to occur.

During the Avalon Airshow there may be an increase in likelihood of wildlife strikes and direct mortality (i.e. from collision with a vehicle). The noise associated with the Airshow may impact on avifauna roosts (although aircraft takeoff, landing, taxiing and flying are outside the scope of this AES). Additional traffic may also result in vehicles travelling off marked roads and impacting on flora and fauna.

## 6.4 Measures to Manage Impacts

AAA actively manages the risk of adverse impacts to biodiversity both within the airport and the surrounds. Sections 4.4 and 5.4 of this report provide measures to manage water and soil impacts, which may indirectly affect biodiversity.

Habitat management measures include:

- re-vegetation, landscaping and regular weed management
- maintaining water quality on the airport
- feral animal control
- fire management including grazing, slash fire breaks and controlled burns.

Revegetation utilises indigenous flora species. Avalon Airport are committed to maintaining their relationship with the Avalon Landcare Group (see also Section 5.4).

Weed management involves chemical control, grubbing out isolated woody weeds and applying heaving grazing pressure strategically. Declared weeds are targeted across the entire site, with timing considered to maximise the likelihood of success. Daily record sheets document the weed management actions undertaken.

Biodiversity impacts associated with future development and with construction in general will be mitigated and managed via a CEMP (see also Section 3.5).

The Avalon Airshow EMP (AirShows DownUnder 2012) requires vehicles to stay below maximum speed limits. Event staff manage access roads and parking areas to ensure speeds are adhered to and minimise off road driving. The EMP also dictates that Airshow aircraft (including helicopters) avoid flying over nearby sensitive avifauna habitat (i.e. the Murtcaim Wildlife Reserve). In addition, the timing of the Airshow is chosen with consideration of bird migration patterns. Impacts to roosting avifauna are minimised by maintaining minimum altitudes (300 – 500 m).

Methods to manage feral animals are chosen with consideration to the presence of livestock. Whilst shooting, fumigation, ferrets and baiting are all used, poisoning is the least preferred, due to the propensity of raptors to prey on rabbits.

Whilst habitat management measures occur across Avalon Airport, pest flora and fauna management, along with regeneration and revegetation works are considered a priority within Lodges Wetland. Pest flora and fauna management is generally a mix of scheduled and reactive. Scheduled management is driven by the airport's MainPac system, which is an electronic system with reminders for audits and other routine maintenance.

In addition, ongoing airport operations and any proposed modifications to operations need to be monitored to identify their impact on the surrounding habitat. The Wildlife Hazard Management Plan (Avisure 2011) guides the mitigation of bird and wildlife strike risk. Operations staff have been trained in the relevant procedures designed to ensure safety yet minimise impacts on native species. Bird dispersal occurs on airport at high strike risk times (i.e. when there are large numbers of avifauna present during the migratory season). Dispersal usually involves firing bird frite.

## 6.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Complete appropriate ecological assessments prior to the commencement of any significant development on site.	As required (prior to the commencement of any significant development)	Property Manager
Complete an ecological assessment of the areas identified for development within the next five years as identified in the Avalon Airport Master Plan June 2013 (AAA 2013). This will serve as baseline data on the native and exotic flora and fauna species/communities present on site.  Concurrently, complete a targeted ecological assessment of Lodges wetland to determine fauna and flora species/communities present.	June 2017	Property Manager
Based on the results of the ecological assessment, develop and implement: <ul style="list-style-type: none"> <li>a flora and fauna monitoring program for AAA (which includes monitoring impacts of major events and future assessments required for areas identified in the current Master Plan as being subject to future</li> </ul>	June 2018	Property Manager

Actions	Anticipated Completion Date	Responsibility
developments) · an ecological maintenance program for the airport's natural areas (including revegetation/regeneration, weed management, feral animal eradication, rubbish removal etc).		
Continued implementation and revision of AAA's Wildlife Hazard Management Plan (Avisure 2011).	Annual update and major review in 2016 (i.e. 2011 + five years)	Property Manager
Develop and implement a fire management plan (in consultation with the local Fire Authority).	June 2016	Property Manager

## 7 Cultural Heritage

### 7.1 Objective

To comply with relevant heritage legislation and manage the Airport with sensitivity to the traditional owners.

### 7.2 Environmental Aspects

#### **Indigenous Cultural Heritage**

Avalon Airport is located within the area of the Wathaurong language group of clans (Alert Solutions 2006). A survey of the region in 1991 identified two archaeological sites, one to the north of Avalon Airport between Beach Road and Princes Freeway and one within the Airport, an isolated stone scatter which is approximately 500 metres west of the southern end of the runway (Figure 6). Aboriginal Affairs Victoria confirmed this in a letter dated 29 July 1998, which referred to site AAV 7721-117. In 2003 Avalon Airport marked the area with a plaque to commemorate the Wathaurong Community's involvement with the area.

During the previous strategy period (2001-2007) the airport consulted with, and gained the consent of Wathaurong representatives prior to planting any new trees. This practice will continue during the next strategy period.

#### **Non-Indigenous Heritage**

Land on which Avalon Airport is located was developed for pastoral purposes in the early and mid 1800s. The Avalon Homestead and outbuildings on Avalon Road, 6.5 kilometres south of Lara, and the Point Wilson Farm Complex on Dandos Road, 9 kilometres south of Lara, are included on the now closed Register of the National Estate Database. Despite this Register now having no statutory value, it indicates that the area is considered to have historical significance. However, these buildings are outside of Avalon Airport and no structures of heritage significance exist within Avalon Airport itself.

### 7.3 Potential Environmental Impacts

Accidental disturbance to the stone scatter site at Avalon Airport could lead to loss of anthropological insight to the Aboriginal communities who utilised the area in the past. The activities with the greatest risk of impacting the stone scatter are likely to include construction (i.e. associated with future development plans) and land clearing.

### 7.4 Measures to Manage Impacts

AAA implements a number of measures to prevent or reduce potential impacts to cultural heritage. These include:

- marking the stone scatter with a plaque and three star pickets denoting a 'no go zone'
- consultation with Wathaurong representatives to gain consent prior to planting any new trees.

Further measures to manage impacts of cultural heritage include appropriate training for all airport operators whose duties may pose a risk to these sites or artefacts at the airport. Potential impacts to cultural heritage from construction will be managed through a CEMP (see also Section 3.5).

## 7.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Maintain an on-going relationship with the Wathaurong language group of clans.	As required (consult prior to commencement of any significant development or plan {i.e. Master Plan}).	Property Manager
Complete a detailed risk assessment of activities that could impact cultural heritage within or surrounding AAA prior to the commencement of any significant development, and develop appropriate management actions.	As required (prior to the commencement of any significant development)	Property Manager
Aspirational Actions	Anticipated Completion Date	Responsibility
Develop map with the location of the stone scatter site identified on site.	June 2019	Property Manager
Develop and implement a 'Protocol for Indigenous Community Engagement'.	June 2019	Property Manager

## 8 Air Quality and Emissions

### 8.1 Objective

To comply with State and Federal legislation relevant to air quality.

### 8.2 Environmental Aspects

Emissions from aircraft are the most obvious environmental impact of airports on the environment. However, AAA is not responsible for the emissions created when aircraft are in flight, landing, taking off, or taxiing (as outlined in Section 2.3).

AAA is responsible for ground based emission sources on the airport which may affect the surrounding environment. The pattern of emissions will vary depending on the intensity of operations and construction activity occurring at the airport.

Air quality is affected when unsustainable amounts of gases, fumes, odours or dust are emitted into the atmosphere that affect human health and well being, as defined in relevant legislation. Although specific air quality data for AAA is not available, according to Synnot and Wilkinson (1996) emissions from AAA are considered likely to satisfy relevant air quality objectives.

### 8.3 Potential Environmental Impacts

The main sources of atmospheric pollutants at Avalon Airport (excluding emissions from aircraft) are:

- emissions from ground power units
- emissions from freight and passenger transport vehicles
- fuel transfer to storage tanks and to aircraft
- engine testing
- aircraft painting
- smoke from fire training exercises
- exhaust emissions from construction equipment
- refrigerant emissions
- dust from construction (including from future development) and operations.

Synnot and Wilkinson (1996) identified a number of stationary point sources of air pollution. Of these, the major ones which are still present are two gas-fired boiler stacks and emergency diesel-powered generators.

Ozone-depleting substances are a range of compounds that have the potential to destroy



ozone molecules that occur in the upper atmosphere. The ozone layer serves as a shield to absorb ultraviolet radiation in the stratosphere, protecting organisms on the earth's surface from the harmful effects of excessive amounts of such radiation. Ozone depleting substances include the chlorofluorocarbon (CFC) compounds used as refrigerant liquids in air conditioning systems and as blowing agents in some foam plastics.

Potential sources of CFCs at Avalon Airport are:

- vehicle air conditioners
- office air conditioners
- refrigeration equipment.

Dust may be introduced into the atmosphere from a variety of sources. These include unsealed roads, soil stockpiles and earthworks (especially during construction).

The Avalon Airshow may impact on air quality through discharges of dust from pedestrian and vehicle traffic, and from diesel generator exhausts.

Activities at AAA have the potential to result in the following environmental impacts:

- public health hazard
- degradation of surrounding habitat
- damage to equipment and materials.

## 8.4 Measures to Manage Impacts

Emissions to air are identified in AAA's EMP (Alert Solutions 2006). This inventory of identified emissions is reviewed every two years. The standard used for estimation techniques of air emissions from Avalon Airport is the National Pollutant Inventory Emissions Estimations Techniques Handbook for Airports (Department of the Environment, Water, Heritage and the Arts 2008). In addition, the AEPR provides acceptable limits for air emissions and can be used as a guideline to measure compliance with the air quality objective.

Dust suppression measures are applied during construction (i.e. appropriately sized and covered {or hydro seeded} soil stockpiles, sediment and erosion control, use of water trucks, etc). A project specific CEMP will drive air quality management during future development at Avalon Airport (see also Section 3.5).

AAA are gradually phasing out equipment which is known to be a potential source of CFCs. In addition, mobile and stationary plant are regularly maintained and checked to reduce their emissions. AAA have in place an electronic system with reminders for audits and other routine maintenance (MainPac). This system covers plant and facility maintenance works.

In the past decade, AAA have reduced their usage of what was originally three gas fired boiler stacks which were run almost year round (Synnot and Wilkinson 1996) down to two

boiler stacks which are only used to supplement heating during winter. A spray booth in the paint shop (also identified by Synnot and Wilkinson {1996} as a source of air pollutants) has since been decommissioned. While generators on site also contribute to air pollution, these are used infrequently (i.e. less than six times a year) and only in response to power failures.

Dust is suppressed during the Avalon Airshow by regularly watering unsealed roads, paths and major crowd areas. In addition, unsealed gravel areas are graded, watered and rolled prior to the event. Diesel engines are checked and maintained.

## 8.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Confirm National Pollutant Inventory (NPI) requirement status, then monitor and report as appropriate.	June 2015	Property Manager
Develop and implement an internal audit process to ensure compliance with licensing requirements for refrigerant recovery/disposal.	June 2016	Property Manager
Phase out remaining CFC containing air conditioning units.	June 2018	Property Manager
Aspirational Actions	Anticipated Completion Date	Responsibility
Review inventory of identified air emissions present at AAA.	June 2019, then biennially	Property Manager
Develop and implement an action plan to identify possible reductions to identified air emissions, including appropriate control measures.	Following the initial air emission inventory	Property Manager

## 9 Noise

### 9.1 Objective

To minimise ground based noise and comply with relevant legislative requirements.

### 9.2 Environmental Aspects

AAA is responsible for ground based noise sources on the airport which may affect the surrounding environment. Although, AAA is not responsible for the noise created when aircraft are in flight, landing, taking off, or taxiing (as outlined in Section 2.3), the airport does liaise with the airlines to assist in managing noise created by aircraft. The low frequency of aircraft movements at Avalon Airport and the location of the airport away from densely populated areas mean that noise emissions from operations at the airport have a relatively low impact on the surrounding human population.

Noise disturbance can affect airport operators, visitors to the airport, and fauna on Avalon Airport. Sensitive noise receptors in the area surrounding the airport include residential housing and commercial areas such as Little River Township and Geelong for certain flight paths. No on-ground noise complaints have yet been received at Avalon Airport.

### 9.3 Potential Environmental Impacts

Ground based noise can be generated from activities such as (excluding noise from aircraft):

- aircraft refueling
- operation of plant or machinery
- support facilities such as road traffic
- construction activities
- freight operations
- grounds maintenance.

Whilst not strictly within the scope of this AES (which is not intended to cover impacts associated with aircraft takeoff, landing, taxiing and flying), it can be noted that aircraft generated noise, particularly during the Avalon Airshow, may impact on wildlife, particularly within surrounding sensitive wetland areas.

Activities at AAA have the potential to result in the following environmental impacts:

- negative health affects to humans
- disturbance and annoyance to the local residential communities of Little River and Lara along with airport operators

- disturbance to terrestrial and avifauna within and surrounding the airport.

## 9.4 Measures to Manage Impacts

While AAA have no responsibility for noise generated by aircraft movement, they are committed to the monitoring and reduction of noise generated by aircraft. This is supported in the Lease Agreement, which requires Avalon Airport to produce an Aviation Noise Exposure Forecast (ANEF). AAA has consulted with the following stakeholders regarding the ANEF:

- Airservices Australia
- Noise Abatement Committee
- City of Greater Geelong
- Committee for Wyndham
- Victorian Government.

The Australian Standard AS 2012 – 2000 is used to evaluate noise impacts in the vicinity of airports and includes land use guidelines based on forecast exposure to noise from aircraft operations. Based on the projected air traffic, AAA does not consider that there will be any new areas affected by significant ANEF levels during the next 20 years or any significant change to noise impacts that have existed over the past three decades (AAA 2013). The AEPR provides acceptable ground based noise emission guidelines and can be used as a guideline to measure compliance with the noise management objective.

AAA also host a Noise Abatement Committee, which meets every six months to discuss noise complaints and noise abatement procedures. Membership of this committee is determined by the Avalon Airport CEO and currently comprises local government, airlines, and local stakeholders.

AAA's EMP (Alert Solutions 2006) outlines how ground based noise should be reduced through efficient site planning (e.g. during construction activities, ensuring that operating hours and the speed of trucks are managed). Also, AAA encourages control of vehicle noise emissions through regular maintenance to manufacturers' specifications. A project specific CEMP will drive on-ground noise management during future development at Avalon Airport (see also Section 3.5).

Noise is managed during the Avalon Airshow by avoiding overflying environmentally sensitive areas (although as previously mentioned, this is outside of the scope of the AES), and by maintaining noise emitted from generators to within levels specified in relevant EPA policies.

## 9.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Liaise with Air Services Australia on aircraft noise minimisation strategies.	Reactive (i.e. in response to any noise complaints) and as new destinations/flight paths are introduced	Property Manager
AAA to continue to facilitate and attend the Avalon Airport Noise Consultative Committee and Noise Abatement Committee to discuss noise complaints and noise abatement procedures.	Every six months	Property Manager

## 10 Resource Use and Sustainability

### 10.1 Objective

To promote sustainability and increase awareness of good waste management and resource use principles for all staff, tenants, contractors and users of the airport.

### 10.2 Environmental Aspects

#### Energy

Electricity and fuels are vital to the operation of Avalon Airport. Their manufacture and use create greenhouse gas emissions. The emission of carbon dioxide and other greenhouse gases is of international concern given the potential for climatic variation and associated consequences.

#### Waste

Wastes produced at Avalon Airport include waste oil, spent chemicals, sewage, packaging wastes, office wastes and general food scraps. A facility for the treatment of sewage from both the airport terminal and the maintenance facilities are present within Avalon Airport grounds. Sewage waste is treated on site and reused in the existing and expanding tree plantation area (AAA 2010).

#### Natural Resources

Consumption of natural resources such as soil, water and minerals occurs at Avalon Airport. These include both renewable and non-renewable natural resources.

### 10.3 Potential Environmental Impacts

Activities at AAA have the potential to result in the following environmental impacts:

- generation of greenhouse gas and other toxic emissions
- generation of waste, including hazardous waste
- consumption of natural resources.

#### Energy

Activities at the airport that lead to the emission of greenhouse gases include:

- heating/cooling of buildings
- air conditioning
- aircraft operations

- refrigeration
- operation of emergency generators and external power units
- production of steam and hot water
- ground running of aircraft
- testing of aircraft engines
- operation of vehicles during construction and operation of the airport
- lighting of buildings and grounds
- grounds maintenance
- operation of fans and compressors
- operation of pumps
- transport of personnel to and from the airport
- transport of freight to and from the airport.

## **Waste**

Potential sources of waste creation at Avalon Airport are:

- the tank farm and refueling area (aircraft fuel)
- workshops (drained lubricating, hydraulic and machining oils)
- aircraft painting area (paint and solvents)
- aircraft wash bay (wash water)
- administration and training offices (office papers)
- offices and terminal (food scraps, plastics, glass)
- freight handling areas, warehouses and stores (packaging wastes)
- fire fighting training area (fire water)
- construction (construction wastes)
- sewage treatment plant (treated sewage)
- landscaping and land management (green waste)
- waste collected from incoming overseas aircraft (quarantine waste).

During the Avalon Airshow, there is a greater potential for waste creation and resource use due to the large number of visitors to the site.

## **Natural Resources**

Activities at Avalon Airport which involve the consumption of natural resources include:



- aircraft painting area (paints and solvents) (note: aircraft painting very rarely occurs at Avalon Airport)
- aircraft wash bays (water and detergents)
- workshops and related areas (chemicals, solvents, oils and greases)
- construction area (construction wastes)
- fire training (water)
- construction area (construction materials and equipment, water for dust control)
- offices (office papers, equipment and general supplies)
- grounds maintenance (water, herbicides and pesticides).

## 10.4 Measures to Manage Impacts

### Natural Resources and Energy

Efficient use of natural resources and energy serves to both reduce the impact of operations on the environment and to reduce costs of operation. An inventory of greenhouse gas emissions for Avalon Airport has been established through the annual report to NPI (see also Section 8.4). Appropriate performance indicators have been selected and actions established for the reduction in emissions of carbon dioxides and CFCs. The use of natural resources and energy consumption has always been lower than the expected average.

The Avalon Airshow aims to minimise resource use through a purchasing plan (AirShows DownUnder 2012) which prioritises purchase and supply of recyclable and biodegradable materials.

### Waste

The central concept of waste management is that of resource efficiency. The waste management approach of AAA considers the hierarchy of preferences for waste management options:

- avoidance
- re-use
- recycling
- recovery of energy
- treatment
- containment
- disposal.

Waste is minimised during the Avalon Airshow by storing and reusing materials such as flags, bunting, signs and fencing. In addition, recyclable bins are provided and clearly marked, with volunteers responsible for patrolling the site to collect recyclable materials.

Waste production is monitored through monthly invoices from the waste management company used.

Both resource consumption and waste generation associated with any future development projects will be managed by a project specific CEMP (see also Section 3.5).

## 10.5 Actions for 2014-2019

Actions	Anticipated Completion Date	Responsibility
Provide appropriate waste segregation and recycling opportunities within the airport terminal. Install relevant signage.	June 2018	Property Manager
Develop and implement a waste management plan for AAA and communicate to all airport operators.	June 2018	Property Manager
15% of the energy consumed by runway, taxiway and apron lighting to be sourced from renewable energy sources.	June 2017	Property Manager
25% of the energy consumed by runway, taxiway and apron lighting to be sourced from renewable energy sources.	June 2018	Property Manager
Aspirational Actions	Anticipated Completion Date	Responsibility
Monitor and seek to implement changes in waste management “best practice” technologies and approaches.	June 2019	Property Manager
Develop an environmentally responsible purchasing policy.	June 2019	Property Manager
Investigate options of recycling or re-using stormwater and rainwater.	June 2019	Property Manager
Investigate feasibility of treating organic and food waste on site.	June 2019	Property Manager
Complete an energy, water and waste audit to determine the sources and quantity of these resources used at the airport. Following this, develop an appropriate resource consumption register, for ongoing monitoring of resource use.	June 2019	Property Manager

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# Appendix 1

## Requirements for an Environment Strategy as per the Airport Lease (Clause 9.2.1)

Airport Lease (Clause 9.2.1) Requirements for an Environment Strategy	Relevant Section of this Environment Strategy
the Lessee's objective for the environmental management of the Premises	Sections 3.3, 4.1, 5.1, 6.1, 7.1, 8.1, 9.1, 10.1
the sources of environmental impact associated with operations at the Premises	Sections 4.3, 5.3, 6.3, 7.3, 8.3, 9.3, 10.3
the studies, reviews and monitoring to be carried out by the Lessee in connection with the environmental impact associated with operations at the Premises	Sections 3.5, 4.4, 4.5, 5.4, 5.5, 6.4, 6.5, 7.4, 7.5, 8.4, 8.5, 9.4, 9.5, 10.4, 10.5
the time frames for completion of those studies and reviews and for reporting on that monitoring	Sections 3.5, 4.5, 5.5, 6.5, 7.5, 8.5, 9.5, 10.5
the specific measures to be carried out by the Lessee for the purposes of preventing, controlling or reducing the environmental impact associated with operations at the Premises	Sections 3.5, 4.4, 4.5, 5.4, 5.5, 6.4, 6.5, 7.4, 7.5, 8.4, 8.5, 9.4, 9.5, 10.4, 10.5
the time frames for completion of those specific measures	Sections 3.5, 4.5, 5.5, 6.5, 7.5, 8.5, 9.5, 10.5
details of the consultations undertaken in preparing the strategy (including the outcome of the consultations)	Appendix 4
such other matters (if any) as are reasonably required by the Lessor.	n/a

## Appendix 2

# Requirements for Consultation as per the Airport Lease (Clause 9.9 and 9.10)

<b>Airport Lease (Clause 9.9) - Public Comment in a Newspaper</b>	<b>Relevant Section of this Environment Strategy</b>
Stating that the Lessee has prepared a preliminary version of the draft strategy	Appendix 4
Stating that copies of the preliminary version will be available for inspection and purchase by members of the public during normal office hours throughout the period of ninety (90) days after the publication of the notice; and	Appendix 4
Specifying the place or places where the copies will be available for inspection and purchase; and	Appendix 4
Inviting members of the public to give written comments about the preliminary version to the Lessee within ninety (90) days after the publication of the notice; and	Appendix 4
Listing the names of those members of the public; and	Appendix 4
Summarising those comments; and	Appendix 4
Stating that the Lessee has had due regard to those comments in preparing the Environment Strategy; and	Appendix 4
Setting out such other information (if any) about those comments as is reasonably necessary.	n/a
<b>Airport Lease (Clause 9.10) - Consultations</b>	<b>Relevant Section of this Environment Strategy</b>
In preparation of an Environment Strategy the Lessee must consult and disclose the contents of the Environment Strategy to the relevant local government body, State Government of Victoria, Environment Protection Agency (Commonwealth) and any other person that may be relevant.	Appendix 4
The Environment Strategy submitted to the Lessor must be accompanied by a written statement signed on behalf of the Lessee: listing the names of the persons consulted; and summarising the views expressed by the persons consulted.	Appendix 4



## Appendix 3

# Environment and Sustainability Policy

### Linfox Environment and Sustainability Policy 1 July 2011

Linfox has been in existence since 1956. During that time the company has grown as a result of meeting customer and stakeholder expectations. We realise that for our growth to be sustainable, we must operate in a way that is compatible with the expectations of society and in harmony with the environment that sustains us all.

Our aim is to continue business as a socially responsible, economically viable and environmentally leading organisation.

To maintain and improve the quality of the physical environment of our planet, whilst continuing to grow economically, is one of the greatest challenges of the 21<sup>st</sup> Century.

Linfox's environment and sustainability policy consists of a series of commitments that set the standards we expect to achieve.

These commitments are:

1. To ensure compliance with environmental acts, regulations, by-laws and industry standards
2. To include environmental considerations in business planning and continually improve our environmental performance
3. To continually seek efficiencies in the use of resources, including energy, chemicals, water, packaging and other materials
4. To reduce, re-use and recycle wastes wherever practicable
5. To engage and encourage employees to be involved in home and volunteer community activities with a focus on environmental improvement
6. To direct our efforts towards achieving Carbon Neutrality through policies of Greenhouse Gas reduction and abatement
7. To implement procedures and systems to check, review and disclose our company's environmental performance
8. To provide the necessary training to employees and communication to all stakeholders to meet our environmental goals
9. To work collaboratively with our customers and governments to improve environmental performance and business sustainability
10. To engage with industry partners, suppliers, research institutions and other networks to support and enhance sustainable business practices



Peter Fox  
Chairman



Michael Byrne  
Chief Executive Officer  
Linfox Logistics



## Appendix 4

# Consultation Process

Avalon Airport Australia opened the preliminary Airport Environment Strategy up to public comment through advertisements in the Geelong Advertiser and the Age newspapers, as well as via the Avalon Airport website. The public comment period lasted from 1<sup>st</sup> June until 31<sup>st</sup> August 2013.

The preliminary Airport Environment Strategy was made available as a free download from the Avalon Airport website, for inspection at the City of Greater Geelong offices, and for hard copy purchase through Avalon Airport. In addition, the following organisations were also invited to comment:

- City of Greater Geelong (CEO and Environment Manager)
- DTZ
- Airservices Australia
- Civil Aviation Safety Authority
- Victorian Government
- Wyndham City Council
- State Parliament Member for Lara
- Australian Government Member for Corio
- Prime Minister
- Little River Rural Action Group
- Committee for Geelong
- G21Geelong Region Alliance
- Geelong Chamber of Commerce
- Landcare
- Golden Plains Shire
- Surf Coast Shire
- Wathaurong Aboriginal Co-operative
- Environment Protection Authority (Victoria).

The preliminary draft Airport Environment Strategy was downloaded 35 times from the Avalon Airport website ([www.avalonairport.com.au](http://www.avalonairport.com.au)), and no copies of the document were purchased. No comments were received during the consultation process from the public or the above organisations. DTZ and Regional Environmental Offices of Defence staff made comment on the subsequent Airport Environment Strategy. These comments have been addressed within this report, and those who commented have been advised of how their comments were considered.



## Revision History

Rev. No.	Revision date	Details	Prepared by	Reviewed by	Approved by
00	31/01/2013	Avalon Airport Environment Strategy- Preliminary Draft	Nicola Head, Graduate Ecologist; Jess Baglin, Senior Environmental Scientist	Beth Kramer, Senior Environmental Scientist	Phil Shaw, Managing Director
01	4/03/2013	Avalon Airport Environment Strategy - Preliminary Draft (Final)	Nicola Head, Graduate Ecologist; Jess Baglin, Senior Environmental Scientist	Beth Kramer, Senior Environmental Scientist	Beth Kramer, Senior Environmental Scientist
02	30/04/2013	Avalon Airport Environment Strategy - Preliminary Draft (Final) – with insertion of Figure 6	Beth Kramer, Senior Environmental Scientist		Beth Kramer, Senior Environmental Scientist
03	07/05/2013	Revised Figure 6 to include ecological vegetation classes	Nicola Head, Graduate Ecologist		Beth Kramer, Senior Environmental Scientist
04	16/10/2013	Avalon Airport Environment Strategy (subsequent to consultation process)	Beth Kramer, Senior Environmental Scientist		Elvira Lanham, Senior Ecologist
05	27/03/2014	Avalon Airport Environment Strategy (incorporating comments from Regional Environmental Offices of Defence staff)	Beth Kramer, Senior Environmental Scientist	Jess Baglin, Senior Ecologist	Jess Baglin, Senior Ecologist
06	19/05/2014	Avalon Airport Environment Strategy - Final	Beth Kramer, Senior Environmental Scientist		Jess Baglin, Senior Environmental Scientist
07	29/05/2014	Avalon Airport Environment Strategy - Final	Beth Kramer, Senior Environmental Scientist		Jess Baglin, Senior Environmental Scientist
08	04/06/2014	Avalon Airport Environment Strategy - Final	Beth Kramer, Senior Environmental Scientist		Jess Baglin, Senior Environmental Scientist

## Distribution List

Copy #	Date	Type	Issued to	Name
1	4/06/2014	Electronic	Avalon Airport Australia	Justin Giddings and Jim McClusky
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