

**GUIDELINES FOR A
PUBLIC ENVIRONMENT REPORT
FOR FLYING OPERATIONS OF THE
AUSTRALIAN SUPER HORNET
AT RAAF BASE AMBERLEY, QUEENSLAND**

EPBC Reference: 2008/4410

January 2009

**GUIDELINES FOR A PUBLIC ENVIRONMENT REPORT FOR FLYING
OPERATIONS OF THE AUSTRALIAN SUPER HORNET AT RAAF BASE
AMBERLEY, QUEENSLAND**

| | | |
|-----------|---|-----------|
| 1 | PURPOSE | 3 |
| 2 | PER PROCESS | 4 |
| 3 | GENERAL CONTENT, FORMAT AND STYLE | 5 |
| 4 | EXECUTIVE SUMMARY | 6 |
| 5 | INTRODUCTION | 6 |
| 6 | BACKGROUND | 7 |
| 7 | LOCATION AND TENURE | 7 |
| 8 | PROJECT JUSTIFICATION AND NEED | 7 |
| 9 | OPTIONS AND ALTERNATIVES | 8 |
| 10 | DESCRIPTION OF THE PROPOSAL | 8 |
| 11 | ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS | 8 |
| 12 | COMMUNITY CONSULTATION | 16 |
| 13 | INFORMATION SOURCES | 17 |
| 14 | GLOSSARY | 17 |
| 15 | REFERENCES | 17 |
| 16 | APPENDICES | 17 |

A INTRODUCTION

1 Purpose

This document provides guidelines (terms of reference) for the drafting of a Public Environment Report (PER) for the proposed flying operations of the Australian Super Hornet (ASH) at Royal Australian Air Force Base Amberley (RAAF Base Amberley). The contents of this document are based on the formal requirements set out in Section 97 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations).

In preparing the PER the proponent should bear in mind the following aims of the PER and public review process:

- to provide a source of information from which interested individuals and groups may gain an understanding of the proposal, the need for the proposal, the alternatives, the impacts that may occur and the measures that are proposed to be taken to minimise these impacts;
- to provide a forum for public consultation and informed comment on the proposal; and
- to ensure that the Minister for the Environment, Heritage and the Arts (Environment Minister) has enough information about the proposal, and its relevant impacts, to make an informed decision about whether or not to approve it under Part 9 of the EPBC Act.

1.1 Background

The Department of Defence (Defence) is proposing to replace the existing F-111 fleet at RAAF Base Amberley with two squadrons of F/A-18F Super Hornet aircraft. The acquisition of the aircraft will provide Australia with an upgraded air combat capability for a bridging period until the full introduction into service of the F-35 Joint Strike Fighter (JSF), planned to be achieved by 2020.

The decision to acquire 24 Super Hornets was announced by the Australian Government in March 2007. In making this announcement, the Minister for Defence stated the Government's expectation that the aircraft will be operational at RAAF Base Amberley in 2010, when the F-111 would be withdrawn. In accordance with the Government's direction, the first Super Hornet aircraft arrives in early 2010 to begin the transition process from the F111. The withdrawal of F-111 aircraft from service is already underway and it will be progressively removed from service as the transition to the ASH takes place. The ASH will be completely transitioned into service by the end of 2012.

1.2 Approval requirements

The proposed flying operations of the ASH require environmental assessment and approval under the EPBC Act.

On 21 August 2008, Defence referred the proposed action to the Environment Minister for consideration under the EPBC Act. On 18 September 2008, a delegate of the Minister determined that approval is required as the proposed action has the potential to have a significant impact on the environment. The relevant controlling provisions under the EPBC Act are:

- protection of the environment from Commonwealth actions (section 28); and
- protection of the environment on Commonwealth land (sections 26 and 27A).

The delegate of the Minister has directed that the proposed activity will be assessed by a Public Environment Report (PER) process. The purpose of the PER is to identify and assess environmental issues associated with the planned flying operations of the ASH at RAAF Base Amberley. Base operational matters such as ongoing maintenance tasks common to the operation of all aircraft have been undertaken at RAAF Base Amberley for many years and are not considered within the scope of issues.

The action is being undertaken by Department of Defence on Commonwealth land and national airspace and so is not subject to state or local government approval requirements.

2 PER process

The first step of an assessment by PER involves the Minister for the Environment providing the proponent with guidelines for the preparation of a draft PER. If undertaking to provide tailored guidelines, in accordance with the EPBC Act and EPBC Regulations, the Minister may invite anyone to comment on draft PER guidelines. The process of seeking comments on draft guidelines may include providing the public with an opportunity to comment. Following the receipt of all comments the PER guidelines will be finalised and provided to the proponent. The proponent will prepare a draft PER report consistent with the guidelines. An invitation for anyone to give the proponent comments relating to the draft PER, within the period specified, will then be published. At the end of the specified period, the proponent must give the Minister a copy, and summary, of the comments received. The proponent must also finalise the draft PER, taking into account the comments received during the specified period, and give the finalised PER to the Minister. The finalised PER may be in the form of a revised version of the draft PER or in the form of the draft PER and a supplement report to the draft PER. After the Minister has received the finalised PER the proponent must publish it in accordance with the EPBC Regulations. Then the Department of the Environment, Water, Heritage and the Arts will prepare a recommendation report relating to the proposal and give that report to the Minister. Following preparation of the recommendation report the Minister will, in accordance with Part 9, Division 1 of the EPBC Act, determine whether to approve the proposal or not and decide what conditions (if any) are required.

The PER will address the likely impacts of the proposal on the environment. The 'environment' is defined under section 528 of the EPBC Act to include:

- (a) ecosystems and their constituent parts, including people and communities; and
- (b) natural and physical resources; and
- (c) the qualities and characteristics of locations, places and areas; and
- (d) heritage values of places; and
- (e) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b) or (c).

Note: The places mentioned in paragraph (d) of the definition of *environment* include places included in the Register of the National Estate kept under the *Australian Heritage Council Act 2003*.

It is the responsibility of the proponent preparing the PER to identify and address, as fully as possible, the matters relevant to the specific proposal in complying with the statutory requirements for PER preparation.

3 General content, format and style

The PER must be a stand-alone document. It must contain sufficient information about any relevant studies or investigations to avoid the need to search out previous or supplementary reports.

The PER must enable interested stakeholders and the assessing agency to understand the consequences of the proposed action. Information provided in the PER must be objective, clear, succinct and, where appropriate, be supported by maps, plans, diagrams or other descriptive detail. The body of the PER is to be written in a clear and concise style that is easily understood by the general reader. Technical jargon should be avoided wherever possible. Cross-referencing should be used to avoid the unnecessary duplication of text.

Detailed technical information, studies or investigations necessary to support the main body of text must be included as appendices to the PER. Any additional supporting documentation and studies, reports or literature not normally available to the public from which information has been extracted, must be made available at appropriate locations during the period of public display of the PER.

The sources of the information provided in the PER must be provided, including detail on how recent the information is, how the reliability of the information was tested, and the uncertainties (if any) in the information must all be stated.

If it is necessary to make use of material that is considered to be of a confidential nature the proponent may request that such information remain confidential (to be seen only by the government agency assessing information for approval under legislation) and not be included in any publicly available document.

The PER must state the criteria adopted in assessing the relevant aspects of the proposal and its impacts - such as compliance with relevant legislation, policies and standards; community acceptance; and the maximisation of benefits and minimisation of risks.

The level of analysis and detail in the PER should reflect the level of significance attached to the expected potential impacts. Priority should be given to major issues associated with the proposal and matters of lesser concern should be dealt with only to the extent required to demonstrate that they have been considered. Any and all unknown variables or assumptions made in the assessment must be clearly stated and discussed. The extent to which the limitations, if any, of available information may influence the conclusions of the assessment must also be discussed.

The PER must be written so that any conclusions reached can be independently assessed. To this end all sources must be appropriately referenced using the Harvard standard.

The main text of the PER must include a list of abbreviations, a glossary of terms and appendices containing:

- a copy of these guidelines;
- a list of persons and agencies consulted during the preparation of the PER;
- contact details for the referral agency; and
- the names of, and work done by, the persons involved in preparing the PER.

Maps, diagrams and other illustrative material must be included in the PER. The PER must be produced on A4 size paper capable of being photocopied, with maps and diagrams of A4 or A3 size. The PER must also be made available on a CD-ROM and via the internet.

B CONTENTS OF THE PER

A detailed table of contents will be necessary showing all headings.

4 Executive Summary

Include in the Executive Summary a brief outline of each Chapter within the PER via text and dot point. It is recommended that the Executive Summary is written as a stand-alone document, able to be reproduced on request for interested parties who may not wish to read the PER as a whole.

The summary must be a concise outline of the matters discussed in the main body of the document, to allow the reader to quickly obtain a clear understanding of the proposal, its environmental implications and management objectives. The summary must include:

- the title of the proposal;
- the name and address of the proponent and the person taking the action;
- a brief description of the background to and need for the proposal (including a discussion on alternatives and reasons for selecting the preferred option);
- a brief description of the proposal including areas to be impacted both on and off Defence land (location, context in the region and existing environment);
- a description of the principal environmental impacts (both adverse and beneficial);
- a statement of the environmental management principles, mitigation, monitoring procedures and offsets proposed;
- a brief summary of the legal framework under which the project is being assessed; and
- an outline of project timings.

5 Introduction

Introduce the main body of the PER with:

- an overview of the project describing its components on and off Defence land;
- a clear definition of the objectives of the proposal and its context in relation to Defence and Government strategies;
- an explanation of the scope and legislative basis for the PER;
- a description of the studies/surveys/consultations that have been conducted in developing the proposal and preparing the PER (results of studies and detailed comments resulting from the consultation process must be included as appendices);
- a summary of priority environmental and management issues;
- responsibilities for preparing the PER; and
- a brief explanation of the structure of the document.

6 Background

Discuss the background to the proposal, including as a minimum the following points:

- Past, present and expected future use of RAAF Base Amberley;
- Relevant decisions by Government regarding the ASH project and Australia's air combat capabilities more generally; and
- Objectives of the ASH project.

Relevant planning instruments

- details of any local government planning scheme or State government planning strategy, legislation, plan or policy relevant to the proposal including an assessment of the proposal's compatibility with those instruments;
- the proposal's interaction with local and regional planning aims and strategic implications for population growth and urban expansion, identifying any potential land use conflicts (such as those that may result from the impact of aircraft noise and any change to the Obstacle Limitation Surface); and
- how the action relates to any other actions (of which the proponent should be reasonably aware) that have been or are being taken in areas near RAAF Base Amberley.

7 Location and tenure

Provide maps at suitable scales showing the location of the project area, and in particular:

- the location and boundaries of land tenures;
- areas of conservation value in any locality that may be impacted by the proposal; and
- the location of existing dwellings and the zoning of all affected lands according to any existing land use or strategic plan.

Consideration should be given to providing rectified air photo enlargements to illustrate land, water, natural and built features of the area.

The PER must also outline the tenure history of the site, whether there have been any native title extinguishing events, and the potential for native title to continue to exist.

8 Project justification and need

Address the specific objectives and justification for the proposal. Details of how the proposed action is consistent with the objectives of the EPBC Act and principles of ecologically sustainable development defined in Section 3A of the Act (refer Attachment 1). Consideration should focus on The National Strategy for Ecologically Sustainable Development, published by the Commonwealth Government in December 1992. Each principle should be discussed and conclusions drawn as to how the proposal conforms. A life-of-project perspective must be shown.

Other specific issues to be addressed include:

- the specific objectives the proposal is intended to meet;
- factors which could significantly affect the reliability of forecast aircraft movements;
- economic costs of delaying; and
- discussion of the consequences for Australia's national security and Defence capability.

9 Options and alternatives

Include analyses to the extent reasonably practicable, of any feasible alternatives to (i) basing ASH aircraft at RAAF Base Amberley and (ii) the proposed flight operations. This must include a comparative description of the impacts of each alternative on the environmental and socio-economic impacts of each alternative, drawing where relevant, on 'triple bottom line reporting outcomes' (see *Triple Bottom Line Reporting in Australia - A Guide to Reporting Against Environmental Indicators*, Environment Australia, June 2003; and *Sustainability: A Guide to Triple Bottom Line Reporting*, Group of 100, June 2003). The PER must provide sufficient detail to make clear why any alternative is preferred to another. As a minimum this must include a discussion of not proceeding with the proposed action.

10 Description of the proposal

Describe proposed ASH flying operations in detail. As a minimum this must include:

- the runway operating modes (for both day and night noting any seasonal variations);
- flight frequency on each runway, including expected number and percentage of aircraft movements by type, typical annual and daily movements;
- daily and seasonal variations in aircraft movements and potential effects of varying weather conditions on operations and runway utilisation;
- operating hours and flexibility of operating arrangements;
- a description of the potential effects and likely timing of implementation of new technology and changes to operational standards and procedures for runway and airspace utilisation;
- flight paths and other operational procedures governing aircraft movements, including an estimate of normal variability of movements on defined flight paths, and locational criteria governing flight path selection;
- aircraft operating heights for approaches and departures, describe low level (below 10,000 ft) flying patterns, discuss variability of aircraft heights for given locations;
- ground activities associated with flight operations; and
- underlying assumptions and forecast reliability.

11 Environmental values and management of impacts

11.1 General requirements

11.1.1 Function of section

The function of this section of the PER is to provide:

- Descriptions of the existing environmental values, including social and recreational values, of the area which may be affected by the proposal and their condition. This will serve as a baseline against which impacts and management of the proposal and alternatives can be assessed;
- Descriptions of the existing and proposed urban, industrial, rural and tourism activities within areas that may be affected by the proposal;
- Quantitative descriptions of the likely impacts on environmental values of the area from all phases of the proposal at the local, regional and national levels as appropriate. This must include an assessment of the degree of uncertainty in relation to each impact

including statements of whether any impacts are likely to be unknown, unpredictable or irreversible;

- The cumulative impacts of the proposal must be considered over time or in combination with the impacts of other relevant existing or approved activities in the dimensions of scale, intensity, duration or frequency of the impacts. The proposed actions consistency with the requirements or recommendations of relevant State planning policies, environmental protection policies, national environmental protection measures and integrated catchment management plans should be examined;
- Cumulative impacts on the environmental values of land, air and water and cumulative impacts on public health must be discussed in the relevant sections. This assessment may include air and water sheds affected by the proposal and other approved proposals competing for use of the local air and water sheds;
- Environmental protection objectives to be achieved and the standards and measurable indicators that will be used. These qualitative and quantitative environmental protection objectives should enhance or protect each environmental value;
- Monitoring programs detailing the monitoring parameters, monitoring points, frequency, data interpretation and reporting proposals; and
- Management strategies to be used to ensure the environmental protection objectives are achieved and control strategies implemented e.g. continuous improvement framework including details of corrective action options, reporting (including any public reporting), monitoring, staff training, management responsibility pathway, and any environmental management systems and how they are relevant to each element of the environment.

11.1.2 Noise sensitive land uses

Identify whether land uses that are noise sensitive could be affected, directly and indirectly, by the proposal including the existing and proposed urban, industrial, rural and tourism activities.

11.1.3 Mitigation measures and Offsets

Where mitigation measures or offsets are proposed to address an identified impact, include:

- a description and an assessment of the expected or predicted effectiveness of the mitigation measures, including the timing of measures, this section must include, but not be limited to, an assessment of residential soundproofing (see section 11.2.3 for a reference to current Australian Government policy on this issue) and subsequent ventilation measures, minimisation of low flying heights and the use of curfews;
- if environmental impacts can not be effectively mitigated or avoided then include a description of any proposed offsets, including a process to consult with local residents and the Ipswich City Council to develop an offsets package;
- an indicative cost estimate for implementing mitigation measures or offsets;
- a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or manage the impacts of the action; and
- a description of management procedures setting out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing.

11.1.4 Monitoring and Reporting

Determine the need for environmental impacts to be monitored. Identify any baseline monitoring that may be required before flying operations of the ASH aircraft begin and discuss in the relevant subsections. Identify the parameters to be monitored, and their response trigger values and response activities, along with procedural and compliance audit programs and reporting requirements and arrangements to be implemented to demonstrate the effectiveness of management and monitoring (linked to environmental management system/environmental management plan procedures).

Matters that must be considered in the proposed monitoring program include:

- comprehensive monitoring of ground noise levels, flight paths and aircraft noise, and outline details of the monitoring program (e.g. frequency of monitoring, parameters to be monitored, reporting to the community etc.);
- monitoring of the incidence of bird and bat strike and frequency of other incidents involving aircraft in potentially hazardous situations;
- monitoring of the adequacy of emergency procedures developed to deal with fire, explosion, etc. associated with an aircraft crash in urban or bushland areas, and fuel dumped by aircraft during emergency situations;
- provision for liaison/consultation with relevant authorities, community and user groups, including government agencies, residents, researchers, educational institutions etc. in relation to monitoring and verification of results;
- ongoing noise monitoring by the Noise and Flight Path Monitoring System to confirm predicted noise levels and to monitor impacts (such monitoring may result in changes to operations at the RAAF Base Amberley and other key locations); and
- information dissemination regarding hours of operation at the RAAF Base Amberley and other key locations (if such information does not jeopardise national security) to the broader community.

Information on monitoring programs could also include details of measures for:

- detecting and documenting differences between predicted and actual impacts;
- identifying non-predicted impacts and for implementing appropriate reporting and remedial procedures;
- applying contingency arrangements;
- reviewing the effectiveness of monitoring and control arrangements; and
- reviewing consultation and management arrangements with regulatory authorities and the community including processes for dispute resolution.

The following sections illustrate the types of impacts that need to be considered in the PER as a minimum. There may be other environmental issues that are identified during the course of the PER investigations. These issues (if any) will also need to be addressed as part of the PER documentation.

11.2 Aircraft noise

11.2.1 Existing noise environment

Describe the existing noise environment at and near RAAF Base Amberley. Discuss issues relating to existing ambient noise levels and characteristics and identify noise sensitive facilities and areas, including:

- relevant meteorological conditions (including frequency and characteristics of temperature inversions) and any topographic features which may influence noise or vibration impacts;
- current levels of aircraft noise and comment on how noise levels have changed over time;
- existing, developing and potential or proposed areas of residential development, both on and off the Amberley Air Base, which may be exposed to aircraft noise;
- community and other facilities which may be noise sensitive (including health, aged, disabled and child care centres, places of worship, educational and recreation facilities, veterinary clinics, wildlife parks or zoos etc), indicating the location of the facilities using maps and other suitable means and where possible, the number of people potentially exposed at each facility;
- environmentally sensitive areas (e.g. wildlife habitat) which may be noise or vibration sensitive; and
- Existing strategies for management of aircraft noise.

Aerial photographs, maps, figures and diagrams should be included and referred to wherever possible to assist the general reader understand issues identified by the assessment.

11.2.2 Changes to noise environment

Provide aircraft noise predictions for the potential runway and airspace operating configurations that are considered operationally practicable and include seasonal predictions and predictions based on the predominant operating modes under prevailing meteorological conditions.

In addition to expressing noise impact in terms of average measures, the PER must include information and a discussion about peak noise levels, frequency of overflights, and the times that day overflights could occur, compare maximum aircraft noise levels to existing ambient noise levels and characteristics, and discuss the effects of changes in noise exposure. The public must be able to readily access the following information for the proposed operating configurations:

- where the flight paths are likely to be, and the likely height of aircraft using those flight paths;
- at what times aircraft are likely to use a flight path, in particular, usage during sensitive times – night, early morning, evenings and weekend;
- how often aircraft are likely to use each flight path;
- variations in activity levels from hour to hour, day to day, week to week , month to month and long term trends;
- impacts during peak activity events eg major tactical operations resulting in significant increases in activities, whether these are on or off the RAAF Base Amberley; and

- noise levels from individual flights to indicate the extent to which the noise decays with distance from the air base (it may be useful to supplement this information with graphics showing aircraft heights along each of the flight paths).

Specific sound pressure level information must be provided in addition to the information on flight paths and aircraft movement numbers/times. This must include, but not necessarily be limited to, information showing:

- single event maximum dB(A) levels for ASH aircraft on all flight paths; this must include an assessment of the impact of variations in flight paths on maximum dB(A), and discuss the effects of varying aircraft operating procedures (e.g. use of flaps or full engine thrust for landings) on the noise exposure levels;
- N70s – the number of noise events per unit time above 70 dB(A) (and any other relevant sound pressure level such as 80 dB(A)); this information must include scenarios showing variations in noise patterns due to seasonal and meteorological factors; and
- flight profiles in 3 dimensional graphics illustrating L(A)max single event, N70 and above.

The above information must be generated for the current situation, any feasible alternatives to the proposal, and also for a 10 year time horizon from the operational date to present a clear picture of the potential changes that may be brought about in the noise environment.

Information must be made available in a disaggregated form and, in line with the recommendations of the Senate Select Committee on Aircraft Noise in Sydney, cover areas which extend far beyond the 20 Australian Noise Exposure Forecast (ANEF) contour. The information must be made available on a CD-ROM as part of the PER and must utilise the Australian Department of Infrastructure, Transport, Regional Development and Local Government' software - Transparent Noise Information Package - to enable the public to undertake their own 'what-if' analyses. The assumptions made in deriving this information must be clearly stated.

11.2.3 Aircraft noise impacts

Fully assess the environmental impact of aircraft operations in air (ie take-off, circuits and landing) and the effects of aircraft operations on ground (ie taxiing, engine run-up and other noise associated with aircraft operations and maintenance testing).

Fully assess the potential disturbance to everyday activities, existing and proposed, created by aircraft noise with reference to current research. This must include, but not necessarily be limited to:

- assessment of aircraft noise impacts on educational and health facilities, including effects on student communication, concentration and learning abilities, and on other noise sensitive community facilities;
- discussion of the effects of aircraft noise on particular groups of people who may be especially vulnerable to such effects. These groups may include:
 - preschool children
 - students
 - the aged
 - hospital and nursing home patients
 - shift workers

This section must include a discussion of noise levels that may cause fright or startle people and animals;

- discussion of the impact of changes to the noise environment on interruptions to everyday activities (in particular, sleep disturbance resulting from night-time operations), level of annoyance and effects on the physical and psychological health of the affected population;
- discussion on the implications of aircraft noise on sensitive times of the day (e.g. late evening and early morning) and any proposed noise mitigation strategies;
- discussion of the impact of the changes to the noise environment on the liveable amenity of residents, including outdoor activities;
- discussion of changes to the noise environment on property values;
- discussion of aircraft noise impacts on existing or proposed recreational, conservation, heritage or wilderness areas, including impacts on amenity and the wildlife using those areas; and
- discussion of aircraft noise impacts on everyday activities existing on RAAF Base Amberley.

Discuss equity issues and explain the principles behind the development of new flight tracks justifying the approach taken.

Clearly show the land use planning implications for each of the nominated alternative operating configurations through the use of an ANEF analysis. This must include, but not necessarily be limited to, the

- generation of (Australian Noise Exposure Concept) ANECs for each of the alternatives with a planning horizon of 10 years;
- estimation of the number of both current and proposed people, houses, schools, hospitals, community facilities and other land use types in each contour; and
- discussion of the potential restrictions on future use of land under each of the options;
- assessment of impacts on existing, developing and potential or proposed areas of residential development.

The PER must examine the need for, and discuss the implications of, noise amelioration measures being implemented in the higher noise zones. This analysis must include, but not necessarily be limited to:

- estimation of the number of both current and proposed people, houses, schools, hospitals, community facilities and other land use types in each contour;
- description of the effects of different types of structure and design (including type of ventilation openings) and building materials on noise levels inside residential dwellings and other noise sensitive facilities;
- estimation of the costs (capital and ongoing), effectiveness and feasibility of insulating houses (and where necessary installing air conditioning) and other buildings affected by aircraft noise and discuss current Australian Government policy regarding the acquisition and insulation of buildings affected by aircraft noise;
- an understanding of the southeast Queensland subtropical lifestyle preference for ‘outdoor living’; and
- an understanding of the environmental and economic impacts of installing mechanical ventilation and air conditioning as opposed to passive ventilation and cooling.

Given the known uncertainties in predicting aircraft noise (due, for example, to weather related variations in runway and flight path use) the PER must report the likely range in any predictions and indicate the sensitivity of the predictions to errors/changes in the individual components of the predictions. This information is often best portrayed through the use of ‘what-if’ scenarios. Recognition must be given to the fact that long term predictions are prone to significant uncertainty. For long term horizons, an approach based on ‘feasible scenarios’ rather than ‘predictions’ may give a more useful picture of possible future aircraft noise exposure patterns.

The PER must put forward options for managing aircraft noise as the number of aircraft movements at the Base increases over time. In particular, strategies for monitoring and reporting noise and tracking changes in aircraft noise must be developed and concepts for facilitating community involvement in the discussion of ways to manage change in the noise environment discussed.

11.2.4 Other noise issues

A range of other related noise issues need to be addressed. These include, but are not necessarily limited to:

- assessment of noise associated with ground running of aircraft, and other noise associated with aircraft operations and maintenance testing;
- discussion and assessment of the effectiveness of possible introduction of noise abatement procedures and other ameliorative measures for both air traffic and surface traffic;
- discussion of the impact on residential and other property values due to aircraft operations;
- description of the likelihood of noise induced vibrations; and
- discussion of modifying effects on ground noise exposure levels, including topography, weather (eg temperature inversions), masking, deviation from standard instrument departure routes.

Consider short-term and long-term effects with comment on whether the impacts are reversible or irreversible.

11.3 Air quality

Analyse and describe the contribution and impacts of ASH flying operations on air quality at the local and regional scale. Identify the existing air environmental values of the Amberley area that may be affected by the proposal including:

- a description of the relationship of the site to the regional air drainage basin and of diurnal and seasonal variations in air pollution levels and the influence of short term weather phenomena. Reference must be made to levels of hydrocarbons, suspended particulate matter, carbon monoxide, oxides of nitrogen, sulfur dioxide, ozone, reactive organic compounds, lead and air toxics; and
- relevant weather characteristics including winds, fogs and temperature inversions and any topographic features which may affect the dispersion of air pollutants.

Specific air quality issues to be considered and assessed include:

- the identification of emissions sources, the nature and levels of emissions, including oxides of nitrogen, hydrocarbons (including benzene, kerosene and benzo-pyrenes), reactive organic compounds, sulfur dioxide, carbon monoxide, lead, particulates, odours and air toxics;
- the extent to which nitrogen oxides and volatile hydrocarbon emissions from the proposal and existing emission sources within the region may contribute to the generation of photochemical smog;
- changes to air quality and identification of affected populations in the study area, taking into account spatial and temporal variations and the contribution of other sources;
- impact of changes to air quality on the health of potentially affected populations, including long and short term effects, impacts on especially sensitive groups (eg children, the elderly, sufferers of respiratory illnesses such as asthma), and on childhood development and learning;
- effects of aircraft emissions on water catchment areas, domestic rain water tanks supplying household water, and on everyday activities (eg on clothes drying and swimming pools);
- emergency fuel dumping procedures, including designated areas for such contingencies, effects of weather conditions on fuel dumping areas, notification to emergency services of fuel dumping occurring, Defence's response to emergency fuel dumping, effects of fuel dumping;
- potential impact on the fabric of buildings;
- changes to odour arising from aviation fuel emissions including procedures for recording nuisance caused by ambient odours;
- estimated "greenhouse" gas emissions, including design and procedural measures to reduce such emissions;
- possible management measures for all significant emission sources, including those for aircraft operations, aircraft fuelling systems and fuel storage; and
- details on current or proposed air quality monitoring programs.

11.4 Aircraft hazards and risk

Undertake a quantitative risk assessment to assess the impacts on individual and societal risk levels. This must compare the risk currently experienced to that with the proposed flying operations of ASH aircraft and include the following:

- probability analysis of aircraft accidents with reference to military aircraft incidents within Australia and, to the extent relevant, Super Hornet aircraft world-wide;
- consequences of aircraft accidents (including crashes on the Base, crashes in residential areas, crashes in industrial areas, crashes with other aircraft, crashes into or over water catchments and storage reservoirs, aircraft fuel spills, ignition of bushfires etc);
- the effect of flight paths and frequency of aircraft movements on the risk of accidents involving residential and industrial areas;
- identification of sites on or near the airport that attract birds or bats and the typical routes used by birds and bats taking into account seasonal variation; and
- the relative risk of bird strike, including quantitative and qualitative discussion of:
 - any difference in risk between the present and proposed flying operations;
 - the anticipated magnitude of the risk under proposed flying operations;
 - how the risk of bird strike is presently managed, and how the risk is proposed to be managed for the proposed flying operations;

- how successful planned measures are likely to be; and
- what the consequences of each level of risk are expected to be.

Additional issues to be discussed include:

- an assessment of fire risks, including bushfire risk, and discuss fire control and management proposals along with details of fire safety measures for treatment of hazardous material spills;
- a description of relationships with disaster control organisations including command and control; and
- measures to reduce the risk of hazardous incidents affecting the public and environment.

11.5 Social/community issues

Address community impact issues arising from the proposal, including:

- a description of the key demographic characteristics of the Amberley/Ipswich area, including demographic trends;
- impacts on regional and local communities including impacts on demographic characteristics due to redevelopment or changes in land values;
- impacts on potential Native Title claimants; and
- impacts on radio, television and mobile phone reception.

11.6 Public health impacts

Discuss human health impacts arising from the proposal, with reference to the findings of key aircraft impact assessments including those relating to noise, air quality, hazards and risk and social/community issues. Give consideration to the demographic characteristics of the sub-region and the prevalence of existing medical conditions. Describe the capacity of health services to meet potential demands.

12 Community consultation

Outline the methodology that will be adopted to identify and mitigate socio-economic impacts of the project and include a list of all persons, community groups, government agencies etc. the proponent proposes to consult. Include information about the consultation that has already taken place, and the results of such consultation (including Defence's responses), and statement(s) outlining the views of the community groups that may be affected.

The public consultation program must provide opportunities for community involvement and education. It may include interviews with individuals, public meetings, interest group meetings, production of regular summary information and updates, and other consultation mechanisms to encourage and facilitate active public consultation. It should ensure the timing and location of consultation activities best meets community needs. It may require the specific targeting of some groups to ensure their active involvement in the process.

The consultation process should aim to achieve extensive notification of the proposal in the local, city wide and regional print media, static displays in public venues eg Divisional Offices, libraries (including mobile libraries), State and Federal elected representatives offices and local shopping centres. Information should also be provided in local community newsletters such as school and church bulletins.

The public consultation process must cover all issues of concern to local community and interest groups regarding ASH flight operations noise and should extend from project planning through to operations.

13 Information sources

For information given in the PER, state:

- the source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- what uncertainties (if any) are in the information.

14 Glossary

A glossary defining technical terms and abbreviations used in the text should be included to help the general reader.

15 References

A bibliography of all references cited in the text of the PER is to be included.

16 Appendices

16.1 Cross-reference with the guidelines

This section must provide a cross reference of the findings of the relevant sections of the PER, where the potential impacts and mitigation measures associated with the project are described, with the corresponding sections of the PER guidelines.

16.2 Studies

Major studies or reports that are conducted in the preparation of the PER are to be included as appendices.

16.3 Study team

Provide information about the study team including the qualifications and experience of the study team and specialist sub-consultants and expert reviewers.

16.4 Environmental record of person proposing to take the action

Provide details of any proceedings under a Commonwealth, or State law for the protection of the environment or the conservation and sustainable use of natural resources against the person proposing to take the action.

Provide details of the Department of Defence and the Royal Australian Air Force's environmental policy and planning framework.

The objects and principles of the *Environment Protection and Biodiversity Conservation Act 1999* (Sections 3 and 3A)

3. Objects of the Act

The objects of the Act are:

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- (c) to promote the conservation of biodiversity;
- (ca) to provide for the protection and conservation of heritage;
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities;
- (f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity;
- (g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

3A. Principles of Ecologically Sustainable Development

The following principles are principles of ecologically sustainable development:

- (a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
- (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- (c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- (d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;
- (e) improved valuation, pricing and incentive mechanisms should be promoted.